Judgment

No. 6 of *Essays on the Intellectual Powers of Man*

Thomas Reid

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

First launched: April 2006 Last amended: May 2008

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Chapter 5: The first principles of contingent truths

Berkeley writes: 'Surely it is well worth the trouble to make a strict enquiry into the first principles of human knowledge, to sift and examine them on all sides' (*Principles*, Introduction 4). What I said in the last chapter is intended both to show the importance of this enquiry, and to make it easier.

But such an enquiry can't actually be made until the first principles of knowledge have been separated out from other truths and exhibited for us to inspect them, so that they can be 'sifted and examined on all sides'. For that purpose I shall try to *list* the truths that I take to be first principles, and to give my reasons for thinking that that's what they are.

Some readers may think that my list contains things that shouldn't be there; others may think that some first principles are missing from the list; others again may have both complaints. Things that I take to be first principles may strike some people as vulgar errors, or as truths that stem from other truths and are therefore not *first* principles. Well, in these matters everyone must judge for himself! If I see a list that is better than mine in any or in all of those respects, I shall rejoice! I am convinced that the agreement of honest men of judgment concerning first principles would do as much for the advancement of knowledge in general as the agreement of mathematicians concerning the axioms of geometry has done for the advancement of that science.

The truths that fall within the scope of human knowledge, whether they are self-evident or deduced from ones that are self-evident, fall into two classes: •necessary and unchangeable truths, whose contrary is impossible, and •contingent and changeable truths that depend on some effect of *will* and *power* that had a beginning and may have an end.

That *a cone has one third of the volume of a cylinder with the same base and the same height* is a necessary truth. It doesn't depend on the will and power of anyone or anything. It is unchangeably true, and its contrary is impossible. That *the sun is the centre around which the earth and the other planets of our system revolve* is a truth; but it isn't a necessary truth. It depends on the power and will of ·God·, the being who made the sun and all the planets and who gave them the motions that seemed best to him.

[Reid remarks that if all truths were necessary, we would need only one tense because everything that was ever true would be always true. He says that for necessary truths we use the present tense, but this is just a convenience. Someone who says 'two plus two *make* four' doesn't mean to be saying only what the sum of two and two is *right now*.]

The distinction commonly made between

> •abstract truths and •truths that express matters of fact or real existences

coincides to a large extent but not entirely with the distinction between

> •necessary truths and •contingent truths.

The necessary truths that we know about are mostly abstract truths, but there is an exception: the truth about the existence and nature of ·God·, the supreme being, which is necessary ·but obviously is a matter of fact and existence·. Other existences are the effects of will and power. They had a beginning and are changeable. Their nature is whatever the supreme being chose to give them. Their attributes and relations must depend on the nature God gave them, the powers he bestowed on them, and the situation in which he placed them.

The conclusions derived by reasoning from first principles

will commonly be necessary or contingent depending on whether the principles they are derived from are necessary or contingent. On the one hand, I take it to be certain that whatever can be inferred by valid reasoning from a necessary principle must be itself be a necessary truth, i.e. that no contingent truth can be inferred from principles that are necessary. Thus, because the axioms in mathematics are all necessary truths, so are all the conclusions drawn from them—i.e. the whole of mathematics. But from no mathematical truth can we deduce the *existence* of anything; not even of mathematical objects.

On the other hand, I think that we can very seldom infer necessary truths from contingent premises. The only example of this I can call to mind is this: from the existence of things that are contingent and changeable we can infer the existence of an unchangeable and eternal cause of them.

The minds of men are occupied much more about contingent truths than about necessary ones, so I shall first try to identify the principles of contingent truths, though I may miss a few. ·I shall present a list of twelve of them, and my discussion of them will occupy the rest of this chapter·.

(1) Everything of which I am conscious really exists.

Consciousness is an operation of the understanding that is like no other, and it can't be logically defined. [See Reid's account of 'logical definition' in Essay 1, chapter 1.] The objects of it are our present pains, our pleasures, our hopes, our fears, our desires, our doubts, our thoughts of every kind—in brief, everything that our minds do or undergo, while it is actually happening. We may remember these doings and undergoings when they are past, but we are conscious of them only while they are present.

When a man is conscious of pain, he is certain of its existence; when he is conscious that he doubts or believes, he is certain of the existence of those operations.

His irresistible conviction of the reality of those operations is immediate and intuitive; it doesn't come from reasoning. So the existence of the undergoings and doings of our minds of which we are conscious is a first principle that Nature requires us to believe on her authority.

If I am asked to prove that I can't be deceived by consciousness, to prove that consciousness isn't a deceptive sense, I can find no proof. I can't find any antecedent truth from which it is deduced, or on which its evidentness depends. It seems to scorn any such *derived* authority, and to demand my assent on its own authority.

If someone were so deranged that he denied that he was thinking at a time when he was conscious of thinking, I might wonder or laugh or pity him, but I couldn't *reason* with him about this. We would have no common principles *from* which to reason, so we could never come to grips through argument.

I think this is the only principle of common sense that has never been directly called in question. It seems to be so firmly rooted in men's minds that it retains its authority with the greatest sceptics. Hume, after annihilating body and mind, time and space, action and causation, and even his own mind, acknowledges the reality of the thoughts, sensations, and passions of which he is conscious.

No philosopher has offered any theory to *account for* this consciousness of our own thought, and the certain knowledge of their real existence that accompanies it. By this ·theory-silence· they seem to accept that *this* at least is an original ·or underived· power of the mind, a power by which we have not only •ideas but original •judgments and •knowledge of real existence.

(I can't reconcile this immediate knowledge of the operations of our own minds with Locke's theory that all knowledge consists in perceiving the agreement and disagreement of

ideas. . . . What are the agreements or disagreements that convince a man that he is in pain when he feels it? Nor can I reconcile it with Hume's theory that to believe that a thing exists is merely to have a strong and lively conception of it, or anyway that belief is merely *some* special version of the idea that is the object of the belief. For one thing, the objects of belief are propositions, not ideas. Also, in all the variety of thoughts and other events of which we are conscious, we believe in the existence of the weak as well as of the strong, the faint as well as the lively. No special feature of the operations of our minds inclines us to have *any* doubt that they really exist.). . . .

But although this principle isn't supported by any other, a very considerable and important branch of human knowledge is supported by *it*. Everything we know, indeed everything we *can* know, about •the structure and powers of our own minds is derived from this source of consciousness; so there is no branch of knowledge that stands on a firmer foundation than •this one does, for surely nothing can be more evident than the deliverances of consciousness.

So how does it come about that in this branch of knowledge—·i.e. knowledge of the structure and powers of our minds·—there are so many conflicting systems? so many controversies that are never resolved? so little that's fixed and settled? Can it be that philosophers differ most on the topic where they have the surest means of agreement?. . . .

This strange phenomenon can be explained, I think, if we distinguish •consciousness from something that is often wrongly identified with it, namely •reflection.

All men have consciousness at all times, but it on its own can't give us clear and distinct notions of the operations of which we are conscious, and of their mutual relations and tiny differences. On the other hand, attentive reflection on those operations, making them objects of thought, surveying them attentively and examining them on all sides, is something that **very few** men perform. The great majority of men *never* reflect attentively on the operations of their own minds—because they aren't capable of it or for some other reason. And even for those whom Nature has equipped for it, the habit of reflecting in this way can't be acquired without much labour and practice.

The only way we can know anything about the immediate objects of sight is through the testimony of our eyes. If we'd had as much difficulty attending to the objects of sight as we have in attentively reflecting on the operations of our minds, our knowledge of visible objects might have been in as backward a state as our knowledge is of the operations of our minds.

But this darkness won't last for ever. Light will arise on this benighted part of the intellectual globe. When someone has the good fortune to depict the powers of the human mind as they really are in Nature, men who are unprejudiced and reflective will recognise themselves in the picture. And then the only questions will be: How could things that are so obvious be wrapped up in mystery and darkness for so long? How could men be swept away by false theories and conjectures, when they could have found the truth inside themselves if only they had attended to it?

(2) The thoughts of which I am conscious are the thoughts of a being that I call myself, my mind, my person.

The thoughts and feelings of which we are conscious are continually changing, and the present thought is not the thought of a moment ago; but something that I call *myself* remains through this change of thoughts. This *self* has the same relation to all the successive thoughts that I am conscious of—they are all *my* thoughts. And every thought that isn't mine must be the thought of some other person.

If you ask me for a proof of this, I admit that I can't give you one; the proposition itself has an evidentness that I can't resist. Shall I think that thought can stand by itself without a thinking being? or that ideas can feel pleasure or pain? My nature tells me that it is impossible.

And the structure of all languages shows that Nature has dictated the same thing to everyone. For in all languages when men have spoken of thinking, reasoning, willing, loving, hating, they have used personal verbs which from their nature require a *person* who thinks, reasons, wills, loves, or hates. Evidently men have been taught by Nature to believe that thought requires a thinker, reason requires a reasoner, and love requires a lover.

Here we must part company with Hume, who thinks it is a vulgar error to suppose that in addition to the thoughts we are conscious of there is a mind that *has* them. If the mind is anything more than impressions and ideas, ·Hume holds·, 'mind' must be a word without a meaning. According to him, then, 'mind' is a word signifying a bundle of perceptions; or when he defines it more precisely 'It is that succession of related ideas and impressions of which we have an intimate memory and consciousness' (*Treatise* II.i.2). So that is what *I* am—the succession of related ideas and impressions of which I have the intimate memory and consciousness!

But who is the *I* that has this memory and consciousness of a succession of ideas and impressions? Oh, it's nothing but that succession itself!

So I am being taught that this succession of ideas and impressions intimately remembers and is conscious of *itself*. I would like to be further instructed. Is it that the impressions remember and are conscious of the ideas, or the ideas remember and are conscious of the impressions, or both remember and are conscious of both? Do the ideas 'remember' those that come after them as well as those that went before? These questions naturally arise from this system, and they haven't yet been answered.

But this much *is* clear: this succession of ideas and impressions not only remembers and is conscious, but also judges, reasons, affirms, denies; indeed it eats and drinks and is sometimes merry and sometimes sad! If it is consistent with common sense to say things like that about a succession of ideas and impressions, what on earth is nonsense?

[Reid then rather laboriously turns a joke that had been used to mock scholastic philosophers into a complex and leaden-footed joke in mockery of Hume.]

(3) Events that I clearly remember really did happen. This has one of the surest marks of a first principle: no man ever purported to prove it, yet no man in his right mind questions it. The testimony of memory, like the testimony of consciousness, is immediate; it claims our assent on its own authority.

Suppose that a lawyer, defending a client against the testimony of credible witnesses, were to argue like this:

> Admitting that the witnesses are honest, and that they clearly remember the things to which they have testified, it doesn't follow that the prisoner is guilty. It has never been proved that even the most distinct memory can't be deceptive. Show me any necessary connection between •the act of the mind that we call 'memory' and •the past existence of the remembered event. No-one has ever offered a shadow of argument to prove that they are connected; but this is one link in the chain of proof against the prisoner, and if it is weak the whole proof falls to the ground. Until it is proved that we can safely rely on •the testimony of memory for •the truth about past events, no judge or jury can justly take away the life of a citizen on such doubtful evidence.

We will all agree, I think, that the only effect of this argument on the judge or jury would be to convince them that the lawyer's judgment had broken down. A defence lawyer is allowed to plead on his client's behalf everything that is fit to persuade or to move, but I don't think any defence counsel ever had the nerve to argue in the above fashion. Why not? Surely, because the argument is absurd. Now what is absurd in court is absurd in the philosopher's chair. Something that would be ridiculous if said to a jury of honest, sensible citizens is equally ridiculous when solemnly said in a philosophical dissertation.

Hume, as far as I remember, hasn't directly questioned the testimony of memory; but he has laid down the premises for overturning its authority, leaving it to his readers to draw the conclusion.

He works at showing that the belief or assent that always accompanies memory and the senses is nothing but the liveliness of the perceptions they present. He shows very clearly that this liveliness is no reason to believe in the existence of external objects. Obviously, it is no more a reason to believe in the past existence of the objects of memory.

Indeed the theory of ideas that is generally accepted by philosophers destroys all the authority of memory, as well as the authority of the senses. Descartes, Malebranche, and Locke were aware that this theory required them to find *arguments* to prove the existence of external objects, which the plain man believes on the mere authority of his senses; but those philosophers didn't realize that this theory made it equally necessary for them to find arguments to prove the existence of past things that we remember.

All the arguments they advanced to support the authority of our senses were very weak and inconclusive, and Berkeley and Hume had no trouble refuting them. It would have been just as easy to refute any argument they could have brought, consistent with •their theory ·of ideas·, to support the authority of memory. ·I shall explain why·.

According to •that theory, the immediate object of memory—as of every other operation of the understanding—is an idea present in the mind. From the present existence of this idea of memory I am left to infer by reasoning that six months or six years ago there did exist something similar to this idea. But what is there in the idea that can lead me to this conclusion? What mark does it bear of the *date* of its archetype [= 'the item of which it is a copy']? Indeed, what evidence do I have that it *had* an archetype, rather than being the first of its kind?

'Well, this idea or image in the mind must have had a cause.' I admit that if there is such an image in the mind, it must have had a cause, and indeed a cause able to produce this effect; but what can we infer from *that*? Does it follow that the effect is a likeness, a copy, of its cause? If so, it also follows that a picture resembles the painter and a coach resembles the coach maker!

A past event can be known by •reasoning, but that is not •remembering it. When I clearly remember something, I give the back of my hand to reasons *for* it as well as reasons *against* it. And so I think does every man in his senses.

(4) Our own personal identity and continued existence extends as far back ·in time· as we remember anything clearly.

We know this immediately, not by reasoning. It seems indeed to be a part of the testimony of memory: everything we remember relates to ourselves in such a way as to imply our existence at the time remembered. Nothing could be more obviously absurd than to suppose that a man might remember what happened before he existed! So, if his memory isn't deceptive, he must have existed as far back as

he remembers anything clearly. This principle is so tightly tied to (3) that one might think they should be coalesced into one. Decide this in whatever way you think fit. The proper notion of identity, and Locke's views on this subject, have been considered in Essay 4, chapter 6.

(5) Things that we clearly perceive by our senses really exist and really are what we perceive them to be.

All men are led by Nature to put their faith in the clear testimony of their senses, long before they can be biased by prejudices from education or from philosophy. This is too obvious to need proof.

How did we first come to know that our environment contains certain beings whom we call 'father' and 'mother' and 'sisters' and 'brothers' and 'nurse'? Wasn't it by the testimony of our senses? How did those people get across to us any information or instruction? Wasn't it by means of our senses?

Obviously, we can't have any communication, correspondence, or society with *any* created being except by means of •our senses. Until we rely on •their testimony, we must consider ourselves as being alone in the universe without any other created things, living or inanimate, and be left to converse with our own thoughts.

Berkeley can't have properly taken in that it is by means of the material world that we have any interactions with thinking beings or any knowledge of their existence, and that by depriving us of the material world he deprived us at the same time of family, friends, country, and every human creature—of every object we could like or admire or care about, except ourselves.

The good bishop surely never intended this. He was too warm a friend, too devoted a patriot, and too good a Christian to be capable of such a thought. He wasn't aware of the consequences of his system, so we oughtn't to attribute them to •him; but we must attribute them to •his philosophical system, which stifles every impulse of generosity or neighbourliness.

When I think I am speaking to men who hear me and can judge what I say, I feel the respect that is due to such an audience. I enjoy the two-way traffic of opinions between myself and friends who are open and able, and my soul blesses ·God·, the author of my being, who has enabled me to be entertained in this manly and rational manner.

But Berkeley shows me that this is all a dream, that I don't see any human face, that all the objects I see and hear and handle are only the ideas in my own mind; ideas are my only companions. Cold company indeed! Every human feeling freezes at the thought!

But, my Lord Bishop, is mine the only mind left in the universe?

'Oh no. Only the *material* world is annihilated ·by my philosophy·; everything else remains as it was.'

This apparently offers to comfort me in my forlorn solitude. But do I see those minds? No. Do I see ideas that they have? No. Nor do they see me or my ideas. So they mean no more to me than do the inhabitants of. . . .the moon; and my gloomy solitude returns. Every social tie is broken, and every social affection is stifled.

[Reid goes on to say that Berkeley's reasoning was fine, and that the trouble lay in his premises. The real culprit is the doctrine that 'we don't perceive external objects themselves, but only certain images or ideas in our own minds'. After alluding to his earlier attacks on this, Reid adds:] If external objects are perceived immediately, we have the same reason to believe in their existence as philosophers have to believe in the existence of ideas while they hold them to be the immediate objects of perception.

(6) We have some power over our actions and over the decisions of our will.

All power must be derived from ·God·, the source of power and of every good gift. Its continuance depends on his choosing to let it continue, and it is always subject to his control.

Beings to whom God has given any degree of power, along with understanding to direct their use of it, must be accountable to their maker. But those who are not entrusted with any power aren't accountable to anyone, for all good conduct consists in the right use of power and all bad conduct in the misuse of it.

To call to account a being who was never entrusted with any degree of power is an absurdity, just as it would be to call to account an inanimate being. So we are sure that if we are in any way answerable to the author of our being, we must have some degree of power that entitles us to his approval when we use it properly, and to his displeasure when we misuse it.

How do we first get the idea of power? It isn't easy to say. It isn't an object of sense or of consciousness: we see events succeeding one another, but we don't see the power by which they are produced. We are conscious of the operations of our minds; but power is not an operation of mind. If our only notions were ones provided by the external senses and by consciousness, it seems impossible that we should ever have any conception of power. That is why Hume, who has reasoned the most precisely on the basis of this •hypothesis—·namely, that all our ideas are copied from impressions·—says that we *don't* have any idea of power, and he clearly refutes Locke's account of the origin of this idea.

But it is futile to reason from a •hypothesis against a fact whose truth everyone can see by attending to his own thoughts. It is obvious that everyone, very early in life, not only has an *idea of power* but is sure that he has some degree of *power* in himself. For this belief is necessarily involved in many mental operations that are familiar to everyone and are part of the essential repertoire of a reasonable being. ·I shall cite three operations that essentially involve believing that one has some power·.

(a) It is involved in every act of •volition. 'Clearly,' writes Locke, 'volition is an act of the mind knowingly exerting the control *it takes itself to have* over any part of the man. . . .'. Thus, every volition implies a belief that one has the power to do the action that is willed. A man may *desire* to visit the moon, but nothing but insanity could make him *will* to do so. And if insanity did produce this effect, it would have to be by making him think he *did* have the power.

(b) This belief is involved in all •deliberation; for no-one in his right mind deliberates about whether to do something that he believes isn't within his power.

(c) The same belief is involved in any adoption of a plan or policy that is reached through deliberation. A man may as well decide to pull the moon off-course as to lift his finger if he believes that it isn't in his power to do so. The same holds for every promise or contract in which a man gives his word; for anyone who promises something that he doesn't think he has the power to perform is not an honest man.

Just as these operations involve a belief that one has some power in oneself, so there are others—equally common and familiar—that involve a similar belief about others.

When we give approval or blame to a man for something he has done, or for not doing something he has not done, we must think he had the power to act otherwise. The same is belief is involved in all advice, encouragement, command, and rebuke, and in everything in which we trust someone to do what he has promised. . . .

The belief that there is some degree of power in ourselves and in other people resembles our belief in the existence of a material world in several respects, including this: even those who reject it as a matter of •philosophical theory find themselves *having* to be governed by it in their •everyday practice. That is what always happens when philosophy contradicts first principles.

(7) The natural faculties by which we distinguish truth from error are not deceptive. If anyone demands a proof of this, it is impossible to satisfy him. Even supposing this principle were mathematically demonstrated, this wouldn't give the questioner what he wanted, because to judge a demonstration a man must trust his faculties, taking for granted the very thing that is in question. Trying to prove that our reason is not deceptive by any kind of reasoning is absurd in the same way as trying to settle whether a man is honest or not by asking him.

If a sceptic •builds his scepticism on the basis that all our powers of reasoning and judging are deceptive in their nature, or •resolves at least to withhold assent until it is proved that they aren't deceptive, it is impossible to beat him out of this stronghold by argument, and we'll have to leave him to enjoy his scepticism.

Descartes certainly made a false step in this matter. He put forward, among other doubts, this one:

> However evident things might seem that he received from his consciousness, his senses, his memory, or his reason, perhaps some malignant being had given him those faculties on purpose to lead him astray; and therefore they shouldn't be trusted without a proper certificate of trustworthiness.

To remove this doubt, Descartes tries to prove the existence of a God who is not a deceiver; from which he concludes that the faculties God had given him are trustworthy.

It is strange that such a sharp reasoner didn't see that this reasoning obviously involves begging the question. [Reid uses that phrase in its original meaning of 'trying to support P by an argument in which P lurks among the premises'.] For if our faculties are deceptive, why can't they deceive us in this reasoning as well as in others? And if they are to be trusted here, without a certificate, why not elsewhere as well?

Every kind of reasoning for the truthfulness of our faculties amounts to no more than taking their own word for it that they are truthful; and that is what we must do, confidently, until God gives us new faculties to sit in judgment on the old ones. Why was Descartes satisfied with such a weak argument for the truthfulness of his faculties? Probably because he never seriously doubted it.

If any truth can be said to be prior to all others in the order of Nature, this one seems to have the best claim; because *every* time we assent to something that we find evident on the strength of intuition, demonstration, or probabilistic considerations, the truth of our faculties is taken for granted and is, as it were, one of the premises on which our assent is based.

Then how do we come to be assured of this fundamental truth on which all others rest? Well, •evidentness resembles •light in many respects, and one of them may be this: just as

> •light, which is the revealer of all visible objects, reveals itself at the same time,

so also, perhaps,

> •evidentness, which is the guarantor of all truth, guarantees itself at the same time.

[Reid repeats that it is just a fact about 'the constitution of the human mind' that we *can't help* assenting to P with a strength corresponding to how evident P is to us. Someone who went against this compulsion would be an intellectually

misshapen 'monster', like someone born without hands or feet. He compares the sceptic with a man walking on his hands: stop paying attention to him and he will start being sensible and get onto his feet! Then:]

The principle we are considering here, like many other first principles, has a property that is hardly ever possessed by principles that are based solely on reasoning, namely: in most men the principle produces its effect without ever being attended to or thought about. No man ever *thinks* 'My natural faculties are not deceptive' except when he is thinking about the case for scepticism; yet this principle *invariably* governs his opinions. . . .

Another property of this and many other first principles is that they compel assent •in particular instances more powerfully than •as general propositions. Many sceptics have denied every •general principle of science excepting perhaps the existence of our present thoughts; yet in •particular cases they reason and refute and prove, assent and dissent. They use reasoning to overturn all reasoning, judge that they ought to have no judgment, and see clearly that they are blind!

(8) There is life and thought in our fellow-men with whom we converse.

As soon as children are capable of asking a question or of answering one, as soon as they show signs of love, resentment, or any other feeling, they must be convinced that the people with whom they have these relationships are thinking beings. They are obviously capable of such relationships long before they can reason. Everyone knows that there is a social bond between the nurse and the child before it is a year old. It can at that age understand many things that are said to it.

It can by signs ask and refuse, threaten and beg. It clings to its nurse in danger, shares her grief and joy, is happy in her soothing and caresses and unhappy in her displeasure. I think it must be admitted that these things can't be so unless the child believes that the nurse is a thinking being.

Well, then, *how* does a one-year-old child come by this belief? Not by reasoning, surely, because children don't reason at that age. Nor is it through the external senses, for life and intelligence are not objects of the external senses.

It is hard to determine how or when Nature first gives this information to the infant mind. We can't find out by remembering our own case, because our memory doesn't extend that far back. We see it in those who are born blind, and in others who are born deaf; so Nature hasn't tied it solely to anything visible or audible. When we grow up to the years of reason and reflection, this belief remains. No man thinks of asking himself 'Why do I think that my friend is a living creature?'. Wouldn't he be surprised if someone else asked him that absurd question? If he were asked, he might not be able to give any reason that wouldn't equally be a reason to think that a watch or a puppet is a living creature. But even if you convince him of the weakness of the reasons he gives for his belief, you can't make him in the least doubtful. This belief stands on a foundation other than that of reasoning. . . .

Setting aside this *natural* conviction, I think the best reason we can give to show that other men are living and thinking is that *their words and actions indicate powers of understanding like those we are conscious of in ourselves*. The very same argument, applied ·not to the behaviour of men but· to the works of Nature, leads us to conclude that there is a thinking author of Nature; and it seems just as strong and obvious in that case as in the other. So we may suspect that the mere use of reason can reveal to men •the existence of God as soon as it can reveal that •other men have life and thought. . . .

Our judgments concerning life and thought in other beings are not at first free from error. But the errors children make about this lie on the safe side: they are apt to attribute thought to inanimate things. These errors don't matter much, and are gradually corrected by experience and mature judgment. But the belief that other men have life and thought is absolutely necessary for us before we are capable of reasoning, which is why the author of our being has given us this belief in advance of all reasoning.

(9) Certain features of the face, tones of voice, and physical gestures indicate certain thoughts and dispositions of mind.

I suppose everyone will admit that many operations of the mind have their natural signs in face, voice, and gesture. [Reid quotes Cicero as saying this. Then:] The only question is this: do we (a) understand the significance of those signs by the constitution of our nature, i.e. by a kind of natural perception similar to sense-perception; or do we rather (b) gradually learn the significance of such signs from experience, as we learn that smoke is a sign of fire and ice a sign of cold? I think (a) is the right answer.

I can't believe that the notions we have about what is expressed by features, voice, and gesture are entirely the fruit of experience. Children *very* soon after birth can be frightened and thrown into fits by a threatening or angry tone of voice. I knew a man who could make an infant cry by whistling a sad tune within its hearing, and again by altering his key and melody could make the child leap and dance for joy.

It is not by experience, surely, that we learn what music expresses, for often a piece of music works on us most strongly at our first hearing of it. One tune expresses cheerfulness and festivity, so that when we hear it we can hardly forbear to dance. Another is sorrowful and solemn. One inspires the hearer with tenderness and love; another with rage and fury.

> Hear how Timotheus' varied lays surprise,
> And bid alternate passions fall and rise;
> While at each change, the son of Lybian Jove
> Now burns with glory, and then melts with love.
> Now his fierce eyes with sparkling fury glow,
> Now sighs steal out, and tears begin to flow.
> Persians and Greeks, like turns of Nature, found,
> And the world's victor stood subdu'd by sound.
> (from Pope's *Essay on Criticism*)

A man can feel these effects without having studied either music or the passions. The most ignorant and uncultivated people to whom Nature has given a good ear feel them as strongly as those who know most.

Face and gesture express things just as strongly and naturally as voice does. The first time someone sees a stern and fierce look, a contracted brow and a menacing posture, he concludes that the person is inflamed with anger. Are we to say that until experience teaches us better we find the most hostile facial expression to be as pleasant as the most gentle and benign? This surely would contradict all experience; for we know that an angry face will frighten a child in the cradle. Who hasn't noticed that very young children can distinguish, going by tone of voice and facial expression, things said as jokes and things said in earnest? They judge by these natural signs, even when they seem to contradict the artificial signs.

[Reid speaks of our having no memory of first learning how to read faces, voices and gestures, and that we don't observe children learning this—whereas we *do* observe them learning that fire burns and knives cut. Then:]

Indeed, I think that it is ·not just empirically unlikely, but downright· *impossible* that this should be learned from experience. When we •see the sign and •see the thing signified always conjoined with it, experience can teach us how that sign is to be interpreted. But how can experience instruct us when we •see only the sign, and •the thing signified is invisible? That's what the case is here: the thoughts and passions of the mind, as well as the mind itself, are invisible, so their connection with any sensible sign can't be first discovered by experience. There must be some earlier source for the knowledge of this connection.

Nature seems to have given men a faculty or sense by which this connection is perceived. And the operation of this sense is closely analogous to that of the external senses.

When I grasp an ivory ball in my hand, I feel a certain sensation of touch. In the sensation there is nothing external, nothing corporeal. The sensation isn't round or hard; it is an act of feeling of the mind, from which I can't *by reasoning* infer the existence of any body. But

> by the constitution of my nature the sensation carries along with it the conception of and belief in a round hard body really existing in my hand.

Similarly, when I see the features of an expressive face, I see only various detailed shapes and colours. But

> by the constitution of my nature the visible object brings along with it the conception of and belief in a certain passion or sentiment in the mind of the person.

In the former case a sensation of touch is the sign, and the hardness and roundness of the body I grasp is signified by it. In the latter case the facial expression is the sign, and the passion or sentiment is signified by it.

[Reid goes on at some length about the evidence that the significance of facial expressions and gesture is something we know instinctively, i.e. 'by the constitution of our natures'; he cites the success of well-done pantomimes in communicating thoughts and emotions to people who have had no experience of pantomime. It takes hard work and practice to *be* a mime, he says, but not to understand a mime's performance.]

(10) A certain respect should be accorded to human testimony in matters of fact, and even to human authority in matters of opinion.

Before we can reason about testimony or authority, there are many things we need to know, and we *can't* know them except on the evidence of testimony and authority. ·God·, the wise author of Nature, has implanted in the human mind a propensity to rely on this evidence before we can give a reason for doing so. This does indeed, in the first period of life, put our judgment almost entirely in the power of those who are close to us; but this is necessary for our survival and for our growing up. If children were so built that they had no respect for testimony or authority, they would—I mean this literally—*die* for lack of knowledge. They *have to* •be instructed in many things before they can •discover them by their own judgment, just as they *have to* •be fed before they can •feed themselves.

But when our faculties mature, we find reason to check the propensity to yield to testimony and authority that was so necessary and so natural when we were very young. We learn to reason about the respect due to them, and see it as a childish weakness to give them more weight than reason justifies. And yet I think that all through life most men are more apt to over-rate testimony and authority than to under-rate them; ·which suggests that· the natural propensity still retains some force ·even when it *could* be replaced by reasoning·. . . .

(11) For many outcomes that will depend on the will of man, there is a self-evident probability, greater or less according to circumstances.

Some individuals may have such a degree of frenzy and madness that no-one can say what they may or may not do. We have to put such people under restraint, to keep them as far as possible from harming themselves or others. They aren't regarded as reasonable creatures or as members of society. But with men of sound mind we depend on a certain degree of regularity in their conduct; and we could cite a thousand cases where we could bet ten to one that they will act *thus* and not *so*.

If we weren't confident about how our fellow-men will act in such circumstances, it would be impossible to live in society with them. What makes it possible for men to live in society, and to unite in a political body under government, is that their actions will always be to a large extent governed by the common principles of human nature.

It can always be expected that they will care about their own interest and reputation, and that of their families and friends; that they will resent insults, have some feeling for being obligingly helpful, and have enough regard for truth and justice not to depart from them without temptation.

All political reasoning is based on such principles as these. It is never demonstrative, but it may have a high probability especially when applied to large numbers of men.

(12) In the phenomena of Nature, what happens will probably be like what *has happened in similar circumstances.*

We must have this conviction as soon as we are able to learn anything from experience, for all experience is based on the belief that the future will be like the past. Take away this principle and the experience of a hundred years makes us no wiser about what is to come.

This is one of the principles that we can confirm by reasoning when we have grown up and observe the course of Nature. We perceive that Nature is governed by fixed laws, and that if it weren't there could be no such thing as prudence in human conduct: there would be no such thing as *a good means to achieving such-and-such an end*, because something that did once •lead to that end is just as likely to •block it next time.

But we need the principle *before* we can discover it by reasoning, which is why it has been built into our constitution and produces its effects before the use of reason.

When we come to the use of reason, this principle remains in full force but we learn to be more cautious in applying it. We observe more carefully the circumstances on which the past outcome depended, and learn to distinguish them from features of the situation that just happened to be there had no effect on the outcome.

To do this—·i.e. to sort out the causally relevant from the irrelevant details·—we often need to perform a number of experiments that vary in their details. Sometimes a single experiment is thought sufficient to establish a general conclusion. For example, when it was once found that at a certain temperature quicksilver became a hard and malleable metal, there was good reason to think that that temperature will always—for ever—produce this effect.

I need hardly mention that the whole structure of natural philosophy is built on this principle, and will collapse into rubble if the principle is taken away.

Therefore the great Newton lays it down as an axiom, or as one of his laws of philosophising, that 'the causes assigned to natural effects of the same kind must be the same' [Reid gives it in Latin]. Every man assents to this as soon as he understands it, and no-one asks for a reason for it. So it has the most genuine marks of a first principle.

It is very remarkable that although all our expectation of what will happen in the course of Nature is derived from our belief in this principle, it doesn't occur to anyone to ask what the grounds are for this belief. I think Hume was the first person to raise this question; and he has shown clearly and conclusively that the belief isn't •based on reasoning and isn't •intuitively evident in the way mathematical axioms are. It isn't a necessary truth.

He has tried to explain it on his own principles. I am not concerned here with examining his account of this universal belief of mankind. Whether or not that account is correct (and I don't think it is), this belief •is universal among mankind and •is not based on any antecedent reasoning but on the constitution of the mind itself, so you must agree that it is a 'first principle' in my sense of that phrase.

Chapter 6: The first principles of necessary truths

There has been no dispute about most of the first principles of *necessary* truths, so there is less need to dwell on them. It will be sufficient to divide them into different classes, to present some examples of each class, and to make some remarks about the ones whose truth has been called in question.

They may I think most properly be divided according to the sciences to which they belong. ·On that basis they fall into six classes·.

(1) Some first principles could be called 'grammatical': every adjective in a sentence must relate to some noun, expressed or understood; every complete sentence must have a verb.

Those who have studied the structure of language, and formed clear notions of the nature and use of the various parts of speech, perceive without reasoning that these principles and others like them are necessarily true.

(2) There are logical axioms: any string of words that doesn't make a proposition is neither true nor false; every proposition is either true or false; no proposition can be both true and false at the same time; reasoning in a circle proves nothing; whatever can be truly affirmed of a genus can be truly affirmed of all the species and all the individuals belonging to that genus.

(3) Everyone knows that there are mathematical axioms. Ever since Euclid, mathematicians have very wisely laid down the axioms or first principles on the basis of which they reason. And the effect this seems to have had on the stability and progress of this science strongly encourages us to try to lay the foundations of other sciences in a similar manner as far as we can.

Hume thinks he has discovered a weak side even in mathematical axioms; and thinks that it isn't strictly true, for instance, that two straight lines can't intersect twice.

The principle he reasons from is that *every simple idea is a copy of a preceding impression and therefore can't be more precise and detailed than that impression*. From this he argues:

> •No-one ever saw or felt a line that was so straight that it couldn't cut another equally straight in two or more points.
> •Therefore there can be no idea of such a line.

The ideas that are most essential to geometry, such as the ideas of *equality of a straight line* and *a square surface*, are, Hume says, far from being clear and determinate, and ·when they are defined· the definitions destroy the demonstrations that geometers put forward. So he finds mathematical demonstration to be a rope of sand.

I agree with this acute author that *if* we could form no notion of points, lines, and surfaces that were more precise than those we see and handle, there couldn't be any mathematical demonstration. But everyone who has understanding can construct in his own mind those elegant and precise forms of mathematical lines, surfaces, and solids, doing this by analysing, abstracting, and compounding the raw materials presented to him by his senses

If a man finds that he can't form a precise and determinate notion of the figure that mathematicians call a 'cube', he not only *isn't* a mathematician but he *can't become* one. But if he does have a precise and determinate notion of that figure, he must perceive that •it is bounded by six perfectly square and perfectly equal mathematical surfaces. He must perceive that •these surfaces are bounded by twelve perfectly straight and perfectly equal mathematical lines, and that •those lines are terminated by eight mathematical points.

When someone is aware of having these conceptions in a clear and determinate form, as every mathematician is, it is useless bring metaphysical arguments to convince him that they *aren't* clear. You might as well try to argue a man who is racked with pain that he doesn't feel any pain.

Every theory that implies that we *don't* have precise notions of mathematical lines, surfaces, and solids must be false. So these notions are not copies of our impressions.

The Medici Venus is not a *copy* of the block of marble from which it was made. The elegant statue was formed out of the rough block, and this was done by a manual operation that could in a literal sense be called 'abstraction' [from Latin *abstrahere* = 'pull away from']. Mathematical notions are formed in the understanding, by abstraction of another kind, out of the rough perceptions of our senses.

The truths of natural philosophy are not necessary truths, but contingent ones, because they depend on the will of ·God·, the maker of the world. And so the principles from which they are deduced must also be contingent and therefore don't belong to this class.

(4) I think there are axioms even in matters of taste. Despite the differences of taste that are found among men, I think there are some common principles even in matters of this kind. I never heard of anyone who thought it a beauty in a human face to lack a nose or an eye, or to have the mouth on one side. In all the centuries that have passed since the days of Homer, there has never been anyone who thought Thersites was beautiful. . . .

Homer and Virgil and Shakespeare and Milton had the same taste; and all men who have known their writings and agree in admiring them must have the same taste. The fundamental rules of poetry and music and painting and dramatic action and eloquence have been always the same and will be so to the end of the world. The variety we find among men in matters of taste is easily accounted for consistently with the views I have been presenting.

There is acquired taste and natural taste. This holds with respect both to the external sense of taste ·using the palate and tongue· and the internal sense of taste ·in judgments of beauty, ugliness etc.·. Habit and fashion have a powerful influence on both.

Some natural tastes can be called *rational*, while others are merely *animal*. Children are delighted with brilliant and gaudy colours, with romping and noisy fun, with feats of agility, strength, or cunning; and savages have much the

same taste as children. But there are tastes that are more intellectual. It is the dictate of our *rational* nature that love and admiration are misplaced when there is no intrinsic worth in the object. In rational operations of taste we judge the real worth and excellence of the object, and our love or admiration is guided by that judgment. In such operations there is •judgment as well as •feeling, and the feeling depends on our judgment regarding the object.

Taste that is based on judgment can be brought under principles; I don't say the same for taste that is acquired ·by habit and fashion· or taste that is merely animal.

The virtues, the graces, the muses, have an intrinsic beauty. It lies not in •the feelings of the spectator but in •the real excellence of the object. If we don't perceive their beauty, that is because of some defect in us or some twist of our faculties.

And just as there is a •basic ·and intrinsic· beauty in certain moral and intellectual qualities, so there is a •borrowed and derived beauty in the natural signs and expressions of such qualities. The features of the human face, the shaping of the tones of the voice, and the proportions, attitudes, and gestures of the body are all natural expressions of good or bad qualities of the person, and have a beauty or an ugliness that is derived from ·the beauty or ugliness of· the qualities they express.

Works made by human skill may have *two* sources of derived or non-basic beauty: •some quality of the maker that they express, and •their usefulness, or fitness for the purpose for which they were made.

Some of these things ought to please, others ought to displease. If they don't, that's because of some defect in the spectator. Anything that has real excellence will always please people who have a correct judgment and a sound heart.

Here, in summary, is what I have said on this subject: Setting aside the tastes that men acquire through habit and fashion, there is a *natural* taste that is partly animal and partly rational. All we can say about animal taste is that ·God·, the author of Nature, for wise reasons has built us in such a way that we can

- •receive pleasure from contemplating certain objects, and disgust from others, before we are able to
- •perceive any real excellence in one or real defect in the other.

But the taste that we can call 'rational' is that part of our constitution by which we

- •receive pleasure from contemplating what we judge to be excellent in its kind, the pleasure being tied to this judgment and governed by it.

Such rational taste can be true or false, depending on whether the judgment it is based on is true or false. And if it can be true or false, it must have first principles. [Essay 7 of this work is entitled 'Taste'. It is not offered on the website from which the present text came.]

(5) There are also first principles in morals:

- •An unjust action has more demerit than a ·merely· ungenerous one.
- •A generous action has more merit than a merely just one.
- •No man ought to be blamed for something that he didn't have the power to prevent.
- •We ought not to do to others what we would think unjust or unfair if it were done to us in similar circumstances.

These are moral axioms, and I could cite many more; they seem to me to be just as evident as the axioms of mathematics.

Some people may think this:

> Our determinations in matters of taste and of morals ought not to be regarded as necessary truths. They are based on the constitution of •the faculty we call 'taste' and •the faculty we call 'the moral sense' or 'conscience', and these faculties *could* have been constituted in such a way that their output was different from, even contrary to, what they in fact deliver. We all know that things are sweet or bitter not in themselves but only according to whether they agree or disagree with •the external sense called 'taste'. Well, similarly, things are beautiful or ugly not in themselves but according to whether they agree or disagree with •the internal sense that we also call 'taste'; and nothing is morally good or bad in itself, but only according to whether they agree or disagree with •our moral sense.

This theory of morals and taste has been supported in modern times by great authorities. If it is true, it will follow that there can't be any principles of taste or of morals that are •necessary truths. For according to this system, what we have to say about matters of taste and about morals come down to things like this:

> •We are so built that when X is the case we have certain pleasant feelings,
>
> •We are so built that when Y is the case we have certain unpleasant feelings.

And these ·are not necessary, because they· are matters of fact.

But I can't help having the opposite opinion. I am convinced that a man who held that polite behaviour is very ugly, and that there is great beauty in rudeness and bad manners, would be •judging wrongly, whatever his •feelings were. Similarly, I can't help thinking that a man who held that there is more moral worth in cruelty, treachery, and injustice than in generosity, justice, prudence, and temperance would be judging wrongly, whatever his constitution was.

And if it's true that there is judgment in our determinations of taste and of morals, it must be granted that whatever is •true or •false in morals or in matters of taste is •necessarily true or necessarily false. That's why I have classified the first principles of morals and of taste as necessary truths.

(6) The last class of first principles that I shall mention can be called 'metaphysical'. I shall mainly attend to three of these that have been called into question by Hume.

The **first** is this: The qualities we perceive through our senses must have a subject that we call 'body', and the thoughts we are conscious of must have a subject that we call 'mind'.

Shape can't exist unless there is something that is shaped, and *Motion can't exist without something that is moved*—these are as evident as *Two and two make four*. In perceiving shape and motion I perceive them to be qualities. They have a necessary relation to something in which they exist as their subject. It is only because of the theory of ideas that some philosophers have found it hard to accept this. A subject of the sensible qualities that we perceive through our senses is not an idea either of sensation or of consciousness, so they say that we have no such idea. . . .

The distinction between •sensible qualities and •the substance to which they belong, and between •thought and •the mind that thinks, wasn't invented by philosophers. It shows up in the structure of all languages, so it must be common to all men who speak with understanding. And I don't think that any man, however sceptical he may be in theory, can talk for half an hour about the common affairs of life without saying things that imply his belief in the reality of these distinctions.

Locke acknowledges that 'because we can't conceive how simple ideas of sensible qualities could exist alone, we think of these qualities as existing in and supported by some common subject' (*Essay* II.xxiii.4). Some of his turns of phrase in the *Essay* seem to leave room for suspicion that this belief that *sensible qualities must have a subject* is regarded by Locke as a vulgar prejudice rather than a true judgment. But in his first letter to the Bishop of Worcester he clears this matter up, quoting many passages from the *Essay* to show that he neither denied nor doubted the existence of substances, both thinking and material; and that he believed in their existence on the same grounds that the bishop did, namely that 'it is inconsistent with our conceptions to suppose that modes and accidents exist by themselves'. He offers no proof of this inconsistency; and I don't think any proof of it *can* be given, because it is a first principle.

Locke is to be praised for his precise inquiries into the origin, certainty, and extent of human knowledge. I wish he had turned his attention more particularly to the origin of these two opinions, which he firmly believed: •Sensible qualities must have a subject that we call 'body'; •Thought must have a subject that we call 'mind'. These two opinions govern the beliefs of all men, even of sceptics, in the practice of life; and if Locke had properly attended to them he would probably have come to perceive •that sensation and consciousness—·which he wrongly called 'reflection'·—are *not* the only sources of human knowledge; •that there are sources of belief in human nature that we can't explain beyond saying that they necessarily result from the constitution of our faculties; and •that if we threw off their influence on our practice and conduct—if we could!—we would become unable to speak or act like reasonable men.

We can't give a reason why we believe that our sensations are real and not deceptive, why we believe what we are conscious of, why we trust *any* of our natural faculties. We say it *must* be so, it *can't* be otherwise. This ·doesn't give a reason; it· merely expresses a strong belief; but that belief is the voice of Nature, which it is futile to try to resist. But, if in spite of Nature, we try to dig deeper and not trust our faculties unless we find a *reason* showing that they can't be deceptive, I'm afraid that in seeking to become wise and to be like gods we shall become foolish, and in our dissatisfaction with the lot of humanity we shall throw off common sense.

The **second** metaphysical principle I shall discuss is: Anything that begins to exist must have a cause that produced it.

Philosophy is indebted to Hume for, among many other things, calling into question many of the first principles of human knowledge. This put theorisers to work inquiring, more carefully than they had done before, into the nature of the evidence on which those principles rest. Truth can never suffer by a fair enquiry; it can stand being seen naked in good light; and the strictest examination will always, eventually, work to truth's advantage. Hume was the first, I believe, who ever called into question whether things that begin to exist must have a cause.

There are three lines we can take about this principle: •it is an opinion for which we have no evidence, which men have foolishly taken up without good reason; •it is capable of direct proof by argument; •it is self-evident and doesn't need proof—it should be accepted as an axiom which reasonable men can't call into question.

The first of these would put an end to all philosophy, all religion, all reasoning taking us beyond the objects of sense, and all prudence in the conduct of life.

As for the second supposition, namely that this principle can be proved by direct reasoning, I'm afraid we'll find the proof extremely difficult if not altogether impossible.

I know only of three or four lines of abstract reasoning that philosophers have used to prove that things which begin to exist must have a cause. One is offered by Hobbes, another by Clarke, another by Locke. ·I'm not going to discuss them here·. Hume in his *Treatise of Human Nature* has examined them all, and in my opinion he has shown that they take for granted the thing to be proved. *That* kind of false reasoning is something that men are very apt to fall into when they try to prove something that is self-evident.

It has been thought that although this principle can't be proved through •abstract reasoning, it *can* be proved from •experience, being validly inferred from instances that fall within our observation. But this method of proof will leave us in great uncertainty, I think, for these three reasons.

(a) The proposition to be proved is not contingent but necessary. It is not that things that begin to exist *usually* have a cause or even that they *always* have a cause; it's that they *must* have a cause and *can't* begin to exist without one. Propositions of this kind can't be proved by induction. . . .

That is why no mathematical proposition can be proved by induction. It could found by experience in a thousand cases that the area of a triangle is equal to the rectangle with the same height and half the width, but this wouldn't prove that it *must* be so in all cases, which is what the mathematician affirms.

Similarly, even if we had abundant experimental evidence that things that have begun to exist had a cause, this wouldn't prove that they *must* have a cause. Experience may show us what the established course of Nature is, but can never show what connections of things are inherently necessary.

(b) General maxims based on experience have only a degree of *probability* that is proportional to the extent of our experience, and they ought always to be understood as leaving room for exceptions if future experience comes up with any.

The law of gravitation has as much support from experience and induction as any principle can be supposed to have. But if any philosopher shows by clear experiment there is a kind of matter that doesn't gravitate, the law of gravitation ought to be limited by that exception.

Now, it's obvious that men have never considered the principle of the necessity of causes as a truth of this kind, one that could be restricted in some way; and that shows that it hasn't been accepted on the basis of this kind of evidence.

(c) ·Even leaving aside the issue about necessity·, I can't see that experience could satisfy us that *every* change in Nature does actually have a cause. For the vast majority of natural events that we observe, the causes are unknown; so we can't know from experience whether they have causes or not.

Causation is not something we can sense. The only experience we can have of causation at work is in our consciousness of exerting some power when we order our thoughts and actions. This experience is surely too narrow a foundation for the general conclusion that all things that have had or shall have a beginning must have a cause.

For these ·three· reasons, this principle can't be drawn from experience any more than from abstract reasoning.

·So much for the second supposition, namely that the causal principle can be demonstrated by abstract reasoning or by appeals to experience. Failing that, and failing the first supposition that the principle is rubbish which ought to be jettisoned·, there remains only the third supposition, namely that the causal principle is an underived, basic, self-evident principle. Two reasons can be urged for this.

(a) The universal consent of mankind, not merely of philosophers but also of the great unwashed multitudes.

As far as I know, Hume was the first person who ever expressed any doubt of this principle. And his doubts don't carry much authoritative weight, given that he has rejected *every* principle of human knowledge except that of consciousness, not even sparing the axioms of mathematics!

Indeed, when it comes to first principles there is no reason why the opinion of a philosopher should have more authority than that of any other sensible person who has been accustomed to judge in such cases. An illiterate plain man is a competent judge, and the philosopher has no privilege in matters of this kind. ·His only relevant difference from the plain man is that· he is more liable than the plain man is to be misled by a favourite theory, especially if it's *his* theory!

Setting Hume aside, what philosophy has been busy with ever since men first began to philosophise is the investigation of the causes of things. [Remember that for Reid 'philosophy' includes natural science.]. . . . Before Hume it never occurred to anyone to *wonder whether* things have a cause or not. If anyone had thought that there might be uncaused events, that would surely have come up in the context of the variety of absurd and contradictory causes assigned some events. [Reid recites a couple of the absurdities, then:] We don't know of any atheistic sect that denied the causal principle, though such a denial would have enabled them to evade every argument that could be brought against them and to answer all the objections to their system. But rather than adopt such an absurdity ·as the denial of the causal principle·, they contrived some imaginary cause for the universe—that it arose from a chance coming-together of atoms, or that it exists because it was necessary for it to exist.

[Reid quotes from Cicero and Plato passages showing their acceptance of the causal principle. He quotes Hume as questioning it, and remarks that what Hume says against it amounts to saying that the principle isn't intuitively evident because it doesn't fit Hume's theory of intuitive certainty. He repeats that 'the vulgar adhere to this maxim as firmly and universally as the philosophers'. Then:]

This universal belief of mankind is easily accounted for if we allow that *the necessity of a cause for every event is obvious to the rational powers of a man*. But it is impossible to account for it otherwise. It can't be ascribed to education, to systems of philosophy, or to priestcraft. You might expect that a philosopher who takes the causal principle to be a general delusion or prejudice would try to show what the causes in human nature are from which such a general error could arise. But in writing that, I was forgetting that Hume might answer, on his own principles, that this error and delusion of men may have occurred right across the species without any cause!

(b) My second reason for holding the causal principle to be a first principle is that men in general don't just •assent to it as a theoretical matter but •live their lives on the basis of it, applying it to the most important matters. . . .

In large families ·such as mine was·, so many bad things are done by a certain personage called 'Nobody' that it is proverbial that every house contains a Nobody who does a great deal of mischief; and even when there is exact inspection and tight parental control, many events will occur that can't be attributed to anyone but Nobody! So if we trust merely to experience in this matter, Nobody will be found to be a very active person and to have a considerable share in the management of affairs. But however this theory may seem to be supported by experience, it is too offensive to common sense to take in even the most ignorant. A child

knows that when his toy is taken away it must have been taken by somebody. . . .

[Reid illustrates the role of the causal principle in human life. Someone who suffers a robbery doesn't entertain the thought that perhaps his goods disappeared with no cause. A coroner's jury considers *what* caused a man's death; it doesn't consider that perhaps there was no cause. He comments on what an absurd figure Hume would cut if he intruded into one of those scenes with his challenge to the causal principle; and goes on to say that Hume himself sometimes shows his unconscious acceptance of the principle:] I shall mention only one such passage, in a part of the *Treatise of Human Nature* where he is engaged in fighting *against* the causal principle! He writes:

> As for the impressions that arise from the senses: in my opinion their ultimate cause is utterly inexplicable by human reason; we will never be able to decide with certainty whether they arise immediately from the object, or are produced by the creative power of the mind, or are caused by God. (*Treatise* I.iii.5)

Among these alternatives he never thought of their not arising from any cause.

Hume has three arguments purporting to show that the causal principle is not self-evident. (a) All certainty arises from comparing ideas and discovering their unalterable relations; and none of those relations imply *Whatever has a beginning must have a cause of existence*. I have already examined this theory of certainty.

(b) Whatever we can conceive is possible, ·and we can conceive an uncaused actual event·. I have examined this too.

(c) What we call a 'cause of x' is only something that occurs before x and is always conjoined with it. This is another of the doctrines that Hume has all to himself; I may have occasion to consider it later. All I shall say here is that this doctrine implies that night is the cause of day and day the cause of night, because no two things have more constantly followed each other since the beginning of the world.

The **third and last** metaphysical principle I shall discuss—one that is also opposed by Hume—is: If something shows marks or signs of design and intelligence, we can infer with certainty that there was design and intelligence in its cause. ·I shall call this 'the design principle'. It will be my topic to the end of this chapter·.

Intelligence, design, and skill are not objects of the external senses, and we can't be conscious of them in anyone but ourselves. Even in ourselves we can't properly be said to be *conscious* of our natural or acquired talents; all we are conscious of are the mental operations in which those talents are exerted. Indeed, a man comes to know his own mental abilities just as he knows another man's, namely by the effects they produce when there is occasion to put them to work.

A man's wisdom is known to us only by the signs of it in his conduct; his eloquence by the signs of it in his speech. And that is also how we judge someone's virtue, his fortitude, and all his talents and virtues. But notice this: we judge men's talents with as little doubt or hesitation as we judge concerning the immediate objects of sense. One person we are sure is a perfect idiot; another who feigns idiocy to screen himself from punishment is found when tested to have the understanding of a man and to be accountable for his conduct. We perceive one man to be open, another cunning; one to be ignorant, another very knowledgeable; one to be slow of understanding, another quick. Everyone forms such judgments regarding those he has any dealings with, and the affairs of everyday life depend on such judgments. . . .

From this it appears that it is just as thoroughly built into us

> to judge men's characters and their intellectual powers on the basis of the signs of them in their actions and talk

as it is

> to judge concerning corporeal objects on the basis of our senses.;

that •such judgments are common to every human being who is capable of thinking, and that •they are absolutely necessary in the conduct of life.

Now, every judgment of this kind is just one application of ·the design principle·, the general principle that intelligence, wisdom, and other mental qualities in the cause can be inferred from their marks or signs in the effect. The things men say and do are effects, of which the speakers and doers are the causes. We perceive the effects through our senses, but the causes are behind the scene. We simply *infer* their existence and their degrees from what we observe in the effects. From wise conduct we infer wisdom in the cause, and so on.

[Reid goes on to remark that people make these inferences with perfect confidence. The design principle's essentialness for everyday life is another sign of its being a first principle. We don't get it through reasoning: it is too universal for that to be plausible; and we never find philosophers—even very good arguers—defending it on any other basis than common sense. Reid quotes a long passage in which Cicero constantly deploys the principle—not in *arguments* but rather in what amount to appeals to common sense. For example:] 'Carneades imagined that in the stone quarries at Chios he found in a split stone a representation of the head of a little Pan or forest-god. And perhaps he did, but surely not one that you might think had been made by an excellent sculptor; for chance never perfectly imitates design.' [Reid continues with a very long quotation from Tillotson, of which this is a part:]

> I appeal to any man of reason whether anything can be more unreasonable than obstinately to attribute to •chance an effect that carries on the face of it all the signs of •design? Did it ever happen that a considerable work, needing a great variety of parts and an orderly and regular adjustment of them, was done by chance? Will chance fit means to ends in ten thousand instances without failing in any one?. . . . How long might twenty thousand blind men, sent out from the remote parts of England, wander up and down before they would all meet on Salisbury plains and fall into rank and file in the exact order of an army? Yet that is much easier to imagine than how the innumerable blind parts of matter should rendezvous themselves into a world.

[Reid remarks that through the whole long passage Tillotson doesn't argue for the design principle; he merely exhibits what he thinks are the absurd consequences of denying it, this being an implicit appeal to common sense.]

I have met with one or two respect-worthy authors who appeal to probability theory to show how improbable it is that a regular arrangement of parts should be the effect of chance, or that it should not be the effect of design. I don't object to this reasoning; but I would point out that probability theory is a branch of mathematics little more than a hundred years old, whereas the conclusion drawn from it—·the design principle·—has been held by all men from the beginning of the world. So it can't be thought that men have been led to this principle by that reasoning. Also, one may question whether (a) the first principle on which all the mathematics of probability theory is based is

more self-evident than (b) this conclusion drawn from it, or whether instead (a) is not a particular instance of (b) that general conclusion.

·So much for the suggestion that we accept the design principle on the strength of abstract reasoning·. Next we should consider whether we might have learned it from experience. . . . I have two reasons for thinking that we can't have done so.

(a) The principle is a necessary truth, not a contingent one. ·The fact that it squares with our experience doesn't mean that it can be learned from experience·. Here are two truths that square with the experience of mankind since the beginning of the world:

- The area of a triangle is equal to half the rectangle with the same width and height.
- The sun rises in the east and sets in the west.

So far as experience goes, these truths are on an equal footing. But everyone sees how they differ: one is a necessary truth that can't possibly be untrue; the other is a contingent truth, depending on the will of ·God·, who made the world. . . . Experience informs us only of what •has been, never of what •must be.

(b) Experience *can* show a connection between a sign and the thing signified, but only in cases where both the sign and thing signified are perceived, and have always been perceived together. But in a case where only the sign is perceived, experience can't show its connection with the thing signified. For example: thought is a sign of a thinking thing, a mind. But how do we know that thought can't occur without a mind? If anyone claims to know this from experience, he is deceiving himself. He can't possibly have any experience of this, because although we have an immediate knowledge of the existence of thought in ourselves by consciousness, we have no immediate knowledge of a mind. The mind is not an immediate object either of sense or of consciousness. So we are entitled to conclude that the necessary connection between thought and a mind or thinking thing is not learned from experience.

The same reasoning holds for the connection between •a work excellently fitted for some purpose and •design in the author or cause of that work. The work may be an immediate object of perception. But the design and purpose of the author *can't* be an immediate object of perception; so experience can never inform us of *any* connection between the one and the other, let alone a *necessary* connection.

[Reid repeats that the design principle is a first principle, and then goes on to talk about its importance in 'natural theology'—i.e. in the branch of theology that infers conclusions about God's existence and nature from the signs of design in the natural world. Thus:]

The clear marks and signs of wisdom, power, and goodness in the constitution and government of the world constitute an argument for the existence and benevolence of God; and of all such arguments this is the one that has always made the strongest impression on honest and thinking minds. It has a special advantage ·that the others lack·, namely that it gets stronger as human knowledge advances, and is more convincing now than it was a few centuries ago.

King Alphonsus might say that he could devise a better planetary system than the one that the astronomers of his day believed in [he lived in the 13th century]. That system was not the work of God, but a fiction created by men. But since the true system of the sun, moon, and planets has been discovered, no-one, however atheistically inclined, has offered to show how a better one could be contrived.

When we attend to the signs of good design that appear in the works of God, every discovery we make. . . .becomes a hymn of praise to the great creator and governor of the world.

Anyone who has the genuine spirit of philosophy will think that it would be impiety—·an insult to God·—to contaminate the divine workmanship by mixing it with those fictions of the human imagination called 'theories' and 'hypotheses', which will always carry the signs of human folly as much as the other does of divine wisdom.

I don't know of anyone who ever called into question the ·design· principle as applied to the actions and speech of men. For this would be to deny that we have any means of telling a wise man from an idiot, or an utterly illiterate man from a learned one; and no-one has had the impudence to deny that these differences can be known.

But all through the centuries, people unfriendly to the principles of religion have tried to weaken the force of the argument for the existence and perfections of God that is based on this ·design· principle. That argument has come to be known as 'the argument from final causes' [= 'the argument from purposes']; and as the meaning of this name is well understood, I shall use it.

The argument from final causes, when expressed as a syllogism, looks like this:

- •Design and intelligence in a cause can be inferred with certainty from marks or signs of it in the effect.
- •There are in fact the clearest marks of design and wisdom in the works of Nature.
- •Therefore the works of Nature are the effects of a wise and thinking cause.

The first premise is the ·design· principle that we have been considering; let us call it the *major* premise of the argument, and the other the *minor* premise'. One must either assent to the conclusion or deny one or other of the premises.

[Reid is here using technical terms from the theory of syllogisms. His argument has this form:

All D&I things are caused by W&T things.
Nature is a D&I thing.
Therefore Nature is caused by a W&T thing.

The first premise is the *major* premise because it contains the predicate of the conclusion; the other is the *minor* premise. The order in which they are written down is irrelevant.]

Those among the ancients who denied a God seem to me to have conceded the major premise and to have denied the minor, because they didn't find in the constitution of things clear enough signs of wise design to put the conclusion beyond doubt. . . . The gradual advances in our knowledge of Nature has made this opinion quite untenable.

When the structure of the human body was much less known than it is now, the famous Galen saw such evident marks of wise design in it that, although he had been brought up as an Epicurean, he •renounced that system and •wrote his book *The Use of the Parts of the Human Body* specifically in order to convince others of what seemed so clear to *him*, namely that such admirably designed structures couldn't possibly be the effect of chance. So people who have more recently been dissatisfied with the argument from final causes have left the stronghold of the ancient atheists, which had become untenable, and have chosen instead to defend their position against the major premise.

Descartes seems to have led the way in this, though he was no atheist. He had invented some new arguments for God's existence, and that may have led him to belittle the arguments that had been used before, so that his own argument would look better. Or perhaps he was objecting to the way the Aristotelians often tried to explain the phenomena of Nature through a mixture of •physical causes and •final causes. [That is, a mixture of •what *we* would call 'causes' and •appeals to a thing's purpose or 'end'.] Descartes maintained that only physical causes should be assigned for phenomena,

that philosophers ·should· have no use for final causes, and that we are getting above ourselves if we claim to have found out what the purpose was of any work of Nature. [Reid then reports that some Cartesians differed from him on this point, whereas others went the whole way with him. Then:] The most direct attack on the ·design· principle is Hume's. He puts into the mouth of an Epicurean an argument on which he seems to lay great stress: *The universe is a singular effect, so we can't infer from it any conclusion about whether or not it was made by wisdom.* (*Treatise* I.iv.5)

If I understand the force of this argument, it amounts to this:

> If we had been accustomed to seeing ·many· worlds produced, some by wisdom and others without it, and had observed that any world like ours was always an effect of wisdom, then we could have inferred from past experience ·and the facts about our world· that our world was made by wisdom. But we *haven't* had any such experience, so we have no way of reaching any conclusion about the causes of our world.

That's the core of Hume's argument: If the marks of wisdom seen in one world are not evidence of wisdom ·in the cause·, then similar marks seen in ten thousand ·worlds· won't give evidence for that either, unless in the past we have perceived •wisdom itself along with the signs or marks of it, and can infer from their perceived conjunction in the past that although in the present world we see only one of the two the other must accompany it—i.e. though we see only •the signs, •the wisdom must accompany them, ·meaning that this world must have been caused by a wise being·.

So we see that Hume's argument is built on the supposition that we could infer •design from •the strongest marks of it only if we had had experience of always finding these two things conjoined. But I hope I have made it evident that this is *not* the case—·i.e. that the inference from •the marks of design to •design does *not* depend on past experience·. Indeed, it is obvious that according to this reasoning we can't have any evidence of mind or design in any of our fellow-men.

How do I know that some friend of mine has understanding? I never saw his understanding! All I see are certain effects that my judgment leads me to conclude are marks and signs of it. . . .

It seems, then, that the man who maintains that there is no force in the argument from final causes must in consistency think that he has no evidence for the existence of any thinking being other than himself.

Chapter 7: Ancient and modern opinions about first principles

[This sixteen-page chapter focuses mainly on Aristotle, Descartes, and Locke. The main point about Aristotle is that he treated as first principles many propositions that were really 'vulgar prejudices and rash judgments', e.g. that Nature abhors a vacuum, that the heavenly bodies move in circles. Descartes, Reid says, went to the other extreme:]

The modern philosophy of which Descartes can fairly be regarded as the founder, though built on the ruins of the Aristotelian philosophy, has a quite opposite spirit that takes it to a contrary extreme. The Aristotelian system adopted as first principles not only •those that mankind have always relied on in their most important transactions but also •many vulgar prejudices; so that this system had a foundation that was broad but in many parts unsound. The modern system has made the foundation so narrow that every superstructure built on it appears top-heavy!

[Descartes, 'that truly great reformer in philosophy', was entitled to trust his own consciousness and treat 'I think' as a first principle, Reid says, but the case for accepting that is also a case for accepting other principles that Descartes refuses to take on board. He points out that Descartes initially suspended belief even concerning the propositions of mathematics, and adds: 'And he didn't allow that there are any necessary truths, maintaining that the truths that are commonly called "necessary" depend on the will of God ·and are therefore contingent·.' (In sketching the views of some post-Descartes philosophers, Berkeley remarks that the system of Malebranche, with one doctrine deleted from it, is the same as Berkeley's. He adds: 'I offer this incidental remark in justice to a foreign author to whom British authors seem not to have given his due.') Reid's suggestion about why Descartes was drawn to parsimony in the foundations of his system is noteworthy:]

There is no doubt a beauty in building a large structure of knowledge on a few first principles. The stately edifice of mathematical knowledge, built on the foundation of a few axioms and definitions, charms everyone who sees it. Descartes, who was well acquainted with this beauty in the mathematical sciences, seems to have had the ambition of giving the same beautiful simplicity to his system of philosophy; and therefore sought only one first principle as the foundation of all our knowledge, at least of contingent truths.

[Reid says that Locke was the only Descartes-influenced modern to write explicitly about first principles as such, but he finds Locke's handling of the topic to be inconsistent. (1) On the one hand, Locke *uses* first principles as load-bearing parts of his own arguments, for example in his argument in *Essay* IV.x for the existence of a god:]

If we consider the argument Locke gives for the existence of a first thinking cause, it is obviously based on two principles: •What begins to exist must have a cause of its existence. •An unintelligent and unthinking being can't be the cause of beings that are thinking and intelligent. With the support of these two principles, he argues very convincingly for the existence of a first thinking cause of things. And if these principles are not true, we can't have any proof of the existence of a first cause—whether from our own existence or from our experience of other things.

[(2) But on the other hand, Reid continues, Locke equates first principles with 'maxims', and under that label he attacks them as true and safe but empty and useless. Reid of course

objects to this, not only as inconsistent with Locke's practice but as wrong in itself. Most of Locke's discussion of this theme focuses on the maxims

•Whatever exists exists, and

•The whole is larger than a part,

as though these were the only candidates. Locke remarks that Newton in his great work didn't employ such trivialities as those. Reid replies that the first of them is an identity, and is indeed scientifically useless; and that Newton *often* used the second of them, because it lies at the heart of geometry. Reid winds up this discussion thus:]

In looking for examples to support his dislike of first principles, Locke couldn't have made a *worse* choice than Newton. It was Newton who, by laying down the first principles on the basis of which he reasons in those parts of natural philosophy that he worked on, gave to that science a stability that it never had before, and that it will retain to the end of the world.

[The chapter ends with remarks about the treatment of first principles by other writers, especially Claude Buffier.]

Chapter 8: Prejudices, the cause of error

Our intellectual powers are wisely fitted by ·God·, the author of our nature, for the discovery of as much truth as is suitable for us in our present state. They don't naturally produce error, any more than the natural structure of the body produces disease. But just as we are liable to various •bodily diseases from accidental causes, external and internal, so also we are from similar causes liable to •wrong judgments.

Medical writers have tried to list the diseases of the body, and to handle them systematically under the name 'nosology'. If only we had also a 'nosology' of the human understanding!

It often happens that we know what is wrong with a body but don't know how to remedy it; but usually the disorders of the understanding point so plainly to remedies that someone who knows what the trouble is must know the cure for it. Many authors have provided useful materials for this purpose, and some have tried to get them into a systematic form. The general classification that I like best is the one given by Bacon in his fifth book *Scientific Advances*, and more fully treated in his *New Organon*. He divides them into four classes:

idols of the tribe
idols of the cave
idols of the market-place
idols of the theatre.

[Reid gives these in Latin.] Perhaps the names are fanciful; but I think that the classification is judicious, like most of the productions of that wonderful genius. And since he invented this classification we can allow him the privilege of naming its classes.

In this chapter I shall explain the headings in this classification, according to Bacon's own account of what they mean; and I'll give examples of each, without confining myself to the ones that Bacon gave, and without claiming to have listed them all.

Bacon labels as an 'idol' every bias of the understanding by which a man can be misled or drawn into error in judging. The understanding in its natural and best state pays homage only to truth. He regards the causes of error as so many false gods ·or 'idols'· who receive the homage which is due only to truth.

·IDOLS OF THE TRIBE·

The first class are the idols of the tribe. These are ones that attack the whole human species—·the whole 'tribe'·—so that everyone is in danger from them. They arise from aspects of the human constitution that are highly useful and necessary for us in our present state, but they can lead us into error through •being taken to extremes or •having some defect or •being steered in the wrong direction.

The sources of action in the human frame are wisely contrived by God for the direction of our •actions, and yet they are apt to lead us astray if they aren't properly regulated and restrained; and the same thing holds for the parts of our constitution that influence our •opinions. I shall present some examples of this—·six of them, occupying most of the rest of this chapter·.

(1) Men are apt to be led too much by authority in their opinions. In our early years we have no other guide, and we couldn't learn and develop if we weren't disposed to accept without question everything we are taught.

When our judgment has matured, there are ·still· many things in regard to which we are incompetent judges. In these matters it is most reasonable to rely on the judgment of those whom we believe to be competent and not self-interested. The highest court of law in the nation relies on the authority of lawyers and physicians in matters belonging to their respective professions.

Even in matters of which we *can* have knowledge, authority always will and should have weight—more or less of it depending on •the evidence on which our own judgment is based and on •our opinion of the judgment and honesty of those who disagree with us and those who agree with us. A modest man, conscious of his own fallibility in judging, is in danger of giving too much weight to authority; an arrogant man risks giving too little.

In all matters relating to our knowledge, everyone must go by *his own* final judgment; otherwise he isn't behaving like a rational being. Authority may add weight to one side of the scale; but the man holds the balance, and *he* judges what weight he should allow to authority.

Even confronted by someone claiming to be infallible, *we* must judge whether he is entitled to that privilege. If someone claims to be an ambassador from heaven, *we* must judge his credentials. No claim can deprive us of this right, or excuse us for neglecting to exercise it.

So our respect for authority may be too great or too small; the bias of human nature seems to lean towards 'too great', and I think it is good for men in general that it should do so.

When this bias is combined with indifference about truth, its operation will be all the more powerful. The love of truth is natural to man, and strong in every well-disposed mind. But it can be overwhelmed by party zeal, by vanity, by the desire to win, or even by laziness. When it is rises above these it is a manly virtue which demands that one work hard and exercise endurance, self-denial, honesty, and preparedness to change one's mind.

Some people have such a poor and miserable spirit that they would rather owe their survival to the charity of others than to acquire property of their own by working for it; and similarly there are people—many more of them—who could be called mere 'beggars' with regard to their opinions. Through laziness and indifference to •truth they leave to others the drudgery of digging for •this commodity; for their

purposes they can get enough of it second-hand. What they care about is not knowing what is true but what is said and thought on such subjects; and their understanding, like their clothing, is tailored to suit the current fashion.

This disease of the understanding has taken root so deeply in a great part of mankind that they can hardly be said to use their own judgment at all except in matters that concern their worldly interests. It is not just the ignorant who have the disease; it infects all ·social· ranks. To guess the opinions of people who have it, we need only know where they were born, of what parents, how they were educated, and what company they have kept. These circumstances determine their opinions in religion, in politics, and in philosophy.

(2) A second general prejudice arises from an inclination to think of things that are less well known to us in terms of things that we know better.

This is the foundation of analogical reasoning, which we are naturally inclined to indulge in, ·and not always wrongly·; indeed, we owe a great part of our knowledge to analogical reasoning. It would be absurd to lay it aside altogether, and it is hard to judge how far we may go with it. The bias of human nature is to ·go too far, i.e. to· judge on the basis of analogies that are too slight.

The objects of sense dominate our thoughts in our early years, and all through our lives they're more familiar to us than anything else. That is why men all down the centuries have been apt to attribute human shape, and human passions and frailties, to superior intelligences and even to ·God·, the supreme being.

Men are inclined to *materialize* everything (to coin a term), i.e. to apply our notions of material objects to things that are not material. Thought is taken to be analogous to motion in a body. Because

> bodies are set in motion by impulses and by impressions made on them by bodies that touch them,

we are inclined to think that

> the mind is made to think by impressions that are made on it,

and that

> the mind must somehow be in touch with the objects of thought.

And so we get the theories of ideas and impressions that have so generally prevailed.

Because the most perfect products of human skill are •made following a model and •made of materials that already existed, the ancient philosophers all thought that the world was made of a pre-existing uncreated matter; and many of them also thought that there were eternal and uncreated models for every species of things which God made.

Countless mistakes in everyday life come from this prejudice—you can't have failed to notice them. Men judge other men by themselves or by the small circle of people they know. The selfish man writes off all claims to benevolence and public spirit as mere hypocrisy or self-deceit. The generous and open-hearted man is too vulnerable to sweet talk, and is apt to think men better than they really are. The abandoned and profligate person can hardly be persuaded that there is any such thing as real virtue in the world. The peasant gets his notions of the conduct and characters of men from the ones he experiences in his country village, so he is easily duped when he visits a great city.

It is commonly taken for granted that the only cure for this narrow way of judging men is to have extensive dealings with men of different ·social· ranks, professions, and nations; and that someone who knows only a narrow circle of people is bound to have many prejudices and narrow notions which a wider range of personal contacts would have cured.

(3) Men are often led into error by their love of simplicity, which inclines us to boil things down to a few principles and to think Nature to be much simpler than it really is.

Loving simplicity and being pleased with it wherever we find it—*that* isn't an imperfection. On the contrary, it comes from good taste. We can't help being pleased to see that all the changes of motion produced by the collision of bodies, whether hard, soft, or elastic, are governed by three simple laws of motion which have been discovered through the hard work of philosophers [here = 'physicists'].

[Reid exclaims at some length over the way Nature presents 'simplicity of cause and beauty and variety of effects'. Then:] No doubt every work of Nature exhibits all the beautiful simplicity that is consistent with the end for which it was made. But if we hope to discover how Nature brings about its ends merely from the principle that it operates in the simplest and best way, we deceive ourselves and forget that •the wisdom of Nature is further above •the wisdom of man than •man's wisdom is above •that of a child. [He gives an example of a practical task that a child would get wrong because he doesn't know enough. Then:]

From fact and observation we can learn something about how Nature operates; but if we conclude that it operates like that only because that appears to our minds to be the best and simplest manner, we shall always go wrong.

[Reid gives a historical example of an error that arose from an undue respect for simplicity, namely the view that all material things are compounded out of the four elements—earth, air, fire, water. Then:]

The Pythagoreans and Platonists were carried further by the same love of simplicity. Pythagoras by his skill in mathematics discovered that there can't be more than five regular solid [= 'three-dimensional'] figures bounded by plane surfaces with have the same shape and area. . . . As Nature works in the simplest and most regular way, he thought that all the elementary bodies must have one or other of those ·five· regular shapes; and that the discovery of the properties and relations of the regular solids would be a key to open the mysteries of Nature.

This notion of the Pythagoreans and Platonists undoubtedly has great beauty and simplicity, which is why it prevailed at least up to the time of Euclid. He was a Platonist philosopher, and it is said—and seems to be true—that he wrote the whole of his *Elements* in order to discover the properties and relations of the five regular solids. . . .

So that this most ancient mathematical work, whose admirable structure has served as a model for all later writers on mathematics, seems to have been intended by its author to exhibit the mathematical principles of natural philosophy—which is also what Newton intended the first two books of his *Principia* to do.

[Then more examples of simplicity leading scientists into believing things for which there was no real evidence. The handling of physiology in terms of moisture, dryness, heat, and cold. The classification of human body-types into sanguine, melancholy, bilious, and phlegmatic. The belief that all bodies are made up of salt, sulphur, and mercury. The belief that all the objects of thought fall into ten categories, and so on. Then:]

Of all the systems we know, Descartes's was most remarkable for its simplicity. He builds the whole structure of human knowledge on one proposition, *I think*. And from mere •matter, together with a certain quantity of •motion given to matter at the outset, he accounts for all the phenomena of the material world. The physical part of this system was sheer hypothesis, with nothing to recommend it but its simplicity; yet it had enough force to end the thousand-year domination of Aristotle's physics.

Through half a century, the majority of theorists in Europe rejected the principle of gravitation and other attracting and repelling forces, after Newton had given the strongest evidence of their real existence in Nature. They were rejected because they couldn't be accounted purely in terms of •matter and •motion. That shows how deeply men were in love with the simplicity of Descartes's system!

Indeed, I think it was this love of simplicity, more than real evidence, that led Newton himself to say about the phenomena of the material world:

> Many things lead me to suspect that all phenomena may depend on certain forces by which the particles of bodies are, by causes not yet known, either •impelled toward one another and held together in regular shapes or •repelled from one another and pulled away. (Preface to the *Principia*)

·I suspect that simplicity is at work here·, because we certainly have no factual evidence that all the phenomena of the material world are produced by attracting or repelling forces. . . .

When a real cause is discovered, the same love of simplicity leads men to credit it with effects that are outside its sphere. It often happens that a medicine, having been found to be of great use for one disease, has its virtues multiplied till it becomes a panacea [= 'cure for everything']. . . . In other branches of knowledge the same thing often happens. . . .

(4) One of the richest sources of error in philosophy is the wrong application of our noblest intellectual power to purposes that are beyond its scope.

Of all the intellectual powers of man, that of *invention* carries the highest price. What it is most like is the power of *creation*, and sometimes it is honoured by being called just that.

We admire the man who •has a superior talent for finding the means for accomplishing a given end; who •can effectively bring things together so as to produce an effect or make a discovery beyond the reach of other men; who •can draw important conclusions from details that are usually not noticed; who •brings the greatest wisdom to his judgments on the plans of other men and the consequences of his own actions. We label as 'genius' this superiority of understanding, and we look up with admiration to everything that carries the signs of it. Yet this power, so valuable in itself and so useful in the conduct of life, can be misapplied; and men of genius in all ages have tended to apply their genius to purposes for which it is altogether incompetent.

The •works of men and the •works of Nature are not of the same order. The force of genius may enable a man perfectly to grasp •the former, and to see the whole way through them. What is designed and carried out by one man can be completely understood by another. On the basis of a part of such a work he can conjecture what the whole is like, or on the basis of its effects he can conjecture what the cause was; and these conjectures can have a high probability, because these works are effects of a wisdom down at his own level.

But the •works of Nature are designed and carried out by a wisdom and power that are infinitely superior to that of ·any· man; and when men try by the force of genius to discover the causes of the phenomena of Nature, all that they get ·from their genius· is a chance of going wrong more ingeniously ·than a less able man would·. Their conjectures may seem very probable to people no wiser than they are, but they have no chance to hit on the truth. They are like a child's conjectures about how war-ship is built and how it is managed at sea.

Let the man of genius try to •make an animal, even the simplest and lowest kind of animal; or to •make a plant, or

even a single leaf of a plant or feather of a bird. He'll find that all his wisdom and intelligence can't stand comparison with the wisdom of Nature, or his power with the power of Nature.

The experience of all the ages shows how prone ingenious men have been to *invent hypotheses* to explain the phenomena of Nature; how eager to 'discover' her secrets by guessing at them in advance. Instead of a slow and gradual ascent in the scale of natural causes, by a sound induction from very many particular facts, they want to shorten their task and get straight to the top by a flight of genius. This gratifies the pride of human understanding, but it is an attempt to do something that is beyond us. . . .

When a man has spent all his ingenuity in devising a system, he views it with the eye of a parent; he tugs phenomena around to •make them fit it and •make it look like the work of Nature.

The slow and patient method of induction—the only way to attain any knowledge of Nature's work—was little understood until it was described by Bacon, and it hasn't been much followed since his time. It humbles a man's pride, constantly reminding him that his cleverest conjectures about the works of God are pitiful and childish.

There is no room here for the favourite talent of *invention*. We must get all our knowledge of Nature by the humble method of reading in the great book of Nature. Anything that isn't •in that book, or •part of a sound interpretation of it, is the work of man; and the work of God ought not to be contaminated by any mixture with it.

To a man of genius, self-denial is difficult. . . . To bring his fine imaginings and cleverest conjectures to the fiery trial of experiment and induction, by which most if not all of them will be found to be dross, is a humiliating task. This is to condemn him to dig in a mine when he would rather fly with the wings of an eagle.

In all the •fine arts whose purpose is to please, genius is deservedly supreme. In the conduct of •human affairs it often does wonders. But in all •enquiries into the constitution of Nature, genius must play a minor role that doesn't fit with the superiority it boasts of. It may •combine, but it mustn't •make. It may •collect evidence, but it mustn't •make up for the lack of evidence by conjectures. It may display its powers by •putting questions to Nature in well-designed experiments, but it mustn't •add anything to Nature's answers.

(5) In avoiding one extreme, men are very apt to rush into the opposite. [Reid illustrates this with the move from primitive animism, which saw gods and demons at work in just about everything, to modern atheism, which doesn't see gods anywhere. His other example concerns 'occult qualities': the Aristotelians brought them in far too much, whereas the Cartesians have gone to the other extreme and ruled them out entirely, making the very label 'occult quality' a term of abuse.]

(6) Men's judgments are often perverted by their affections and emotions. This is so commonly observed and so universally acknowledged that it doesn't need to be proved or illustrated.

·IDOLS OF THE CAVE·

The second class of idols in Bacon's classification are the idols of the cave. These are prejudices that arise not from the constitution of human nature but from something special to the individual. Just as objects in a cave vary in their appearance according to the shape of the cave and the way light gets into it, Bacon regards each individual person's mind as being like a cave that has •its own particular shape and •its own particular way of letting in light; and these two features of the cave often give false colours and a misleading appearance to objects seen in it.

For this reason he labels as 'idols of the cave' the prejudices that arise from •the individual man's training, from •his being a member of some particular profession, or from •some individual quirk of his mind. A man whose thoughts have been kept on track by his profession or manner of life is very apt to judge wrongly when he risks going off that track. He is apt to draw everything into the sphere of •his profession, using •its maxims as a basis for judging things that have nothing to do with it.

The mere mathematician is apt to apply *measurement* and *calculation* to things that can't be measured or calculated. Direct and inverse ratios have been applied by an ingenious author to measure human affections and the moral worth of actions. An eminent mathematician tried to discover by calculation the answer to the question:

> By how much per year does the evidential force of facts decrease?

On this basis he purported to fix the time at which •the evidential force of the facts on which Christianity is based will have vanished, so that •no faith will be found on the earth. . . .

I think it was Locke who mentioned an eminent musician who believed that God created the world in six days and rested the seventh because there are only seven notes in music. I knew a musician who thought that there could be only three parts in harmony—bass, tenor, and treble—because there are only three persons in the Trinity! [Reid throws in one more example, involving Henry More. Then:] Thus even very ingenious men are apt to cut a ridiculous figure by pulling onto the track in which *their* thoughts have long run things that have nothing to do with it. . . .

•Someone—*anyone*—may, because of his temperament or his upbringing, have particular tendencies in his thinking, and if they are carried to excess they will get in the way of sound judgment. •Some people have too much admiration for antiquity and contempt for anything modern; others go as far into the opposite extreme. . . . •Some are afraid to venture a step off their beaten track, and think it safest to go with the multitude; others are fond of special cases and of everything that has the air of paradox. •Some are slack and changeable in their opinions; others are unduly tenacious. Most men have a liking for the doctrines of their sect or party, and still more for their own inventions.

·IDOLS OF THE MARKET-PLACE·

The idols of the market-place are the fallacies arising from the imperfections and the misuse of language, which is an instrument of thought as well as of the communication of our thoughts. [Bacon gave them that name because a market is a place where men meet and talk to one another.]

No man can pursue a train of thought or reasoning without the use of language. Is this because of our •constitution or rather because of •habits that we have acquired? I shan't try to answer that. From one or both of •those causes it happens that words are the signs of our thoughts; and the sign is so tightly linked with the thing signified that the thing can hardly present itself to the imagination without drawing the word along with it.

A man who wants to write in some language must think in that language. If he thinks in one language something that he wants to express in another, that will double his work and lead to a final product that will read more like a translation than like an original.

This shows that our thoughts are coloured by the language we use; and that although language ought always to be subservient to thought, thought is sometimes compelled to be subservient to language.

Consider how a servant who is extremely useful and necessary to his master gradually comes to have authority

over him, so that the master must often do what the servant wants him to do. Well, language is like such a servant. Its intention is to be a servant to the understanding; but it is so useful and so necessary that we can't avoid sometimes being led by it, when it ought to follow. We can't shake off this burden; we have to drag it along with us, and direct our course and regulate our pace as it permits.

Language is bound have many imperfections when it is applied to philosophy, because it wasn't made for that use. In the early periods of society, rough and ignorant men use certain forms of speech to express their wants, their desires, and their transactions with one another. Their language can't reach further than their speculations and notions; and if their notions are vague and ill-defined, the words by which they express them must also be vague and ill-defined.

Wilkins had a grand and noble project, namely inventing a philosophical language that would be free from the imperfections of everyday speech. Whether this attempt will ever have enough success to be generally useful I shan't try to determine, ·but the omens aren't good·. All the trouble taken by that excellent man in this design have so far produced no effect. Very few people have ever looked closely at all into his views; far less has his philosophical language. . . .been brought into use.

He bases his philosophical language. . . .on a systematic division and subdivision of all the things that may be expressed by language; and instead of the ancient division into •ten categories Wilkins has made •forty categories or highest classes. This classification was made by a very comprehensive mind, but there is room for doubt that it will always suit •the various systems that may be introduced and •all the real growth that may come in human knowledge. The difficulty is still greater when we come to dividing into subclasses. So it is to be feared that this noble attempt of a great genius will prove to be abortive until philosophers have the same opinions and the same systems in the various branches of human knowledge.

There is more reason to hope that the languages used by philosophers may gradually become richer and clearer, and that improvements in knowledge and improvements in language may go hand in hand, and help each other. But I'm afraid that the imperfections of language can never be perfectly remedied while our knowledge is imperfect. [This is one of the places where it is good to remember that for Reid 'perfect' can mean 'complete'.]. . . .

Locke found it necessary to employ one of the four Books of his *Essay Concerning Human Understanding* to words—their various kinds, their imperfections and misuses and the remedies for both—and his many observations on these subjects are well worth attentive study.

·IDOLS OF THE THEATRE·

The fourth class of prejudices are the idols of the theatre, by which Bacon means prejudices arising from the systems or sects in which we have been trained or which we have adopted. [Bacon wrote: 'I call them "idols of the theatre" because I regard every one of the accepted systems as the staging and acting out of a fable, presenting its own fictitious staged world.']

A false theory, once fixed in the mind, becomes (as it were) the medium through which we see objects. They are tinted by it, and seem to have a colour other than the one they have when seen by a pure light. A Platonist, an Aristotelian, and an Epicurean will think differently about a single subject, even when the subject is quite remote from the special doctrines of each of those systems.

A judicious history of the different sects of philosophers, and of the different methods of philosophising that have been followed among mankind, would help men considerably in their search for truth. What would matter most in such a

history is not the fine details of each sect's doctrines, but rather a good account of •the spirit of each sect and of •the point of view from which its founder saw things. Adam Smith in his *Theory of the Moral Sentiments* perfectly understood this, and applied it to the theories of morals with great judgment and fairness.

Some constitutions of the body make a man more likely to contract one class of diseases than to contract another; and on the other hand when diseases of that kind happen by accident, they are apt to create the bodily constitution that is suited to them. ·I mention this because· there is something analogous to it in the diseases of the understanding.

A certain cast of mind can make a man more likely to accept one system of opinions than another; and, in the other direction, when a system of opinions is fixed in the mind by education or otherwise, it puts the understanding into a condition that is suited to it.

It would be good if the different systems that have held sway could be classified according to their spirit, as well as named after their founders. Bacon distinguished false philosophy into the •sophistical, the •empirical, and the •superstitious, and has made wise observations on each of these kinds. But I think that this subject deserves to be treated more fully by someone like Bacon, if such a person can be found.