

An Essay Concerning Human Understanding

Book IV: Knowledge

John Locke

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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 on, between [brackets], in normal-sized type.

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Chapter i: Knowledge in general

1. Since the mind in all its thoughts and reasonings has no immediate object other than its own ideas, which are all it can contemplate, it is evident that our knowledge has to do only with them.

2. Knowledge, then, seems to me to be nothing but the perception of the connection and agreement, or disagreement and incompatibility, of any of our ideas. That is all it is. Where this perception occurs, there is knowledge; and where it doesn't occur, we come short of *knowledge*—whatever we may *fancy*, *guess*, or *believe*. For when we know that *white isn't black*, what do we perceive other than that these two ideas don't agree? When we know with absolute demonstrative certainty that *the three angles of a triangle are equal to two right ones*, what do we do except perceive that •equality to two right angles necessarily agrees to and is inseparable from •the three angles of a triangle?

3. This agreement or disagreement can be better understood through noting that there are four sorts of it:

Identity, or diversity.

Relation.

Co-existence, or necessary connection.

Real existence.

4. The first sort of agreement or disagreement—namely, identity or diversity—enters into the act of the mind when it first has any views or ideas at all. What it does then is to perceive its ideas; and so far as it perceives them it knows each to be what it is, and thus also to perceive their differences from one another—perceiving of each that it is not some other idea. This is so absolutely necessary that without it there could be no knowledge, no reasoning, no

imagination, no distinct thoughts, at all. In this way the mind clearly and infallibly perceives each idea to agree with itself, and to be what it is; and perceives all different ideas to disagree, i.e. perceives the one not to be the other. It does this easily, without taking trouble over it or inferring it from something else; it does it at first view, through its natural ability to perceive and distinguish. And although students of scholastic philosophy have boiled this down to

What is, is, and

It is impossible for the same thing to be and not to be—*general* rules that can be applied in any case where there is occasion to think about this—it is certain that the first exercise of this faculty concerns *particular* ideas. A man infallibly knows, as soon as ever he has them, that the ideas he calls 'white' and 'round' are the very ideas they are, and not others that he calls 'red' or 'square'. And no •maxim or proposition could make him know this more clearly or surely than he already does without the help of any such •general rule. This, then, is the first agreement or disagreement that the mind perceives in its ideas, and always at first sight. If there is ever any doubt about it, will always turn out to concern the names, not the ideas. . . .

5. The second sort of agreement or disagreement that the mind perceives in its ideas can be called *relative*. It is simply perceiving a relation between two ideas, which can be of any kind at all—of substances, modes, or anything else. For since any two ideas must eternally be known *not* to be the same, there would be no room for *positive* knowledge if we couldn't perceive relations •other than non-identity• between our ideas, and find out whether they agree or disagree in various respects of comparison that the mind brings to bear

on them. [For Locke 'comparing x with y' is just *bringing x and y together in a single thought*, not necessarily likening them to one another. We use 'compare' in that way in the expression 'get together to compare notes'.]

6. The third sort of agreement or disagreement that the mind can perceive in our ideas is *co-existence or non-co-existence in the same subject*. This belongs particularly to substances. When we say that *gold is fixed*, our knowledge of this truth amounts to no more than this: fixedness, or a power to remain in fire unconsumed, is an idea [here = 'quality'] that always accompanies and is joined to that particular sort of yellowness, weight, fusibility, malleableness, and solubility in aqua regia that make our complex idea signified by the word 'gold'.

7. The fourth and last sort is an idea's agreement with *actual real existence*. These four sorts of agreement or disagreement include, I think, all the knowledge we have or can have. All we can ever know or say about any idea is one of these:

- that it is or that it isn't the same as some other,
- that it does or that it doesn't always co-exist with some other idea in the same subject,
- that it has this or that relation with some other idea,
- that 'something corresponding to' it has a real existence outside the mind.

Thus 'Blue is not yellow' is of identity; 'Two triangles on equal bases between two parallels are equal' is of relation; 'Iron is magnetizable' is of co-existence; and 'God exists' is of real existence. Though identity and co-existence are themselves relations, they are such special kinds of agreement or disagreement amongst ideas that they deserve to be brought in separately, not under relation in general. Before examining the various degrees of our knowledge, I must first consider the different meanings that the word 'knowledge' can have.

8. The word 'knowledge' is applied to several ways in which the mind can possess truth. 1. There is *actual knowledge*, which is the mind's view of how any two of its *present* ideas agree or disagree, or of how they are related to one another. 2. A man is said to 'know' a proposition if he once had actual knowledge of it and has kept that in his memory so that whenever he again reflects on that proposition he immediately and confidently assents to it again. I think we might call this *habitual knowledge*. We with our finite understandings can think clearly and distinctly of only one thing at a time; so if we had knowledge 'at a given time' only of what we were actually thinking about 'at that time, thus having actual but not habitual knowledge', we would all be very ignorant; and even the person who 'knew most' would know only one truth.

9. Of habitual knowledge there are also what ordinary folk would call two degrees. In one of them, truths are laid up in the memory in such a way that whenever they occur to the mind it 'again' actually perceives the relation between those ideas. This is the degree of habitual knowledge that we have of all those truths of which we have an *intuitive knowledge*, where a view of the ideas immediately reveals their agreement or disagreement one with another.

The other is knowledge of truths of which the mind was once convinced, and retains the memory of the conviction but doesn't retain the demonstration [= 'rigorous, logical, knock-down proof']. A man who remembers certainly that he once took in the demonstration that *the three angles of a triangle are equal to two right angles* is certain that he knows it, because he can't doubt its truth. It may be thought that in a case like this, where a man adheres to a truth after forgetting the demonstration that first led him to know it, he *believes his memory* rather than really *knowing 'the truth*

in question; and I used to think that this way of receiving a truth lies somewhere between opinion and knowledge—a kind of assurance that surpasses mere *belief*, for that relies on the testimony of someone else, ·but not reaching as far as *knowledge*·. But on a closer look I find that it doesn't fall short of perfect certainty, and is in effect true knowledge.

What is apt to mislead us about this case is that in it

the agreement or disagreement of the ideas isn't perceived by an actual view of all the intermediate ideas that in the first instance enabled the agreement or disagreement of the ideas in the proposition to be perceived.

Rather,

it is perceived through *other* intermediate ideas that show the agreement or disagreement of the ideas contained in the proposition whose certainty we remember.

Take for example the proposition that *the three angles of a triangle are equal to two right angles*. Someone who has clearly perceived the demonstration of this truth *knows* it to be true even when that demonstration is gone out of his mind so that at present it isn't actually in view and he can't possibly recollect it. But he knows it in a different way from how he knew it before. The agreement of the two ideas joined in that proposition is perceived through the intervention of ideas other than those that at first led him to perceive the proposition's truth. He remembers, i.e. he knows (for remembering is just reviving some past knowledge), that he was once certain of the truth of the proposition that the three angles of a triangle are equal to two right ones. Ideas don't change and so the relations between them don't change either; and his grasp of *that* is now the idea that shows him that if the three angles of a triangle *were once* equal to two right ones, they *will always* be so. And so he comes to be

certain that what was once true about this is always true; ideas that once agreed will always agree; and consequently what he *once* knew to be true he will *always* know to be true as long as he can remember that he once knew it.

That is how *particular* demonstrations in mathematics provide *general* knowledge. So if the perception that the same ideas eternally have the same intrinsic natures and the same relations ·to one another· were *not* a sufficient ground for knowledge, there could be no knowledge of general propositions in mathematics; for no mathematical demonstration would be other than particular, and when a man had demonstrated a proposition about one triangle, his knowledge wouldn't reach beyond that particular diagram. If he wanted to know it to be true of another similar triangle, he would have to make a diagram of that and go through the demonstration again. No-one could ever come to know any general propositions in that way. Nobody would deny that Mr. Newton ·now· knows to be true any proposition that he now reads in his book, even though he doesn't ·now· have openly before his mind the admirable chain of intermediate ideas through which he first discovered it to be true. The discovery, perception, and setting out of that wonderful connection of ideas is more than most people are capable of; so we may well think that a memory able to *retain* such a sequence of particulars is beyond the reach of human faculties. But obviously the author himself knows the proposition to be true, remembering that he once saw the connection of those ideas, just as certainly as he knows that a certain man wounded another, remembering that he saw him run him through with a sword. Still, memory isn't always as clear as actual perception, and in all men it decays somewhat as time passes; and this is one factor that makes demonstrative knowledge less perfect than intuitive, as we shall see in the following chapter.

Chapter ii: The degrees of our knowledge

1. All our knowledge consists in the mind's view of its own ideas, this being the brightest light and greatest certainty that we—with our faculties and our ways of knowing—are capable of. So it may be worthwhile to consider a little the degrees of its evidence—that is, consider the factors that make items of knowledge *more* or *less* evident. The differences in how clear—i.e. how evident—our knowledge is seem to me to come from differences in *how* the mind perceives the agreement or disagreement of ideas. Sometimes our mind perceives the agreement or disagreement of two ideas *immediately*—by themselves, without the intervention of any other ideas. I think we may call this *intuitive knowledge*, for in it the mind isn't trying to prove or explore anything, but simply perceives the truth as the eye perceives light, just by being directed towards it. Thus the mind perceives—by bare intuition, without the intervention of any other idea—that white is not black, that a circle is not a triangle, that three are more than two and equal to one plus two. This kind of knowledge is the clearest and most certain that human frailty is capable of. Knowledge of this kind is irresistible: like bright sunshine it forces one to perceive it immediately, as soon as the mind looks that way; and it leaves no room for hesitation, doubt, or further enquiry because the mind is *filled* with the clear light of it. All the certainty and evidentness of all our knowledge depends on this intuition. The certainty it brings is so great that no-one can imagine—and so no-one could ask for—a greater. A man cannot conceive himself capable of a greater certainty than to know that a given idea in his mind is such as he perceives it to be; and that two ideas between which he perceives a difference *are* different and not precisely the same. Anyone who demands greater

certainty than this doesn't know what he is asking for; all he does is to show that he would like to be a sceptic but isn't able to be so. Certainty depends wholly on this *intuition*; in the next degree of knowledge, which I call 'demonstrative', we attain knowledge and certainty only through intuition of all the connections of the intermediate ideas.

2. The next degree of knowledge occurs when the mind perceives the agreement or disagreement of any ideas, but *not immediately*. The mind doesn't always see the agreement or disagreement between two ideas, even when it is discoverable; and in such a case it remains in ignorance, achieving at most a probable conjecture. The reason why the mind can't always perceive, straight off, the agreement or disagreement of two ideas is that it can't put the ideas together in such a way as to show their agreement or disagreement. In this case the mind has to discover the agreement or disagreement that it is searching for by bringing in one or more intervening ideas; and this is what we call *reasoning*. For example, the mind wants to know whether *the three angles of a triangle* agree or disagree in size with *two right angles*; and it can't answer this by an immediate view in which the two items are compared, because the three angles of a triangle can't be brought before the mind at one time and compared with any other one or two angles. So the mind has no immediate or intuitive knowledge of this. In this case the mind has to find some other angles to which the three angles of a triangle are equal, and to which two right angles are also equal, in this way coming to know the proposition it was enquiring about.

3. The intervening ideas that serve to show the agreement of any two others are called 'proofs'; and when this procedure

shows *plainly and clearly* the agreement or disagreement, it is called 'demonstration'. Mental agility in finding these intermediate ideas and applying them correctly is, I suppose, what is called 'sagacity'.

4. Although this knowledge by intervening proofs is certain, it isn't quite as clearly and brightly evident as intuitive knowledge, and we don't assent to it quite so readily. In demonstration the mind does come to perceive the agreement or disagreement of the ideas it is thinking about, but for this it has to focus and pay attention. To achieve this knowledge the mind needs more than one passing view of the ideas; a steady application and pursuit are required; and a series of steps must be taken before the mind can in this way arrive at certainty and come to perceive the agreement or inconsistency between the two ideas.

5. Although in demonstrative knowledge all doubt is removed when by the intervention of the intermediate ideas the agreement or disagreement is perceived, *before* the demonstration there was a doubt. In that respect it differs from intuitive knowledge. If a mind has enough faculty of perception to be able to *have* distinct ideas, it can't be in doubt about them, any more than someone with functioning eyes can be in doubt whether this ink and this paper have the same colour. If there is sight in the eyes, the mind will perceive the words printed on this paper as different from the colour of the paper; and similarly if a mind has the faculty of distinct perception, it will perceive *at first glance and without hesitation* the agreement or disagreement of those ideas that produce intuitive knowledge. . . .

6. The perception produced by demonstration is also very clear, but it often falls a long way short of that evident shine and complete confidence that always accompany intuitive knowledge. It can be compared with a face reflected along

a sequence of mirrors: each successive reflection brings a lessening of the perfect clearness and distinctness of the first in the sequence, and if we go far enough we shall find that the reflection is quite dim, and isn't at first sight so knowable, especially to weak eyes. That is how it is with knowledge supported by a long proof.

7. When reason achieves demonstrative knowledge, there is intuitive knowledge every step of the way concerning the agreement or disagreement of each successive pair of intermediate ideas. Without that, we would need a proof of each intermediate step, which would create an infinite regress. Once the mind has had this intuitive certainty, it needs only to *remember it* to make visible and certain the agreement or disagreement of the two ideas in question. For a complete demonstration, the mind must *perceive* the immediate agreement of each pair of ideas in the sequence (starting with one of the ideas in the demonstrated the proposition and ending with the other) and *carry with it* a memory of the entire procedure, with no part being left out. In long deductions this is hard to do, which is why demonstrative knowledge is more imperfect than intuitive knowledge, and why men often welcome a falsehood as something they have demonstrated.

8. I suppose it was the need for this intuitive knowledge at each step in demonstrative reasoning that gave rise to the mistaken axiom that all reasoning is *ex praecognitis et praeconcessis* [= 'from things already known and agreed to']. I shall show how much of a mistake that is when I come to consider *maxims* (vii), and show that people are wrong in supposing them to be the foundations of all our knowledge and reasoning.

9. It has been generally taken for granted that only mathematics is capable of demonstrative certainty, but *I don't*

agree; and here is why. It is not the privilege of the ideas of number, extension, and shape alone to have intuitively perceivable agreements and disagreements; and although demonstration has been thought to have little to do with anything else—so that mathematicians are almost the only ones who even *try* to demonstrate anything—that may be due to our failure to work hard and methodically on demonstrations in topics outside mathematics, rather than to a lack of evidentness in those topics. For whenever we have ideas whose agreement or disagreement the mind can perceive immediately, the mind is capable of intuitive knowledge; and whenever it can intuitively perceive the agreement or disagreement that ideas have with intermediate ideas, the mind is capable of demonstration, which isn't limited to ideas of extension, shape, number, and their modes.

10. The reason why it has been generally looked for only in mathematics is, I suppose, not only the general usefulness of those sciences, but also the fact that when we compare the equality or inequality of the modes of *numbers* every little difference is very clear and perceivable. It isn't so with *extension*, but even here demonstrative geometry is possible, because the mind has found out ways to examine and show demonstratively the exact equality of two angles, or lengths, or figures. Also, both of these—numbers and figures—can be recorded by visible and lasting marks through which the ideas under consideration are perfectly determined; which they seldom are when marked only by names and words.

11. But with other simple ideas, whose modes and differences are made and counted by degrees and not quantity—for example, in contrasts like 'x is much redder than y' rather than like 'x has 2.37 times the volume of y'—we don't have such finely accurate ways of determining their differences or their exact equality. Those other simple ideas

are appearances of sensations produced in us by the size, shape, number, and motion of corpuscles each of which is too small to be perceptible on its own; so their different degrees must also depend on variations in some or of all those causes; and since we can't observe the variations in particles of matter each of which is too tiny to be perceived, we can't have any exact measures of the different degrees of these simple ideas. [The section continues with an invented story about the causes of colour sensations, with special emphasis on whiteness. After making his point with this, Locke comments on one aspect of it:] I don't say that the nature of light consists in very small round globules. . . .for I am not now offering a physical account of light or colours. But I can't conceive—and if *you* can, please show me how—of any way for bodies outside us to affect our senses other than through the immediate contact of the sensible bodies themselves (as in tasting and feeling) or the impact of some insensible particles coming from them (as in seeing, hearing, and smelling).

[In sections **12–13** Locke develops his point that •we can make fine discriminations amongst primary qualities, and •they are the causes of our ideas of secondary qualities, but that •this doesn't help us to discriminate finely among the latter because we don't know in detail what their causes are—what shapes or velocities of particles etc. He concludes:] Where the difference is so great as to produce in the mind clearly distinct ideas, whose differences can be perfectly retained, there these ideas of colours (e.g. blue and red) are as capable of demonstration as ideas of number and extension. What I have here said of whiteness and colours, I think, holds true of all secondary qualities and their modes.

14. Intuition and demonstration are our two degrees of knowledge; whatever falls short of these, however confidently

accepted, is merely faith or opinion, not knowledge. This holds at least for all *general* truths. But there is another perception of the mind, concerning the *particular* existence of finite beings outside us, which does not reach the whole way to either of the foregoing degrees of certainty, yet is called 'knowledge'. It does indeed go beyond mere probability. There can be nothing more certain than that the idea we receive from an external object is in our minds; this is intuitive knowledge. But is there anything more than just that idea in our minds? Can we certainly infer from that idea the existence of something outside us corresponding to it? Some men think this is a real question, because people sometimes have such ideas in their minds at times when no such thing exists, no such object affects their senses. But I think that we are provided with a degree of evidentness that puts us past doubting. For I ask you, are you not irresistibly conscious to yourself of a different perception when you look at the sun by day from what you have when you think about it at night? when you actually taste wormwood or smell a rose, and when you only think about that taste or smell? An idea revived in our minds by our own memory differs from one coming into our minds through our senses, the difference being as obvious as that between any two ideas. If anyone says 'A dream can do the same thing, and all these ideas could be produced in us without any external objects', I invite him to dream that I answer him thus:

•It doesn't matter much whether I remove your doubt, because where everything is a dream, reasoning and arguments are of no use, and truth and knowledge are nothing. Also, •I believe you will allow a very obvious difference between dreaming of being in a fire and being actually in it.

If he has made up his mind to appear so sceptical as to maintain that what I call being actually in the fire is nothing

but a dream, and that we cannot certainly know from that experience that any such thing as fire actually exists outside us, I answer:

We certainly find that pleasure or pain follows upon the application to us of certain objects whose existence we perceive (or dream that we perceive!) through our senses; and this certainty is as great as we need for practical purposes, which are the only purposes we ought to have.

[The last clause renders Locke's words: 'and this certainty is as great as our happiness or misery, beyond which we have no concernment to know or to be.'] So I think we may add to the former two sorts of knowledge this third one, *knowledge of the existence of particular external objects* through the perception and consciousness we have of the actual entrance of ideas from them through our senses. That gives us three degrees of knowledge: intuitive, demonstrative, and sensitive. . . .

15. Since our knowledge is based on and directed towards our ideas only, doesn't it follow that it must conform to our ideas, so that where the ideas are clear and distinct, or obscure and confused, our knowledge will be so too? No—that is only half true. Knowledge consists in *the perception of the agreement or disagreement* of two ideas, so its clearness or obscurity consists in the clearness or obscurity of *that perception*, not of *the ideas themselves*. Thus, a man whose ideas of *the angles of a triangle* and of *equality to two right angles* are as clear as any mathematician's, may have only an obscure perception of their agreement, and so have only a very obscure knowledge that they do agree—i.e. that the angles of a triangle are equal to two right angles. But ideas that are confused—whether because of obscurity or for some other reason—can't produce clear or distinct knowledge; because if two ideas are confused, the mind can't perceive

clearly whether they agree. In short: someone who doesn't accompany his words with definite ideas can't use them to

make propositions of whose truth he can be certain.

Chapter iii: The extent of human knowledge

1. Knowledge lies in the perception of the agreement or disagreement of our ideas. From this five things follow. First, our knowledge can't extend further than our ideas do.

2. Secondly, our knowledge can't extend further than our perceptions of the agreement or disagreement of ideas. Such perceptions come by intuition, or the immediate inter-relating of any two ideas, by reason, examining the agreement or disagreement of two ideas by the intervention of some others, or by sensation, perceiving the existence of particular things.

3. Thirdly, we can't have intuitive knowledge involving all our ideas and answering all our questions about them, because we can't perceive all their relations to one another by juxtaposition, that is, by *immediately* relating one to another. Thus having ideas of an obtuse-angled and an acute-angled triangle, both drawn from equal bases and between parallels, I have intuitive knowledge that one of these ideas is not the other, but I can't know in that way whether they are equal or not, because their agreement or disagreement in equality can never be perceived by immediately relating them to one another. Their shapes differ in a manner that prevents us from immediately and exactly comparing their areas; and so we need some intervening qualities to measure them by, and that is demonstration, or knowledge by reasoning.

4. Fourthly, our knowledge by reasoning can't reach to the whole extent of our ideas either, because between two different ideas that we want to examine we can't always find intermediaries that will let us link one with the other, with intuitive knowledge at every link; and when we can't do that, we fall short of knowledge and demonstration.

5. Fifthly, because sensitive knowledge reaches no further than the existence of things actually present to our senses, it is even narrower in extent than either of the other two.

6. All this makes it evident that the extent of our knowledge falls short not only of the reality of things but even of the extent of our own ideas. knowledge is limited to our ideas, and can't be broader or better than they are; and this sets very narrow limits to what we can know—narrow in relation to the whole of what is the case, and even in relation to knowledge that we can reasonably suppose to be possessed by some created understandings, ones that aren't tied down to the dull and narrow information that we get from a few crude modes of perception, such as our senses are. Still, we would be well off if our knowledge did at least extend out to those limits, leaving us with few doubts and questions concerning the ideas that we have; but in fact, as I observed at the start of this section, it comes a long way short of that. Concerning the ideas that we do have there are plenty of

questions that we can't answer and (I believe) that we never shall be able to answer.

No doubt human knowledge, given our present circumstances and constitutions, can be taken further than it has been up to now, if men would work as hard on •improving the means of discovering truth as they now do on •supporting or disguising falsehoods, and on •maintaining systems, interests, and parties to which they have committed themselves. But I don't think it is an insult to human excellence to be sure, as I am, that our knowledge would never reach to all we might want to know concerning the ideas that we have, or be able to surmount all the difficulties and answer all the questions that might arise concerning any of them. We have the ideas of a square, a circle, and equality; and yet perhaps we shall never be able to find a circle equal to a square and certainly know that it is so. We have the ideas of matter and thinking, but possibly we shall never be able to know whether any mere material being thinks; for it is impossible for us, by contemplating our own ideas with no help from revelation, to discover •what kind of thing a human being is. That is, to discover •whether •God has given to a suitably laid out system of matter a power to perceive and think, or rather •has attached to such a system a thinking immaterial substance. It isn't much harder for us to conceive that God can, if he pleases, •add to matter a power of thinking, than to conceive that he should •add to it another substance with a power of thinking; for we don't know what thinking consists in, or to what sorts of substances the almighty has been pleased to give the power to think—a power that no created being can have except through the generous will of the creator. •The choice here is between two accounts of what a human being is. **1** It is a material thing that thinks. **2** It is a material thing linked with a second thing that thinks; but we must take **2** as

also saying that *how* the second substance thinks—what perceptions it has—depends on physical changes in the material thing to which it is linked, as when your visual perceptions are extinguished when you close your eyes. I see no contradiction in supposing that •God, the •first eternal thinking being or omnipotent spirit should, if he pleased, give some degrees of sense, perception, and thought to certain systems of created senseless matter, put together as he thinks fit. (Though, as I think I prove in x.14 etc., it is a contradiction to suppose that matter—which is obviously *in its own nature* devoid of sense and thought—should *be* that •eternal first-thinking being.) How could anyone *know* that this is false?—

1 Some perceptions—e.g. pleasure and pain—could occur in some bodies themselves when they are appropriately affected;

while knowing that this is true?—

2 Some perceptions—e.g. pleasure and pain—could occur in an immaterial substance upon [= 'when triggered by'] the motion of parts of a body.

As far as we can conceive, all bodies can do is to bump into and affect other bodies; and motion, according to the utmost reach of our ideas, can produce nothing but motion. So when we suppose it **2** to produce pleasure or pain, or the idea of a colour or sound, we have to stop employing our reason, go beyond our ideas, and attribute it wholly to the good pleasure of our Maker. •It is beyond question that when I turn my head my visual ideas alter, and so •we must allow that God has brought it about that motion produces effects •that we can't conceive of its being able to produce. Well, then, what reason have we to conclude that he could not •as on supposition **1** •order those effects to be produced in a subject •that we can't conceive to be capable of having them, as well as—•supposition **2**—in a subject that we can't

conceive of as being affectable in any way by the motion of matter?

I don't say this so as to lessen the belief in the soul's immateriality; I am speaking here not of probability but of knowledge; and I am motivated by two beliefs. I think that it is suitable to the modesty of philosophy not to pronounce dogmatically on topics where we lack the evidentness that could produce knowledge. I also think it is useful for us to learn how far our knowledge *does* reach; for our present state, not being one of divinely inspired vision, requires us often to settle for something less than knowledge, and to be content with faith and probability. And it's not surprising that we aren't equipped to arrive at demonstrative certainty in answering the present question about the soul's immateriality.

All the great ends of morality and religion are well enough secured without philosophical proofs of the soul's immateriality, because it is obvious that at the start of the world God made us to exist here—and to continue for many years—as thinking beings equipped with senses, and can and will restore us to that same state of sentience or feeling in another world, making us capable there of feeling the rewards and punishments he has planned for men according to their doings in this life. If that is certain, it isn't so enormously important to settle the question about the immateriality of the soul, one way or the other, as some zealots on each side of the question have tried to make the world believe. On one side, the zealots give too much play to their own thoughts, which are completely immersed in matter, and can't allow for the existence of anything that isn't material. On the other are those who, because they can't find thought within the natural powers of matter, however hard they look for it, are bold enough to conclude that not even God the omnipotent can give perception and thought to a substance

that has the quality of solidity. If you consider how hard it is in our thoughts to reconcile sensation to extended matter, and how hard to reconcile existence to anything that has no extension at all, you will admit that you are very far from knowing for sure what your soul is! This issue seems to me to lie beyond the reach of our knowledge; and anyone who will allow himself to think *freely*, and to look into the dark and intricate part of each hypothesis, will hardly find his reason directing him firmly for or against the soul's materiality. Whether he thinks of the soul as an unextended substance, or as thinking extended matter, he will encounter difficulties that will drive him to the contrary side. This is an unattractive way that some men have of managing their thoughts: finding one hypothesis inconceivable, they throw themselves violently into the arms of the contrary hypothesis, even though it is (to an unbiased understanding) just as unintelligible. This serves not only to show how weak and scanty our knowledge is, but also the insignificant triumph of arguments of that sort. . . . What good does it do someone to avoid the seeming absurdities and to him insurmountable obstacles he meets with in one opinion by taking refuge in the contrary opinion, which is built on something every bit as inexplicable and as far from his comprehension? It is past controversy that *we have in us something that thinks*; our very doubts about *what* it is confirm the certainty of its existing, though we must accept our ignorance of what kind of being it is. It's pointless to set oneself up as a sceptic about this, just as it's unreasonable in most other cases to deny outright the existence of something because we can't comprehend its nature. What substance *doesn't* have in it something that manifestly baffles our understandings? . . . Knowledge, as I said at the start of this section, isn't only limited to the paucity and imperfections of our ideas, but even comes short of that. How far, then, does it reach?

7. The affirmations or negations we make concerning our ideas can be grouped into four kinds: •identity, •co-existence, •relation, and •real existence. I shall examine how far our knowledge extends in respect of each of these, •dealing with the first in section 8, the second in 9–17, the third in 18–20, the fourth in 21.

8. First, as to •identity and diversity: in this kind of agreement or disagreement of our ideas, our intuitive knowledge extends as far as our ideas themselves. There can be no idea in the mind that it doesn't instantly, by an intuitive knowledge, perceive to be what it is and to be different from any other.

9. Secondly, as to the agreement or disagreement of our ideas in •co-existence: we don't have much knowledge of this kind, though what we *do* have is the greatest and most important part of our knowledge of substances. ideas of the sorts of substances are merely certain collections of simple ideas united in one subject and so co-existing together—for example, our idea of *flame* is a body that is hot, luminous, and moving upward; of *gold* a body that has such and such a weight, and is yellow, malleable, and fusible. When we want to know anything *more* about these or any other sorts of substances, we are simply asking: what *other* qualities or powers do these substances have (or lack)? Which is just to ask what other simple ideas do (or don't) *co-exist with* the ones that make up that complex idea.

10. Although this is a considerable *proportion* of our totality of systematic knowledge, the actual *amount* of it that we have is small, almost to vanishing point. That is because very few of the simple ideas of which our complex ideas of substances are composed have in their own nature a visible necessary connection or inconsistency with any other simple ideas whose co-existence with them we would like to know about.

11. The ideas that our complex ideas of substances are composed of, and that are the focus of most of our knowledge concerning substances, are those of their secondary qualities. I have shown that these all depend on the primary qualities of the substances' minute and imperceptible parts; or if not on them, on something yet more remote from our comprehension. So we can't possibly know which of them have a necessary union or inconsistency with which others: not knowing the root they spring from—not knowing what size, shape and texture of parts give rise to the qualities that make our complex idea of gold—we can't know what other qualities result from (or are incompatible with) that same root and so consequently must always co-exist with that complex idea we have of it (or else are inconsistent with it).

12. Besides our ignorance of the primary qualities of the imperceptible parts of bodies, on which all their secondary qualities depend, there is another and more incurable kind of ignorance that keeps us even further from having certain knowledge about the co-existence of different ideas [here = 'qualities']in the same subject. It comes from there being no discoverable connection between any secondary quality and the primary qualities on which it depends.

13. We can conceive that the size, shape, and motion of one body might cause a change in the size, shape, and motion of another. The parts of one body separate when another body pushes into it, and a motionless body starts moving when another body bumps into it—there seems to be some *connection* here •between intruding and separating, and between bumping and moving. And if we knew these primary qualities of bodies, we might have reason to hope we could learn a great deal more of their operations on one another. But our minds can't discover any connection between these primary qualities of bodies and the sensations

they produce in us; and so we can never establish certain and undoubted rules of the consequence or co-existence of any secondary qualities, even if we did discover the size, shape, and motion of the invisible parts that immediately produce them. We are so far from knowing what shape, size, or motion of parts produce a yellow colour, a sweet taste, or a sharp sound, that we can't conceive how *any* size, shape, or motion of any particles could possibly produce in us the idea of *any* colour, taste, or sound; there is no conceivable *connection* between the one and the other.

14. So it is useless to try to learn through our ideas (which is the only true way of getting certain and universal knowledge) what other ideas are to be found constantly joined—coexisting—with our complex idea of any substance. We need knowledge of two things before we can certainly know the necessary co-existence of any secondary qualities: **1** substances' real constitutions of minute parts on which their secondary qualities depend, and **2** necessary connections between those and the secondary qualities. We don't have knowledge of **1**, and even if we did, we couldn't have knowledge of **2**. . . . Our knowledge in all these enquiries reaches very little further than our experience. Indeed, a few *primary* qualities have a necessary dependence and visible connection with one another—•shape necessarily presupposes •extension, •moving or being moved through collision presupposes •solidity—and we can by intuition or demonstration discover the co-existence of *these* and a few others. But there aren't many of them; and for the rest we have to rely on our senses to tell us what qualities substances contain. . . . For example, we see the yellow colour of a piece of gold, and on testing it find its weight, malleableness, fusibility, and fixedness; but because no one of these ideas has any •evident dependence or •necessary

connection with the others, we can't know for sure that whatever has any four of these qualities will have the fifth also. This may be highly *probable*; but the highest probability doesn't amount to certainty, and without that there can be no true knowledge. This co-existence can be known only so far as it is perceived; and if it isn't perceived *in general* by the necessary connection of the ideas, our only way of perceiving it is in *particular* subjects through the observation of our senses.

15. As to •incompatibility, or •impossibility of co-existence, we know that any subject may have at one time only one primary quality of each sort: each particular extension, shape, number of parts, and motion excludes all other extensions, shapes, etc. The same certainly holds for the sensible ideas [here = 'qualities'] that are special to each sense: if a subject has one such quality it can't at the same time have another of the same sort; so no one subject can have two smells or two colours at the same time. You may object that an opal has two colours at the same time. Yes, indeed, an opal *can* present different colours at the same time to differently placed eyes; but I would point out that the differently placed eyes are receiving particles of light from *different parts of the opal*. So it isn't the same part of the object, and so not the very same thing, which at the same time appears both yellow and blue. For a single particle of a body can't modify or reflect the rays of light in two ways at the same time, any more than it can have two different shapes and textures at the same time.

16. Then there are the powers of substances to change the sensible qualities of other bodies. Much of our research into substances is directed towards those powers, and our results constitute a considerable branch of our knowledge. •But• I suspect that our knowledge about such powers

reaches little further than our experience. Because the active and passive powers of bodies, and their ways of operating, are based on a texture and motion of parts that we can't discover, we can seldom perceive their dependence on or inconsistency with any of the ideas that make our complex idea of the given sort of substance, the one that is to us its *essence*. I have argued for this in terms of the *corpuscularian hypothesis*—the theory that all the workings of the material world are to be understood in terms of collisions between tiny portions of matter, tiny corpuscles—because that's the theory that is thought to go furthest in intelligibly explaining those qualities of bodies; and I fear that the human understanding hasn't the power to replace it by one that could give us a fuller and clearer discovery of the necessary connection and co-existence of the powers that are found to be united in various sorts of bodies. . . . I doubt whether the faculties that we have will ever be able to advance much our general knowledge (as distinct from particular experience) of these matters. Experience is what we must depend on in this part—that is, in connection with co-existence of qualities. . . .

17. If we are at a loss regarding the powers and operations of •bodies, it is easy to infer that we are much more in the dark concerning •spirits. The only ideas that we naturally have of these are ones that we draw from ideas of •ourselves by reflecting on the operations of our own souls within us, as far as they can come within our observation. On the strength of my hints ·in II.xxiii.13 and elsewhere· you might like to consider how far down the scale the spirits that inhabit *our* bodies come, amongst the various and possibly innumerable kinds of nobler beings, and how far short they come of the endowments and perfections of angels and infinite sorts of Spirits above us.

18. As to the third sort of our knowledge—that is, the third of the four listed in i.7 above—namely the agreement or disagreement of ideas in respect of any other relation: this is the largest field of our knowledge, but it is hard to determine how much further it can extend. The advances made in this part of knowledge depend on our skill in finding intermediate ideas that show the relations between ideas whose co-existence is not being considered; and it is hard to know when we are at an end of such discoveries, that is, when reason has all the helps it is capable of for finding proofs or examining the agreement or disagreement of ideas that are remote from one another. Those who are ignorant of algebra can't imagine the wonders of this sort that it can achieve; and it isn't easy to determine what further improvements and helps, bringing progress to other branches of knowledge, the sagacious mind of man may yet discover. I believe that the ideas of *quantity* are not the only ones that admit of demonstration and knowledge; and that other realms of enquiry—perhaps more useful ones—would also afford us certainty, if only vices, passions, and domineering interest didn't oppose or menace such endeavours.

Here are two ideas that are clear in us: •the idea of a supreme being, infinite in power, goodness, and wisdom, who made us and on whom we depend, and •the idea of ourselves, as understanding rational creatures. If we thought hard about these and explored them, I think they would provide foundations for our duty and rules of action, in such a way as to make morality one of the sciences capable of demonstration [= 'rigorous proof']. Within such a morality the measures of right and wrong could, I am sure, be derived from self-evident propositions by valid inferences as incontestable as those in mathematics, in a way that would satisfy anyone who was willing to bring to moral studies the same attentiveness and lack of bias that he

brings to mathematics. The relations between other modes can certainly be perceived, as well as relations concerning number and extension, and I don't see why they shouldn't also be capable of demonstration, if we devised good methods for examining their agreements and disagreements. 'Where there is no property, there is no injustice' is a proposition as certain as any demonstration in Euclid; for the idea of property being *a right to something*, and the idea of injustice is *the invasion or violation of that right*, it is evident that on the strength of these two ideas and the names annexed to them I can as certainly know this proposition to be true as that a triangle has three angles equal to two right ones. Again, 'No government allows absolute liberty': the idea of government is the establishment of society on certain rules or laws that require conformity to them, and the idea of absolute liberty is for anyone to do whatever he pleases; so I am as capable of being certain of the truth of this proposition as of any in the mathematics.

19. What has given the advantage in this respect to the ideas of quantity ·over those of morality·, and made them thought to be more capable of certainty and demonstration, is the following pair of differences.

First, ideas of quantity can be represented by perceptible marks that have a greater and nearer correspondence with them than any words or sounds whatsoever. Diagrams drawn on paper are *copies* of the ideas in the mind, and not liable to the uncertainty that words carry in their meanings. When an angle, circle, or square is drawn in lines, it lies open to the view, and can't be mistaken. It remains unchangeable, and can be considered and examined at leisure, the proof looked over again, and every part of it scrutinised more than once without any danger of change in the ideas. This can't happen with moral ideas. We have no perceptible marks

that *resemble* them, but only words to express them by. And though the words, once they have been written, stay the same, the ideas they stand for may change in the same man, and they are usually different in different persons.

Secondly, moral ideas are commonly more complex than those of the figures ordinarily considered in mathematics, and from this two inconveniences follow. •The first is that their names are of more uncertain meaning, because the precise collection of simple ideas they stand for isn't so easily agreed on; so that the sign that is always used for them in communication (and often in thinking too) fails to carry steadily with it the same idea. This leads to the sort of disorder, confusion, and error that would ensue if a man purporting to prove something about a heptagon left out one of its angles in making his diagram, or gave the figure one angle more than its name ordinarily imports and than he intended it to have when he first thought of his proof. This often happens, and is hardly avoidable, with very complex moral ideas, where people will use a single word with varying meanings, including at one time a simple idea (an angle, so to speak) which they omit later on. •Secondly, the complexity of moral ideas creates another inconvenience, namely that the mind can't easily retain those precise combinations ·of simple ideas· as exactly and perfectly as is needed for the examination of the relations and correspondences, agreements or disagreements, of several of them with one another—especially when this has to be judged by long deductions and the intervention of other complex ideas to show the agreement or disagreement of two remote ones.

It is evident that mathematicians are greatly helped to avoid this by their use of diagrams which keeps the shapes they are studying fixed; without that help, their memory would often have great difficulty to retaining their arguments

so exactly while their mind went over the parts of them step by step. ·Help is also needed in arithmetic·. When someone does a long calculation—whether in addition, multiplication, or division—every part is only a progression of his mind, taking a view of its own ideas and considering their agreement or disagreement; and the bottom line of the calculation is just the result of the whole, made up of those clearly perceived particular relations. But if one didn't record the various parts of the calculation by marks whose precise meanings are known, marks that last and remain in view when the memory would have let them go, it would be almost impossible to carry so many different ideas in the mind without confusing or dropping out some parts of the calculation, thereby making all our reasonings about it useless. These marks give the mind no help in perceiving the agreement of any two or more numbers, their equalities or proportions. The mind has *that* only through intuition of its own ideas of the numbers themselves. But the numerical marks are helps to the memory, to record and retain the various ideas that enter into the proof, enabling the man to know how far his intuitive knowledge has taken him, so that he may without confusion go on to what is yet unknown, and eventually have in one view before him the result of all his perceptions and reasonings.

20. One of the disadvantages in moral ideas—one that has led people to think that moral truths can't be rigorously proved—can to a large extent be remedied by *definitions*, setting down the collection of simple ideas that each term is to stand for and then using the term steadily and constantly for that precise collection. And we can't predict what methods algebra or something of that kind may some day suggest, to remove the other disadvantages. I am confident that if men would search for moral truths by the same

methods as they search for mathematical truths, and with the same freedom from bias, they would find that moral truths •have a stronger connection one with another, •are more apt to follow necessarily from our clear and distinct ideas, and •come nearer to being perfectly demonstrable than is commonly thought. [Locke then expresses pessimism about the chances that this will happen much, because there is a shortage of intellectual honesty. He equates truth with beauty and falsehood with ugliness, defending this through a heavy-handed joke; then continues:] While the parties of men cram their beliefs down the throats of everyone they can get into their power, without allowing them to examine their truth or falsehood, and won't let truth have a fair run for its money in the world or allow men the freedom to search for it, what improvements of this kind can be expected? What hope have we for greater light to shine in the moral sciences? In most places in the world, the part of mankind that lives in subjection ·of the kind I have been describing· would live in Egyptian darkness ·of the mind· along with the ·as-it-were·-Egyptian bondage ·of their bodies·, if it weren't for the candle of the Lord that *he* has set up in men's minds, a light that the breath or power of man cannot wholly extinguish.

21. As to the fourth sort of knowledge that we have, namely knowledge of the real actual existence of things: we have •an intuitive knowledge of our own existence, and •a demonstrative knowledge of the existence of a God, but of the existence of anything else we have only •sensitive knowledge, which is limited to objects that are present to our senses.

22. Our knowledge being so narrow (as I have shown), we may get more light on the present state of our minds if we look a little into the *dark side*, and survey our ignorance. This is infinitely larger than our knowledge, so ·it is all too

easy for us to stray into areas where our ignorance prevails. It might help to quieten disputes and increase useful knowledge if we learned how far we have clear and distinct ideas, and on that basis confine our thoughts to things that are within the reach of our understandings. That would be better than launching out into that abyss of darkness where we have no eyes to see or faculties to grasp anything, out of a presumption that nothing is beyond our comprehension. To be convinced that such a presumption is foolish, we needn't go far. If you know *anything*, you know first and foremost that you don't have to look hard for instances of your ignorance. The lowliest and most obvious things that come our way have *dark sides* that the keenest sight can't penetrate. The sharpest and broadest intellects of thinking men find themselves puzzled and at a loss concerning *every particle of matter*! We'll be less surprised by this when we consider the causes of our ignorance. On the basis of what I have said, I think there are three causes:

First, lack of ideas.

Secondly, lack of a discoverable connection between the ideas we have.

Thirdly, failure to trace and examine our ideas.

23. First, there are many things that we are ignorant of because of a lack of ideas. My discussion of this will run to the end of section 27, with the present section on ideas that we *can't* have, followed by four on ideas that we *could but don't* have. All our simple ideas are confined (as I have shown) to those we receive from bodies through sensation, and from the operations of our own minds through reflection. These few narrow inlets are disproportionate to the whole vast extent of what there is, as you will easily be brought to agree unless you are so foolish as to think that *your* span—what *you* can experience and understand—is the

measure of all things. It isn't for us to know what other simple ideas creatures in other parts of the universe may have, through senses and faculties that are more numerous or more perfect than ours, or just different. To think there are none such because we have no conception of them is like a blind man's arguing that there is no such thing as sight and colours because he has no ideas of them. Ignorance and darkness doesn't block or limit the knowledge that *others* have, any more than the blindness of a mole is an argument against the sharp-sightedness of an eagle. If you think about the infinite power, wisdom, and goodness of the creator of all things, you will find reason to think that he didn't expend it all on such an inconsiderable, lowly, and impotent a creature as you will find man to be—man, who in all probability is one of the lowest of all thinking beings. We simply don't know what faculties other species of creatures have that enable them to penetrate into the nature and innermost constitutions of things, or what ideas they may get from things that are far different from ours. But we do know, having found out for sure, that we need more views of things than those we actually have if we are to make more complete discoveries of their natures. And we may be convinced that the ideas we can acquire through our faculties are very disproportionate to things themselves, when we consider that a positive, clear, distinct idea of *substance* itself, which is the foundation of all the rest, is concealed from us. Because our lack of such ideas isn't just a *cause* of our ignorance but a *part* of it, we can't describe the missing ideas. But we can confidently say this much: the intellectual and sensible worlds—that is, the realm of thought and the realm of bodies—are perfectly alike in one thing, namely that the part that we see of each of them is tiny compared with what we don't see, and the whole of what our thoughts or our senses tell us about each of them is,

compared with the rest, a point—almost nothing!

24. Another great cause of ignorance is the lack of ideas that we *are* capable of having. As •the lack of ideas that our faculties can't give us shuts us off from the views of things that it is reasonable to think are had by other, more perfect beings, so •the lack of ideas that I am now discussing keeps us in ignorance of things we think of as knowable by us. Size, shape, and motion we do have ideas of; but we don't know what is the particular size, shape, and motion of most of the bodies in the universe, which makes us ignorant of the various powers, mechanisms, and ways of operation through which the effects that we see daily are produced. These are hidden from us in some things by their being too remote, and in others by their being too small. When we consider the vast distance of the known and visible parts of the world, and the reasons we have to think that what lies within our ken is only a small part of the universe, we shall then discover a huge abyss of ignorance. A first glimpse of the great masses of matter that constitute the stupendous frame of the physical universe launches us into speculations in which our thoughts get lost:

What, in detail, are those great bodies made of?

How far do they extend?

How do they move?

What starts them moving? What keeps them moving?

What effects do they have on one another?

If we narrow our speculations, confining our thoughts to this little province—I mean this system of our sun and the planets that visibly move around it—what sorts of plants, animals, and thinking corporeal beings, infinitely different from those on our little spot of earth, may there probably be on other planets? But while we are confined to this earth we can know nothing about these, even of their outward

shapes and parts, because there is no natural means, either by sensation or reflection, for certain ideas of them to enter our minds. They are out of the reach of those inlets of all our knowledge.

25. If by far the greatest part of the various kinds of bodies in the universe escape our notice by being too far away, there are others that are equally concealed from us by their smallness. These imperceptible corpuscles are the active parts of matter, and are the great instruments of nature on which depend not only all of bodies' secondary qualities but also most of their natural operations. So our lack of precise distinct ideas of their primary qualities keeps us incurably ignorant of what we want to know about them. If we could discover the shape, size, texture, and motion of the minute constituent parts of any two bodies, we would know some of their operations on one another without putting them to the test, as we now know the properties of a square or a triangle. If we knew the mechanical structure of the particles of rhubarb, hemlock, opium, and a man, as a watch-maker knows the structure of a watch, we would be able to tell before-hand that rhubarb will purge, hemlock kill, and opium make a man sleep; as well as a watch-maker can tell that a little piece of paper laid on the balance will keep the watch from going. . . . The dissolving of silver in aqua fortis and gold in aqua regia, and not vice versa, would might then be no more difficult to know than it is for a locksmith to understand why this lock can be opened by *this* key and not by *that* one. But while we lack senses acute enough to discover the minute particles of bodies and to give us ideas of their fine structure, we must be content to be ignorant of their properties and ways of operation, being assured only of what we can learn from a few experiments. And what we can learn for sure in that way is limited indeed. We conduct

some experiments and get results, but we can't be certain that they will have the same results on future occasions. This blocks us from having certain knowledge of universal truths about natural bodies; and about these our reason carries us very little beyond particular matters of fact.

26. This inclines me to think that however far we get, through hard work, with practical and experimental science about physical things, we shan't be able to get any knowledge of them that is *scientific* [= 'rigorously organized, and united by high-level theories'.] That is because we lack perfect and adequate ideas of the very bodies that are nearest to us and most under our control. We have only very imperfect and incomplete ideas of the bodies that we have sorted into classes under names, and think ourselves best acquainted with. Perhaps we have •*distinct* ideas of the various sorts of bodies that we can examine through our senses, but I suspect that we don't have •*adequate* ideas of any of them. •See II.xxix and xxxi. And though •the former of these serve us for everyday use and discourse, while we lack •the latter we can't have scientific knowledge, and we'll never be able to discover general, instructive, unquestionable truths concerning bodies. We mustn't lay claim to certainty and demonstration in these matters. By the colour, shape, taste, smell, and other sensible qualities we have as clear and distinct ideas of sage and hemlock as we have of a circle and a triangle. But having no ideas of the particular primary qualities of the minute parts of either of these plants, nor of other bodies that we would apply them to, we can't tell what effects they will produce; and when we see those effects, we can't even guess—let alone *know*—how they are produced. Thus having no ideas of the particular mechanical structures of the minute parts of bodies that we can see and touch, we are ignorant of their constitutions, powers, and operations.

Of more remote bodies we are even more ignorant, not even knowing their outward shapes or their large-scale structural features.

27. This shows us at a glance how disproportionate our knowledge is to the whole extent of *material* things. Now think about the infinitely many *spirits* that may and probably do exist; they are still further from our knowledge, and we can't even form distinct ideas of their various *kinds*. From this we learn that the cause of ignorance now under discussion—namely, lack of ideas—conceals from us in an impenetrable obscurity almost the whole world of thinking things, which is certainly greater and more beautiful than the world of material things. We have a few superficial ideas of spirit that we get from ourselves through reflection, and then use as a basis for putting together the best idea we can manage of •God, the father of all spirits, the eternal independent author of them and us and all things; but apart from those few ideas we have no certain information even as to the *existence* of other spirits, except by revelation. Angels of all sorts are naturally beyond our discovery; and all those thinking beings of which there are likely to be more kinds than there are of bodily substances are things of which our natural faculties give us no certain account at all. From considering the words and actions of other people, every man has a reason to be satisfied that there are minds and thinking beings in other men as well as himself. And any thinking person must know, from his knowledge of his own mind, that there is a God (•see x). But who can come to know, through his own search and ability, that there are different levels of spiritual beings between us and the great God? Much less do we have distinct ideas of the various natures, conditions, states, powers, and constitutions in respect of which they are like and unlike one another, and

like and unlike us. Concerning their different species and properties, therefore, we remain in absolute ignorance.

28. Of the three causes of ignorance listed at the end of section 22, we now come to the second, to which I shall devote two sections. Another cause of ignorance, no less important than the first, is the lack of a discoverable connection between ideas that we do have. Whenever that is lacking, we are utterly incapable of universal and certain knowledge, and are, as with ignorance from lack of ideas, left only to observation and experiment; and we don't have to be told how narrow and confined *that* is, and how far from general knowledge. I shall give a few instances of this cause of our ignorance, and then drop it. It is evident that the size, shape, and motion of various bodies in our environment produce various sensations in us, as of colours, sounds, tastes, smells, pleasure and pain, etc. These mechanical qualities of bodies have no affinity with the ideas they produce in us; there is no *connection*—that is, none we could know about just by thinking about it—between any impact of any sort of body on our sense organs and any perception of a colour or smell that we find in our minds. So all we can distinctly know about such operations is what we can learn from our experience, and we can reason about them only as effects produced by the decree of an infinitely wise agent—a decree which utterly surpasses our comprehension. That is, we can't reason about them in terms of necessary connections that we could grasp by thinking them through; for us they have to be matters of *brute empirically discovered fact*, set up by God for good reasons, no doubt, but not reasons that we know or understand. So much for the bodily causes of our ideas of secondary qualities. On the other side, the operation of our minds on our bodies is equally far from being something we could know about just by thinking. *The nature*

of our ideas can't explain how a thought could produce a motion, any more than it could explain how a body could produce a thought. If experience didn't convince us that thought *does* produce motion, we could never learn this just by thinking about thought and motion. These and their like do have a constant and regular connection in the ordinary course of things, but that connection can't be found in the ideas themselves, which appear to have no necessary dependence one on another; so we have to attribute their connection to the free choice of God, who has created them and made them operate as they do, in a way that our weak understandings can't conceive.

29. With some of our ideas there are certain relations and connections that are so visibly included in *the nature of the ideas themselves* that we can't conceive of any power that could separate the ideas from those relations and connections. It is only with these ideas that we are capable of certain and universal knowledge. Thus the idea of a *triangle* necessarily carries with it *equality of its angles to two right ones*. We cannot conceive of this relation—this connection of these two ideas—to be changeable, or to depend on any arbitrary power that chose to make it thus but could have made it otherwise. But the coherence and continuity of the parts of matter, the production of sensation of colours and sounds etc. by impulse and motion, indeed the basic rules governing the passing on of motion through impact—in none of this can we discover a natural connection with any ideas that we have; so we have to ascribe them to the arbitrary will and good pleasure of God, the wise architect. (Presumably I needn't mention the resurrection of the dead, the future state of the earth, and such other things, which everyone agrees depend wholly on the decisions of a divine free agent.) When our observations show a certain regularity

in events, we can infer that the events unroll according to a law that has been set for them, but it's a law that we don't know. So: though causes work steadily, and effects constantly flow from them, we can't find *in our ideas* what connects them and makes some depend on others; so our only knowledge of them has to come from *experience*. From all this it is easy to see what a darkness we are involved in, how little we can know about the things that exist. So we don't insult our knowledge when we modestly think that we are so far from being •able to comprehend the whole nature of the universe that we aren't •capable of a philosophical [= 'scientific'] knowledge of the bodies in our environment and in ourselves. . . . In these matters we can go no further than particular experience informs us regarding matters of fact, and by analogy guess what effects similar bodies are likely to turn out to produce. But as to a perfect science of natural bodies (not to mention spiritual beings) we are, I think, so far from being capable of any such thing that it's a waste of time to pursue it.

30. Now we come to the third of the causes of ignorance listed at the end of section 22. Where we have adequate ideas, and where there is a certain and discoverable connection between them, we are nevertheless often ignorant because we don't trace ideas that we have or could have, and because we don't search out the intermediate ideas that could show us what relation of agreement or disagreement they have one with another. That is how many people are ignorant of mathematical truths—not through any imperfection in their faculties, or uncertainty in the subject-matter, but because they haven't diligently acquired, examined, and suitably compared the relevant ideas. The principal cause of this, I think, has been the poor use of words. Men can't truly seek or certainly discover the agreement or disagreement of

ideas while their thoughts flutter about, or are bogged down in sounds that have doubtful and uncertain meanings. Mathematicians, by abstracting their thoughts from *names* and accustoming themselves to set before their minds *the ideas themselves* that they want to consider, have avoided much of that perplexity, muddle, and confusion that has so much hindered men's progress in other branches of knowledge. For as long as they persist in using words with undetermined and uncertain meanings, they can't sort their own opinions into true and false, certain and •merely• probable, consistent and inconsistent. [The section continues with rhetorical exclamations against common intellectual failures generated by imperfect uses of language.]

31. Under the heading 'the extent of human knowledge' I have been discussing how far our knowledge extends across the various sorts of existing things. There is a different kind of 'extent' that it can also have, concerning how universal it is. Insofar as it is to be universal, it must follow the nature of our ideas •rather than things existing outside us•. If we perceive the agreement or disagreement of ideas that are *abstract*, our knowledge is *universal*. For what is known of such general ideas will be true of every particular thing in whom that essence—i.e. that abstract idea—is to be found; and what is once known of such ideas will be perpetually and for ever true. For general knowledge, therefore, we must search only in our minds—we can get it only by examining our own ideas. Truths pertaining to •essences of things—that is, to abstract ideas—are eternal, and are to be discovered only by contemplating those essences; just as the •existence of things is to be known only from experience. I shall have more to say about this in the chapters where I shall speak of general and real knowledge—vi and iv respectively•.

Chapter iv: The reality of knowledge

1. I imagine that by now you'll be apt to think that I have been building a castle in the air, and will want to offer me a challenge that runs to the end of this section. What is the *point* of all this fuss? Knowledge, you say, is only the perception of the agreement or disagreement of our own ideas. But who knows what those ideas may be? Is there anything so extravagant as the imaginations of men's brains? Where is the head that has no chimeras in it? Or if there is a sober and a wise man, what difference will there be, by your rules, between his knowledge and that of the most extravagant fancy in the world? They both have their ideas, and perceive their agreements and disagreements with one another. If these two men differ, the advantage will be on the side of the man with a hot imagination: he has more ideas, and livelier ones, than the other, and so by your rules he will be the more knowing of the two! If it is true that all knowledge lies only in the perception of the agreement or disagreement of our own ideas, the visions of a fanatic and the reasonings of a sober man will be equally certain. It doesn't matter how *things* are; as long as a man observes the agreements in his own imaginings, and talks accordingly, it is all truth, all certainty. Such castles in the air will be strongholds of truth, as secure as the demonstrations of Euclid. That *a harpy is not a centaur* is by these standards as certain an item of knowledge, and as much a truth, as that *a square is not a circle*. But what use is all this fine knowledge of men's own *imaginings* to someone enquiring into the reality of *things*? It doesn't matter what men's fancies are; only the knowledge of things should be prized. What gives value to our reasonings, and makes one man's knowledge preferable to another's, is its concerning things

as they really are, not dreams and fancies.

2. To this I answer that if our knowledge of our ideas were to terminate in them, and to reach no further when something further is intended, our most serious thoughts would indeed be of little more use than the dreams of a crazy brain. But I hope to make it evident that this route to certainty, through the knowledge of our own ideas, goes a little further than bare imagination; and I believe it will appear that all the certainty that we have of general truths lies in nothing else.

3. 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 shall be the criterion for this? How shall 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.

4. The first are simple ideas. Since the mind (as I have shown) can't make these by itself, they must necessarily result from things operating on the mind in a natural way, and producing in it those perceptions that the wisdom and will of our maker ordains them to be adapted to. From this it follows that simple ideas aren't fictions of our imaginations, but the natural and regular productions of things outside us, really operating on us; and so they carry with them all the conformity that is intended, and all that our state requires. They represent things to us under those appearances that they are fitted to produce in us; and that lets us distinguish the sorts of particular substances, to discern the states they are in, and so to handle them in ways appropriate to

our needs. Thus the idea of whiteness in the mind exactly corresponds to the power in a body to produce it there, and that gives it all the real conformity it can have, and all it ought to have, with things outside us. This conformity between our simple ideas and the existence of things is sufficient for real knowledge.

5. Secondly, all our complex ideas except those of substances are archetypes of the mind's own making, not intended to be the copies of anything or to have originated from anything; so they can't lack any conformity that is needed for real knowledge. Something that isn't designed to represent anything but itself can't ever represent wrongly, or lead us into error about something by being unlike it; and all our complex ideas are like that, except those of substances. [The remainder of the section continues with this theme, repeating things already said in II.xxxii.13–14.]

6. I expect it will be easily granted that our knowledge of mathematical truths is not only *certain* but *real*—not the mere empty vision of meaningless chimeras of the brain. And yet if we think about it we shall find that it is only about our own ideas. The mathematician considers the properties of a rectangle or circle only as they are in idea [= 'as ideas', or = 'as they are represented by ideas'] in his own mind. For he may never in his life have found a precise circle or rectangle. Yet the knowledge he has of the properties of a circle or of any other mathematical figure are nevertheless true and certain, *even of real existing things*; because the •real things that such propositions refer to are •things that really agree to the archetypes in his mind. Is it true of *his idea of a triangle* that its three angles are equal to two right ones? ·If so, then· it is true also of *a triangle*, wherever it really exists. An existing figure that doesn't exactly conform to that idea of a triangle in his mind is irrelevant to that proposition. And

so he is certain that all his knowledge about such ideas is real knowledge: because he is referring to things only so far as they agree with those ideas of his, he is sure that what he knows concerning •those figures when they have a merely 'ideal' existence in his mind will also hold true of •things that have real existence in the world of matter. . . .

7. It follows from this that moral knowledge is as capable of real certainty as mathematics. For certainty is just the perception of the agreement or disagreement of our ideas; and demonstrating something is just perceiving such agreement through the intervention of other intermediate ideas; so our moral ideas, which resemble mathematical ones in being archetypes themselves and therefore being adequate and complete, resemble them also in having agreements and disagreements that yield real knowledge.

8. To attain knowledge and certainty we have to have •determined ideas [= 'ideas that are distinct and settled']; and, to make our knowledge real we need to have •ideas that match their archetypes. Don't be surprised that I place the certainty of our knowledge in the consideration of our ideas, with so little care and regard (apparently) for the real existence of things. The thoughts and disputes of those who claim to make it their business to enquire after truth and certainty are mainly directed at general propositions and notions in which existence is not at all concerned. The discourses of the mathematicians about the squaring of a circle, conic sections, or any other part of mathematics, don't concern the existence of any of those figures; their demonstrations, which depend on their ideas, are the same whether or not there is any square or circle existing in the world. In the same manner the truth and certainty of moral discourses abstracts from the lives of men, and from the existence in the world of the virtues they discuss. . . . If it is true in

speculation, i.e. in idea, that murder deserves death, it will also be true in reality of any actual action that conforms to the idea of murder. . . .

9. You may object: ‘If moral knowledge is placed in the contemplation of our own moral ideas, and if those ideas (like all modes) are of our own making, what strange notions will there be of justice and temperance? What confusion of virtues and vices if everyone can make what ideas of them he pleases?’ I reply that there will be no confusion or disorder in the things themselves, or in the reasonings about them, if different people have different ideas of justice, temperance, or the like; any more than in mathematics the proofs would be spoiled, or the properties and relations of the figures changed, if someone made a ‘triangle’ with four corners, or a ‘trapezium’ with four right angles. What such a man would be doing—to put it in plain English—is *changing the names* of the figures, calling by one name a figure that mathematicians ordinarily call by another. Let a man make the idea of a figure with three angles of which one is a right angle, and call it anything he pleases—the properties of that idea and the proofs about it will be the same as if he had called it ‘right-angled triangle’. I admit that changing the name, because it is an impropriety of speech, will at first disturb someone who doesn’t know what idea the name stands for; but as soon as the figure is drawn the consequences and demonstration are plain and clear. The same holds for moral knowledge. [Locke gives an example. He also remarks that misusing words in moral discourses is apt to cause ‘more disorder’ than it would in mathematics, because in the former we don’t have diagrams to help us out. He continues:] But despite all this, labelling any of those moral ideas in a manner contrary to the usual meanings of the words of the language in question doesn’t prevent us

from having certain and demonstrative knowledge of their various agreements and disagreements. . . .

10. Where God or some other law-maker has defined a moral name, he has thereby created the essence of the species to which that name applies, and in such a case it is *not safe* to apply or use the word in any other way. In other cases it is *merely an improper use of language* to give a word a meaning other than that of the common usage of the country. And when this happens, it doesn’t disturb the certainty of the knowledge that we can still have by contemplating and inter-relating ideas, even misnamed ones.

11. After two kinds of idea that we may be sure agree with things, we come to: complex ideas of a third sort which, because they relate to archetypes outside us, may differ from their archetypes, in which case our knowledge about them falls short of being real. Such are our ideas of *substances*: they consist of collections of simple ideas supposedly taken from the works of nature, but they may vary from reality by containing more or different ideas than are to be found united in the things themselves. That is how they can and often do fail to conform exactly to things themselves.

12. For reality of knowledge concerning modes, all we need (I repeat) is to put together ideas that aren’t inconsistent with one another, even if they have never before existed in that combination. The ideas of *sacrilege* and *perjury* etc. were as real and true ideas before any such acts occurred as they are now. But our ideas of substances are supposed to copy archetypes outside us, so they must be taken from something that exists or has existed. They mustn’t consist of ideas put together at the pleasure of our thoughts without being based on any real pattern, even if we can see no inconsistency in such a combination. Here is why. We don’t know what real constitution of substances it is on which our

simple ideas depend, and which is the real cause for some of them to be united and others excluded; so there are very few collections of qualities that we can be sure are, or are not, inconsistent in nature, any further than experience and empirical observation reach. So the reality of our knowledge about substances is based on our having complex ideas of them that are *true*, i.e. made up of such simple ones as have been discovered to co-exist in nature. Such ideas, even when they aren't very exact copies, are still the basis for such real knowledge of substances as we have. I have shown that we don't have much of it; still, as far as it goes it is real knowledge. Whatever ideas we have, the agreement we find them to have with others will still be knowledge. If the ideas are abstract it is general knowledge. . . . Whatever simple ideas have been found to co-exist in any substance we can confidently join together again, and so make abstract ideas of substances. For whatever once had a union in nature may be united again.

13. We would think of things with greater freedom and less confusion than perhaps we do, if we didn't let *words* confine our thoughts and abstract ideas, as though there couldn't be any sorts of things other than the ones that have already been named. Here is an example of such confinement, and of release from it. It might be thought a bold paradox, if not a very dangerous falsehood, if I should say that some *changelings* who have lived forty years together without any appearance of reason are something between a *man* and a *beast*. [In Locke's time 'changeling' was a label for anyone whose congenital deficits include a level of intelligence too low for speech to be learned.] In saying this I am opposing a prejudice that is based purely on the false supposition that 'man' and 'beast' stand for distinct species that have been set out by real essences in such a way that no other species can come between them.

The idea of *the shape, motion, and life of a man without reason* is as much a distinct idea, and makes as much a distinct sort of things from man and beast, as the idea of *the shape of an ass with reason* would be different from either that of man or beast, and be a species of an animal distinct from both. To see this, we need to abstract from those names and from the supposition of specific essences made by nature wherein all things with the same name exactly and equally partake, and stop thinking that there is a certain number of these essences in which all things have been formed, as though poured into moulds.

14. You will now want to ask: 'If changelings may be supposed to be something between man and beast, what are they?' I answer, *changelings*; which is as good a word to signify something different from the meaning of 'man' or 'beast' as those two names are to have meanings different one from the other. [Locke goes on to say that this ought to be the end of the matter, but that his chosen example gets people's hackles up for religious reasons, so he will discuss it some more. The way we classify the changeling, he says in section **15**, will be thought by some to have implications for the changeling's chances of eternal life; but this is wrong. If it is based on the idea that the changeling is entitled to immortality because it/he has a rational soul, as shown by its/his human shape, Locke has a sharp reply.] To conclude that there is a rational soul in a changeling because he has the outside of a rational creature, though his actions throughout his life carry far fewer marks of reason than can be found in many a beast, is no more reasonable that to conclude that a human corpse, which gives no more appearance or action of life than does a statue, nevertheless has a living soul in it because of its shape.

16. 'But the changeling is born of rational parents, and must therefore have a rational soul.' What logic are you following here? It isn't one that is generally accepted, for if people accepted it they wouldn't be so bold, as everywhere they are, as to destroy ill-formed and mis-shaped productions. 'Yes, but the ones they destroy are monsters.' Let them be so; then what will your drivelling, unintelligent, ineducable changeling be? Shall a defect in the body make a monster; while a defect in the mind does not (even though the mind is the more noble, and in common parlance the more essential, part)? Shall the lack of a nose or a neck make a monster and put the creature out of the rank of *men*, when the lack of reason and understanding does not? [The section continues with renewed criticisms of the view that bodily shape indicates whether a creature has a rational soul. Locke raises slippery-slope difficulties, which he sums up in this general comment:] I would gladly know what are those precise bodily features which according to this hypothesis are, and those which are not, capable of having a rational soul joined to them. What sort of outside is the certain sign that there is, or that there isn't, such an inhabitant within? For until that is established we talk at random of 'man'. [The section concludes with a reminder of Locke's main interest

in all this, namely to show the troubles that come from 'the common notion of species and essences'.]

17. I have mentioned this here because I think we need to be extremely careful not to be imposed on by words, or by 'species' in our ordinary notions of them. For I am inclined to think that *there* lies one great obstacle to clear and distinct knowledge, especially about substances, and from there have arisen many of the difficulties about truth and certainty. If we regularly separated our thoughts and reasonings from *words* we might remedy much of this inconvenience within our own thoughts; but our discourse with others would still be disturbed if we retained the opinion that species and their essences were anything but our abstract ideas (such as they are) with names annexed to them.

18. Wherever we perceive the agreement or disagreement of any of our ideas, there is certain knowledge. Wherever we are sure those ideas agree with the reality of things, there is certain real knowledge. I think I have shown *what certainty, real certainty, consists in*, by showing the marks of agreement between our ideas and the reality of things. Whether or not it has mattered to *anyone else*, showing what real certainty consists in was one of the things that *I* thought there was a great need for, a need that I wanted to meet.

Chapter v: Truth in general

1. *What is truth?* was an enquiry many ages ago [by Pontius Pilate—John 18:38]; and truth is what all mankind search for, or say they do; so it must be worth our while to examine carefully what it consists in, and to learn enough about its nature to see how the mind distinguishes truth from falsehood.

2. ‘Truth’ then seems to me, in the proper sense of the word, to signify nothing but *the joining or separating of signs according to whether the things signified agree or disagree one with another*. The joining or separating of signs that I am talking about here is what by another name we call ‘proposition’. So that truth properly belongs only to propositions. There are two sorts of these, namely mental and verbal, corresponding to the two sorts of signs that we commonly use, namely ideas and words.

3. To form a clear notion of truth, we have to consider *truth of thought* and *truth of words* separately from one another. But it’s hard to do this because in treating of mental propositions we inevitably use words, so that when we give an example of a mental proposition it immediately stops being barely mental and becomes verbal. A mental proposition is nothing but a bare consideration of the ideas as they are in our minds, stripped of names; so it loses the nature of a purely mental proposition as soon as it is put into words.

4. What makes it even harder to deal with mental and verbal propositions separately is that most (if not all) men use words instead of ideas—even in their private thinking and reasonings, at least when they are thinking about something that involves complex ideas. This is a pointer to the imperfection and uncertainty of our complex ideas,

and it can, if we carefully make good use of it, serve as a mark to show us what things we have clear and perfect established ideas of, and what not. For if we carefully observe how our mind goes about thinking and reasoning, I think we shall find that when we make propositions *within our own thoughts* about white or black, sweet or bitter, a triangle or a circle, we often frame in our minds the ideas themselves, without reflecting on their names. But when we want to make propositions about more complex ideas—for example man, vitriol, fortitude, glory—we usually put the name in place of the idea. That is because •the ideas these names stand for are mostly imperfect, confused, and undetermined, leading us to reflect instead on •the names, because they are more clear, certain, and distinct, and come more readily to mind than the pure ideas do. And so we employ these words instead of the ideas themselves, even when we want to meditate and reason *within ourselves*, silently making *mental* propositions. As I have already noted, what leads us to do this when thinking about •substances is the imperfection of our ideas: we make the name stand for the real essence, of which we have no idea at all. In the case of •modes, it—i.e. substituting names for ideas—is brought about by the great *number* of simple ideas that make them up. Where many simple ideas are compounded into one complex one, the name comes to mind much more easily than the complex idea itself does. The idea •requires time and attention to be recollected and exactly represented to the mind, even for •people have taken trouble to do this on previous occasions; and it •can’t be done at all by those who, though they have at their command most of the common words of their language, •may never once in all their lives have troubled themselves to

consider what precise ideas most of those words stand for. . . . Those who talk on and on about 'religion' and 'conscience', 'church' and 'faith', 'power' and 'right', 'obstructions' and 'humours', 'melancholy' and 'choler', might have little left in their thoughts and meditations if we could persuade them to think only of •the things themselves, and set aside •the words with which they so often confused others—and often enough confused themselves too!

5. But to return to the consideration of truth: we must, I say, observe two sorts of propositions that we can make. First, *mental* propositions, in which the ideas in our understandings are put together (or separated) by the mind that perceives or judges concerning their agreement (or disagreement)—all without the use of words. Secondly, *verbal* propositions: these are •made up of• words, the signs of our ideas, which are put together (or separated) in affirmative (or negative) sentences. By affirming or denying in this way, these audible signs are as it were put together or separated from one another. So that *proposition* consists in joining or separating signs, and *truth* consists in putting them together or separating them according as the things they stand for agree or disagree.

6. Your experience will satisfy you that your mind, by perceiving or supposing the agreement or disagreement of any of its ideas, does silently put them into a kind of affirmative or negative proposition. I have tried to describe this process using the terms 'putting together' and 'separating'; but this action of the mind, which is so familiar to every thinking and reasoning man, is easier to •conceive by reflecting on what happens in us when we affirm or deny than it is to •explain in words. When a man has in his head the idea of two lines, specifically the side and diagonal of a square of which the diagonal is an inch long, he may have the idea also

of the division of that diagonal line into a certain number of equal parts—into five, ten, a hundred, a thousand, or any other number—and may have the idea of that one-inch line's being divisible (or of its not being divisible) into equal parts such that a certain number of them will be equal to the line making the side of the square. Now whenever he perceives, believes, or supposes •such a kind of divisibility to agree or disagree with •his idea of that line, he (so to speak) joins or separates •the idea of that line and •the idea of that kind of divisibility; and in so doing he makes a mental proposition, which is true or false depending on whether or not such a kind of divisibility really does agree with that line. When ideas are put together or separated in the mind according as they or the things they stand for do agree or not, that is *mental truth*, as I call it. But *truth of words* is something more, namely affirming or denying words one of another, according as the ideas they stand for agree or disagree. This again is of two kinds: either •purely verbal and trifling, which I shall speak of in chapter viii; or •real and instructive, which is the object of the real knowledge that I have already discussed.

7. Here again the doubt that arose about knowledge will be apt to re-arise about truth. The following objection will be raised (•it runs to the end of the section•): If truth is nothing but the joining and separating of words in propositions, according as the ideas they stand for agree or disagree in men's minds, the knowledge of truth is not so valuable as it is taken to be, and not worth the time and trouble men employ in the search of it; for by this account it amounts merely to the conformity of words to the chimeras of men's brains. Everyone knows what odd notions many men's heads are filled with, and what strange ideas all men's brains are capable of! But if we stop at that, all we know

by this rule is the truth of the visionary world of our own imaginations—truth that may as well concern •harpies and centaurs as men and horses. For •those and their like may be ideas in our heads, and agree or disagree there, and so have propositions made about them that are as true as ones involving ideas of real beings. And it will be every bit as true to say *All centaurs are animals* as that *All men are animals*, and the certainty of one proposition will be as great as that of the other. For in both propositions the words are put together according to the agreement of the ideas in our minds; and the agreement of the idea of *animal* with that of *centaur* is as clear and visible to the mind as its agreement with the idea of *man*; and so these two propositions are equally true, equally certain. But what use is *that* sort of truth to us?

8. What I have said in chapter iv to divide *knowledge* into real and imaginary might suffice here, in answer to this doubt, to divide *truth* into real truth and chimerical or (if you please) merely nominal truth; for the two distinctions rest on the same foundation. But it may be appropriate here again to bear in mind that though our words signify nothing but our •ideas, they are designed by us to signify •things; so the truth they contain, when put into propositions, will be only verbal when they stand for ideas in the mind that don't agree with the reality of things. And therefore *truth* as well as *knowledge* may be divided into verbal and real; where merely verbal truth is what we have that when terms are joined according to the agreement or disagreement of the ideas they stand for, without regard for whether our ideas •represent things that• really do or could have an existence in nature. We have real truth when these signs are joined according as our ideas agree, and •things corresponding to• our ideas *can* exist in nature—which with substances we can't know except by knowing that such *have* existed.

9. Truth is marking down in words the agreement or disagreement of ideas *as* it is. Falsehood is the marking down in words the agreement or disagreement of ideas *otherwise than* it is. And so far as these ideas, thus marked by sounds, agree to their archetypes, to that extent the truth is real. The knowledge of this truth consists in •knowing what ideas the words stand for and •perceiving the agreement or disagreement of those ideas according as it is marked by those words.

10. Because words are looked on as the great channels of truth and knowledge, and because in conveying and receiving truth (and often in reasoning about it) we use words and propositions, I shall look further into the certainty of real truths contained in propositions—asking what it consists in and where it can be found—and I'll try to show what sort of universal propositions we can be certain of the real truth or falsehood of. I shall begin with general propositions, these being the ones that most employ our thoughts. The mind mainly pursues general truths, because they are the ones that enlarge our knowledge the most, and through their comprehensiveness satisfy us of many particulars at once, enlarge our view, and shorten our way to knowledge. •They will be my topic in chapter vi•.

11. Besides truth taken in the strict sense I have discussed, there are •two• other sorts of 'truths'. *Moral truth* is speaking of things according to the persuasion of our own minds, though the proposition we utter doesn't agree with the reality of things. *Metaphysical truth* is nothing but the real existence of things, in conformity with the ideas to which we have annexed their names. This may seem to consist in the *very being of* things •rather than in *truth about* them•; but on closer inspection it turns out to include a silent *proposition* in which the mind joins that particular thing to a certain

idea—the idea the mind had previously assigned to the thing along with a name for it. These two further points about

truth have either been discussed earlier or are not much to our present purpose, which is why I merely mention them in passing.

Chapter vi: Universal propositions, their truth and certainty

1. The best and surest way to get clear and distinct knowledge is through examining and judging ideas by themselves, setting their names aside entirely; but because of the prevailing custom of using sounds in place of ideas, this 'best way' is very seldom followed. Everyone can see how common it is for names to be used instead of the ideas themselves, even when men don't need words for communicative purposes, because they are thinking and reasoning in their own heads. This happens especially when the ideas are very complex, and made up of a large collection of simple ones. This makes the consideration of *words and propositions* so necessary a part of the topic of *knowledge* that it is very hard to speak intelligibly of *it* without explaining *them*.

2. All our knowledge is either of *particular* truths or of *general* ones. I here set aside the former of these. The latter—general truths—are what we (for good reasons) mostly seek after. They can never be well known, and can very seldom be grasped at all, except as conceived and expressed in *words*. So it isn't out of our way, in examining our knowledge, to enquire into the truth and certainty of universal propositions—I'm talking about *verbal* propositions, not *mental* ones.

3. The doubtfulness of terms is a danger everywhere, including here—where the term 'certainty' could trip us up. So I need to explain that certainty is twofold: there is certainty of *truth* and certainty of *knowledge*. •Certainty of truth occurs when words are put together in propositions in such a way as to express, exactly and accurately, the agreement or disagreement of the ideas they stand for. To have •certainty of knowledge is to perceive the agreement or

disagreement of ideas, as expressed in a proposition. This we usually call 'knowing' (or 'being certain of') the truth of a proposition.

4. We can't be certain of the truth of any general proposition unless we know the precise extent of the species its terms stand for; so we have to know the *essence* of each species, which is what constitutes the species and sets its boundaries. With simple ideas and modes this isn't hard to do. For in these the •real and •nominal essence are the same; or—to put the same thing in other words—the abstract idea that the general term stands for is the •only essence (and sets the only boundary) that the species can be supposed to have; so that there can be no doubt about how far the species extends, or what things fall under each term—namely, all and only things that exactly fit the idea the general term stands for.

But in the case of substances, where the species is supposed to be constituted, fixed, and bounded by a •real essence distinct from the •nominal one, the extent of the general word is very uncertain. That's because we don't know this real essence, so we can't know what does and what doesn't belong to that species, or, therefore, what may and what may not be affirmed of it with certainty. Speaking of a man, or gold, or any other species of natural substances, as supposedly constituted by a precise and real essence that nature regularly imparts to every individual of that kind, making it belong to that species, we can't be certain of the truth of any affirmation or negation made of it. For 'man' and 'gold', taken in this way as naming species of things constituted by real essences that differ from the complex idea in the mind of the speaker, stand for. . . .we don't know

what they stand for! And the extent of these species, with such boundaries, are so unknown and unsettled that we can't with any certainty affirm that all men are rational, or that all gold is yellow. But where the *nominal* essence is kept to as the boundary of each species, and men apply a general term only to particular things in which is found the complex idea the term stands for, there's no danger of mistaking the boundaries of each species and no doubt about whether any given proposition is true. I have chosen to explain this uncertainty of propositions in the scholastic terminology of 'essences' and 'species' so as to bring out the absurdity and inconvenience of thinking of *them* as anything but abstract ideas with names attached. [The section concludes with a defence of this choice: it might make things needlessly difficult for people who aren't 'possessed with scholastic learning', but so many *are* tainted with it that it seemed best to try to rescue them from their mistakes.]

5. When the names of substances are made to stand for species that are supposed to be based on unknown real essences, they can't be used to convey certainty to the understanding. How can we be sure that this or that quality is in gold, when we don't know what is and what isn't gold? Since in this way of speaking nothing is gold except what partakes of an essence that we don't know, we can't be sure whether any bit of matter in the world is gold, because we are incurably ignorant about whether it has that which ·supposedly· entitles anything to be called 'gold', namely that real essence of which we have no idea. . . . And even if we did (which is impossible) know for sure which bits of matter are gold by this standard, i.e. which have the real essence that we don't know, *still* we couldn't be sure that this or that quality could with truth be affirmed of gold ·in general·, because we couldn't know that this or that quality or idea

has a necessary connection with a real essence of which we have no idea at all.

6. On the other hand, when the names of substances are used properly, for the ideas men have in their minds, though this enables them to have clear and determinate meanings it doesn't provide us with many universal propositions of whose truth we can be certain. Not because we are uncertain about what things are signified by them (·because in this use of them we are not·), but because the complex ideas they stand for are combinations of simple ones that have very few discoverable connections or inconsistencies with other ideas.

7. The complex ideas that our names of the species of substances properly stand for are collections of such qualities as have been observed to co-exist in an unknown substratum that we call 'substance'. But what *other* qualities necessarily co-exist with such combinations we can't know for sure unless we can discover their natural dependence. With primary qualities we can know very little of this, and in all the secondary qualities we can discover no connection at all, for the reasons mentioned in chapter iii. [Locke then repeats what he said in iii.13, concluding thus:] And so we can have doubt-free certainty about very few general propositions concerning substances.

[Sections **8–9** illustrate this thesis of Locke's with examples concerning *gold*. It is widely believed that *All gold is fixed* (that is, not easily volatilized), but if fixedness isn't part of the complex idea defining 'gold', then we can't know that all gold is fixed; we can't connect fixedness with the nominal essence of gold directly, for it has no discoverable connection with that complex idea; and we can't connect it via the supposed real essence, because we don't know what that is and so can't know what connections it enters into. And if (section **9**) 'fixed' is included in the complex idea defining

'gold', then indeed we do know for certain that all gold is fixed, but this is now an uninteresting truth on a par with *A centaur is four-footed.*]

10. By putting more co-existing qualities into one complex idea under one name, we make the meaning of the word in question more precise and determinate, but we don't increase its ability to yield universal certainty regarding *other* qualities that are *not* contained in our complex idea. That's because we don't perceive their connection or dependence on one another, being ignorant both of •the real constitution in which they are all founded, and also of •how they flow from that constitution. For the main part of our knowledge about substances is not, as with other things, merely •knowledge of the relation between two ideas that could exist separately; rather, it is •knowledge of the necessary connection and co-existence of several distinct ideas [here = 'qualities'] in the same subject, or of the impossibility of their co-existing in that way. If we could begin at the other end, and discover what a given colour consists in, what makes a body lighter or heavier, what texture of parts makes it malleable, fusible, fixed, and soluble in this sort of liquid and not in that—if we had an idea like *this* of bodies, we might form abstract ideas of them that would be a basis for more general knowledge, and enable us to make universal propositions that carried truth and certainty with them. But while our complex ideas of the sorts of substances are so remote from that internal real constitution on which their sensible qualities depend, and are made up of merely an imperfect collection of apparent qualities that our senses can discover; there can be few general propositions concerning substances of whose real truth we can be certainly assured, because there are so few simple ideas of whose connection and necessary co-existence we can have certain and undoubted knowledge.

Among all the secondary qualities of substances and the powers relating to them, I don't think we can name any two whose necessary co-existence or impossibility of co-existence we can certainly know (except for pairs belonging to the same sense, which necessarily exclude one another, as I have shown elsewhere). No-one, I think, given a body's colour, can certainly know what smell, taste, sound, or tangible qualities it has, or what alterations it can make in or receive from other bodies. The same holds for sound, or taste, and so on. Since our specific names of substances stand for collections of just such ideas, it is no wonder that we can very seldom use them in general propositions of undoubted real certainty. Still, when the complex idea of a sort of substance contains a simple idea whose necessary co-existence with some idea other can be discovered, *then* a universal proposition can with certainty be made concerning it: for example, if we discovered a necessary connection between *malleableness* and the *colour or weight* of gold (or any other part of the complex idea signified by 'gold'), we could make a certain universal proposition concerning gold in this respect; and the real truth of this proposition, 'All gold is malleable', would be as certain as the real truth of 'The three angles of any triangle are equal to two right angles'.

11. If we had ideas of substances that let us know •what real constitutions produce the sensible qualities we find in them, and •how the latter qualities flowed from those constitutions, we could find out their properties [= 'qualities that every member of a species *must* possess'] more certainly than we can now through our senses. In that case, we could know the properties of gold without making experiments on it—indeed without there being any such stuff as gold in existence—just as we can know the properties of a triangle without appealing to any triangle that exists in the physical world; the idea in our

minds would serve for the gold as well as it does for the triangle. But we are so far from being admitted *into* the secrets of nature that we hardly ever get close to *starting to enter into* them. Here are some of the reasons for the great gap between what we know and what there is to be known.

We usually consider each substance that we meet with as an entire thing on its own, having all its qualities in itself and independently of other things. This leads us to overlook most of the operations of invisible fluids in which they are immersed—fluids whose motions and operations influence most of the qualities that we observe in substances and make our basis for classifying and naming them. Put a piece of gold anywhere by itself, separated from the influence of all other bodies, and it will immediately lose its colour and weight and (for all I know to the contrary) its malleableness too. Water, whose fluidity is to us an essential quality, would if left to itself cease to be fluid.

And if inanimate bodies owe so much of their present state to other bodies outside them that their appearance would be changed if those other bodies were removed, it is even more so with plants, that are nourished, grow, and produce leaves, flowers, and seeds in a constant succession—all in dependence on their environment. And if we look a little more closely into the state of animals we shall find that they depend—for life, motion, and the main qualities to be observed in them—wholly on outer causes and qualities of other bodies, so much so that they can't survive for a moment without them. Yet we ignore those other bodies, and don't bring them into the complex ideas we form of those animals. Take the air for just a minute from the most living creatures and they quickly lose sense, life, and motion. Knowledge of this has been forced on us by our need to breathe. But how many other external (and possibly very distant) bodies do the springs of these admirable living machines depend

on—bodies that aren't commonly observed, or even thought of? And how many such bodies are there that can never be discovered by the most thorough enquiry? The inhabitants of this spot in the universe, though many millions of miles from the sun, nevertheless depend so much on the suitably damped-down movements of particles coming from it, or agitated by it, that if this earth were moved to a position just a little further from or nearer to that source of heat, probably most of the animals on earth would immediately perish. The evidence for this is that we often find that animals are destroyed when their place on our little globe exposes them to too much or too little of the sun's warmth. The magnetic qualities observed in a loadstone must have their source far beyond the confines of that body. [Locke was sure of that because he was sure that there are no forces of attraction.] Various sorts of animals are ravaged by invisible causes: some, we are told, meet certain death just by crossing the equator; others certainly die if they are moved into a neighbouring country. All this shows that for these animals to be what they appear to us to be, and to retain the qualities by which we recognize them, they require the concurrence and operations of various bodies that are ordinarily thought to have nothing to do with them.

So we are thoroughly off-course when we think that things contain *within themselves* the qualities that appear to us in them; and it is no use our searching for that constitution within the body of a fly, or of an elephant, which gives rise to the qualities and powers we observe in them. To understand them properly we may even have to look not only beyond our earth and atmosphere but even beyond the sun or the remotest star our eyes have yet discovered. We can't determine the extent to which the existence and operation of particular substances on our planet depends on causes that are utterly beyond our view. We perceive some of the

movements and large-scale operations of things here around us; but as for the streams of matter or influence or whatever that keep all these curious machines in motion and in repair, we haven't the least notion of where they come from or how they are conveyed and what form they take. For all we know to the contrary, it may be that the great parts and wheels (so to speak) of this stupendous structure of the universe are so connected and inter-dependent in their influences and operations that things in our locality would put on quite another face, and cease to be what they are, if some one of the incomprehensibly remote stars were to cease to move as it does. This is certain: however self-sufficient things seem to be in themselves, they are indebted to other parts of nature for the features of them that we attend to most. Their observable qualities, actions, and powers are due to something outside them; we know of no part of nature that is so complete and perfect that it doesn't owe its existence and its excellences to its neighbours; if we want to understand the qualities of any body, we mustn't let its surface mark the boundary of our thoughts—we need to look much further out than that.

[Section 12 rams home the conclusion that we know almost nothing of the real essences of substances. Even apart from our ignorance of distant bodies that may be relevant, 'we can't even discover the size, shape, and texture of substances' minute and active parts'.]

13. So we shouldn't wonder that very few general propositions about substances are certain; our knowledge of their qualities and properties seldom goes further than our senses reach. Enquiring and observant men may by strength of judgment penetrate further, and, on probabilities taken from wary observation and well-assembled hints, guess correctly at what experience hasn't yet revealed to them. But this is

still just guessing; it is only opinion, and hasn't the certainty that is needed for knowledge. For all general knowledge lies only in our own thoughts, consisting merely in the contemplation of our own abstract ideas. [The rest of this section develops the point: we don't have ideas of substances that can support genuine knowledge about them.]

14. Before we can have any tolerable knowledge of this kind, we must know first

- what changes the primary qualities of one body regularly produce in the primary qualities of another, and how;

and secondly

- what primary qualities of bodies produce certain sensations or ideas in us.

Knowing all this is knowing *all the effects of matter* in its different conditions of size, shape, cohesion of parts, motion and rest! I think everyone will agree that we can't possibly have that knowledge unless it comes to us through divine revelation. Furthermore, even if God revealed to us •what sort of shape, size, and motion of corpuscles can produce in us the sensation of a yellow colour, and •what sort of shape, size, and texture on the surface of any body can give such corpuscles the motion appropriate for producing that colour, that *still* wouldn't be enough to enable us to know with certainty any universal propositions about the various sorts of bodies. For such knowledge we would *also* need to have faculties acute enough to perceive the precise size, shape, texture, and motion of the minute parts of bodies by means of which they operate on our senses. •Why would we need such faculties? Because we would need a perceptual intake of those facts in order to build them into our abstract ideas of bodies—ideas that have to be the immediate source of any certain universal knowledge.

I have mentioned here only corporeal substances, whose operations *seem* to lie more within reach of our understandings; for when we try to think about the operations of spirits—how they think, and how they move bodies—we find ourselves at a loss straight off. But there isn't really much of a difference, because when we have thought a bit more closely about how bodies operate, and examined how little—even with bodies—we can grasp clearly beyond matters of particular fact that we learn through our senses, we'll have to admit that with bodies too our 'discoveries' don't amount to much more than perfect ignorance and incapacity!

15. This is evident: the abstract complex ideas of substances, for which their general names stand, don't include their real constitutions, and so they can give us very little universal certainty—because our ideas of them don't include whatever it is that produces the qualities we observe in them and want to know about. For example, let the idea to which we give the name 'man' be *a body of the ordinary shape, with sense, voluntary motion, and reason joined to it*. This being the abstract idea, and consequently the essence of our species *man*, we can make very few general certain propositions concerning man, taken in this sense. We don't know

the real constitution that underlies •sensation, •power of movement, •reasoning, and •that special shape,

producing them and uniting them in a single subject, so there are very few other qualities with which we can perceive them to have a necessary connection. Therefore we can't with certainty affirm that •all men sleep intermittently, that •no man can be nourished by wood or stones, or that •for all men hemlock is a poison; because these ideas have no connection or incompatibility with our nominal essence of *man*, this abstract idea that 'man' stands for. With propositions like these we must appeal to tests with particular subjects, and that can't take us far. For the rest, we must settle for probability. . . . There are animals that safely eat hemlock, and others that are nourished by wood and stones; but as long as we lack ideas of the various sorts of animals' real constitutions, on which such qualities and powers depend, we mustn't hope to reach certainty in universal propositions about them. We can reach such propositions only from ideas that have a detectable connection with our nominal essence or with some part of it; but there are so few of these, and they are so insignificant, that we can fairly look on our *certain general knowledge of substances* as almost non-existent.

[Section **16** sums up the main conclusions of the chapter, without adding to them.]

Chapter vii: Maxims

1. Propositions of a certain kind—labelled ‘maxims’ or ‘axioms’—have been taken to be principles of science; and because they are self-evident they have been thought to be innate, though I know of nobody who has undertaken to show what makes them so clear and compelling. It may be worthwhile to enquire into the reason for their evidentness, to see whether it is special to them alone, and also to examine how far they influence and govern our other knowledge.

2. Knowledge, as I have shown, consists in the perception of the agreement or disagreement of ideas. Now, when that agreement or disagreement is perceived immediately, by itself and without the intervention or help of any other ideas, then our knowledge is *self-evident*. Anyone will see this who merely thinks of one of the propositions that he assents to at first sight, without any proof. For he will find each time that his assent comes from the agreement (or disagreement) which his mind, by bringing the ideas together in a single thought, immediately finds in them corresponding to the affirmation (or negation) in the proposition.

3. Is this self-evidence special to the propositions that commonly pass under the name of ‘maxims’ and have the title of ‘axioms’ conferred on them? Plainly it is not: various other truths that aren’t counted as axioms are equally self-evident. To see this, let us go over the sorts of agreement or disagreement of ideas that I discussed earlier, namely •identity, •co-existence, •relation, and •real existence. ·I shall give these a section each·. We shall discover that not only the small number of so-called ‘maxims’ are self-evident, but a virtually infinite number of other propositions are so as well.

4. The immediate perception of the agreement or disagreement of *identity* is based simply on the mind’s having different ideas; so this provides us with as many self-evident propositions as we have different ideas. Everyone that has any knowledge at all has as its foundation various different ideas; and the first act of the mind (without which it can never be capable of any knowledge) is to know each of its ideas by itself, and to distinguish it from others. Everyone finds in himself that •he knows the ideas he has; that •he knows also when any idea is in his understanding, and what it is; and that •when two or more ideas are there he knows them distinctly without confusing them with one another. So he can never be in doubt, when some idea is in his mind, that it is there and is the idea that it is; and when two different ideas are in his mind, he can’t doubt that they are there and aren’t one and the same idea. All such affirmations and negations are made without any possibility of doubt, uncertainty, or hesitation, and must necessarily be assented to as soon as understood—that is, as soon as we have in our minds definite ideas that the terms in the proposition stand for. [The remainder of this long section elaborates the account already given, emphasizing that an idea’s identity with itself, and its distinctness from every other idea, don’t depend on how general or particular the idea is. This sort of self-evidence, then, can be found not only in the very general propositions that are called ‘maxims’ or ‘axioms’ but also in much less general ones that aren’t accorded that honour. The section concludes:] I appeal to everyone’s own mind to confirm that the proposition *A circle is a circle* is as self-evident a proposition as that consisting of more general terms, *Whatsoever is, is*; and again that the proposition *Blue*

is not red is a proposition that the mind can no more doubt, as soon as it understands the words, than it can doubt the axiom *It is impossible for the same thing to be and not be*; and so on for all the others.

5. As to *co-existence*, or a necessary connection between two ideas such that a subject in which one of them exists must have the other also: the mind almost never *immediately* perceives any agreement or disagreement of this sort. So we have very little intuitive knowledge of this kind; nor are there many propositions of this kind that are self-evident. There are some, however: if our idea of *body* includes the idea of *filling a place equal to the contents of its outer surface* then I think it is a self-evident proposition that *two bodies can't be in the same place* at the same time.

6. As to the *relations* of modes, mathematicians have formulated many axioms concerning the one relation *equality*. For example, *Equals taken from equals, the remainder will be equal*; this and its kind are deemed to be maxims by the mathematicians, and they are unquestionable truths. But I don't think that anyone who considers them will find that they are more clearly self-evident than that *One and one are equal to two*; and that *If you take two from the five fingers of one hand and two from the five fingers of the other hand, the remaining numbers will be equal*. These and a thousand other such propositions may be found concerning numbers—propositions that compel assent at the very first hearing, and carry with them at least as much clearness as the mathematical axioms.

7. As to *real existence*, since that has no necessary connection with any of our other ideas except the ideas of *ourselves* and of *a first being*, we don't even have demonstrative knowledge of the real existence of any things other than ourselves and God, much less self-evident or intuitive

knowledge; and therefore concerning those other things there are no maxims.

8. In the next place let us consider what influence these received maxims have on the other parts of our knowledge. The rule established by the scholastic philosophers that all reasonings are *ex praecognitis et praeconcessis* [= 'from what is known in advance and what is agreed to in advance'] seems to base all other knowledge on these maxims, and to suppose them to be *praecognita*. I think two claims are being made here: •that these axioms are the truths that are first known to the mind, and •that the other parts of our knowledge depend on them. I shall argue against both of these, giving them a section apiece.

9. Our own experience shows us that they aren't the truths first known to the mind (see I.ii). Anyone can see that a child certainly knows that *a stranger is not its mother* and that *its sucking-bottle is not the rod* long before it knows that *it is impossible for the same thing to be and not to be!* And there are ever so many truths about numbers that the mind is perfectly acquainted with, and fully convinced of, before it ever gives thought to the general maxims from which mathematicians in their proofs sometimes derive them. The reason for this is very plain. What makes the mind assent to such propositions is just its perception of the agreement or disagreement of its ideas, according as it finds them affirmed or denied of one another in words it understands; and every idea is known to be what it is, and every two different ideas are known not to be the same; so it necessarily follows that the self-evident truths that are first known must be the ones whose constituent ideas are first in the mind. And the ideas that are first in the mind, obviously, are those of particular things, from which by slow degrees the understanding proceeds to a few general ideas. These, being

taken from the ordinary and familiar objects of sense, are settled in the mind with general names annexed to them. Thus the ideas that are first received and distinguished, and so made the subjects of knowledge, are *particular* ones; next come *specific* or *somewhat general* ones. Ideas that are *more general* come later still, because the more general an idea is the greater the abstraction that is needed to form it. And: for the novice minds of children, abstract ideas aren't as obvious or easy as particular ones are. If they seem easy to grown men that is only because they have been made so by constant and familiar use. For when we reflect on general ideas accurately and with care we'll find that they are artifacts, contrivances of the mind, which have a lot of difficulty in them and don't offer themselves as easily as we tend to think. For example, it requires some effort and skill to form the general idea of a *triangle* (though this isn't one of the most abstract, comprehensive, and difficult), for it must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon; but all and none of these at once. In effect, it is something imperfect, that cannot exist; an idea in which some parts of several different and inconsistent ideas are put together. The mind certainly needs such ideas, and hurries to get them as fast as it can, to make communication easier and to enlarge knowledge. But there is reason to suspect that abstract ideas are signs of our imperfection; and at least I have said enough to show that the most abstract and general ideas are not those that the mind is first and most easily acquainted with, nor what its earliest knowledge is about.

10. It plainly follows from this that these vaunted 'maxims' are *not* the principles and foundations of all our other knowledge. If there are many other truths that are as self-evident as the maxims are and known before we know them, the

maxims can't be the principles from which we deduce all other truths. Is it impossible to know that *one and two are equal to three* except through some such axiom as *the whole is equal to all its parts taken together*? Plenty of people know that one and two are equal to three, without having heard or thought of any axiom by which it might be proved; and they know it as certainly as anyone knows that the whole is equal to all its parts or any other maxim, knowing it on the same basis of self-evidence. For the equality of those ideas—the equality of *one and two* with *three*—is as visible and certain to everyone *without* that or any other axiom as it is *with* it. Furthermore, when someone comes to know that *the whole is equal to all its parts* he doesn't then know that *one and two are equal to three* better or more certainly than he did before. If there are relevant differences in those ideas, the ideas of whole and part are more obscure, or at least harder to get securely in the mind, than those of one, two, and three. [In the remainder of this section Locke repeats his reason for holding that particular self-evident truths are not known on the strength of axioms or maxims; and says that in that case we must either •give up the doctrine that all knowledge is based on 'praecognita or general maxims' or else •count every immediately self-evident truth as a maxim, in which case there will be innumerable many maxims.]

11. Then what shall we say? Are these general maxims useless? By no means; though perhaps their use is not what it is commonly thought to be. But my calling into question what some men have claimed for maxims may draw the protest that I am overturning the foundations of all the sciences; so it may be worthwhile to consider them in relation to other parts of our knowledge, and to examine in more detail what purposes they do serve and what purposes they don't. I shall do this in one long section, first treating

three purposes that maxims do not serve, then two that they do.

(1) It is evident from what I have already said that maxims are of no use to prove or confirm less general self-evident propositions.

(2) It is equally clear that they have never been the foundations on which any branch of knowledge has been built. [Locke then pours scorn on the view that a branch of knowledge could be based on *What is, is* or its like. In theological disputes, maxims can ‘serve to silence wranglers’, he concedes, but:] I think that nobody will infer from this that the Christian religion is built on these maxims, or that our knowledge of it is derived from these principles. It is from *revelation* we have received it, and without revelation these maxims could never have helped us to it. When we find out an idea by whose intervention we discover the connection of two others, this is a *revelation* from God to us through •the voice of reason. For then we come to know a truth that we didn’t know before. When God declares any truth to us this is a *revelation* to us through •the voice of his spirit, and we are advanced in our knowledge. But in neither case do we receive our light or knowledge from maxims. In one case, the things themselves provide it, and we see the truth in them by perceiving their agreement or disagreement. In the other case, God himself provides it immediately to us, and we see the truth of what he says in his unerring truthfulness.

(3) Maxims don’t help men forward in the advancement of sciences, or in the discovery of previously unknown truths. Mr. Newton, in his supremely admirable book, has demonstrated various propositions that are new truths, previously unknown to the world, and are further advances in mathematical knowledge. But he wasn’t helped to discover these by such general maxims as *What is, is* or *The whole is bigger than a part*—these weren’t the clues that led

him into the discovery of the truth and certainty of those propositions. Nor did they give him the knowledge of his demonstrations: he achieved *that* by finding out intermediate ideas that showed the agreement or disagreement of the ideas expressed in the propositions he demonstrated. This is the greatest way in which human understanding enlarges its knowledge and advances the sciences; and maxims don’t come into it. Those who have this traditional admiration of these propositions, and think that no step can be made in knowledge without the support of an axiom, ought to distinguish •the method of acquiring knowledge from •the method of communicating it; and •the method of creating a science from •that of teaching it to others as far as it is advanced. Then they would see that general maxims were not the foundations on which the first discoverers raised their fine structures, or the keys that •first• unlocked those secrets of knowledge. Though afterwards, when universities were built, and sciences had their professors to teach what others had found out, *they* often made use of maxims. That is, they laid down certain propositions that were self-evident, or were to be received as true; and then with these settled in the minds of their pupils as unquestionable truths, the professors occasionally employed them to convince the pupils of truths in particular instances that were not so familiar to their minds as those general axioms which had been inculcated in them and carefully settled in their minds. Yet these particular instances, when well reflected on, are just as self-evident as the general maxims used to confirm them; and it was in those particular instances that the first discoverer found the truth, with no help from the general maxims. And so can anyone else who considers them attentively.

•So much for what maxims *cannot* do. I come now to the use that *is* made of maxims.

(1) They are useful, as I have just noted, in the ordinary methods of teaching sciences as far as they are advanced; but of little or none in advancing them further.

(2) They are of use in disputes, for silencing obstinate wranglers and bringing those contests to some conclusion. [In the remaining four pages of this enormous section Locke •paints a satirical picture of men—in ‘the Schools’—engaging in formal debates, each displaying great ingenuity and little shame in trying to vanquish his opponents by any means he can devise, and conjectures that in such situations maxims were found to be useful as setting limits to how far disputants could go in the direction of falsehood and absurdity; •distinguishes *this* use of maxims from one in which they bring new knowledge; •derides the idea that any branch of knowledge could be based on the likes of *Whatever is, is*; •argues that less general maxims, such as *The whole is equal to all its parts*, are merely ‘verbal propositions’ that merely set out facts about the meanings of the words they contain; and •offers to explain why the title of ‘maxim’ tends to be reserved for the most general self-evident propositions rather than for all of them.]

12. One more thing worth noting about these general maxims is that, far from increasing our knowledge or our hold on it, they can serve to confirm us in mistakes. This can happen when our notions are wrong, loose or unsteady, and we give our thoughts over to the sound of •words instead of fixing them on settled determinate •ideas of things. When people are using words in that way •as substitutes for ideas•, general maxims can be employed to prove contradictions! •In this section and the next two I shall discuss one example of this phenomenon•.

Someone who follows Descartes in forming in his mind an idea of *extension* which he calls an idea of *body* can

easily demonstrate that there is no vacuum, i.e. no space that has no body in it, by means of the maxim *What is, is*. •Here is how•. The idea to which he attaches the name ‘body’ is merely the idea of extension, so he knows quite certainly that space can’t exist without body •in his sense of ‘body’•. For he knows his own idea of extension clearly and distinctly, and knows that *it is what it is and not another idea*, though he calls it by the three names ‘extension’, ‘body’, and ‘space’. Because these three words stand for one and the same idea, they can be affirmed of *one another* with the same self-evidence and certainty as each can be affirmed of *itself*. So that when one uses all three names to stand for one and the same idea, the proposition ‘Space is body’ is just as true an identity as the proposition ‘Body is body’, though only the latter bears the identity on its surface.

13. But if someone comes along with an idea that he attaches to the name ‘body’, including in it not only *extension* but also *solidity*, he will have little trouble demonstrating that there can be a vacuum, or space with no body in it—just as little, indeed, as Descartes had in demonstrating the contrary! The idea that he calls ‘space’ is merely the simple idea of

extension,

and the idea he calls ‘body’ is the complex idea of

extension and resistibility (or solidity) together in the same subject.

These are two ideas, not one; they are as distinct in the understanding as are the ideas of *one* and *two*, *white* and *black*, or *corporeity* and *humanity* (if I may use those barbarous terms). So the right way to bring them together in a proposition, whether in our minds or in words, is not by •identifying them with one another, but rather by •denying that they are identical. That is the proposition *Extension or space is not body*, which is as true and self-evidently certain

as the maxim *It is impossible for the same thing to be and not to be* can make any proposition.

14. So you see that with the help of these two certain principles, *What is, is* and *The same thing cannot be and not be* we can demonstrate that there *can't* be a vacuum and that there *can* be one. But neither of those principles will actually prove to us what bodies, if any, do exist. For that we are left to our senses, to reveal to us as much as they can. All there is to those universal and self-evident principles is our constant, clear, and distinct knowledge of *our own more general or comprehensive ideas*. They can't assure us of anything that happens outside the mind; their certainty is based purely on the knowledge we have of each idea by itself, and of its distinctness from other ideas. We can't be mistaken about that •while the ideas are in our minds, though we can be and often are mistaken •when we retain the names without the ideas, or use the names confusedly sometimes for one idea and sometimes for another. When we do the latter, the force of these axioms •or maxims•, which touches only the words and not their meanings, serves only to lead us into confusion, mistake, and error. I point this out in order to show you that these maxims, praised as they are as great guardians of truth, won't secure us from error in a careless loose use of our words.

In all that I have said about •how little use maxims are for the improvement of knowledge, and •how dangerous they are when applied to undetermined ideas, I have been far from saying or meaning they should be laid aside—as some have accused me of saying •in earlier editions of this work•. I shan't make the futile attempt to cut them back in any area where they *do* have a •legitimate• influence. But I am not offending against truth or knowledge when I •say that I have reason to think that the usefulness of maxims is not such as to justify the great stress that seems to be laid on them, and when I •warn men not to misuse them in confirming

themselves in errors.

[In section **15** Locke contends that maxims are *safe* to use in an intellectual environment where all the ideas concerned are agreed, clear, settled, and so on; but, he adds, they are also *unhelpful* there because in that kind of environment the arguments can proceed clearly and well without the aid of maxims. In sections **16–18** he goes through a variant on the 'vacuum' example that he gave in sections **12–14**, this time with people disagreeing about what men can be like because they start with different ideas of *man*. His portrayal of them as working out the implications of their ideas with help from maxims is no more plausible here than it was with the vacuum dispute.]

19. We can conclude that where our ideas are determined in our minds, and have known names attached to them in a steady manner, maxims are not needed or useful to prove the agreement or disagreement of any of our ideas. Someone who can't see the truth or falsehood of such propositions *without* the help of such maxims won't be able to see it *with* the maxims' aid either. If he doesn't know the truth of other propositions •such as that *White is not black*• without proof, he presumably doesn't know the truth of the maxims without proof either, because they are no more self-evident than the others are. That is why intuitive knowledge neither requires nor admits of any proof. . . . If you suppose that it does, you take away the foundation of all knowledge and certainty. And if you need any proof to make you certain in your assent to the proposition that *Two are equal to two*, you will also need a proof to make you accept that *What is, is*. . . .

[In section **20** Locke repeats his earlier thesis that intellectual contexts where maxims might be invoked divide into •those where they are useless and •those where they are dangerous.]

Chapter viii: Trifling propositions

1. I leave it to you to decide whether the maxims treated of in the preceding chapter are as useful to real knowledge as they are generally supposed to be. But I think I may confidently affirm that there are some universal propositions which, though they are certainly true, add no light to our understandings, bring no increase to our knowledge. There are two kinds of such propositions. I shall discuss one in sections 2–3, the other in 4–7.

2. First, all purely *identical propositions*. We can see at a glance that these appear to contain no instruction in them—to give us no news. For a proposition that affirms a term of itself tells us only what we must certainly have known already, before the proposition was put to us; and this is so whether the proposition contains any clear and real idea or rather is merely verbal—that is, is a mere construct of words with no backing in ideas. (This is different from the notion of ‘verbal proposition’ spoken of in v.5.) Indeed that most general proposition *What is, is* may serve sometimes to show a man the absurdity he is guilty of when he implicitly denies something of itself. (This would happen only through circumlocution or ambiguity, because nobody is willing to defy common sense so openly as to affirm visible and direct contradictions.) But neither that received maxim nor any other identical proposition teaches us anything. . . .

[In section 3 Locke mocks identical propositions, pointing out that even a very ignorant person can come up with a million of them, all certainly true and all useless—*A soul is a soul*, *A spirit is a spirit*, and so on. He continues:] This is mere trifling with words. It is like a monkey shifting an oyster from one hand to the other: if he could speak, perhaps he would

say ‘Oyster in right hand is subject, and oyster in left hand is predicate’, thus making the self-evident proposition *Oyster is oyster*; and yet with all this he wouldn’t have been the least bit wiser or more knowledgeable. That way of handling the matter would have satisfied the monkey’s hunger about as well as it would a man’s understanding—monkey and man would have improved in bulk and in knowledge together! [The section continues with a further three derisive paragraphs attacking the idea that in developing some branch of knowledge it is useful to go about reminding oneself or others that substance is substance, that body is body, and so on; and two paragraphs in which Locke defends his calling such propositions ‘trifling’, and defends himself against critics of the first edition of the *Essay*, who had attacked him for saying that all identical propositions are trifling but hadn’t grasped how narrowly Locke was construing the phrase ‘identical proposition’.]

4. Another sort of trifling proposition occurs when a part of a complex idea is predicated of the name of the whole; a part of the definition is predicated of the word defined. This includes every proposition in which a more comprehensive term (the genus) is predicated of a less comprehensive one (the species). What information, what knowledge, does a man get from the proposition that *Lead is a metal* if he knows the complex idea that ‘lead’ stands for? All the simple ideas that belong to the complex one signified by the term ‘metal’ are nothing but what he had already included in his meaning for the name ‘lead’. Indeed, when someone knows the meaning of ‘metal’ and not of ‘lead’, telling him that *Lead is a metal* is a short way to explain the latter. . . .

5. Not only predicating the genus of the species—it is equally trifling to apply to some term any other part of its definition, that is, to predicate of the name of some complex idea a simple idea that is part of it—for example *All gold is fusible*. Fusibility is one of the simple ideas that make up the complex one that ‘gold’ stands for, so affirming it of gold can only be playing with sounds. . . . If I know that the name ‘gold’ stands for this complex idea of *body, yellow, heavy, fusible, and malleable*, I won’t learn much from being solemnly told that all gold is fusible! The only use for such propositions is to point out to someone that he is drifting away from his own definition of one of his terms. However certain they are, the only knowledge they convey concerns the meanings of words.

[Section 6 insists further on the uninformative nature of these ‘trifling’ propositions, exemplified by *Every man is an animal* and *A palfrey is an ambling horse*, each of which Locke takes to be true by definition of its subject term. He concludes with a contrast:] But when someone tells me things like

- Any thing in which sense, motion, reason, and laughter are united has a notion of God,
- Any thing in which sense, motion, reason, and laughter are united would be put to sleep by opium,

he has indeed made an instructive proposition. Neither *having the notion of God* nor *being put to sleep by opium* is contained in the idea signified by the word ‘man’—namely the idea of *thing in which sense, motion, reason, and laughter are united*. So propositions like those teach us something more than merely what the word ‘man’ stands for, and therefore the knowledge they offer is more than verbal.

7. Before a man makes a proposition he is supposed to understand the terms he uses in it; otherwise he talks like a parrot, making noises in imitation of others rather than,

like a rational creature, using them as signs of ideas in his mind. The hearer also is supposed to understand the words as the speaker uses them; otherwise the speaker is talking gibberish and making unintelligible noises. So someone is trifling with words when he makes a proposition that contains no more than one of its terms does, which both speaker and hearer were supposed to know already—for example, *A triangle has three sides*, or *Saffron is yellow*. This is tolerable only when the speaker aims to explain his terms to a hearer who he thinks doesn’t understand them; and then it teaches only the meaning of that word, the use of that sign.

8. So we can know with perfect certainty the truth of two sorts of propositions. One is the trifling propositions whose certainty is only verbal, not instructive. Secondly, we can know for certain the truth of propositions that affirm something of something else where the former is a *necessary consequence* but not a *part* of the complex idea of the latter. For example, *Every triangle has an external angle that is bigger than either of the opposite internal angles*. This relation of the outward angle to each of the opposite internal angles isn’t part of the complex idea signified by the name ‘triangle’, so this is a real truth, conveying instructive real knowledge.

9. senses are our only source of knowledge of what combinations of simple ideas [here = ‘qualities’] exist together in substances; so the only certain universal propositions we can make about them are ones based on our nominal essences; and these truths are few in number, and unimportant, in comparison with ones that depend on substances’ real constitutions. Therefore, this holds for general propositions about substances: when they are certain, they are mostly trifling; and when they are instructive, they are uncertain.

In the latter case, we can't have any *knowledge* of their real truth. however much constant observation and analogy may assist our judgment in *guessing*. That's why it often happens that one encounters very clear and coherent discourses that amount to nothing. Names of substantial beings as well as others, so far as they have relative meanings—as the meaning of 'magnet' is relative, because it includes 'is able to attract *iron*—can be joined negatively or affirmatively in true propositions in ways that their relative definitions make them fit to be joined; and propositions consisting of such terms can be deduced from one another just as clearly as can propositions that convey the most real truths. By this method one can make demonstrations and undoubted propositions in words without advancing an inch in one's knowledge about things. For example, someone who has learned the following words, with their ordinary relative meanings attached to them—

'substance', 'man', 'animal', 'form', 'soul', 'vegetative',
'sensitive', 'rational'

—can make many undoubted propositions about the soul without knowing anything about what the soul really is. Similarly, a man may find an infinite number of propositions, reasonings, and conclusions in books of metaphysics, school-divinity, and some sorts of natural science, yet end up knowing as little about God, spirits, or bodies as he did before he started.

10. Everyone is free to give his names of substances any meaning he likes. Someone who does this casually and thoughtlessly, taking meanings from his own or other men's fancies and not from any enquiry into the nature of things themselves, can easily demonstrate them of one another according to the various respects and mutual relations *he has given them*. In doing this he can ignore how things agree

or disagree in their own nature, and attend only to his own notions, with the names he has given them. But he doesn't increase his own knowledge through this procedure, any more than someone increases his riches by taking a bag of counters and calling one 'a pound', another 'a shilling', a third 'a penny'. This latter person can undoubtedly add correctly and reach a large sum on the bottom line, without being any richer—indeed, without even knowing how much a pound, a shilling, or a penny is, except that a pound contains twenty shillings and a shilling twelve pennies. One can do something analogous to that with the meanings of words, by making them more or less comprehensive than one another.

11. Concerning most words that are used in discourses—especially argumentative and controversial ones—a further sort of trifling occurs. It is the *worst* sort, putting us even further from the certainty of knowledge we hope to attain through what we read. Most writers, far from instructing us in the nature and knowledge of things, use their words loosely and uncertainly. They don't by using words constantly and steadily with the same meanings make plain and clear deductions of some from others, and make their discourses coherent and clear (even if not very instructive). Yet it wouldn't be hard for them to do this, if it weren't that it *suits* them to shelter their ignorance or obstinacy under the obscurity and confusion of their terms. . . .

[In sections **12–13** Locke sums up the chapter, describing the two kinds of 'barely verbal propositions'—the two already described in sections 2 and 4 respectively. The awkward final paragraph of section **13** boils down to this: If you want to say something in which your thoughts don't 'stick wholly in sounds', something with a claim to 'real truth or falsehood', you must •have a known and considered idea attached to

each word, and •affirm of the subject 'something that isn't contained in the idea' of it (or, by clear implication, deny of

the subject something whose negation isn't contained in the idea of it.)]

Chapter ix: Knowledge of existence

1. So far we have considered only the *essences* of things, a procedure that gives us no knowledge of real *existence*. That's because essences are only abstract ideas, and thereby separated in our thoughts from particular existence; for abstraction when it is properly done doesn't consider an idea in relation to any existence except its own existence in the understanding. While on that topic, we may note in passing that universal propositions of whose truth or falsehood we can have certain knowledge don't concern existence; and further that all particular affirmations or negations that wouldn't be certain if they were made general are only about existence ·and nothing more·, for they declare only the *accidental* union or separation in existing things of ideas [here = 'qualities'] which in their abstract natures are not known to be *necessarily* united or separated.

2. Leaving the nature of propositions and different ways of predication to be considered at more length elsewhere, let us proceed now to enquire into our knowledge of the existence of things, and how we come by it. I say that

- intuition gives us knowledge that •we exist,
- demonstration gives us knowledge that •God exists,

and

- sensation gives us knowledge of the existence of •other things.

·I shall discuss these in the next section, chapter x, and chapter xi respectively·.

3. We perceive our own existence so plainly and certainly that it neither needs nor is capable of proof. Nothing can be more evident to us than our own existence: I think, I reason, I feel pleasure and pain; can any of these be more evident to me than my own existence? If I doubt everything else, that very doubt makes me perceive my own existence and won't let me doubt it. For if I know •I feel pain, it is obvious that I perceive own existence as certainly as I do the pain that I feel. ·Similarly·, when I know that •I doubt something, I perceive the existence of the thing that doubts as certainly as I do the thought that I call 'doubt'. Experience convinces us, then, that we have an intuitive knowledge of our own existence, and an internal infallible perception that *we are*. In every act of sensation, reasoning, or thinking, we are conscious to ourselves of our own being, and in this matter we don't fall short of the highest degree of certainty.

Chapter x: knowledge of the existence of a god

1. Though God has given us no *innate* ideas of himself—has not stamped onto our minds from the outset words in which we can read his existence—yet having equipped us with the mental faculties that we have, he hasn't left himself without witness to his existence. We have sense, perception, and reason, and can't be without a clear proof of him as long as we carry our *selves* with us. We can't fairly complain of our ignorance about this great point, since God has so plentifully provided us with the means to discover and know him, so far as is needed for the goal of our existence and for the great matter of our happiness. But though this is the most obvious truth that reason reveals, and though (I think) its evidentness is equal to mathematical certainty, becoming certain of it still requires thought and attention: the mind must deduce God's existence in a rule-guided way from something that is intuitively known, for otherwise we shall be as uncertain and ignorant of this as of other propositions that are in themselves capable of clear demonstration. To show that we are capable of knowing—i.e. being certain—that there is a God, and to see how we can acquire this certainty, I think we need go no further than *ourselves*, and the undoubted knowledge we have of our own existence.

2. I think it is beyond question that man has a clear idea of his own existence; he knows certainly he exists, and that he is something. If you can doubt whether you are anything or not, I have nothing to say to you, any more than I would argue with pure *nothing*, or try to convince *non-entity* that it is *something*. If anyone claims to be so sceptical as to deny his own existence (for really to doubt this is manifestly impossible), I am willing to let him luxuriate in his beloved state of being nothing, until hunger or some other pain

convinces him of the contrary! This then, I think I may take for a truth, which everyone's certain knowledge assures him of and will not let him doubt, namely that he is something that actually exists.

3. In the next place, man knows by an intuitive certainty that *bare nothing* can no more produce any real being than it can be equal to two right angles. If a man doesn't know that *non-entity* or *the absence of all being* cannot be equal to two right angles, he can't possibly know any demonstration in Euclid. If therefore we know there is some real being, and that non-entity cannot produce any real being, that yields an evident demonstration that *from eternity there has been something*; for what didn't exist from eternity had a beginning, and what had a beginning wasn't produced by nothing, and so must be produced by something other than itself.

4. Next, it is evident, that if one thing received its existence and beginning from something else, it must also have received from something else all that is in it and belongs to its being. All its powers must have come from the same source. This eternal source of all being, therefore, must also be the source of all power; and so this eternal being must be also the most powerful.

5. A man finds perception and knowledge in himself, and that yields the next step in the proof: we are certain now that there is not only some being, but some *knowing thinking* being, in the world. So either there was a time when there was no knowing being, and when knowledge began to be, or else there has been a knowing being from eternity. If you take the former option, and say that there was a time

when no being had any knowledge—a time when the eternal being had no understanding—I reply that in that case it was impossible that there should ever have come to be any knowledge. For things wholly devoid of knowledge, and operating blindly and without any perception, to produce a knowing being—this is no more possible than that a triangle should have three angles bigger than two right angles. For it is as inconsistent with the idea of senseless matter that it should put sense, perception, and knowledge into itself as it is inconsistent with the idea of a triangle that it should put into itself greater angles than two right ones.

6. Thus by thinking about ourselves and what we infallibly find in our own constitutions, our reason leads us to the knowledge of the certain and evident truth that *there is an eternal, most powerful, and most knowing being*; and it doesn't matter whether we call it 'God'. The existence of the thing is evident, and from properly thinking through this idea we can easily deduce all the other attributes that we ought to ascribe to this eternal being. If nevertheless anyone should be found so senselessly arrogant as to suppose that man alone is knowing and wise, yet is also the product of mere ignorance and chance, and that all the rest of the universe acts only by that blind chance, I shall offer him Tully's firm and reasonable rebuke: 'What can be more sillily arrogant and unbecoming than for a man to think that he has a mind and understanding in him while all the rest of the universe contains no such thing? Or that things he can barely *comprehend* with the utmost stretch of his reason should be *moved and managed* without any help at all from reason?'

From what I have said it is plain to me that we have a more certain knowledge of the existence of a God than of anything else that our senses haven't immediately revealed

to us. Indeed, I think I can say that we *more* certainly know •that there is a God than •that there is anything else outside us. When I say 'we know', I mean that such knowledge lies within our reach, and that we can't miss it if only we will apply our minds to it as we do to various other enquiries.

7. I won't here examine the question of how far the *idea of a most perfect being* that a man may form in his mind does or does not prove the existence of a God,. Because of differences in men's characters and ways of thinking, some arguments for a given truth carry more weight with one person, some with another. But I will say this: if you want to establish this truth and silence atheists, you are going about it in a poor way if you lay the whole stress of such an important point as this on that one foundation, basing your only proof of the existence of a deity on some men's having that idea of God in their minds. (I speak of *some* men's idea of God because clearly some men have no idea of God, and some worse than none, and the ideas of God that others *do* have are very different from one another.) It is a mistake to let your over-fondness for that darling invention lead you to dismiss, or at least try to invalidate, all other arguments, and forbid us to listen to proofs (weak or fallacious, according to you) which our own existence and the perceptible parts of the universe offer so clearly and convincingly to our thoughts that I think it impossible for a thoughtful person to withstand them. . . . Our own existence provides us, as I have shown, with an evident and unchallengable proof of a deity, and I believe that nobody can avoid the force of that proof, provided he attends to it with the care he would give to any other demonstration with so many parts, Still, this is so fundamental a truth, and of such importance (with all religion and genuine morality depending on it), that I'm sure you will forgive me if I go over

some parts of the argument again and develop them in more detail.

8. There is no truth more evident than that *something must be from eternity*. I never yet heard of anyone so unreasonable, or so willing to accept an obvious contradiction, as to believe there was a time at which there was absolutely nothing. To imagine that *pure nothing*, the perfect negation and absence of all beings, should ever produce any real existence—this is the greatest of all absurdities.

It being then unavoidable for all rational creatures to conclude that something has existed from eternity, let us next see what kind of thing it must be.

9. There are only two sorts of beings in the world that man knows or conceives. First, such as are purely material, without sense, perception, or thought, such as the clippings of our beards and parings of our nails.

Secondly, sensing, thinking, perceiving beings, such as we find ourselves to be. From now on I shall refer to these two groups as *incogitative* and *cogitative* beings respectively. These are perhaps better labels, at least for our present purpose, than ‘material’ and ‘immaterial’.

10. If there must be something eternal, it is very obvious to reason that it must be a cogitative being. For it is as impossible •to conceive that mere incogitative matter should ever produce a thinking intelligent being as •to conceive that *nothing* should of itself produce *matter*. If we suppose that some portion of matter, large or small, is eternal, we shall find that it in itself can’t produce anything. For example, let us suppose that the matter of the next pebble we meet with is eternal, closely united, and the parts firmly at rest together: if there were no other being in the world, wouldn’t it eternally remain what it is, a dead inactive lump? Can we conceive it—a purely material thing—as being able to

add motion to itself, or to produce anything? Matter, then, can’t by its own powers start itself moving; the motion it has must also be from eternity, or else be produced and added to matter by some other being that is more powerful than matter. Well, let us suppose that motion is eternal too. Still matter—incogitative matter and motion—whatever changes it might produce in *shape and size*, could never produce *thought*. Knowledge will still be as far beyond the power of *motion and matter* to produce as matter is beyond the power of *nothing* or *nonentity* to produce. Consult your own thoughts, and see whether I am right: you can as easily conceive matter produced by nothing as thought to be produced by pure matter when before there was no such thing as thought, no intelligent being in existence! Divide matter into parts as small as you like (which we are apt to imagine is a sort of spiritualizing, or making a thinking thing, of it), and vary the shapes and movements of its parts as much as you please; still a globe, cube, cone, prism, cylinder, etc. whose diameters are only one billionth of an inch will affect other bodies of similar size in exactly the same way as do those with diameters of an inch or a foot, You may as rationally expect to produce sense, thought, and knowledge by putting together big particles of matter in certain shapes and movements as to produce it with particles that are the very tiniest that exist. They knock, impel, and resist one another, just as the bigger ones do, and that is all they can do. So

If we suppose that •nothing is first or eternal, •matter can never begin to be.

If we suppose •motionless matter to be first or eternal, •motion can never begin to be.

If we suppose •matter and motion to be first or eternal, •thought can never begin to be.

How about the possibility that matter has sense, perception,

and knowledge not put into it by something else, but basically and inherently and from itself? This is inconceivable, because in that case sense, perception and knowledge would have to be a property eternally inseparable from matter and from every particle of it. And here is a further reason. Although our general conception of matter makes us speak of it as one thing, really all matter is not one individual thing, and there is no such thing existing as one material being, or one single body that we know or can conceive. Therefore, if matter were the eternal first cogitative being, instead of there being just *one* eternal *infinite* cogitative being there would be *infinitely many* eternal *finite* cogitative beings, independent one of another, of limited force and separate thoughts, which could never produce that order, harmony and beauty that are to be found in nature.

Since therefore whatever is the first eternal being must be cogitative; and since whatever is first of all things must actually have all the perfections that can ever after exist (because it can never give to something else any perfection that it doesn't have itself, either actually or in a higher degree), it necessarily follows that the first eternal being can't be matter.

11. Just as it is evident that something must exist from eternity, it is equally evident that this 'something' must be a cogitative being. For it is as impossible that incogitative matter should produce a cogitative being as that nothing, or the negation of all being, should produce a positive being or matter.

12. This discovery of the necessary existence of an eternal mind sufficiently leads us into the knowledge of God: it implies that all other knowing beings that have a beginning must depend on him, and have only such ways of knowledge and kinds of power as he gives them; and therefore that he

made not only those knowing beings but also the less excellent (inanimate) pieces of this universe; and this establishes his omniscience, power, and providence—and all his other attributes necessarily follow. Still, to clear this up a little further, let us see what doubts can be raised against it.

13. First, perhaps it will be said that though it is as clear as demonstration can make it that there must be an eternal being, which must know, it doesn't follow that this thinking being isn't also material. Let it be so—that is, suppose that it is made of matter—it still follows that there is a God. For if there is an eternal, omniscient, omnipotent being, it is certain that there is a God, whether you imagine that being to be material or no.

Still, I think there is something dangerous and deceptive in the supposition of God as composed of matter, as follows. Because there is no way to avoid the demonstration that there is an eternal knowing being, people who are devoted to matter would be glad to have it granted that this knowing being is material; and then, letting slide out of their minds the proof that an eternal *knowing* being necessarily exists, they would argue that everything is matter and be led by that to *deny* a God, that is, to deny that there is an eternal cogitative being. [The section concludes with a somewhat obscure argument that materialists whose minds move in that way 'destroy their own hypothesis'. It seems to overlap the first half of section 15.]

14. But now let us see how they can satisfy themselves or others that this eternal thinking being is material.

First, I would ask them: Do you imagine that all matter, every particle of matter, thinks? They'll hardly say Yes, I think, for then there would be as many eternal thinking beings as there are particles of matter, and so an infinity of gods. And yet if they won't allow matter as matter, i.e. every

particle of matter, to be cogitative as well as extended, they will find that making a cogitative being out of incogitative particles is as hard for them to make sense of as making an extended being out of unextended parts.

15. Secondly, if not all matter thinks I next ask whether it is only one atom that does so? This has as many absurdities as the preceding proposal, and here is why. Either this one ·thinking· atom of matter is the only eternal one or it isn't. If it alone is eternal, then it alone must, through its powerful thought or will, have made all the rest of matter. And so we have the creation of matter by a powerful thought, which is just what the materialists object to. For if they suppose that one thinking atom produced all the rest of matter, they must suppose that it was able to do this because of its thinking, since this is the only supposed difference between it and the rest of matter. (Even if they suppose it to have come about in some other way that is above our conception, it would still be creation, and these ·materialist· men must give up their great maxim that *Nothing is made out of nothing*.) 'Perhaps all the rest of matter is eternal along with that thinking atom—this would have to be said by someone who is irresponsibly determined to say *something*, however absurd; for to suppose that all matter is eternal and yet one small particle is infinitely above all the rest in knowledge and power is to say something that hasn't the faintest chance of being supported by a respectable theory [Locke wrote: 'is without any the least appearance of reason to frame any hypothesis']. Every particle of matter, as matter, is capable of all the same shapes and movements as any other; and I challenge anyone, in his thoughts, to add anything else to one particle in preference to another.

16. Thirdly, given that this eternal thinking being isn't •one special atom alone, and isn't •all matter as matter,

i.e. every particle of matter, the only remaining possibility ·if it is to be made of matter somehow· is for it to be •a certain *system of matter* suitably put together. Those who think of God as a material being are most likely to have this view of him, because it's the view most readily suggested to them by their ordinary view of themselves and of other men, whom they take to be material thinking beings. But however much more natural this view is, it is no less absurd than the others; for to suppose the eternal thinking being to be nothing but a composition of particles of matter each of which is incogitative is to ascribe all the wisdom and knowledge of that eternal being only to *how its parts are put together*; and nothing can be more absurd than that. Putting unthinking particles of matter together, however it is done, can't add anything to them except new spatial relations, and it is impossible that those should give them thought and knowledge.

17. Furthermore, either •this corporeal system has all its parts at rest, or •its thinking consists in a certain motion of its parts. If •it is completely at rest, it is simply one lump, and so can have no privileges above one atom.

If •its thinking depends on the motion of its parts, all the thoughts there must be unavoidably accidental and limited. Here is why. Each of the particles whose movements ·supposedly· cause thought is itself without thought, so it can't regulate its own movements; nor can it be regulated by the thought of the whole system, because *that* thought •results from the movements of the particles and so can't •cause them. ·In the absence of any regulation, then· freedom, power, choice, and all rational and wise thinking or acting will be quite taken away. Such a thinking being will be no better or wiser than mere blind matter; because bringing everything down to

- thought depending on unguided motions of blind matter

is the same as bringing it down to

- accidental unguided motions of blind matter.

Not to mention the narrowness of any thoughts and knowledge that depend on the movements of such parts. But I needn't go through any more absurdities and impossibilities in this hypothesis (however full of them it may be); the one I have presented is enough. Whether this thinking system is a part of the matter in the universe or is all of it, no one particle ·in it· can possibly know its own movements or those of any other particle; nor can the whole thing know the motion of every particle and so regulate its own thoughts or motions, or indeed have any thought resulting from such motion.

18. Others hold that matter is eternal, although they also allow an eternal, cogitative, immaterial being. Let us consider this a little: it doesn't take away the existence of a God, but it denies the first great piece of his workmanship, namely the creation. Matter—they say—must be conceded to be eternal. Why? Because you can't conceive how it can be made out of nothing; ·then· why do you not also think that *you* are eternal? You may answer 'Because about twenty or forty years ago I began to be'. But if I ask 'What is this *you* that came into existence at that time?' you can hardly tell me. The matter of which you are made didn't begin to exist at that time, for if it did then it isn't eternal. So what happened then was that the matter of which you are made began to be put together in such a way as to constitute your body; but that construct of particles isn't *you*, it doesn't constitute *the thinking thing* that you are. (I am now arguing with someone who, while holding that unthinking matter is eternal, allows that there is an eternal, immaterial thinking being ·and so presumably doesn't hold that any thinking

being is material·.) Well, then, when did that thinking thing begin to exist? If it never began to exist, then have you been a thinking thing from eternity! I needn't argue for the absurdity of that until I meet someone who is stupid enough to assert it. If therefore you allow that •a thinking thing might be made out of nothing (as all things that aren't eternal must be), why can't you also allow that •a material being might be made out of nothing, by an equal power? Is it just that you have had experience of the former ·in the coming into existence of human beings·, and no experience of the latter? Actually, when we think about it we find that the creation of a spirit 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 spirit into existence would turn out to be a *more* inconceivable effect of omnipotent power. . . .

19. 'But', you will say, 'isn't it impossible to suppose that something should be made out of nothing, since we can't possibly conceive it?' I answer, No, because it isn't reasonable to deny the power of an infinite being merely because we can't understand its operations. We don't deny other effects because we can't conceive how they are brought about. We can't conceive how a body can be moved by anything other than the impact of another body, but that isn't a good enough reason for us to deny that it is possible—·especially· given our constant experience of our own voluntary movements, which are produced in us purely by the free action or thought of our own minds. Such a movement can't be an effect of the impact of blind matter on our own bodies or of movements of such matter within our bodies; for then it couldn't be

in our power or choice to alter it. My right hand writes, while my left hand is still: what causes movement in one, and rest in the other? Nothing but my will, a thought of my mind. With a change in my thought and nothing else, the right hand rests and the left hand moves. This is a matter of fact that cannot be denied: Explain this and make it intelligible, and then the next step will be to understand creation! Some people explain voluntary motion in terms of alterations in the movements of the animal spirits, but this doesn't solve the problem ; it merely pushes it back to the question of what causes the changes in the movements of the animal spirits. . . . [Locke followed Descartes and others

in believing that animal physiology involves the movements of 'animal spirits', conceived as an extremely rarefied and fast-moving fluid.]

Anyway, it is an overvaluing of ourselves to reduce everything to the narrow measure of our capacities, and to conclude that whatever we can't understand is impossible. Limit •what God can do to •what we can conceive of his doing and you either make our understanding infinite or make God finite! If you don't understand the •operations of your own finite mind, don't be surprised that you can't understand •the operations of the eternal infinite mind who made and governs all things and whom the heaven of heavens cannot contain.

Chapter xi: knowledge of the existence of other things

1. We know of our own existence by *intuition*, and our certain knowledge that a God exists comes through *reason*, .i.e. by *demonstration*., as I have shown.

We can know of the existence of other things only by *sensation*. No idea you have in your mind has any necessary connection with any real existence; and your existence has no necessary connection with the existence of anything except God. Therefore the only way you can know that anything *else* exists is through its actually operating on you, making itself perceived by you. Merely having the idea of a thing in your mind no more proves its existence than the picture of a man is evidence of his existence in the world, or than the visions of a dream make a true history.

2. The fact that we get ideas from outside ourselves is

what informs us of the existence of other things; it tells us that at that time something external to us exists and causes those ideas in us, though we may not know—or even give any thought to—how it does that. The certainty of our senses and of the ideas we receive through them is not lessened by our not knowing how the ideas are produced. For example, while I write these words something produces in my mind—through the effects of the paper on my eyes—an idea that leads me to call *white* whatever object causes it; and from this I know that on this occasion some object outside me has the quality whose appearance before my eyes always causes that kind of idea. The best assurance I can have, the best my faculties are capable of, is the testimony of my eyes; they are the proper and sole judges of this thing. I have reason to rely on their testimony as being so certain that I

can no more •doubt that while I write this I see white and black and something really exists that causes that sensation in me, than I can •doubt that I write or that I move my hand. This is a certainty as great as human nature is capable of concerning the existence of anything except oneself and God.

3. The information that our senses give us concerning the existence of things outside us, although it isn't quite as certain as our intuitive knowledge, or as what we know through deductive reasoning using our own clear abstract ideas, is still secure enough to deserve to be called 'knowledge'. If we convince ourselves that our faculties inform us truthfully about the existence of the objects that affect them, this can't be regarded as an unjustified confidence. Nobody, I think, can genuinely be so sceptical as to be uncertain of the existence of the things that he sees and feels; and if anyone *can* doubt as much as that, he will never have any controversy with me, for he can never be sure I say anything that he disagrees with •because he can't even be sure that I exist•. As for myself, I think God has given me assurance *enough* of the existence of things outside me: I know which ways of relating to them will bring me pleasure and which will bring me pain, and that is a matter of great concern to me here on earth. We certainly can't have better evidence than we do that our faculties don't deceive us about the existence of material beings, for we can't do anything except through our faculties—indeed, we can't even talk of knowledge except with the help of those faculties that enable us to understand what knowledge is.

Furthermore, besides the assurance we have from our senses themselves that they don't err in what they tell us about the existence of things outside us when we are affected by them, we have other, confirming reasons for the same conclusion.

4. First, it is obvious that those perceptions •that we think are produced by outer things• *are* produced in us by exterior causes affecting our senses, because people who lack the organs of one of the senses can never have the ideas belonging to that sense produced in their minds. This is too obvious to be doubted. So we can be sure that those perceptions reach our minds *through* the organs of that sense •from something external to those organs•. Clearly, the organs themselves don't produce such ideas, for if they did then the eyes of a man in the dark would produce colours and his nose would smell roses in the winter, whereas in fact nobody experiences the taste of a pineapple till he goes to the •West• Indies where it is, and tastes it.

5. Secondly, sometimes I find that I can't avoid having those ideas produced in my mind. When my eyes are shut, I can choose to recall to my mind the ideas of light or the sun that former sensations have lodged in my memory, or choose to set such ideas aside and instead take into my •imaginative• view the idea of the smell of a rose or the taste of sugar. But if at noon I turn my eyes towards the sun, I can't avoid the ideas that the light or sun then produces in me. So there is a clear difference between •the ideas stored in my memory (over which, if they were *only* in my memory, I would always have the same power to call them up or set them aside as I choose) and •those that force themselves on me and that I can't avoid having. The latter ideas—the ones I have whether I want them or not—must be produced in my mind by some exterior cause, and the brisk acting of some external objects whose power I can't resist. Besides, everybody can see the difference in himself between having a memory of how the sun looks and actually looking at it. His perceptions of these two are so unlike that few of his ideas are easier to tell apart. This gives him certain knowledge that they are not

both memory or products purely of his mind, and that actual seeing has an external cause.

6. Thirdly, many ideas that are painful to have in the first instance can be remembered afterwards without the least distress. Thus the pain of heat or cold doesn't upset us when the idea of it is revived in our minds in memory, although it was very troublesome when we originally felt it, and troubles us again when it is actually repeated through the disorder that the external object causes in our bodies when it acts on them. Again, we remember the pains of hunger, thirst, or headache without any pain at all: if these were nothing but ideas floating in our minds, without the real existence of things affecting us from outside ourselves, we would either never suffer from them or else always do so whenever we thought of them. The same holds for the pleasure that accompanies many of our actual sensations. . . .

7. Fourthly, our senses often confirm each other's reports concerning the existence of perceptible things outside us. If you see a fire, you may doubt whether it is anything but a mere fancy; but then you can feel it too, and be convinced by putting your hand into it. Your hand certainly could never be given such agonizing pain by a mere idea or imagined fancy, unless the pain is a fancy too! When your burn has healed, you can't make the pain of it return merely by raising the idea of it in your memory or imagination.

Here is an example of how the different senses confirm one another. I see while I am writing this that I can change the appearance of the paper; and by planning what to write I can tell in advance what new idea the paper will exhibit the very next moment merely through my drawing my pen over it. Those new visual ideas won't appear—however hard my imagination works—if my hands remain still or if I move my pen but keep my eyes shut. Also, once those letters have

been put onto the paper, I have no choice about afterwards seeing them as they are—that is, having the ideas of the letters I have actually written. This shows clearly that those ideas aren't merely playthings of my imagination. The letters were made as a result of my mental decision to make them, so they were made at the bidding of my own thoughts; but once they have come into existence they don't then obey my thoughts: they don't cease to exist whenever I shall fancy it, but instead continue to affect my senses constantly and regularly according to the shapes that I put down on the page. A further point: the sight of those written letters will draw from someone who reads them aloud the very sounds that I planned them to stand for; and that leaves little reason for doubt that the words I write really do exist outside me. The sounds that they cause me to hear couldn't come from my imagination or my memory. The letters will cause a long series of regular sounds to affect my ears—too long for my memory to be able to retain them in the right order; and because the sounds come to me whether I want them or not, they couldn't be the effect of my imagination.

8. After all this, will anyone be so sceptical as to distrust his senses, and to affirm that all we see and hear, feel and taste, think and do, during our whole lifetime is nothing but a long dream with no reality in it? If so, I ask such a person—who questions the existence of all things or our knowledge of anything—to consider that if everything is a dream then he is only dreaming that he is raising this question, so that it doesn't matter much that he should be answered by someone who is awake. However, he may if he likes *dream* that I answer him as follows. The testimony of our senses that there are things existing in nature gives us as much assurance of this as we are capable of, and as much as we need. For our faculties are not suited to

the entire range of what is the case, or to a perfect, clear, comprehensive knowledge of things, free from all doubts and worries. But they are suited to the preservation of us whose faculties they are; they are serviceable enough for everyday purposes, because they let us know for sure which things can help and which can hurt us. Someone who sees a candle burning, and has experienced the force of its flame by putting his finger in it, will have little doubt that this is something existing outside him that harms and greatly hurts him; and that is assurance enough, for no man requires greater certainty to govern his actions by than what is as certain as his actions themselves. I can be as sure that *if I move thus and so I will feel pain* as I can be that *I shall move thus and so*. We can't need more certainty about what our actions will lead to than we have about what our actions will be. If our dreamer wonders whether the glowing heat of a glass furnace is merely a wandering imagination in a drowsy man's fancy, he can test this by putting his hand into it. If he does, he will be wakened into a certainty—a greater one than he would wish!—that it is something more than mere imagination. So we have all the assurance that we can want—enough to enable us to steer our course in relation to pleasure and pain, i.e. happiness and misery; and these are all we need be concerned about in theory or in practice. 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.

9. In brief, when our senses bring an idea into our understandings, we can't help being confident that *at that time* something really exists outside us—something that affects our senses, and through them alerts us to its existence by producing the idea that we perceive. We can't distrust the tes-

timony of our senses so far as to doubt that such collections of simple ideas [here = 'qualities'] as we have observed to be united together really do exist together. But this knowledge doesn't extend beyond the present testimony of our senses regarding particular objects that are affecting them *now*. If one minute ago I saw a collection of simple ideas of the sort usually called 'a man' existing together, and if I am now alone, I can't be certain that the same man exists now, since his existence a minute ago doesn't necessitate his existing now. In any of a thousand ways he could have ceased to exist since I had the testimony of my senses for his existence. And if I can't be certain that the man I last saw earlier today still exists, still less can I be certain of the present existence of one I haven't seen since yesterday or since last year—let alone one that I never saw. I conclude that although it is highly probable that millions of men now exist, yet while I am alone in my study writing this I am not certain enough of this to say that I *know* it to be so. It is so likely to be the case that I have no doubt of it, and I can reasonably act on my confidence that there are men in the world (and indeed some whom I know, and with whom I have various relations); but still this is only *very high* probability, not knowledge.

10. This shows how foolish and pointless it is for a man who doesn't know much, but who has been given the faculty of reason to judge how probable things are and to be swayed accordingly, to expect demonstration and certainty in things that aren't capable of it, and to refuse assent to very reasonable propositions and act contrary to very plain and clear truths, simply because they can't be made so evident as to surmount every the least (I won't say *reason*, but) *pretence of doubting*. If anyone brought that attitude to the ordinary affairs of life, accepting nothing that hadn't been plainly demonstrated, he would be sure of nothing in this

world except an early death. The wholesomeness of his meat or drink wouldn't give him reason to risk it. What indeed *could* he do on grounds that were capable of no doubt, no objection?

11. Just as when our senses are actually employed on any object we know that it exists, so also by our memory we may be assured that things that affected our senses in the past have existed. In this way we have knowledge of the past existence of various things of which, our senses having informed us of them, our memories still retain the ideas; and we are past all doubt about this so long as we remember well. But this knowledge reaches no further than our senses have formerly assured us. Thus seeing water right now it is an unquestionable truth to me that water now exists; and remembering that I saw it yesterday it will also be always true that water existed on the 10th of July, 1688, and as long as my memory retains this it will always be an undoubted proposition to me. Just as it will also be equally true that a certain number of very fine colours existed which at the same time I saw on a bubble of that water. But, being now out of sight both the water and the bubbles, it is no more certainly known to me that the water now exists than that the colours or the bubbles do. For it is no more *necessary* that water should exist today because it existed yesterday than that the colours or bubbles exist today because they existed yesterday; though the former is ever so much more *probable*, because water has been observed to stay in existence for a long time whereas bubbles and the colours on them quickly cease to be.

12. I have already shown what ideas we have of spirits [= 'minds'], and how we come to have them. But though we have those ideas in our minds and know we have them there, merely having ideas of spirits doesn't make us know

that any such things exist outside us, or that there are any finite spirits or any other spiritual beings in addition to the eternal God. We can no more know that finite spirits really exist purely through having the idea we have of them in our minds than we could come to know that there really are fairies or centaurs purely through having ideas of them. Divine revelation and other reasons entitle me to be sure that God has created finite spirits other than myself; but I am not able to know what particular spirits there are, because my senses can't pick them out.

Concerning the existence of finite spirits, therefore, as well as many other things, we must be content with the evidence of faith; we can never establish for certain any universal propositions on this topic. It might be true that (for instance) all the thinking spirits that God ever created still exist, but this can never be something we know for certain. We can assent to propositions like that as highly probable, but I am afraid that in our earthly state we cannot know them. So we shouldn't demand (of others or of ourselves) conclusive proofs or universal certainty in these matters about which we can have only such knowledge as our senses give us in this or that particular case.

13. So it turns out that there are two sorts of propositions. **1** One sort says that *there exists something* that conforms to such and such an idea. When I have the idea of an elephant, a phoenix, motion, or an angel in my mind, I naturally want to know: Does such a thing exist anywhere? This knowledge is only about particulars. Our senses give us all the information we can have about the existence of things outside us, with the sole exception of God whose existence I have proved. **2** The other sort of proposition expresses relations amongst our abstract ideas—how they agree with one another or depend on one another. Propositions of this

kind may be universal and certain. For example, having the ideas of •God and •myself, and of •fear and •obedience, I can't help being sure that *God is to be feared and obeyed by me*; and this proposition will hold for certain regarding all men—that is, all men who belong to the species (of which I am a member) that is defined by my abstract idea of humanity. Still, this proposition that men ought to fear and obey God, however certain I may be of it, doesn't prove to me that there are any men in the world; the proposition is simply true of all the men that there are, whenever they exist, ·so that it could be true even if there were no men·. What makes such general propositions certain is the agreement or disagreement we can find amongst the abstract ideas that they involve ·and not any facts about particular things to which those ideas apply·.

14. With **1** the former kind of proposition, our knowledge is the consequence of the existence of things that produce ideas in our minds through our senses. With **2** the latter, knowledge results from the production in our minds of general certain propositions by our ideas (whatever they may be). Many of these are called 'eternal truths', and all of them indeed are eternally true, ·but let us be careful about *why* that is so·. It is not that all of them—or indeed

that *any* of them—were written in the minds of all men, or that any of them were propositions in anyone's mind until he had acquired the relevant abstract ideas and joined or separated them by affirmation or negation. Rather, ·they are eternal truths because· wherever we can suppose that such a creature as man exists, endowed with faculties that men have and provided by those faculties with ideas such as we have, we must conclude that when that creature applies his thoughts to his ideas he *must* know the truth of certain propositions that will arise from the agreement or disagreement he will perceive in his own ideas. Such propositions are therefore called 'eternal truths', not because they are eternal propositions that were actually formed in advance of anyone's having them in his thought, nor because they are imprinted on the mind from patterns that already existed outside the mind, but because if such a proposition is made about abstract ideas in such a way as to be true, it is always actually true when, at any earlier or later time, someone has those same ideas and makes that same proposition. For names being supposed to stand perpetually for the same ideas, and the same ideas having unchangingly the same relations one to another, a proposition concerning abstract ideas must be eternally true if it is ever true.

Chapter xii: The improvement of our knowledge

1. Among men of letters it has been the standard view that *maxims* are the foundation of all knowledge, and that every science [= 'branch of knowledge'] is built on certain *praecognita* [= 'things known in advance'] which give the understanding its first *lift* and by which it is to conduct itself in its enquiries. That is why the standard practice of the schools has been to lay down in the beginning one or more general propositions, as foundations on which to build the knowledge that can be had in the science concerned. These doctrines, thus laid down as foundations for a science, were called 'principles', because they were supposed to be the •beginnings from which we must set out, looking no further backwards in our enquiries. [The word 'principle' comes from Latin meaning •'first'.]

2. This approach seemed to succeed in mathematics. It was seen that in these sciences a great certainty of knowledge was achieved, which is why they came to be dignified with the title 'Mathemata' [Locke gives it in Greek], meaning learning, or things learned, thoroughly learned, because these have greater certainty, clearness, and self-evidentness than any other science. This success may have encouraged the 'principles' approach in other sciences as well.

3. But if you look into this I think you'll find that the great advancement and certainty of real knowledge that men achieved in the mathematical sciences was not due to the influence of these principles, or derived from any special advantage the mathematicians got from two or three general maxims laid down in the beginning. Rather, it came from the clear, distinct, complete ideas that their thoughts were engaged with, and from the fact that the relations of 'equals' and 'greater than' between some pairs of them were so clear

that the mathematicians knew them intuitively, which gave them a way to discover such relations between other pairs ·by demonstration·—all this being done without the help of maxims. I ask you: can't a young lad know that his whole body is bigger than his little finger without help from the axiom that *the whole is bigger than a part*? Can't a country girl know that when she has received a shilling from someone who owes her three, and a shilling from someone else who also owes her three, the remaining debts are equal? To know this must she rely on the maxim that *if you take equals from equals, the remainder will be equals*, which she may never have heard or thought of? On the basis of what I have said earlier—in vii.4 and 11—ask yourself: which is known first and most clearly by most people, the particular instance or the general rule? Which of these gives life and birth to the other? [The section then repeats things Locke has said earlier about how the mind starts with particulars and gradually works towards general ideas and general propositions. It concludes:] When he has acquired these names, how is he more certain that •his body is a *whole* and his little finger a *part* than he could have been, before he learnt those terms, that •his body was bigger than his little finger? It is as reasonable to question whether your little finger is a *part* of your body as that it is *smaller than* your body; and someone who doubts the latter is sure to doubt the former as well. So the maxim *The whole is bigger than a part* can never be used to prove that the little finger is smaller than the body except when it is useless, being used to convince someone of a truth that he knows already. . . .

[In section 4 Locke begins by saying, in effect: Pretend to be satisfied that mathematics *has* achieved its success through

starting with maxims, because mathematicians have had the good luck or good judgment to use only maxims that are self-evident and undeniable. Still the question arises whether this (supposed) fact about mathematics makes it safe for us to] take the principles that are laid down in any *other* branch of knowledge as unquestionable truths, to accept them without examination, and stick to them without allowing them to be called in to question. The answer is that it is *not* safe. If we proceed in this way, who knows *what* will get accepted as truths in morality or as 'proved' in physics!

Let the principle of some of the ancient philosophers that *All is matter, and there is nothing else* be accepted as certain and indubitable, and you can easily see from the writings of some who have revived it in our day what consequences it will lead us into! Let anyone equate God with the world (Polemo), with the ether or the sun (the stoics), or with the air (Anaximenes), and what a divinity, religion and worship we shall end up with! Nothing is as dangerous as principles taken up uncritically, especially when they concern morality, influence men's lives and shape all their actions. [Then some examples of differing philosophical views that could be expected to lead to different kinds of conduct.]

5. So if we take propositions that are not certain and treat them as principles on the basis of nothing but our blind assent, we are liable to be misled by them; and instead of being guided into truth we shall only be confirmed in error,

6. The knowledge of the certainty of principles, as well as of all other truths, depends purely on our perception of the agreement or disagreement of our ideas; so the way to improve our knowledge is not to receive and swallow principles blindly and with an implicit faith; but it is, rather, to get and fix in our minds as many clear, distinct, and complete ideas

as we can, and to give each of them its own constant name. Just by considering those perfect ideas, and finding their agreements and disagreements and their various intrinsic natures and relations to one another, we shall get more clear knowledge than by taking up second-hand principles and thereby putting our minds at the disposal of others.

7. If we want to proceed as reason advises, therefore, we must adapt our methods of enquiry to the nature of the ideas we are examining and the truth we are searching for. General and certain truths are based purely on the natures and relations of abstract ideas; our only way to learn such truths is by judiciously and methodically applying our thoughts to finding out these relations. We can learn how to go about this from the mathematicians: from very plain and easy beginnings they proceed, gradually and through a continued chain of reasonings, to the discovery and demonstration of truths that at first sight seem beyond human capacity. What has carried them so far, and produced such wonderful and unexpected discoveries, is the art of finding proofs, and the admirable methods they have invented for finding and ordering the intermediate ideas that demonstratively show the equality or inequality of quantities that can't be directly related to one another. I shan't discuss whether something like this may eventually be found to be possible with other ideas, ones that are not quantitative. But I will say this much: if other ideas that are the *real* as well as the *nominal* essences of their species were pursued in the way familiar to mathematicians, they would carry our thoughts further, with results that are more evident and clearer, than we are apt to imagine.

8. This gave me the confidence to advance my conjecture (in chapter iii) that morality is open to demonstration, as well as mathematics. For the ideas that ethics deals with are all

ideas of mixed modes, and so are all real essences, and such as I imagine have discoverable connections and agreements with one another; so that as far as we can find their natures and relations so far we shall come to know truths that are certain, real, and general. I am sure that if a right method were adopted a great part of morality might be made out with such clearness that a thoughtful person would have no more reason to doubt it than he could have to doubt of the truth of demonstrated propositions in mathematics.

9. In our search for knowledge of substances we have to use a quite different method, because we don't have ideas of substances that are suitable for the way of proceeding that I have just described. In the latter (where our abstract ideas are real as well as nominal essences), we advance by contemplating our ideas and attending to their relations and correspondences with one another; but that gives us very little help with substances, for the reasons that I explain in detail elsewhere. So I think it is evident that substances can't be the subjects of much general knowledge, and that merely thinking about their abstract ideas will take us only a very little way in the search for truth and certainty. Then how *are* we to add to our knowledge of substantial beings? Here we must take a quite contrary course; the lack of ideas of the real essences of substances sends us from *our own thoughts* to *the things themselves* as they exist. Experience here must teach me what reason can't: it is only by *testing* that I can know for sure what other qualities co-exist with those of my complex idea—for example, whether the yellow, heavy, fusible body that I call 'gold' is malleable. And the answer that experience gives in a particular case doesn't make me certain that it will be the same for any yellow, heavy, fusible bodies that I haven't yet tested. My complex idea of gold gives me no help with that: the combination of

that colour, weight, and fusibility in a body does not visibly imply or rule out malleability. [Locke goes on to say that if we become confident that all gold is malleable, we may include malleability in our nominal definition of gold; but that still won't help us to establish with certainty any truths stating that further qualities—ones not included in the newly enriched nominal definition—are possessed by all samples of gold.]

10. I don't deny that a man who is accustomed to rational and regular experiments will be able to see further into the nature of bodies, and guess more accurately their yet unknown properties, than one who is a stranger to them. But yet, as I have said in vi.13, this is only judgment and opinion, not knowledge and certainty. This way of getting and improving our knowledge of substances, purely through experience and history, is all that the weakness of our faculties can attain to; and it makes me suspect that natural philosophy [= 'physics'] isn't capable of being made a science [= 'a highly organized system with a disciplined structure']. . . .

11. . . . Since our faculties are not fitted to penetrate into the internal structure and real essences of bodies, but clearly *do* show us the existence of a God and give us enough knowledge of ourselves to lead us into a full and clear discovery of our duty and of what matters most to us, it is appropriate for us as rational creatures to employ our faculties on what they are best adapted to, and follow the direction of nature where it seems to show us the way. For it is reasonable to conclude that we ought to pursue the sort of knowledge that is most suited to our natural capacities, and carries with it our greatest interest, i.e. our means to achieving eternal life. From which I conclude that *morality* is the proper science and business of mankind in general; just as various studies regarding various parts of nature are

suitable for the special talents of particular men, for the common use of human life and for their own survival in this world. [The section continues by presenting an example of how important the knowledge of 'one natural body' can be to human life. Although America abounds in natural goods, and its native inhabitants are naturally as able as Europeans are, the level of their lives is much lower than that of people in more developed countries; and this difference is largely due to their not having the use of *iron*. The section concludes:] So that he who first made known the use of that humble mineral may be truly styled the father of arts and author of prosperity. [In this sentence 'arts' covers every kind of craft, mechanical skill, technique of manufacture, and so on.]

12. So don't think that I want to discourage the study of nature. I readily agree that contemplating God's works can lead us to admire, revere, and glorify him. (And if this is done properly it can be of greater benefit to mankind than the expensive and conspicuous charitable efforts of those who found hospitals and shelters for the homeless. He who first invented printing, discovered the use of the compass, or made public the powers of quinine and the right way to use it, did more to propagate knowledge, to supply and increase useful commodities, and to save people from the grave, than those who built colleges, work-houses, and hospitals.) My point is just that •we shouldn't be too confident in claiming to have knowledge, or in expecting to get it, in areas where it cannot be had, or not by the ways we are following. And that •we shouldn't take doubtful systems to be complete sciences, or unintelligible notions to be disciplined demonstrations. In the knowledge of bodies, we must be content to glean what we can from particular experiments, because we don't know the real essences that would enable us (if we knew them) to pick up whole sheaves of bodies at a time, and understand the

nature and properties of whole species together, in bundles. Where our enquiry concerns co-existence or impossibility of co-existence, which we can't discover by studying our ideas, *there* experience, observation, and natural history must give us through our senses an insight into corporeal substances, taken one a time. The knowledge of •bodies we must get by our senses, using them alertly in observing bodies' qualities and operations on one another. As for our knowledge of •unembodied Spirits in this world, I think we must look to revelation for that. When you consider the record of general maxims, precarious principles, and hypotheses laid down at pleasure—how little they have, through the ages, advanced men's progress towards knowledge in natural science—you will think we have reason to thank those who in this latter age have marked out another path to us, not an easier way to learned ignorance but a surer way to profitable knowledge.

13. This isn't to deny that we can explain natural phenomena by making use of any *probable* hypothesis whatever. Hypotheses, if they are well made, are great helps to the memory, and they often direct us to new discoveries. My point is just that when we want to penetrate into the causes of things and have principles to rely on, we are very apt to adopt an hypothesis too hastily, before thoroughly examining particular instances and making various experiments with the thing we are trying to explain by our hypothesis, in order to see whether it agrees with them all. The question is whether our 'principle'—which is what we may call our hypothesis—will carry us the whole way through, rather than seeming to accommodate and explain one phenomenon of nature while being inconsistent with another. At least we should take care that the name 'principle' doesn't deceive us or impose on us, by making us accept as an unquestionable truth something that is really, at best, only a very doubtful

conjecture. That is what most (I almost said 'all') of the hypotheses in natural science are.

14. But whether or not natural science is capable of certainty, there seem to me to be just two ways to increase our knowledge, as far as we can do so at all.

The first is to get and settle in our minds determinate ideas of all the things for which we have general or specific names—or anyway all that we want to think about, know more about, or reason about. And if they are specific ideas of substances, we should try to make them as complete as we can, putting together as many simple ideas as are constantly observed to co-exist and can perfectly pick out the species. And each of the simple ideas that are the ingredients of our complex ones should be clear and distinct in our minds. Obviously our knowledge can't outrun our ideas; so as far as *they* are either imperfect, confused, or obscure, we can't expect to have certain, perfect, or clear knowledge.

The second is the art of finding out intermediate ideas that can show us the agreement or mutual inconsistency of other ideas that can't be immediately inter-related.

15. These two (and not reliance on maxims and inference from general propositions) are the right methods of increasing our knowledge involving the ideas of •non-quantitative modes. We learn this from considering mathematical knowledge, •which involves ideas of •quantitative modes•. It is in mathematics that we first find that •knowledge requires good ideas; for example, that• someone who doesn't have perfect and clear ideas of the angles or figures that he

wants to investigate is thereby made utterly incapable of any knowledge about them. . . . Furthermore, what led the masters of that science into the wonderful discoveries they have made was obviously *not* the influence of the maxims that are taken to be principles in mathematics. Suppose that an intelligent man has a perfect knowledge of all the maxims that are generally used in mathematics, and that he thinks about them and their consequences as much as he pleases: I don't think that this will lead him to know that the square on the hypotenuse of a right-angled triangle is equal to •the sum of• the squares on the two other sides! The knowledge that *The whole is equal to •the sum of• all its parts* and *If you take equals from equals, the remainders will be equal* won't help him to this demonstration; and I don't think that any amount of poring over those axioms would add a scrap to one's knowledge of mathematical truths. . . . When people first got knowledge of truths in mathematics, their minds were aiming at things other than—aiming in a direction different from—maxims. Anyone who is well acquainted with those received axioms •or maxims•, but ignorant of the methods first used to demonstrate mathematical truths, are astonished by the results that the mathematicians have achieved. Algebra easily finds out ideas of quantities to measure other quantities by—ones whose equality or proportion we might never be able to know without the help of algebra. Well, who knows what methods for increasing our knowledge in other parts of science may some day be invented, corresponding to the method of algebra in mathematics?

Chapter xiii: Some other considerations concerning our knowledge

1. Our *knowledge* is like our *sight* in several respects, including this: it is neither wholly •necessary nor wholly •voluntary. If our knowledge were altogether •necessary, not only would all men's knowledge be alike, but every man would know all that is knowable; and if it were wholly •voluntary, some men—the ones who put little value on it—would have extremely little or none at all. Men that have senses can't help receiving some ideas through them; and if they have memory they can't help retaining some of them; and if they have any distinguishing faculty, they can't help perceiving the agreement or disagreement of some ideas with one another. Similarly, if a sighted person opens his eyes by day he can't help seeing some objects, and perceiving differences amongst them. But there are certain objects that he may choose whether to look at; there may be within reach a book containing pictures and text that he may never decide to open.

2. Here is another thing in a man's power: when he turns his eyes towards an object, he can choose whether he will look at it intently, trying to observe accurately all that is visible in it. But what he does see, he can't see otherwise than he does. It's not for him to decide to see as black something that appears yellow, and he can't convince himself that what actually scalds him feels cold. . . . That's how it is with our understanding: we voluntarily choose whether to employ our faculties on this topic rather than that, and whether to make a more or a less accurate survey of it. But when they are being employed, our will has no power to affect the knowledge of the mind one way or another; that is done only by the objects themselves, as far as they are clearly revealed. And therefore, as far as men's senses are engaged

on external objects, the mind *has to* receive the ideas that are presented by them, and be informed of the existence of things outside it. And so far as men's thoughts are engaged on their own determined ideas, they *can't help* observing to some extent the agreements and disagreements that are to be found amongst some of them—and that, as far as it goes, is knowledge. And if they have names for the ideas that they have thus considered, they can't help being assured of the truth of the propositions that express the agreement or disagreement they perceive in them. For what a man sees, he cannot but see; and what he perceives, he cannot but know that he perceives.

3. Thus someone who has the ideas of numbers, and has taken the trouble to compare *one, two, and three* to *six*, can't help knowing that they are equal. Someone who has acquired the idea of a triangle, and found the ways to measure its angles, is certain that its three angles are equal to two right ones, and can no more be in doubt about that than about this truth, that *It is impossible for the same thing to be and not to be*.

And someone who has the idea of

•a thinking but frail and weak being, made by and depending on •someone else who is eternal, omnipotent, perfectly wise and good

will know that •man is to honour, fear, and obey •God as certainly as he knows when the sun shines that he sees it. For if he has the ideas of two such beings in his mind, and consents to turn his thoughts onto them, he will as certainly find that the *inferior, finite and dependent* is under an obligation to obey the *supreme and infinite* as he is certain to find that *three, four, and seven* are less than *fifteen* if he

chooses to compute those numbers. Nor can he be surer on a clear morning that the sun has risen, if he chooses to open his eyes and turn them that way. Still, he may be ignorant of

either or all of these truths—certain and clear as they are—if he doesn't take the trouble to employ his faculties, as he should, to inform himself about them.

Chapter xiv: Judgment

1. The understanding faculties were given to man not merely for the pursuit of true theories but also for the conduct of his life. He would be at a great loss in his life if he had nothing to direct him except certain knowledge. For that is very scanty, as we have seen: he would often be utterly in the dark, and in most of the actions of his life he would be brought to a halt, if he had nothing to guide him in the absence of clear and certain knowledge. Someone who refuses to eat until he can prove rigorously that the food will nourish him, who won't move until he infallibly knows that his project will succeed, will have little to do except to sit still and die.

2. God has put some things in broad daylight, giving us some certain knowledge, so that we have a taste of what thinking creatures are capable of (they are probably capable of ever so much more), intending this to make us want and try to be in a better state. But for most of our concerns he has allowed us only the twilight (so to speak) of probability. This is suitable for the state—neither high nor low, and only provisional—that God has been pleased to place us in here. He has wanted to restrain our over-confidence and presumption, letting every day's experience make us conscious of how short-sighted we are and how liable to error. That should be a constant warning to us that we should devote our present life on earth to trying hard and carefully to find and then follow the way that might lead us to a state of greater perfection. For even if revelation were silent about this, it would be highly rational to think that to the extent that men employ the talents God has given them here on earth, they will be correspondingly rewarded at the close of the day, when their sun sets and night brings their

labours to an end.

3. The faculty that God has given to man, to make up for the lack of clear and certain knowledge where that can't be had, is *judgment*. Using this, the mind takes its ideas to agree or disagree—that is, takes a proposition to be true or false—without proofs that it perceives as demonstratively self-evident. The mind employs judgment sometimes because it must, where demonstrative proofs and certain knowledge are not to be had; and sometimes out of laziness, lack of skill, or haste, in cases where demonstrative and certain proofs are to be had. Men often fail to take the time needed to examine the agreement or disagreement of two ideas that interest them. Either they are incapable of the attention needed for a long train of argument, or they are merely impatient; either way, they skim through the proof or even ignore it entirely, and settle for whatever conclusion—holding that the ideas agree or that they disagree—on the basis of what, from the quick look they have had, seems to them most likely. When this faculty of the mind is exercised immediately about things, it is called *judgment*; when exercised about things that are *said* it is most commonly called *assent or dissent*. As the latter is the most usual way in which the mind has occasion to employ this faculty, I shall discuss it in terms of 'assent' and 'dissent'...

4. Thus the mind has two faculties having to do with truth and falsehood.

First, knowledge, whereby it certainly perceives and is satisfied beyond doubt of the agreement or disagreement of any ideas.

Secondly, judgment, which is putting together or separat-

ing ideas in the mind when their agreement or disagreement isn't perceived but is presumed to be so—taken to be so *before* its truth certainly appears, as the word implies ['pre-

sume' comes from Latin meaning 'take before']. And if it unites or separates them in accordance with how things are in reality, it is *right* judgment.

Chapter xv: Probability

1. •Demonstration is showing the agreement or disagreement of two ideas by the intervention of one or more proofs, the separate links of which have a constant, unchangeable, and visible connection with one another; and •probability is nothing but *the appearance of* such an agreement or disagreement, by the intervention of proofs whose connection isn't perceived to be constant and unchangeable, but is or appears for the most part to be so, sufficiently to induce the mind to judge the proposition to be true or to be false. [Locke now sketches what happens when someone follows a demonstration of a geometrical theorem. Then:] But another man, who never took the trouble to follow the demonstration, hearing a respected mathematician affirm that *the three angles of a triangle are equal to two right angles* assents to this, i.e. accepts it as true. The foundation of his assent is the probability of the thing, on evidence of a kind that is usually reliable; because the man whose word he takes for it isn't accustomed to affirm things that he doesn't know to be true, especially in matters of this kind. So that what causes the other man's assent to the proposition that *the three angles of a triangle are equal to two right angles*—what makes him take these ideas to agree, without knowing that they do so—is the usual truthfulness of the speaker in other cases, or his supposed truthfulness in this.

2. Our knowledge, as I have shown, is very narrow, and we are not so lucky as to find certain truth in everything we happen to think about; most of the propositions that we think with, reason with, use in discourse, and indeed *act* on, are ones of whose truth we can't have undoubted knowledge. Yet some of them come so close to certainty that we have no doubt about them, and assent to them as firmly, and act (on that assent) as resolutely, as if they were infallibly demonstrated and our knowledge of them were perfect and certain. But here there are degrees of •confidence from the very neighbourhood of certainty and demonstration right down to improbability and unlikelihood of truth, and down further to the brink of impossibility; and also degrees of assent from full assurance and confidence right down to conjecture, doubt, and distrust. So now, following up my account of the limits of human knowledge and certainty, I shall discuss the various degrees and grounds of probability, and assent or faith.

3. Probability is likelihood of truth, and the etymological sense of the word signifies a proposition for which there are good enough arguments or proofs for it to be accepted as true. [The Latin source of 'probable' is *probare* = 'prove'.] The mind's acceptance of this sort of proposition is called 'belief',

‘assent’, or ‘opinion’, or ‘faith’, which is the receiving of a proposition as true on the strength of arguments or proofs that are persuasive but don’t give certain knowledge. The difference between probability and certainty, between faith and knowledge, is that in all the parts of knowledge there is intuition: each step involves a visible and certain connection; in belief or faith, not so. What makes me believe is something extraneous to the thing I believe—something that doesn’t clearly show the agreement or disagreement of the ideas in question.

4. . . .The grounds of probability are the two following. First, the conformity of something with our own knowledge, observation, and experience. Secondly, the testimony of others, vouching for something on the strength of their observation and experience. In evaluating the testimony of others, we have to consider how many of them there are, whether they are honest, whether they are intelligent, what the author of the book from which the testimony is

taken is *up to*, whether the parts and circumstances of the testimony hang together, and what contrary testimonies there are.

[In section 5 Locke says that judgments of probability should be based on all the evidence on each side. He brings out the element of subjectivity in this by contrasting two evaluations of the testimony ‘I have seen a man walking on the surface of water hardened by cold’—that of someone who has seen such things himself, and that of someone who lives in the tropics and has never experienced or before heard of ice.]

[Section 6 sums up the chapter, adding a warning against the common practice of judging something to be probable *because many people accept it*. The section concludes:] If the opinions of others whom we know and think well of constitute a ground of assent, men have reason to be heathens in Japan, Moslems in Turkey, Papists in Spain, Protestants in England, and Lutherans in Sweden. I shall say more about this wrong ground of assent later.

Chapter xvi: The degrees of assent

1. The grounds of probability laid down in the preceding chapter serve not only as the basis on which to decide *whether* to assent to a proposition but also as the measure of *how strongly* we should assent. Bear in mind, though, that whatever grounds of probability there may *be*, they will operate on the truth-seeking mind only to the extent that they *appear* to it in its first judgment or its first look into the matter. I admit that in the opinions that men have and firmly

stick to, their assent is not always based on a present view of the reasons that at first won them over; for in most cases it is hard—and in many almost impossible—for people, even ones with admirable memories, to retain all the proofs that initially made them embrace that side of the question. It suffices that they did once carefully and fairly sift the matter as far as they could, and that they have searched into everything that they can imagine might throw light on the question, and done

their best to evaluate the evidence as a whole; and having thus once found on which side the probability appeared to them, after as full and exact an enquiry as they can make, they store the conclusion in their memories as a truth they have learned; and for the future they remain satisfied with the testimony of their memories that they have seen evidence for this opinion that entitles it to the degree of their assent that they are now giving to it.

2. This is all that most men are capable of doing, in regulating their opinions and judgments. And it is all we can ask them to do, because the only two alternatives are impossible. We could demand that a person retain clearly in his memory all the proofs concerning anything he finds probable, maintaining them in the same order and regular deduction of consequences in which he formerly placed them or saw them (and on one single question that might be enough to fill a book!). Or we could require a man, for every opinion that he embraces, to re-examine the proofs every day. Both are impossible. So inevitably memory has to be relied on in these matters, and men are bound to have various confident opinions whose proofs are not at that moment in their thoughts—and perhaps whose proofs they *can't* recall right then. . . .

3. I have to admit that men's sticking to their past judgments and adhering firmly to conclusions formerly made often leads them to be obstinate in maintaining errors and mistakes. But their fault is not that they rely on their memories for what they previously judged well, but that they judged before they had examined well. Can't we find many men (perhaps even *most* men) who think they have formed right judgments on various matters, having no reason for this except that they never thought otherwise? Men who imagine themselves to have judged rightly only because they never questioned or

examined their own opinions? Which amounts to saying that they think they judged rightly because they never *judged* at all. Yet these are just the ones who hold their opinions with the greatest stiffness, because in general those who are the most fierce and firm in their tenets are those who have least examined them. Once we *know* something, we are certain it is so; and we can rest assured that our knowledge won't be overturned or called into doubt by lurking proofs that haven't yet been discovered. But in matters of probability we can't always be sure that we have taken account of everything that might be relevant to the question, and that there is no evidence still to be found which could turn the probability-scales the other way, and outweigh everything that now seems to us to carry the most weight. Who has the leisure, patience, and means to collect together all the proofs concerning most of the opinions he has, so as safely to conclude that he has a clear and full view, and that there's nothing else that might come to light to change his mind? And yet we are forced to settle for one side or the other. The conduct of our lives and the management of our great concerns won't allow delay. . . .

4. So it is unavoidable, for most if not all men, to have various opinions without certain and indubitable proofs of their truth; and it would look like ignorance, lightness, or folly if men were always to give up their former beliefs the moment they are shown a counter-argument that they can't immediately refute. This, I think, indicates that we in our diversity of opinions should all maintain peace and the ordinary procedures of humanity and friendship; for we can't reasonably expect that anyone should promptly and humbly drop his own opinion and embrace ours with a blind resignation to an authority that he doesn't acknowledge as an authority. However often the understanding goes wrong,

it *can't* accept any guide except reason, and *can't* blindly submit to the will and dictates of another. If the person you want to win over to your opinions is •one who examines before he assents, you must allow him time to go over the account again, to recall points favouring his own side—ones he has currently forgotten—and to see on which side the advantage lies. And if he doesn't think your arguments are good enough to indicate that he should take all that trouble reconsidering the matter, this is only what *you* often do in similar cases; and you wouldn't like it if others told to you what points you should study. And if he is •one who takes his opinions on trust, how can we expect him to renounce the tenets that time and custom have so settled in his mind that he thinks them self-evident, or takes them to be things he was told by God himself or by God's messengers? How can we expect that opinions that are settled in *that* way should be surrendered to the arguments or authority of a stranger or an adversary; especially if there is any suspicion that the adversary is *up to something*, as there always is when men think themselves ill treated? We should sympathize with one another's ignorance and try to remove it by all the gentle and fair methods of instruction; and *not* instantly ill-treat others as obstinate and perverse because they won't renounce their own opinions and accept the ones we are trying to force on them, when it is more than probable that we are at least as obstinate in not accepting some of theirs! For where is the man who has incontestable evidence of the truth of all his beliefs or of the falsehood of all the beliefs he condemns, or can say that he has examined *to the bottom* all his own opinions and everyone else's? ·In our life· on this earth we are in a fleeting state of action and blindness, which requires us to •believe without •knowing, often indeed on very slight grounds; and this should make us work harder and more carefully to inform ourselves than to constrain others. At

least those who haven't thoroughly examined to the bottom all their own beliefs should admit that they are unfit to prescribe to others. . . . Those who *have* fairly and truly examined ·the grounds for their beliefs·, and have been brought by this beyond doubt about the doctrines they profess and live by, would have a fairer claim to require others to follow them. But there are so few of these, and they find so little reason to be dogmatic in their opinions, that nothing insolent and bullying is to be expected from them; and there is reason to think that ·in general· if men were better instructed themselves they wouldn't push others around so much.

5. Returning now to the grounds of assent, and to the different degrees of it: the propositions we accept as probable are of two sorts. There are •propositions concerning some particular existence—usually called 'matter of fact'—that could be observed and so admit of support from human testimony; and there are •ones concerning things that *cannot* have such support because they are beyond the discovery of our senses. ·I shall discuss the former in sections 6–11, and the latter in section 12·.

6. Concerning the first of these, namely particular matters of fact, ·I distinguish three kinds of case, to which I give a section each·. First, when something that fits with the constant observation of ourselves and others in similar cases is supported by reports of all who mention it, we accept it as easily and build on it as firmly as if it were certain knowledge; and we reason and act on it with as little doubt as if we had a perfect demonstration of it. Thus, if all Englishmen who have occasion to mention it were to affirm that it froze in England last winter, or that there were swallows seen there in the summer, I think one could hardly doubt this more than one does that seven and four

are eleven. Thus, the first and highest degree of probability occurs when the general consent of all men in all ages, as far as it can be known, fits one's own constant and never-failing experience in similar cases. Into this category come all the generally agreed constitutions and properties of bodies, and the regular proceedings of causes and effects in the ordinary course of nature. We call this an argument from the nature of things themselves. When our own and other men's constant observation has found something always to go the same way, we with reason conclude that it is the effect of steady and regular causes, though we don't outright *know* them. Thus, that

fire warmed a man, made lead fluid, and changed the colour or consistency in wood or charcoal;

iron sank in water, and floated in quicksilver

—when such propositions as these about particular facts fit with our constant experience, are generally spoken of in the same way by others, and therefore are not so much as questioned by anybody, we are left with no doubt of the truth of a narrative affirming such a thing to have happened, or of an assertion that it will happen again in the same way. These probabilities rise so near to certainty that they govern our thoughts as absolutely, and influence all our actions as fully, as the most evident demonstration; and in our practical concerns we hardly, if at all, distinguish them from certain knowledge. belief, with such a basis for it, rises to *assurance*.

7. Secondly, the next degree of probability occurs when I find—by my own experience and the agreement of everyone else who mentions it—that something is *for the most part* thus and so, and a particular instance of it is reported by many trustworthy witnesses. For example, history's account of men in all ages, and my own experience as far as it goes,

confirm that *most men prefer their private advantage to the public good*; so if all historians that write about Tiberius say that *he* had that preference, it is extremely probable that he did. In this case our assent is well enough based to raise itself to a degree that we may call *confidence*.

8. Thirdly, in things that could easily go either way—a bird flies this way or that, there is thunder on my right or my left, etc.—when a particular matter of fact is vouched for by the testimony of witnesses whom we have no reason to suspect, our assent is unavoidable. Thus, that there is in Italy such a city as Rome, that about 1700 hundred years ago there lived in it a man named Julius Caesar, that he was a general who won a battle against someone named Pompey—all this, although in the nature of the thing there is nothing for or against it, because it is reported by credible historians and contradicted by no-one, a man can't avoid believing it and can no more doubt it than he does the existence and actions of his own acquaintances, of which he himself is a witness.

9. Up to here the matter is straightforward. Probability on such grounds—i.e. those discussed in sections 6–8—carries so much convincingness with it that it naturally determines the judgment and leaves us with no freedom whether to believe or disbelieve, just as a demonstration leaves us with no freedom whether to know or remain ignorant. Things become harder when testimonies contradict common experience, and the reports of history and witnesses clash with the ordinary course of nature or with one another. When that happens we need to use diligence, attention, and exactness if we are to form a right judgment, and to proportion our assent to the credibility and probability of the thing. The probability of a proposition rises and falls depending on whether it is favoured or contradicted by those two foundations of credibility, namely •common observation in similar cases, and

•particular reports with regard to that particular instance. The former of these allow of so much variety of •contrary observations, circumstances, and reports; and the latter are so much affected by different •qualifications of the reporters, and differences in their characters, purposes, and level of care; that it's impossible to devise precise rules governing the various degrees to which men give their assent. The only general thing to be said is this: as the arguments and proofs, for and against, appear to us—after due examination, attending to the detail of every particular circumstance—to weigh more or less heavily on one side of the other, so they should produce in the mind such different attitudes as we call *belief, conjecture, guess, doubt, wavering, distrust, disbelief, etc.*

[Sections **10–11** concern probability and testimony. Their main point is that if we know only that one person reports that another person reports that P, this is less good evidence for P than having the original report. 'So that the more hands a tradition has successively passed through, the •less strength and convincings it receives from them.' Locke offers this as a corrective to some people's belief that traditions are made •more credible by having been passed along for centuries. In section **11** he says that he doesn't intend to demean history, but offers warnings about how it should be practised.]

12. The probabilities I have mentioned up to here have all concerned matters of fact, and things that can be reported on the basis of observation. There remains the other sort of probability—the second of the two mentioned at the end of section 5.—•relating to matters• concerning which men differ in their opinions although the things don't fall within reach of our senses and so aren't capable of eye-witness reports. •These can be sorted into two large groups. Here is the first•:

- The existence, nature, and operations of finite immaterial beings other than ourselves—e.g. Spirits, angels, devils, etc.
- The existence of material things that our senses can't take notice of because they are either too small or too far away—e.g. whether there are any plants, animals, and thinking inhabitants of the planets and other mansions of this vast universe.

•The second category contains propositions• about *the manner of operation* of most parts of the works of nature. We see the perceptible effects, but their causes are unknown—we don't perceive *how* they are produced. We see that animals are generated, nourished, and move, that the magnet attracts iron, and that the parts of a candle turn into flame as they melt, giving us both light and heat. These and their like we see and know; but their causes we can only guess at, conjecturing with probability. They don't come under scrutiny by the human senses, so nobody can examine them and testify to them; and therefore •a proposition about them• can appear more or less probable only by the standard of how well it agrees to truths that are established in our minds, and how well it stands comparison with things that we do know and observe. The only help we have in these matters is *analogy*; it is our only source for judgments of probability •of this kind. Here are three examples•: **1** Observing that merely rubbing two bodies violently together produces heat, and very often fire, we have reason to think that what we call heat and fire consists in a violent agitation of the tiny imperceptible parts of the burning matter. **2** Observing that the different refractions of transparent bodies produce in our eyes the different appearances of various colours, and that the same effect can be produced by looking from different angles at velvet, watered silk, etc., we think it probable that the colour and shining of bodies is nothing

but the different arrangement and refraction of their minute and imperceptible parts. **3** Finding in all the observable parts of the creation that there is a gradual connection of one thing with another, with no large or discernible gaps between, . . . we have reason to believe that quite generally things ascend in degrees of perfection by such gentle steps. It is hard to say where sensing and thinking begin, and where non-sensing and non-thinking end; and who is quick-sighted enough to determine precisely which is the lowest species of living things and which the highest of those that have no life? Things, as far as we can observe, lessen and increase continuously, like the diameters of cross-sections of a regular cone: there is a clear difference in size between two diameters that are far apart, but the difference between the upper and lower of two cross-sections that touch one another is hardly discernible. There is a vast difference between some men and some lower animals; but there are other man/brute pairs where the differences in understanding and abilities are so small that it will be hard to say that the man's endowments are either clearer or larger than the brute's. Observing, I say, such gradual and gentle descents downwards in those parts of the creation that are beneath man, the rule of analogy may make it probable that it is so also in things above us and above our observation; and that there are many kinds of thinking beings that surpass us in various degrees of perfection, ascending upwards towards the infinite perfection of the Creator by gentle steps and differences of which each is at no great distance from the next.

This sort of probability, which is the best guide for rational experiments and the formation of hypotheses, also has its use and influence; and cautious reasoning from analogy often leads us into the discovery of truths and useful productions that would otherwise lie concealed.

13. Though common experience and the ordinary course of things rightly have a tremendous influence on the minds of men, leading them to give or refuse belief to things that are put to them, there is one case where the strangeness of the reported fact does *not* make men less prone to accept a fair testimony that is given of it. Where such reported supernatural events are suitable to the purposes of God, who has the power to change the course of nature, reports of them may be *more* fit to be believed the more they go beyond ordinary observation or are contrary to it. This is a special feature of miracles. . . .

14. There is also one sort of proposition that demands our highest degree of assent just from its being asserted, whether or not what it says agrees with common experience and the ordinary course of things. This is the testimony of someone who can't deceive or be deceived, namely God. This kind of testimony has a special name of its own, namely 'revelation', and our assent to it is called 'faith'. This matches outright *knowledge* in how totally it takes command of our minds, and how completely it excludes all wavering. We may as well doubt our own existence as doubt that any revelation from God is true. Thus, faith is a settled and sure principle of assent and assurance, leaving no room for doubt or hesitation. But we must be sure that it *is* a divine revelation, and that we understand it correctly; for if we have faith and assurance in what is not divine revelation we shall be open to all the extravagance of fanaticism and all the error of wrong principles. In such cases, therefore, our assent can't rationally be higher than the evidence *that this is indeed a revelation, and that this is what it means*. If it's merely *probable* that it is a revelation, or that this is its true sense, our assent should reach no higher than an *assurance* or *distrust* depending on how high or low the probability is.

In chapter xviii I shall say more about faith, and the priority it ought to have over other arguments of persuasion. My topic there will be faith as against reason, though really faith

is just assent founded on the highest reason.

Chapter xvii: Reason

1. The word 'reason' has different meanings in the English language. Sometimes it refers to true and clear •principles, sometimes to clear and fair •deductions from those principles, and sometimes to •a cause, and particularly a final cause [= 'purpose']. But my topic here is 'reason' in a different sense from any of those, namely: as the name of •the faculty that is supposed to distinguish man from the lower animals, and in which he obviously much surpasses them.

2. Given that general knowledge consists (as I have shown it does) in a •perception of the agreement or disagreement of our own ideas, and given also that knowledge of the existence of anything outside us (except for God, whose existence every man can demonstrate to himself from his own existence) can be had only through •our senses, what room is there for the use of any other faculty in addition to •inner perception and •outer sense? What need do we have for reason? A great need, both for enlarging our knowledge and for regulating our assent. For reason is involved both in knowledge and in opinion, and is a necessary *aid* to all our other intellectual faculties—and indeed two of those faculties are contained within reason, namely *sagacity* and *illation*. By sagacity it finds out intermediate ideas to create a chain linking two ideas, and by illation it orders the intermediate ideas so

as to reveal what connection there is in each link of the chain that holds the premises together with the conclusion. We call this 'illation' or 'inference'; it consists simply in perceiving the connection between the ideas at each step of the deduction, through which the mind comes to see either the •certain agreement or disagreement of a pair of ideas, as in demonstration yielding knowledge, or their •probable connection, on the basis of which the mind gives or withholds its assent, as in *opinion*. Sense and intuition reach only a very little way. Most of our knowledge depends on deductions and intermediate ideas; and in cases where we have to settle for *assent* rather than *knowledge*, and accept propositions as true without being certain that they are so, we need to find out, examine, and compare the grounds of their probability.

In both these cases—that is, •certain agreement and •probable connection—the faculty that discovers the intermediate items and applies them correctly to reveal certainty in the one (knowledge) and probability in the other (assent) is what we call *reason*. Just as reason perceives •the necessary and indubitable connection of all the ideas or proofs to one another in each step of a demonstration that produces knowledge, so also it perceives •the probable connection of all the ideas or proofs to one another in every step of a discourse that it will think it right to assent to. This is the

lowest degree of what can be truly called 'reason'. For where the mind doesn't perceive this probable connection, where it doesn't discern whether there is *any* such connection, there men's opinions are not the product of judgment or the consequence of reason, but the effects of chance and hazard, of a mind floating at random without choice and without direction.

3. So we can distinguish four levels in reason, in descending order: **1** the discovering and finding out of truths, **2** sorting them out and laying them in a clear order that will make it easy to see plainly their connection and force, **3** perceiving their connection, and **4** coming to a correct conclusion. Reason can be seen at work at all these levels in any mathematical demonstration: it is one thing to **3** perceive the connection of each part when examining a demonstration that someone else has constructed; it's another thing **4** to perceive the dependence of the conclusion on all the parts; and it's yet something else again **2** construct a demonstration clearly and neatly oneself; and something else again **1** to have first found out these intermediate ideas or proofs by which it is made.

[Section **4** is a nine-page attack on the view that the only or best or proper use of reason is in constructing and following *syllogisms*. This is widely regarded as one of the weakest things in the *Essay* (Leibniz in his *New Essays* sharply and competently sorts it out), and its topic is of little interest today. It does include the memorable, if unfair, joke: 'God hasn't been so sparing to men as to make them merely two-legged creatures, leaving it to Aristotle to make them rational.' A little later Locke adds:] I don't say all this to lessen Aristotle, whom I look on as one of the greatest men amongst the ancients. Few have equalled his breadth of view, acuteness, penetration of thought, and strength of

judgment. In this very invention of ·syllogistic· forms of argumentation, through which conclusions can be shown to be rightly inferred, he did great service against those who were not ashamed to deny anything. [The conclusion of the section is also worthy of note:] I'm not in favour of taking away anything that can help the understanding to attain knowledge. If men skilled and practised in syllogisms find them helpful to their reason in the discovery of truth, I think they ought to use them. My point is just that they shouldn't ascribe more to those forms than they are entitled to, thinking that men who don't employ syllogisms are deprived of all or some of the use of their reasoning faculty. Some eyes need spectacles to see things clearly and distinctly; but those who use them shouldn't say that nobody can see clearly without them. Those who do so may have been genuinely helped by the *artifice* of syllogism, but they will be thought to favour this too much, and to discredit or undervalue *nature* ·in the form of natural reason·. Reason, by its own penetration where it is strong and is exercised, usually sees more quickly and clearly without syllogism. If ·a particular person's· use of those spectacles has so dimmed ·his· reason's sight that without them he can't see whether an argument is valid or not, I'm not so unreasonable as to oppose his using them. Everyone knows what best fits his own sight. But let him not conclude from his experience that everyone is in the dark who doesn't use just the same helps that he finds a need for!

[Sections **5–6** continue the attack on syllogisms. The point in **5** is just that, however little syllogism helps us to get knowledge, 'it is of far less or no use at all in probabilities'. The theme of **6** is that syllogism is at best a way of setting out arguments that have already been discovered, and is useless as a means to discovering arguments in the first place. Locke

unfavourably contrasts formal scholastic syllogistic reasoning with what can be done by ‘native rustic reason’—another echo of the contrast between art and nature.]

7. I don’t doubt, however, that ways can be found to assist our reason in this most useful part of its activity, namely the discovery of new knowledge. I am encouraged to say this by the judicious Hooker, who in his *Ecclesiastical Polity* I.i.6 writes:

If we could add to our repertoire the right *helps* of true art and learning, . . . there would undoubtedly be almost as much difference in maturity of judgment between •men who had those helps and •men as they now are as there is between •the latter and •little children.

I don’t claim to have invented or discovered here any of those ‘right helps’ that this great and profound thinker mentions; but obviously he wasn’t thinking of syllogism and the logic now in use, because those were as well known at his time as they are now. I will be satisfied if my discussion leads others to cast about for new discoveries, and to seek in their own thoughts for those ‘right helps of art’, which I’m afraid won’t be found by those who slavishly confine themselves to the rules and dictates of others. (I at any rate haven’t done *that*. My discussion of this topic is, so far as I am concerned, wholly new and unborrowed.) . . . I venture to say that this age is adorned with some men whose strength of judgment and breadth of understanding are such that if they were willing to employ their thoughts on this subject, they could open new and undiscovered ways to the advancement of knowledge.

8. . . . Before leaving this subject I want to take notice of one obvious mistake in the rules of syllogism, namely the rule that no syllogistic reasoning can be valid unless it has at

least one general proposition in it. As if we couldn’t reason and have knowledge about particulars! The fact is that the immediate object of *all* our reasoning and knowledge is nothing but particulars. Every man’s reasoning and knowledge is only about the ideas existing in his own mind, which are truly—every one of them—particular existences; and our knowledge and reasoning about other things depends on their corresponding with our particular ideas. Thus the perception of the agreement or disagreement of our particular ideas is all there is to our knowledge. Universality is only accidental to it, and consists only in the fact that a particular idea. . . can correspond to and represent more than one particular thing. But the perception of the agreement or disagreement of any two ideas—and consequently the knowledge arising from that—is equally clear and certain, whether either, or both, or *neither* of those ideas can represent more than one real thing. [Locke ends the section with a proposed change in the conventional order in which the premises of a syllogism are written down.]

9. Reason, though it penetrates into the depths of the sea and earth, elevates our thoughts as high as the stars, and leads us through the vast spaces and large rooms of this mighty universe, still comes far short of the real extent of what there is to be known about things, even corporeal things. There are many circumstances in which it fails us. I shall list five, giving them a section each.

First, it completely fails us when our ideas fail. It doesn’t and can’t extend itself further than they do; and so whenever we have no ideas, our reasoning stops and we are at an end of our calculation. And if at any time we reason about words that don’t stand for any ideas, it is only about those sounds and nothing else.

10. Secondly, our reason is often puzzled and at a loss because of the obscurity, confusion, or imperfection of the ideas it is engaged with; and then we are involved in difficulties and contradictions. For example, not having any perfect idea of **1** the *least extension* of matter or of **2** *infinity*, we are at a loss about the divisibility of matter. The former lack **1** blocks us from saying that some portions of matter have the 'least extension' and so are indivisible; the latter lack **2** blocks us from saying that all portions of matter are divisible, i.e. that matter is infinitely divisible. In contrast with that, we have perfect, clear, and distinct ideas of *number*, so our reason meets with none of those inextricable difficulties in respect of numbers, and doesn't find itself involved in contradictions about them. Again, we have only imperfect ideas of the operations of our minds, and of how the mind produces motion in our bodies or thoughts in our minds, and even more imperfect ideas of the operation of God; so we run into great difficulties about free created agents, difficulties from which reason can't thoroughly extricate itself.

11. Thirdly, our reason is often brought to a stand-still because it doesn't perceive the ideas that could serve to show the certain or probable agreement or disagreement of some pair of ideas. In this respect some men's faculties far outstrip those of others. Until that great instrument and example of human sagacity *algebra* was discovered, men looked with amazement at some of the demonstrations of ancient mathematicians, and could hardly help thinking that the discovery of some of those proofs was a superhuman achievement.

12. Fourthly, the mind often proceeds on false principles, and that gets it into absurdities and difficulties, dilemmas and contradictions, without knowing how to free itself; and in that case it's no use pleading for help from reason, except

perhaps to reveal the falsehood and reject the influence of the wrong principles. Reason is so far from clearing up the difficulties that a man gets into by building on false foundations that if he pushes on his reason will entangle him all the more, and deepen his perplexities.

13. Fifthly, just as obscure and imperfect ideas often get our reason into difficulties, so for the same reason do dubious words. It often happens in discourses and arguings that uncertain signs, when not warily attended to, puzzle men's reason and bring them to a halt. But these defects in ideas and meanings are our fault, not that of reason. Their consequences are nevertheless obvious, and the perplexities or errors they fill men's minds with are everywhere observable.

[Sections **14–18** repeat things Locke has already said, about intuition, demonstration, and probability. He repeats an earlier conjecture about the intellectual capacities of 'angels, and the Spirits of just men made perfect'. He emphasizes the risk of forgetting some of the steps in a long demonstration, or suspecting that one has forgotten them.]

19. Before we leave this subject, it may be worth our while to reflect a little on four sorts of arguments that men commonly use when reasoning with others—either to win the others' assent or to awe them into silence.

The first is **1** to bring forward the opinions of men whose skills, learning, eminence, power, or some other cause has made them famous and given them some kind of authority in people's minds. This often succeeds, because a man is thought to be unduly proud if he doesn't readily yield to the judgment of approved authors, which is customarily received with respect and submission by others. . . . Someone who backs his position with such authorities thinks they ought to win the argument for him, and if anyone stands out against them he will call such a person *impudent*. This, I think, may

be called *argumentum ad verecundiam*—‘argument aimed at producing deference in one’s opponent’.

20. Another means that men commonly use to force others to submit their judgments and accept the opinion under discussion is **2** to require the adversary to accept what they bring forward as a proof or to offer a better proof of the contrary position. This I call *argumentum ad ignorantiam* [= ‘argument] aimed at ignorance’.

21. A third tactic is **3** to press a man with consequences drawn from his own principles or concessions. This is already known under the name of *argumentum ad hominem* [= ‘argument] aimed at the man’.

22. The fourth is **4** the use of proofs drawn from any of the foundations of knowledge or probability. This I call *argumentum ad iudicium* [= ‘argument aimed at controlled judgment’]. This is the only one of the four that brings true instruction with it, and advances us towards knowledge. [Locke now elegantly contrasts this with the other three, *twice*.] It doesn’t **1** argue that another man’s opinion is right because I out of respect—or for any other reason except conviction—will not contradict him. It doesn’t **2** prove another man to be on the right path and that I ought to follow him along it because I don’t know a better one. Nor does it **3** argue that another man is right because he has shown me that I am in the wrong. I may be **1** modest, and therefore not oppose another man’s opinion; I may be **2** ignorant, and not be able to produce a better proof; I may be **3** in an error, and someone may show me that I am so. All or any of these may dispose me, perhaps, for the reception of truth, but *they don’t help me to reach it*; that help must come from proofs and arguments and light arising from the nature of things themselves, and not from my shame-facedness, ignorance, or error.

23. From what I have said about reason, we may be able to guess at the distinction of things into those that are *according to*, *above*, and *contrary to* reason. •*According to* reason are propositions whose truth we can discover by examining and tracing ideas that we have from sensation and reflection, and by natural deduction find the proposition to be true or probable. •*Above* reason are propositions whose truth or probability we can’t derive through reason from those principles. •*Contrary to* reason are propositions that are inconsistent with our clear and distinct ideas. Thus the existence of one God is according to reason; the existence of more than one God, contrary to reason; the resurrection of the dead, above reason. ‘Above reason’ may be taken in a double sense, either as meaning ‘above probability’ or as meaning ‘above certainty’; and I suppose that ‘contrary to reason’ is also sometimes taken in that broader way.

24. There is another use of the word ‘reason’, in which it is opposed to *faith*. It is very improper, but common use has so authorized it that it would be folly to oppose it or to hope to remedy it. Still, it should be noted that faith is nothing but a firm assent of the mind; and if it is guided as it ought to be, one won’t have faith in anything except for good reasons; so it can’t be opposite to reason. Someone who believes without having any reason for believing may be in love with his own fancies; but he doesn’t seek truth as he ought, nor is he obedient to his Maker, who wants him to use the discerning faculties he has given him to keep him out of mistake and error. He who doesn’t do this to the best of his ability may sometimes happen on the truth; but he is right only by chance, and I don’t know whether that lucky outcome will excuse the irregularity of his way of reaching it. This at least is certain, that he will be accountable for whatever mistakes he makes; whereas someone who makes

use of the faculties God has given him, and seeks sincerely to discover truth through the abilities that he has, can have the satisfaction of knowing that even if he misses the truth

he will have the reward of having done his duty as a rational creature. . . . But since some people do oppose reason to faith, we will look at them in the following chapter.

Chapter xviii: Faith and reason, and their distinct provinces

1. I have shown •that where we lack ideas we are inevitably ignorant, and lack knowledge of all sorts, •that where we lack proofs we are ignorant and lack rational knowledge, •that insofar as we lack clear and determined specific ideas we lack knowledge and certainty, and •that we lack probability to guide our assent in matters where we have neither knowledge of our own nor testimony of others on which to base our reason.

Starting from these things, I think we can mark out the boundaries between faith and reason. The lack of such marking may have been the cause, if not of *violence*, at least of great *disputes* and perhaps also *mistakes*. Until it is settled how far we should be guided by reason, and how far by faith, it will be pointless for us to dispute and try to convince one another in matters of religion.

2. I find that every sect will gladly make use of reason when it will help them, and when it fails them they cry out *It is a matter of faith, and above reason*. I don't see how they can argue with anyone, or ever convince an opponent who uses the same plea, without setting down strict boundaries between faith and reason. That ought to be the first point established in any debate where faith comes into it.

In this context, where reason is being distinguished from

faith, I take *reason* to be the discovery of the certainty or probability of propositions or truths that the mind arrives at by inference from ideas that it has acquired by the use of its natural faculties, that is, by sensation or reflection.

Faith on the other hand is the assent to a proposition that is not made out by the inferences of reason, but upon the credit of the proposer, as coming from God in some extraordinary way of communication. [The second half of that sentence (but upon. . . etc.) is given in Locke's exact words.] This way of revealing truths to men we call 'revelation'. Using the terms in these ways, I have three main points to make, one in section 3, one in sections 4–6, the third in section 7.

3. First, I say that no man inspired by God can by any revelation communicate to others any *new* simple ideas—ones that they hadn't previously acquired from sensation or reflection. Whatever impressions the inspired person may have from the immediate hand of God, if this revelation is of new simple ideas then it can't be conveyed to anyone else by words or by any other signs. [The section continues with a statement of reasons for this, based on Locke's views about how we can get simple ideas. He also remarks that after Paul of Tarsus had been taken up into the third heaven, he could only report that there are such things 'as eye has

not seen, nor ear heard, nor has it entered into the heart of man to conceive'. The section concludes:] For our simple ideas, then, which are the foundation and only raw material of all our notions and knowledge, we must depend wholly on our reason, by which I mean our natural faculties. There is no way we can get any such ideas from **1** traditional revelation—as distinct from **2** original revelation. By **1** I mean •impressions passed on to others in words and in other ordinary ways of conveying our conceptions to one another; by **2** I mean •that first impression which is made immediately by God on the mind of any man—we can't set any limit to *that*.

4. Secondly, I say that truths that we can discover by reason, using ideas that we naturally have, can *also* be revealed and conveyed to us through revelation. So God might by revelation tell us the truth of a proposition in Euclid which men can also discover for themselves through the natural use of their faculties. In all things of this kind there is little need for revelation, because God has equipped us with natural *and surer* means to arrive at the knowledge of them: any truth that we learn from the contemplation of our own ideas will be *more certain* to us than any conveyed to us by traditional revelation. That is because our knowledge that this revelation *did* come at first from God can never be as sure as the knowledge we have from the clear and distinct perception of the agreement or disagreement of our own ideas. For example, if it were revealed centuries ago that the three angles of a triangle were equal to two right ones, I might assent to the truth of that proposition on the strength of the tradition that it was revealed; but that would never reach to the level of certainty of the knowledge of it that comes from comparing and measuring my own ideas of two right angles and of the three angles of a triangle. The same

holds for matters of fact that are knowable by our senses. For example, the history of the great flood is conveyed to us by writings that originally came from revelation. But I don't think you will say that your knowledge of the flood is as certain and clear as that of Noah, who saw it; or as you yourself would have had if you had been alive then and seen it. Your senses give you a great assurance that the story of the flood is written in the book supposedly written by Moses when he was inspired; but you have less assurance that Moses did write that book than you would have if you saw Moses write it. So your assurance of its being a revelation is less still than the assurance of your senses.

5. Thus, for propositions whose certainty is built on intuition or demonstration we don't need the help of revelation to introduce them into our minds and to gain our assent; because the natural ways of knowledge could or already did settle them there, and that is the *greatest* assurance we can have of anything that isn't *immediately* revealed to us by God. And even there our assurance can be no greater than our knowledge that it *is* a revelation from God. Nothing can, under the title of 'revelation', shake or over-rule plain knowledge or rationally lead any man to accept it as true when it directly contradicts the clear evidence of his own understanding. The faculties through which we receive such •supposed• revelations can't produce a stronger conviction than comes from the certainty of our intuitive knowledge; so we can never accept as true anything directly contrary to our clear and distinct knowledge. For example, the ideas of *one body* and *one place* so clearly agree, and the mind has so clear a perception of their agreement, that we can never assent to a proposition affirming that a single body is in two distant places at one time, however strongly it lays claim to the authority of a divine revelation. That is because we can

never be as strongly convinced

that •we are right in ascribing it to God, and
that •we understand it correctly,

as we are by our own intuitive knowledge that •one body cannot be in two places at once. And therefore no proposition can be accepted as divine revelation, or given the assent that all divine revelations deserve, if it contradicts our clear intuitive knowledge. [In the remainder of this long section Locke elaborates this position, arguing in effect that the contrary view would bring chaos into epistemology as well as implying theological absurdities—God wouldn't have given us intuition and demonstration if he hadn't intend us to rely on them.]

6. The argument up to here has shown this: even in the case of an •alleged• *immediate and original revelation* which is supposed to have been made just to you, you have the use of reason and should listen to what it says. As for those who don't claim to have received any immediate revelation, but are required to accept and obey truths •supposedly• revealed to others and passed along in an oral or written tradition, in *their* case reason has a much larger role, and is the *only* basis on which we can be induced to accept such revelations. In this context we are equating •matters of faith with •propositions accepted as divinely revealed. Now, the question

Was proposition P divinely revealed?

is not itself a matter of faith. If it were, that would be because

It was divinely revealed to us that it was divinely revealed to us that P

. Unless it is revealed to us that proposition P was communicated by divine inspiration, the question of whether to believe that P has divine authority is to be settled not by faith but by reason. . . .

7. Thirdly, there are •many things of which we have very imperfect notions or none at all, and •other things of whose past, present, or future existence we can have no knowledge through the natural use of our faculties; and all these are, when revealed, the proper matter of faith. That some of the angels rebelled against God and thereby lost their first happy state, and that the dead shall rise and live again—these and their like are beyond the discovery of reason, which makes them purely matters of faith, with which reason has nothing directly to do.

8. But when God gave us the light of reason, he wasn't tying his own hands: he can still give us, when he thinks fit, the light of revelation in matters where our natural faculties can give •only• a probable answer. So revelation, where God has been pleased to give it, must win out against the *probable* conjectures of reason. When the mind is not certain of the truth of a proposition and inclines to accept it only because it appears probable, it is bound to give it up in the face of contrary testimony that comes (the mind is satisfied) from someone who cannot err and won't deceive. But it is still for reason to judge •whether it is a revelation, and •what the words in it mean. . . .

9. •Summing up: there are two situations in which it is appropriate to believe something as a matter of faith•. First, when a proposition is revealed to us whose truth our mind can't judge by its natural faculties and notions, that is purely •a matter of faith, and above reason.

Secondly, when reason provides the mind with only *probable* grounds for believing P, grounds that allow for the possibility that not-P without this doing violence to the mind's own certain knowledge or overturning the principles of all reason, *then* an evident revelation that not-P ought to settle the matter even against probability. In such a

case, . . . reason can reach no higher than probability, so faith gives an answer where reason fell short, and revelation showed on which side the truth lay.

[Section **10** repeats the doctrines of sections 6, 8 and 9.]

11. If the domains of faith and reason are not kept distinct by these boundaries, there will be no room for reason at all in matters of religion; and those extravagant opinions and ceremonies that are to be found in various religions of the world won't merit blame. I think that this vaunting of *faith* in opposition to *reason* is a primary source of the absurdities that fill almost all the religions that possess and divide mankind. For men who are indoctrinated with the view that they mustn't consult reason in the things of religion, however much they seem to contradict common sense and

the very principles of all their knowledge, have let loose their imaginations and natural superstition which have led them into strange opinions and extravagant practices in religion. So strange and extravagant that a thoughtful man can't but stand amazed at their follies, and judge them as being so far from acceptable to the great and wise God that he can't avoid thinking them ridiculous and offensive to a sober good man. The upshot is that religion, which should most distinguish us from lower animals and ought most specially to elevate us as rational creatures above the others, is just the thing in which men often appear most irrational and more senseless than the lower animals themselves. *Credo, quia impossibile est*, 'I believe, because it is impossible', might in a good man pass for a slogan expressing his zeal; but it would be a dreadful rule for men to choose their opinions or religion by.

Chapter xix: Enthusiasm [= 'intense, fanatical confidence that one is hearing from God']

1. Anyone wanting to engage seriously in the search for truth ought first to prepare his mind with a love of it. Someone who doesn't love truth won't take much trouble to get it, or be much concerned when he misses it. Everyone in the commonwealth of learning professes himself to be a lover of truth, and every rational creature would be offended if it were thought that he is not. And yet it's true to say that very few people love truth for its own sake, even among those who persuade themselves that they do. How can anyone know whether he is seriously a lover of truth? I think there is one unerring mark of it, namely that one doesn't accept any proposition with greater assurance than is justified by the

proofs one has for it. If someone goes beyond this measure of assent, it is clear that he values truth not for its own sake but for some other hidden purpose. For the love of truth can no more

- carry my assent to a proposition above the evidence *that I have* for its truth

than it can

- make me assent to a proposition because of the evidence *that there isn't* for its truth!

The latter would amount to: loving it as a truth because it possibly or probably isn't one! For the evidence that a

proposition is true (unless it is self-evident) lies only in the proofs a man has of it; so if he assents to it with a level of assurance that goes beyond that evidence, what is drawing him into that excess of assurance is something in him other than the love of truth. Whatever credit we give to a proposition, above what it gets from the principles and proofs that support it, comes from *inclinations in that direction*, and detracts from the love of truth as such. . . .

2. This bias and corruption of our judgments is regularly accompanied by a dictatorial attitude to the beliefs of others, a readiness to tell them what they ought to believe. This is to be expected, because someone who has already imposed on his own belief is almost certain to be ready to impose on the beliefs of others. Who can reasonably expect arguments and conviction, in dealing with others, on the part of someone whose understanding isn't accustomed to them in his dealing with himself? This is someone who does violence to his own faculties, tyrannizes over his own mind, and grabs the privilege that really belongs to truth alone, which is to command assent purely by its own authority, i.e. by and in proportion to the degree of evidentness that it carries with it.

3. I shall take this opportunity to discuss a third ground of assent, which for some men has the same authority and is as confidently relied on as either *faith* or *reason*. It is *enthusiasm*, which lays reason aside and appeals to revelation without help from reason. This amounts to taking away both reason and revelation, replacing them by the ungrounded fancies of a man's own brain and making these a foundation of both opinion and conduct.

4. Reason is *natural revelation*, through which God, the eternal father of light and fountain of all knowledge, communicates to mankind that portion of truth that he has put within the reach of their natural faculties. Revelation is

natural reason enlarged by a new set of discoveries communicated immediately by God, the truth of which is supported by reason through the testimony and proofs it gives that they *do* come from God.

Thus, someone who takes away reason to make way for revelation puts out the light of both—like persuading a man to put out his eyes so that he can better to receive the remote light of an invisible star through a telescope!

5. Immediate revelation is a much easier way for men to establish their opinions and regulate their conduct than the boring and not always successful labour of strict reasoning. So it is no wonder that some people have claimed to have received revelations, and have persuaded themselves that they are under the special guidance of heaven in their actions and opinions, especially in opinions that they can't account for by the ordinary methods of knowledge and principles of reason. Thus we see that in all ages men in whom melancholy has mixed with devotion, or whose self-importance has led them to think they have a greater familiarity with God than others and are more favoured by him than others are, have often flattered themselves with the conviction that they are in immediate communication with the Deity and receive frequent messages from the Divine Spirit. It must be admitted that God *can* enlighten the understanding by a ray darted into the mind immediately from the fountain of light; those people think he has promised to do that; and so—their thought goes—who has a better right to expect it than those who are his special people, chosen by him and depending on him?

6. Once their minds have been prepared in this way, any baseless opinion that comes to settle itself strongly on their imaginations is taken by them to be an illumination from the spirit of God. And when they find themselves strongly

inclined to perform some strange action, they conclude that this impulse is a call or direction from heaven, and must be obeyed.

7. This is what I take *enthusiasm* to be, when properly understood. Although it is based neither on *reason* nor on divine *revelation*, but arises from the fancies of an overheated or arrogant brain, once it gets going it works on men's thoughts and deeds more powerfully than either of those two and than both together. The impulses that men are readiest to obey are the ones they receive *from themselves*; and the whole man is sure to act more vigorously when the whole man is carried along by a natural motion. For a fanciful notion is irresistible when it is placed above common sense and neither •restrained by reason nor •checked by reflection; our mood and our wishes raise it to the level of a divine authority!

8. The odd opinions and extravagant actions that men are led into by enthusiasm provide a sufficient warning against it; but many men •ignore the warning, and• once they have started to think they are receiving immediate revelation—•illumination without search, and •certainty without proof or examination—it is hard to cure them of this. That is because their love of something extraordinary, the sense of ease and triumph they get from having an access to knowledge that is superior to the natural access that most people have, is soothing to their laziness, ignorance, and vanity. Reason is lost on them; they are above it, •they think. Their account of their situation runs as follows•.

I see the light that shines through my understanding, and cannot be mistaken; it is clear and visible there, like the light of bright sunshine; it shows itself, and needs no proof except its own evidentness. I feel the hand of God and the impulses of the spirit moving

within me, and I can't be mistaken in what I feel.

Thus they support themselves, and are sure that reason has nothing to do with what they see and feel in themselves.

Something that I experience through my senses admits no doubt, needs no proof. Wouldn't it be ridiculous for someone to demand *proof* that the light shines and that he sees it? It is its own proof, and can't have any other. When the spirit brings light into my mind it dispels darkness. I see it as I do the light of the sun at noon, and have no need for the twilight of reason to show it to me. This light from heaven is strong, clear, and pure carries its own demonstration with it; to examine this celestial ray by our dim candle, reason, would make as much sense as using a glow-worm to help us to discover the sun.

9. This is how these men talk. Stripped of the metaphors of 'seeing' and 'feeling', what they say amounts only to this: •they are sure because they are sure, and •their convictions are right because they hold them strongly! But the *metaphor* so imposes on them that they equate it with certainty in themselves and demonstration for others.

10. Let us calmly examine a little this 'internal light' and this 'feeling' on which they build so much. These men say they have clear light, and that they see; they have awakened senses, and they feel; they are sure that this can't be disputed, for when a man says he sees or feels, nobody can deny that he does so. But here let me ask: is this seeing

a perception •that the proposition is true or
a perception •that it is a revelation from God?

Is this feeling

a perception of •an inclination or wish to do something,
or

a perception of •the spirit of God causing that inclination?

These are two very different perceptions ·in each case·, and they must be carefully distinguished if we are not to mislead ourselves. I may perceive the truth of a proposition—for example a proposition in Euclid—without perceiving that it is an immediate revelation from God, and without its being so. Indeed, I may perceive that I didn't come by some knowledge in a natural way, and so conclude that it has been revealed to me, without perceiving that it is a revelation from *God*; because there may be Spirits that can, without being told to by God, arouse those ideas in me and set them out in such an order before my mind that I can perceive their connection. So if •the knowledge of ·the truth of· a proposition comes into my mind and I don't know how, that's not the same as perceiving that it comes from God. Much less is •a strong conviction of its truth a perception that it is from God, or even a perception that it is true.

The enthusiasts may call it 'light' and 'seeing', but I think it is merely belief and assurance. And the proposition they think has been revealed to them is not something they •know to be true, but merely something they •accept as true. When a proposition is known to be true, there is no need for revelation; it is hard to conceive how there can be a revelation to someone of what he already knows. So if it is a proposition that they are sure—but don't *know*—to be true, then what they have, whatever they may call it, is not *seeing* but *believing*. These are two wholly distinct ways by which truth comes into the mind: what I *see* I know to be so by the evidence of the thing itself; what I *believe* I take to be so upon the testimony of someone else. But I must *know* that this testimony has been given, for otherwise what ground have I for believing? I must see that it is God that reveals this to me, or else I see nothing. So the question is this:

how do I know that God is the revealer of this to me? How do I know that this impression is made on my mind by his Holy Spirit, and that therefore I ought to obey it? If I don't *know* this, my assurance—however great it is—is groundless; whatever light I claim to have is mere enthusiasm. Whether •the 'revealed' proposition is

in itself obviously true, or

clearly probable, or

not decidable by the natural ways of knowledge,

there is a different proposition which has to be well grounded and manifestly true. It is •the proposition that God is the revealer of the former proposition, and that what I take to be a revelation is certainly something put into my mind by him and not an illusion dropped there by some other spirit, or created by my own imagination. These men accept a certain proposition as true because they presume that God revealed it. So oughtn't they to examine what grounds they have for presuming that? If they don't, their confidence is *only* presumption, and this 'light' they are so dazzled with is nothing but a will-o'-the-wisp that leads them constantly round in this circle: it is a revelation because they firmly believe it, and they believe it because it is a revelation.

11. In any matter of divine revelation the only proof we need is *that it is an inspiration from God*. For he can neither deceive nor be deceived. But how can we know that a proposition in our minds is a truth put there by God—a truth that he declares to us and which we ought therefore to believe? This is where enthusiasm fails. For the enthusiasts boast of a light by which they say they are enlightened and brought into the knowledge of this or that truth. But if they know it to be a truth, they must know this either through its being self-evident to natural reason or through rational proofs that show it to be true. If they see and know it to be a

truth in either of these two ways, it is pointless for them to suppose it to be a revelation; for they know it to be true the same way that any other man naturally can know that it is so without the help of revelation. . . . If they say they know it to be true because it is a revelation from God, that is a good reason; but then we should ask how they know it to be a revelation from God. If they say 'By the light it brings with it, which shines brightly in my mind and I can't resist', I ask them to consider whether this amounts to anything more than 'It is a revelation, because I strongly believe it to be true'. For the 'light' they speak of is only their strong though baseless conviction that it is a truth. . . . What easier way can there be to run ourselves into the most extravagant errors and miscarriages than in this way to take *fancy* for our only guide, and to believe any proposition to be true, any action to be right, simply because we believe it to be so? The strength of our convictions is no evidence at all of their own correctness; crooked things can be as stiff and inflexible as straight ones, and men can be as positive and peremptory in error as in truth. [The section closes with more about strongly held errors, as evidenced by *conflicting* sects of enthusiasts.]

[Section 12 adds the example of Paul of Tarsus, who was sure he was acting rightly when he persecuted Christians.]

13. Light, true light, in the mind can only be the evidentness of the truth of a proposition; and if the proposition isn't self-evident, the only light it can have is what comes from the clearness and validity of the proofs that lead one to accept it. To talk of any other 'light' in the understanding is to put ourselves in the dark—or in the power of the Prince of darkness!—and voluntarily to delude ourselves in order to believe a lie. For if •strength of persuasion is •the light by which we must be guided, how are we to distinguish the

delusions of Satan from the inspirations of the Holy Ghost? Satan can transform himself into an angel of light. And those who are led by that *son of the morning* are as fully satisfied with the light they are getting—i.e. are as strongly persuaded that they are being enlightened by the spirit of God—as anyone who actually is so. They accept and rejoice in it, act on the basis of it, and are as sure as anyone could be (letting their own strong belief be the judge) that they are right. [In the background: 'How art thou fallen from heaven, O Lucifer, son of the morning! how art thou cut down to the ground, which didst weaken the nations!' Isaiah 14:12.]

14. So if you don't want to give yourself up to all the extravagances of delusion and error, you must make critical use of this guide of *your light within*. God, when he makes the prophet, doesn't unmake the man. He leaves all his faculties in their natural state so that he can judge whether his inspirations are of divine origin. When he illuminates the mind with •supernatural light, he doesn't extinguish •the light that is natural. If he wants us to assent to the truth of a proposition, he either makes its truth evident by the usual methods of natural reason, or else makes it known to be a truth which wants us to assent to because of his authority, and convinces us that it is from him by some marks that reason can't be mistaken about. Reason must be our last judge and guide in everything. I don't mean that we must •consult reason and •use it to• examine whether a proposition revealed from God can be justified by natural principles and •reject it if it can't. But we must •consult it and •use it to examine whether the proposition in question is a revelation from God. And if reason finds that it is revealed by God, reason then declares in its favour as much as it does for any other truth, and makes it one of her own dictates. If we have nothing by which to judge our opinions except the

strength with which we have them, every thought thrown up by a heated imagination will count as an inspiration. If reason can't examine their truth of our opinions by some external standard, inspirations will have the same measure as delusions, and truth the same as falsehood, and there will be no way to distinguish one from the other.

[In section 15 Locke writes of Old Testament prophets to whom God spoke directly, and who wanted and received extra evidence that it *was* indeed God who was speaking. His chief example:] Moses saw the bush burn without being consumed, and heard a voice coming out of it. This was different from merely finding that he very much wanted to go to Pharaoh so as to bring his countrymen out of Egypt. Yet he didn't think that this was enough to authorize him to go to Pharaoh with that message, until God had assured him of a power to carry it through by another miracle—turning his rod into a serpent—which he repeated in the presence of those to whom Moses was to testify. . . .

16. In what I have said I am far from denying that God sometimes enlightens men's minds with certain truths,

or arouses them to good actions, through the immediate influence and assistance of the Holy Spirit and without any extraordinary signs accompanying it. But in these cases too we have reason and scripture, unerring rules to know whether something comes from God. Where the truth in question conforms to the revelation in the written word of God, or the action in question conforms to the dictates of right reason or holy writ, we can be sure that we run no risk in treating it as such. Even if it isn't an immediate revelation from God operating on our minds in an extraordinary manner, we are sure it is warranted by the revelation that he *has* given us of truth. But that warrant that it is a light or motion from heaven doesn't come from the strength of our *private* conviction; it has to come from something *public*, namely the written word of God or the standard of reason that we share with all men. When reason or scripture expressly supports an opinion or action, we may accept it as having divine authority; but it doesn't get that stamp of approval from the mere strength of our own conviction. . . .

Chapter xx: Wrong assent, or error

1. Knowledge can be had only of visible and certain truth. So error isn't a fault of our knowledge, but a mistake of our judgment when it gives assent to something that isn't true. But if assent is based on likelihood, if what assent especially aims at is probability, and if probability is what I said it is in chapters xv and xvi, you will want to know how it comes

about that men sometimes accept propositions that are not probable. For there's nothing more common than contrariety of opinions; nothing more obvious than that one man wholly disbelieves what another only doubts of and a third firmly believes. The reasons for this may be very various, but I think they all come down to these four:

- 1 Lack of proofs, to be discussed in sections 2–4.
- 2 Lack of ability to use them, section 5.
- 3 Lack of will to use them, section 6.
- 4 Wrong measures of probability, sections 7–17.

2. In the first category I include not only the lack of proofs that •don't exist anywhere and so can't be had, but also the lack of proofs that •do exist or could be procured. Men lack proofs in the second way when they don't have the means or opportunity to make their own experiments and observations relating to some proposition, or the means to gather the testimonies of others. That is how most of mankind are situated: they are given up to labour, and enslaved to the necessities of their low status in life—their lives are worn out in merely providing for their livelihood. These men's opportunities for knowledge and enquiry are commonly as narrow as their fortunes; and their minds are not much enriched when all their waking hours and all their effort is devoted to stilling the rumbling of their own bellies, or the cries of their children. It isn't to be expected that a man who drudges all his life in a laborious trade should know more about the variety of things done in the world than a pack-horse that is repeatedly driven to and from market along the same narrow lane knows about the geography of the country. [The remainder of the section elaborates on this theme.]

3. What shall we say then? Are most of mankind subjected by the necessities of bare subsistence to unavoidable ignorance about the things that are of greatest importance to them? (I mean: about what they must do in order to go to heaven and avoid hell.) Have the bulk of mankind no guide except accident and blind chance to lead them to their happiness or misery? Are the current opinions and licensed guides of each man's country sufficient evidence

and security for him to base on them his great concerns (indeed, his everlasting happiness or misery)? Can those who teach one thing in Christendom and another in Turkey be the certain and infallible oracles and standards of truth? Shall a poor peasant be eternally happy because he chanced to be born in Italy, and a day-labourer be damned eternally because he had the bad luck to be born in England? I shan't discuss the question of how willing some men may be to say some of these things, but I am sure of this: that you must allow one or other of them to be true (take your pick) or else grant that *God has equipped men with faculties sufficient to show them what to do, if only they will seriously employ them to that end when their daily tasks allow them the leisure*. No man is so wholly taken up with earning a livelihood that he has no spare time at all to think of his soul and inform himself in matters of religion. Any man could find many spare moments in which to develop his knowledge of such matters, if he cared as much about this as men do about less important matters. No-one is too enslaved to the necessities of life for *that*.

4. As well as people whose hard way of life narrows their routes to education and knowledge, there are others who are quite rich enough to own books and other devices for removing doubts and discovering truth. But they are hemmed in by the laws of their countries, and the strict guard over them by the authorities who have an interest in keeping them ignorant, for fear that if they knew more they would have less faith in the authorities. These are actually *further* from the freedom and opportunities of a fair enquiry than are the poor and wretched labourers I have just spoken of. And however high and great they may seem, they are confined to narrowness of thought and enslaved in what should be the freest part of a man, their understandings.

This is generally the case of all those who live in countries where care is taken to propagate what the authorities think is truth, without knowledge; where men are forced to be of the religion of the country, and must therefore swallow down opinions, as simple people swallow quack doctors' pills, without knowing what they are made of or how they will work, and having to settle for believing that they will effect the cure. But the men I am speaking of are in this respect much more miserable than the patients of the quack, because they aren't free to refuse to swallow something they would rather leave alone, or to choose the physician to whom they will entrust themselves.

5. Secondly in the section 1 list of causes of men's believing against probability, there are those who lack the skill to use the evidence they have regarding probabilities. People who can't carry a chain of consequences in their heads, or estimate exactly the relative weights of conflicting proofs and testimonies, making a due allowance for every factor, can easily be misled into accepting propositions that are not probable. There are one-syllogism men, and two-syllogism ones, and others that can go only one step beyond that. These can't always tell which side has the stronger support, can't constantly follow the opinion that is in itself the more probable one. Anybody who has had any conversation with other people—even if he has never been in Westminster hall or the Exchange (at one end of the spectrum) and has never visited shelters for the homeless or madhouses (at the other)—will agree that men do differ greatly in their understandings. I shan't here go into the question of the source of this great difference in men's intellects: whether it arises from a defect in the bodily organs that are specially adapted to thinking, or from a lack of use of the intellectual faculties, making them dull and sluggish, or from the

natural differences in men's souls themselves; or from some or all of these together. It is evident that the levels of men's understandings, apprehensions, and reasonings differ so much that one may, without insulting mankind, affirm that there is a greater intellectual distance between some men and others than between some men and some lower animals. How this comes about is a question of great importance, but not for my present purpose.

6. Thirdly, there are other people who lack proofs not because they are out of reach but because they won't use them. These are people who have riches and leisure enough, and are not lacking in skill or in other helps, yet get no advantage from all this. Their hot pursuit of pleasure, or constant drudgery in business, engages their thoughts elsewhere. General laziness and negligence, or an aversion to books, study and meditation in particular, keep others from any serious thoughts. Yet others, out of fear that an impartial enquiry would not favour the opinions that best suit their prejudices, lives, and plans, are satisfied with taking on trust, without examination, whatever they find convenient and in fashion. Thus most men, even of those who could do otherwise, pass their lives without encountering—let alone giving a rational assent to—probabilities they need to know, even when those probabilities lie so much within their view that they have only turn their eyes in that direction to be convinced of them. We know some men won't read a letter that they think brings bad news; many men refuse to keep their accounts up to date, or even to think about their estates, when they have reason to fear that their affairs are in poor shape. How can men whose plentiful fortunes allow them leisure to improve their understandings satisfy themselves with lazy ignorance? I don't know. But I think that a man must have a low opinion of his soul if he lays out all his

income in provisions for his body, using none of it to procure the means and helps of knowledge; if he takes great care to appear always in a neat and splendid outside, and would be ashamed to be seen in coarse clothes or a patched coat, yet contentedly allows *his mind* to appear out of doors in a piebald costume of coarse patches and borrowed shreds such as it has been clothed in by chance or by his country-tailor (I mean the common opinion of those he has conversed with). . . . Those who call themselves gentlemen should reflect on the fact that however sure they are that their birth and fortune entitle them to credit, respect, power and authority, they will find all these carried away from them by men of lower condition who surpass them in knowledge. Those who are blind will always be led by those who see, or else fall into the ditch. And the most enslaved person is the one who isn't free in his understanding.

I have shown some of the causes of wrong assent, and how it happens that probable doctrines are not always received with an assent proportional to the reasons that can be had for their probability. But so far I have discussed only cases where the proofs do exist but don't appear to the person who embraces the error.

7. Fourthly, there remains the last sort of belief contrary to probability, which occurs when people who have the real probabilities plainly laid before them nevertheless don't accept the conclusion, and instead either suspend their assent or give it to the less probable opinion. This is the danger that threatens those who adopt wrong measures of probability. These wrong measures are:

- 1** Propositions that are not in themselves certain and evident, but doubtful and false, accepted as principles; ·discussed in sections 8–10·.
- 2** Received hypotheses; ·section 11·.

- 3** Predominant passions or inclinations; ·sections 12–16·.
- 4** Authority; ·section 17·.

8. The first and firmest ground of probability is the conformity something has to our own knowledge, especially the part of our knowledge that we have made our own and continue to regard as principles. These have so much influence on our opinions that it is usually by them that we judge concerning truth, and we measure probability in terms of them so strictly that if something is inconsistent with them—that is, with our 'principles'—we count it not merely as improbable but as impossible. The reverence we give to these principles is so great, and their authority so supreme, that the testimony of other men and even the evidence of our own senses are often rejected when they threaten to testify to something contrary to these established rules. (I shan't here discuss how far this is due to the doctrine of innate principles, and the doctrine that principles are not to be proved or questioned.) I freely grant that one truth can't contradict another; but I venture to warn that everyone ought to be very careful about anything he accepts as a principle, examining it strictly and seeing whether he *certainly knows* it to be true through its own evidentness or whether he merely *strongly believes* it to be true on the authority of others. Anyone who swallows wrong principles, blindly giving himself up to the authority of some opinion that isn't in itself evidently true, puts into his understanding a strong bias that will inevitably lead his assent astray.

9. Children commonly receive propositions into their minds (especially propositions about religious matters) from their parents, nurses, or those around them; and when these have worked their way into the child's unwary and unbiassed understanding and held on there ever more tightly, they gradually come to be *riveted* there by long habit and upbringing,

so that eventually they are fixed beyond any possibility of being pulled out again. And this holds, whether they are true or false. When the child has become an adult, he has no memory of acquiring these beliefs and doesn't know how he came by them. When he reflects on his opinions, he finds that these early-fixed 'principles' go as far back in the history of his mind as does his memory; and so he is apt to revere them as sacred things, and not to allow them to be profaned, touched, or questioned. He regards them as sacred oracles set up in his mind immediately by God himself, to be the great and unerring deciders of truth and falsehood, and the judges to which he should appeal in controversies of any sort.

10. When someone has arrived at this view of his principles (*any* principles), it is easy to imagine how he will react to any proposition—however clearly it has been proved—that invalidates their authority, or in any way conflicts with these internal oracles; whereas the grossest absurdities and improbabilities, as long as they are agreeable to such principles, are smoothly swallowed and easily digested. [The section continues with colourful remarks about errors and conflicts that arise from this attitude. Locke uses the example of the 'intelligent Romanist' who, because of childhood indoctrination, can 'easily swallow the doctrine of transubstantiation—not only against all probability, but even against the clear evidence of his senses—and believe to be flesh something that he sees to be bread'. He adds that it is impossible to argue such a person into true beliefs unless he can be 'persuaded to examine even those very principles'.]

11. Secondly, we come to people whose minds have been moulded by a received hypothesis so that they have exactly its size and shape. Unlike the previous group, these people will admit the matters of fact that their opponents bring

against them, differing from the opponents only in how they *explain* the matters of fact. They don't openly defy their senses, as the former group do. They can bring themselves to listen to opposing information a little more patiently; but they won't incorporate it in their explanations of things, and they give no weight to probabilities that tend to show that things did not come about in exactly the way they have insisted they did. A learned professor would find it intolerable—a shame that his scarlet gown would blush at—to have his authority of forty years' standing, carved out of hard rock Greek and Latin with much expense of time and candle, and confirmed by general tradition and a reverend beard, overturned in an instant by an upstart innovator! Can we expect him to admit that what he taught his pupils thirty years ago was all error and mistake, and that he sold them hard words and ignorance at a very high price? Who will ever be prevailed on by cogent arguments to strip himself of all his old opinions and claims to knowledge and learning, and turn himself out stark naked, looking for new notions? The only *arguments* that can be used will lead such a person to treat his doctrines in the way a cold wind leads a traveller to treat his cloak—wrapping them around him all the tighter!

We can include under this 'wrong hypothesis' heading the errors that arise when a true hypothesis, or right principle, isn't rightly understood. There is nothing more familiar than this. The instances of men contending for different opinions that they all derive from the infallible truth of the scripture, are an undeniable proof of it. . . .

12. Thirdly, probabilities that go against men's appetites and prevailing passions encounter the same fate. Let ever so much probability hang on one side of a greedy man's reasoning, and money on the other—it is easy to foresee which way the balance will swing! Earthly minds, like mud-

walls, resist the strongest cannons; and though perhaps sometimes the force of a clear argument may make some impression, yet they nevertheless stand firm and keep out the enemy truth that would capture or disturb them. Tell a man who is passionately in love that his mistress has been unfaithful to him, confront him with a score of witnesses to her falsehood, and it is ten to one that three kind words of hers will ·in his mind· outweigh all their testimonies, What suits our wishes is easily believed—as I think everyone has more than once experienced. Men can't always *openly* defy or resist the force of manifest probabilities that go against them, yet they don't yield to the argument. Although it is the nature of the understanding constantly to settle for the more probable side, a man has a power to suspend and restrain its enquiries, and not permit a full and satisfactory examination; and until such an examination is made, there will always be two ways left of evading the most apparent probabilities.

13. The arguments are mostly put forward in words, and the first evasive tactic is to allege that there may be a fallacy latent in them, and—when the argument is very long—that some of the stages in it may be incoherent. Very few discourses are so short, clear and consistent that one can't plausibly enough raise this doubt about fallacy and incoherence. When it can be raised the doubter can, without being accused of dishonesty or unreasonableness, set himself free ·from the force of the prevailing probability·, using the old reply, 'Though I can't answer, I won't yield'.

14. The second tactic for evading manifest probabilities is to withhold assent on the grounds that: 'I don't yet know everything that can be said on the contrary side. So although I am beaten I don't have to yield, because I don't know what forces there are in reserve behind.' This is such a wide open

refuge against conviction that it is hard to determine when a man is quite out of reach of it.

15. Still, there are limits to it; and when a man has carefully enquired into all the grounds of probability and unlikeliness, done his best to inform himself of all the relevant details, and done the calculation on each side, he can in most cases come to acknowledge on which side the greater over-all probability lies. ·And in some cases he will find that· he can't refuse his assent. I think we can conclude that when there are sufficient grounds to suspect either that there is a verbal or logical fallacy in the proof of some proposition, or that there are equally good proofs on the contrary side, one can voluntarily choose between assent, suspense of judgment, and dissent. But •where the proofs make the proposition highly probable, and there isn't sufficient ground to suspect either that there is discoverable fallacy of words or that equally valid though still undiscovered proofs are latent on the other side—*then*, I think, a man who has weighed the proofs can hardly refuse his assent to the side on which the greater probability appears. Is it probable that a random jumble of printing letters should often fall into an order such that they would print onto a page a coherent paragraph? Or that a group of atoms driven by blind chance and not guided by an understanding agent should frequently constitute the bodies of some species of animals? Nobody who thinks about questions like these can have a moment's hesitation in answering, or answer with less than total confidence. Again, •when something is attested to by witnesses and is in its own nature neither probable nor improbable, and when there is no room for the supposition that there is equally strong testimony against it—for example whether there was 1700 years ago such a man in Rome as Julius Caesar—in all such cases, I think, it isn't in any rational man's power

to refuse his assent; and his assent *necessarily* follows and accepts such probabilities. In other less clear cases, I think it is in man's power to suspend his assent, and perhaps be satisfied with the proofs that he has, if they favour the opinion that suits his inclination or interest, and so stop from further search. But that a man should assent to the side that appears to him to be the less probable seems to me utterly out of the question; he can no more do *that* than he can believe the same thing to be probable and improbable at the same time.

16. Just as knowledge is no more a matter of choice than perception is, so also, I think, assent is no more up to us than knowledge is. When the agreement of a pair of ideas appears to my mind, whether immediately or with the help of reason, I can no more refuse to perceive it—no more avoid knowing it—than I can avoid seeing the objects that I turn my open eyes towards in daylight. And I can't deny my assent to what on full examination I find to be the most probable. But though we can't •hold back our knowledge once the agreement has been perceived, or •withhold our assent once the probability has clearly appeared through careful thought about all aspects of it, still we *can* hold back both knowledge and assent by •stopping our enquiry and not employing our faculties in the search of truth. If we didn't have this power, there would never be anything to blame in ignorance, error, or infidelity.

We can, then, sometimes prevent or suspend our assent; but no-one who is well read in modern and ancient history can doubt that there is such a place as Rome or that there was such a man as Julius Caesar. Indeed there are millions of truths that don't matter to a man, or that he thinks don't matter to him: Was our king Richard III hunch-backed? Was Roger Bacon a mathematician or a magician? With questions

like these, where the assent one way or the other is of no importance to the interests of anyone, it isn't surprising that the mind gives itself up to the common opinion, or surrenders to the first comer. Opinions such as these are of so little weight and significance that, like dust in a sunbeam, their influence is rarely noticed. They are there by chance, as it were, and the mind lets them float freely. But when the mind judges that a given proposition is important, where the difference between assenting and not assenting has a great deal riding on it, then the mind sets itself seriously to enquire and examine the probability; and then, I think, it is not for us to *choose* which side to accept if the probabilities clearly favour one. The greater probability in that case will determine the assent; and a man can no more •avoid taking it to be true where he perceives the greater probability than he can •avoid knowing it to be true where he perceives the agreement or disagreement of two ideas. . . .

17. The fourth and last wrong measure of probability that I shall discuss keeps more people in ignorance or error than do the other three combined. I mentioned it in the foregoing chapter: it is the practice of giving our assent to the common received opinions of our friends, our party, our neighbourhood, or our country. How many men have no other ground for their beliefs than the supposed honesty or learning or number of members of their profession? As if honest or bookish men couldn't err, or truth should be established by majority vote! Yet most men are satisfied with this. 'The tenet has had the support of reverend antiquity, it comes to me with the passport of former ages, so I can safely accept it. Other men have been and are of the same opinion, so it is reasonable for me to embrace it too.' To settle one's opinions in such a way as *this* is worse than settling them by tossing a coin! All men are liable to error, and most

men are tempted to it by passion or interest. If we could see the secret motives that influence the men of reputation and learning in the world, and the leaders of parties, we wouldn't *always* find that they were led to their favoured doctrines by embracing truth for its own sake! This at least is certain: there is no opinion so absurd that no-one has accepted it on this ground. There is no error that hasn't had its supporters. . . .

18. Despite the great noise that is made about errors and opinions, I must be fair to mankind and say: There aren't so many men with errors and wrong opinions as is commonly supposed. I'm not thinking here of men who embrace the truth, but rather of ones who have no thought, no opinion at all, regarding the doctrines they make such a fuss about. For if we were to interrogate most partisans of most sects, so far from finding evidence that they acquired their opinions on the basis of examining arguments and the appearance of probability, we wouldn't even find that they *have* any opinions of their own on the matters they are so zealous

about! They are determined to stick to a party that they have been drawn to by upbringing or self-interest; and once they are in it they will, like the common soldiers of an army, show their courage and ardour as their leaders tell them to, without ever *examining* or even *knowing* the cause they are defending. If a man's life shows that he has no serious regard for religion, why should we think that he racks his brains about the opinions of his church, and troubles himself to examine the grounds for this or that doctrine? It is enough for him to obey his leaders, to have his hand and his tongue ready for the support of the common cause, in this way winning the approval of those who can give him credit, promotion, or protection in that society. Thus men become supporters of, and combatants for, opinions that they were never convinced of—indeed, ones that they never even had floating in their heads! I'm not playing down how many improbable or erroneous opinions there are out there in the world; but I am saying that there are fewer people that actually assent to them, and mistake them for truths, than there are generally thought to be.

Chapter xxi: The division of the sciences

1. All that can fall within the range of human understanding is in three categories. **1** The nature of things as they are in themselves, their relations, and their manner of operation. **2** What man himself ought to do, as a thinking and willing agent, for the attainment of any end, especially happiness. **3** The ways and means by which the knowledge of each of those two is attained and communicated. I think that science

[= 'high-level disciplined knowledge'] can properly be divided into these three sorts.

2. First, the knowledge of things as they are in their own beings—their constitution, properties and operations. I am including here not only matter and body, but also spirits, which also have their proper natures, constitutions, and

operations. This, in a slightly enlarged sense of the word, I call *physike* [Locke gives it in Greek], or natural philosophy. This aims at bare speculative truth [= ‘truth about •what is in fact the case’, as distinct from •what it would be good to do and from •what must be the case], and anything that can give the mind of man any such truth belongs to natural philosophy, whether it concern God himself, angels, spirits, bodies, or any of their states or qualities.

3. Secondly, *praktike* [Greek again], the skill of applying our own powers and actions in the right way for the attainment of things that are good and useful. The most considerable branch of this is ethics, which is the seeking out of the rules and measures of human actions that lead to happiness, and of the means to practise them. This does not aim at •mere speculation and knowledge of truth, but rather at •*right* and the conduct suitable to it.

4. The third branch of science may be called *semiotike* [Greek], or the doctrine of signs. Because these are mostly words, this part of science is aptly enough termed also ‘logic’. [Locke gives the word in Greek; it comes from *logos*, which can mean ‘word’.] The business of this is to study the nature of the signs that the mind makes use of for understanding things and for conveying its knowledge to others. None of the things the mind contemplates is present to the understanding (except *itself*); so it must have present to it something that functions as a sign or representation of the thing it is thinking about; and this is an *idea*. Because the scene of ideas that makes

one man’s thoughts can’t be laid open to the immediate view of anyone else, or stored anywhere but in the memory which isn’t a very secure repository, we need signs for our ideas so as to communicate our thoughts to one another and record them for our own use. The signs that men have found most convenient, and therefore generally make use of, are articulate sounds. So the study of ideas and words, as the great instruments of knowledge, makes an honourable part of the agenda of those who want to command a view of human knowledge across its whole extent. If they were carefully weighed, and studied as they deserve, words and ideas might present us with a sort of logic and criticism different from what we have encountered up to now.

5. This seems to me the first and most general division of the objects of our understanding, and the most natural. For a man can employ his thoughts about nothing but •the contemplation of things themselves, for the discovery of truth, and •the things in his own power, namely his own actions, for the attainment of his own ends, and •the signs the mind makes use of in both of the foregoing, and the right way to order them to achieve clarity. These three—things as they are in themselves knowable, actions as they depend on us for our happiness, and the right use of signs in pursuing knowledge—are utterly different from one another. So they have seemed to me to be the three great provinces of the intellectual world, wholly separate and distinct one from another.