

superior force and vigor, renders its influence on the passions and affections more sensible, and, in a word, begets that reliance or security which constitutes the nature of belief and opinion.

The case is the same with the probability of causes as with that of chance. There are some causes which are entirely uniform and constant in producing a particular effect and no instance has ever yet been found of any failure or irregularity in their operation. Fire has always burned, and water suffocated, every human creature. The production of motion by impulse and gravity is a universal law which has up to now admitted of no exception. But there are other causes which have been found more irregular and uncertain; nor has rhubarb always proved a purge, or opium a soporific, to everyone who has taken these medicines. It is true, when any cause fails of producing its usual effect, philosophers do not ascribe this to any irregularity in nature, but suppose that some secret causes in the particular structure of parts have prevented the operation. Our reasonings, however, and conclusions concerning the event are the same as if this principle had no place. Being determined by custom to transfer the past to the future in all our inferences, where the past has been entirely regular and uniform, we expect the event with the greatest assurance and leave no room for any contrary supposition. But where different effects have been found to follow from causes which are to *appearance* exactly similar, all these various effects must occur to the mind in transferring the past to the future and enter into our consideration when we determine the probability of the event. Though we give the preference to that which has been found most usual and believe that this effect will exist, we must not overlook the other effects, but must assign to each of them a particular weight and authority in proportion as we have found it to be more or less frequent. It is more probable, in almost every country of Europe, that there will be frost sometime in January than that the weather will continue open throughout that whole month, though this probability varies according to the different climates and approaches to a certainty in the more northern kingdoms. Here, then, it seems evident that when we transfer the past to the future in

order to determine the effect which will result from any cause, we transfer all the different events in the same proportion as they have appeared in the past and conceive one to have existed a hundred times, for instance, another ten times, and another once. As a great number of views do here concur in one event, they fortify and confirm it to the imagination, beget that sentiment which we call *belief*, and give its object the preference above the contrary event which is not supported by an equal number of experiments and does not recur so frequently to the thought in transferring the past to the future. Let anyone try to account for this operation of the mind upon any of the received systems of philosophy and he will be sensible of the difficulty. For my part, I shall think it sufficient if the present hints excite the curiosity of philosophers and make them sensible how defective all common theories are in treating of such curious and such sublime subjects.

Section VII: *Of the Idea of Necessary Connection*

Part I

The great advantage of the mathematical sciences above the moral consists in this, that the ideas of the former, being sensible, are always clear and determinate, the smallest distinction between them is immediately perceptible, and the same terms are still expressive of the same ideas without ambiguity or variation. An oval is never mistaken for a circle, nor an hyperbola for an ellipsis. The isosceles and scalene are distinguished by boundaries more exact than vice and virtue, right and wrong. If any term is defined in geometry, the mind readily, of itself, substitutes on all occasions the definition for the term defined. Or even when no definition is employed, the object itself may be presented to the senses and by that means be steadily and clearly apprehended. But the finer sentiments of the mind, the operations of the understanding, the various agitations of the passions, though really in themselves distinct, easily escape us when surveyed by reflection; nor is it in our power to recall the original object as often as we have occasion

to contemplate it. Ambiguity, by this means, is gradually introduced into our reasonings. Similar objects are readily taken to be the same and the conclusion becomes at last very wide of the premises.

One may safely, however, affirm that if we consider these sciences in a proper light, their advantages and disadvantages nearly compensate each other and reduce both of them to a state of equality. If the mind, with greater facility, retains the ideas of geometry clear and determinate, it must carry on a much longer and more intricate chain of reasoning and compare ideas much wider of each other in order to reach the more abstruse truths of that science. And if moral ideas are apt, without extreme care, to fall into obscurity and confusion, the inferences are always much shorter in these disquisitions and the intermediate steps which lead to the conclusion much fewer than in the sciences which treat of quantity and number. In reality, there is scarcely a proposition in Euclid so simple as not to consist of more parts than are to be found in any moral reasoning which runs not into chimera and conceit. Where we trace the principles of the human mind through a few steps, we may be very well satisfied with our progress, considering how soon nature throws a bar to all our inquiries concerning causes and reduces us to an acknowledgment of our ignorance. The chief obstacle, therefore, to our improvement in the moral or metaphysical sciences is the obscurity of the ideas and ambiguity of the terms. The principal difficulty in mathematics is the length of inferences and compass of thought requisite to the forming of any conclusion. And, perhaps, our progress in natural philosophy is chiefly retarded by the want of proper experiments and phenomena which are often discovered by chance and cannot always be found when requisite, even by the most diligent and prudent inquiry. As moral philosophy seems up to now to have received less improvement than either geometry or physics, we may conclude that if there is any difference in this respect among these sciences, the difficulties which obstruct the progress of the former require superior care and capacity to be surmounted.

There are no ideas which occur in metaphysics more obscure and uncertain than those of *power*, *force*, *energy*, or *necessary connection*, of which it is

every moment necessary for us to treat in all our disquisitions. We shall, therefore, endeavor in this section to fix, if possible, the precise meaning of these terms and thereby remove some part of that obscurity which is so much complained of in this species of philosophy.

It seems a proposition which will not admit of much dispute that all our ideas are nothing but copies of our impressions, or, in other words, that it is impossible for us to *think* of anything which we have not antecedently *felt* by either our external or our internal senses. I have endeavored¹³ to explain and prove this proposition, and have expressed my hopes that by a proper application of it men may reach a greater clearness and precision in philosophical reasonings than what they have up to now been able to attain. Complex ideas may, perhaps, be well known by definition, which is nothing but an enumeration of those parts or simple ideas that compose them. But when we have pushed up definitions to the most simple ideas and find still some ambiguity and obscurity, what resource are we then possessed of? By what invention can we throw light upon these ideas and render them altogether precise and determinate to our intellectual view? Produce the impressions or original sentiments from which the ideas are copied. These impressions are all strong and sensible. They do not admit of ambiguity. They are not only placed in a full light themselves, but may throw light on their correspondent ideas, which lie in obscurity. And by this means we may, perhaps, attain a new microscope or species of optics by which, in the moral sciences, the most minute and most simple ideas may be so enlarged as to fall readily under our apprehension and be equally known with the grossest and most sensible ideas that can be the object of our inquiry.

To be fully acquainted, therefore, with the idea of power or necessary connection, let us examine its impression and, in order to find the impression with greater certainty, let us search for it in all the sources from which it may possibly be derived.

When we look about us towards external objects and consider the operation of causes, we are never able, in a single instance, to discover any power or

13. Section II: Of the Origin of Ideas.

necessary connection, any quality which binds the effect to the cause and renders the one an infallible consequence of the other. We only find that the one does actually in fact follow the other. The impulse of one billiard ball is attended with motion in the second. This is the whole that appears to the *outward* senses. The mind feels no sentiment or *inward* impression from this succession of objects. Consequently, there is not, in any single particular instance of cause and effect, anything which can suggest the idea of power or necessary connection.

From the first appearance of an object we never can conjecture what effect will result from it. But were the power or energy of any cause discoverable by the mind, we could foresee the effect, even without experience, and might, at first, pronounce with certainty concerning it by the mere dint of thought and reasoning.

In reality, there is no part of matter that ever does, by its sensible qualities, discover any power or energy or give us ground to imagine that it could produce anything or be followed by any other object which we could denominate its effect. Solidity, extension, motion—these qualities are all complete in themselves and never point out any other event which may result from them. The scenes of the universe are continually shifting and one object follows another in an uninterrupted succession; but the power or force which actuates the whole machine is entirely concealed from us and never discovers itself in any of the sensible qualities of body. We know that, in fact, heat is a constant attendant of flame, but what is the connection between them we have no room so much as to conjecture or imagine. It is impossible, therefore, that the idea of power can be derived from the contemplation of bodies in single instances of their operation, because no bodies ever discover any power which can be the original of this idea.¹⁴

14. Mr. Locke, in his chapter on power, says that, finding from experience that there are several new productions in matter and concluding that there must somewhere be a power capable of producing them, we arrive at last by this reasoning at the idea of power. But no reasoning can ever give us a new, original simple idea—as this philosopher himself confesses. This, therefore, can never be the origin of that idea.

Since, therefore, external objects as they appear to the senses give us no idea of power or necessary connection by their operation in particular instances, let us see whether this idea is derived from reflection on the operations of our own minds and is copied from any internal impression. It may be said that we are every moment conscious of internal power, while we feel that, by the simple command of our will, we can move the organs of our body or direct the faculties of our mind. An act of volition produces motion in our limbs or raises a new idea in our imagination. This influence of the will we know by consciousness. Hence we acquire the idea of power or energy and are certain that we ourselves and all other intelligent beings are possessed of power. This idea, then, is an idea of reflection, since it arises from reflecting on the operations of our own mind and on the command which is exercised by will, over both the organs of the body and the faculties of the mind.

We shall proceed to examine this pretension and, first, with regard to the influence of volition over the organs of the body. This influence, we may observe, is a fact which, like all other natural events, can be known only by experience and can never be foreseen from any apparent energy or power in the cause which connects it with the effect and renders the one an infallible consequence of the other. The motion of our body follows upon the command of our will. Of this we are every moment conscious. But the means by which this is effected, the energy by which the will performs so extraordinary an operation, of this we are so far from being immediately conscious that it must forever escape our most diligent inquiry.

For *first*, is there any principle in all nature more mysterious than the union of soul with body, by which a supposed spiritual substance acquires such an influence over a material one that the most refined thought is able to actuate the grossest matter? Were we empowered by a secret wish to remove mountains or control the planets in their orbit, this extensive authority would not be more extraordinary, nor more beyond our comprehension. But if by consciousness we perceived any power or energy in the will, we must know this power; we must know its connection with the effect; we must know the secret

union of soul and body, and the nature of both these substances by which the one is able to operate in so many instances upon the other.

Secondly, we are not able to move all the organs of the body with a like authority, though we cannot assign any reason besides experience for so remarkable a difference between one and the other. Why has the will an influence over the tongue and fingers, not over the heart or liver? This question would never embarrass us were we conscious of a power in the former case, not in the latter. We should then perceive, independent of experience, why the authority of will over the organs of the body is circumscribed within such particular limits. Being in that case fully acquainted with the power or force by which it operates, we should also know why its influence reaches precisely to such boundaries, and no further.

A man suddenly struck with a palsy in the leg or arm or who had newly lost those members frequently endeavors, at first, to move them and employ them in their usual offices. Here he is as much conscious of power to command such limbs as a man in perfect health is conscious of power to actuate any member which remains in its natural state and condition. But consciousness never deceives. Consequently, neither in the one case nor in the other are we ever conscious of any power. We learn the influence of our will from experience alone. And experience only teaches us how one event constantly follows another, without instructing us in the secret connection which binds them together and renders them inseparable.

Thirdly, we learn from anatomy that the immediate object of power in voluntary motion is not the member itself which is moved, but certain muscles and nerves and animal spirits and, perhaps, something still more minute and more unknown through which the motion is successively propagated before it reaches the member itself whose motion is the immediate object of volition. Can there be a more certain proof that the power by which this whole operation is performed, so far from being directly and fully known by an inward sentiment or consciousness, is to the last degree mysterious and unintelligible? Here the mind wills a certain event. Immediately another event, unknown to ourselves and totally different from the one

intended, is produced. This event produces another, equally unknown, until at last, through a long succession the desired event is produced. But if the original power was felt, it must be known. If it was known, its effect must also be known, since all power is relative to its effect. And *vice versa*, if the effect is not known, the power cannot be known nor felt. How indeed can we be conscious of a power to move our limbs when we have no such power, but only that to move certain animal spirits which, though they produce at last the motion of our limbs, yet operate in such a manner as is wholly beyond our comprehension?

We may, therefore, conclude from the whole, I hope, without any temerity, though with assurance, that our idea of power is not copied from any sentiment or consciousness of power within ourselves when we give rise to animal motion or apply our limbs to their proper use and office. That their motion follows the command of the will is a matter of common experience, like other natural events. But the power or energy by which this is effected, like that in other natural events, is unknown and inconceivable.¹⁵

Shall we then assert that we are conscious of a power or energy in our own minds when, by an act or command of our will, we raise up a new idea, fix the mind to the contemplation of it, turn it on all sides, and at last dismiss it for some other idea when we think that we have surveyed it with sufficient

15. It may be pretended that the resistance which we meet with in bodies, obliging us frequently to exert our force and call up all our power, this gives us the idea of force and power. It is this *nisus* or strong endeavor of which we are conscious that is the original impression from which this idea is copied. But, first, we attribute power to a vast number of objects, where we never can suppose this resistance or exertion of force to take place; to the Supreme Being who never meets with any resistance; to the mind in its command over its ideas and limbs in common thinking and motion where the effect follows immediately upon the will without any exertion or summoning up of force; to inanimate matter which is not capable of this sentiment. *Secondly*, this sentiment of an endeavor to overcome resistance has no known connection with any event. What follows it, we know by experience, but could not know it *a priori*. It must, however, be confessed that the animal *nisus*, which we experience, though it can afford no accurate precise idea of power, enters very much into that vulgar, inaccurate idea which is formed of it.

accuracy? I believe the same arguments will prove that even this command of the will gives us no real idea of force or energy.

First, it must be allowed that when we know a power, we know that very circumstance in the cause by which it is enabled to produce the effect, for these are supposed to be synonymous. We must, therefore, know both the cause and the effect and the relation between them. But do we pretend to be acquainted with the nature of the human soul and the nature of an idea or the aptitude of the one to produce the other? This is a real creation, a production of something out of nothing, which implies a power so great that it may seem, at first sight, beyond the reach of any being less than infinite. At least it must be admitted that such a power is not felt, nor known, nor even conceivable by the mind. We only feel the event, namely, the existence of an idea consequent to a command of the will. But the manner in which this operation is performed, the power by which it is produced, is entirely beyond our comprehension.

Secondly, the command of the mind over itself is limited, as well as its command over the body; and these limits are not known by reason or any acquaintance with the nature of cause and effect, but only by experience and observation, as in all other natural events and in the operation of external objects. Our authority over our sentiments and passions is much weaker than that over our ideas; and even the latter authority is circumscribed within very narrow boundaries. Will anyone pretend to assign the ultimate reason of these boundaries or show why the power is deficient in one case, not in another?

Thirdly, this self-command is very different at different times. A man in health possesses more of it than one languishing with sickness. We are more master of our thoughts in the morning than in the evening—fasting, than after a full meal. Can we give any reason for these variations except experience? Where, then, is the power of which we pretend to be conscious? Is there not here, in either a spiritual or a material substance or both, some secret mechanism or structure of parts upon which the effect depends and which, being entirely unknown to us, renders

the power or energy of the will equally unknown and incomprehensible?

Volition is surely an act of the mind with which we are sufficiently acquainted. Reflect upon it. Consider it on all sides. Do you find anything in it like this creative power by which it raises from nothing a new idea and, with a kind of fiat, imitates the omnipotence of its Maker—if I may be allowed so to speak—who called forth into existence all the various scenes of nature? So far from being conscious of this energy in the will, it requires as certain experience as that of which we are possessed to convince us that such extraordinary effects do ever result from a simple act of volition.

The generality of mankind never find any difficulty in accounting for the more common and familiar operations of nature, such as the descent of heavy bodies, the growth of plants, the generation of animals, or the nourishment of bodies by food. But suppose that in all these cases they perceive the very force or energy of the cause by which it is connected with its effect and is forever infallible in its operation. They acquire, by long habit, such a turn of mind that upon the appearance of the cause they immediately expect with assurance its usual attendant and hardly conceive it possible that any other event could result from it. It is only on the discovery of extraordinary phenomena, such as earthquakes, pestilence, and prodigies of any kind, that they find themselves at a loss to assign a proper cause and to explain the manner in which the effect is produced by it. It is usual for men, in such difficulties, to have recourse to some invisible intelligent principle¹⁶ as the immediate cause of that event which surprises them and which they think cannot be accounted for from the common powers of nature. But philosophers, who carry their scrutiny a little further, immediately perceive that, even in the most familiar events, the energy of the cause is as unintelligible as in the most unusual and that we only learn by experience the frequent conjunction of objects, without being ever able to comprehend anything like connection between them. Here, then, many philosophers think themselves obliged by reason to have recourse, on all occasions,

16. *Quasi Deus ex machina*.

to the same principle which the vulgar never appeal to but in cases that appear miraculous and supernatural. They acknowledge mind and intelligence to be not only the ultimate and original cause of all things, but the immediate and sole cause of every event which appears in nature. They pretend that those objects which are commonly denominated *causes* are in reality nothing but *occasions*; and that the true and direct principle of every effect is not any power or force in nature, but a volition of the Supreme Being, who wills that such particular objects should forever be conjoined with each other. Instead of saying that one billiard ball moves another by a force which it has derived from the author of nature, it is the Deity himself, they say, who, by a particular volition, moves the second ball, being determined to this operation by the impulse of the first ball, in consequence of those general laws which he has laid down to himself in the government of the universe. But philosophers advancing still in their inquiries, discover that as we are totally ignorant of the power on which depends the mutual operation of bodies, we are no less ignorant of that power on which depends the operation of mind on body or of body on mind; nor are we able, from either our senses or our consciousness, to assign the ultimate principle in one case more than in the other. The same ignorance, therefore, reduces them to the same conclusion. They assert that the Deity is the immediate cause of the union between soul and body and that they are not the organs of sense which, being agitated by external objects, produce sensations in the mind, but that it is a particular volition of our omnipotent Maker which excites such a sensation in consequence of such a motion in the organ. In like manner, it is not any energy in the will that produces local motion in our members. It is God himself, who is pleased to second our will, in itself impotent, and to command that motion which we erroneously attribute to our own power and efficacy. Nor do philosophers stop at this conclusion. They sometimes extend the same inference to the mind itself in its internal operations. Our mental vision or conception of ideas is nothing but a revelation made to us by our Maker. When we voluntarily turn our thoughts to any object and raise up its image in the

fancy, it is not the will which creates that idea, it is the universal Creator who discovers it to the mind and renders it present to us.

Thus, according to these philosophers, every thing is full of God. Not content with the principle that nothing exists but by his will, that nothing possesses any power but by his concession, they rob nature and all created beings of every power in order to render their dependence on the Deity still more sensible and immediate. They do not consider that by this theory they diminish, instead of magnifying, the grandeur of those attributes which they affect so much to celebrate. It argues surely more power in the Deity to delegate a certain degree of power to inferior creatures than to produce everything by his own immediate volition. It argues more wisdom to contrive at first the fabric of the world with such perfect foresight that, of itself and by its proper operation, it may serve all the purposes of providence than if the great Creator were obliged every moment to adjust its parts and animate by his breath all the wheels of that stupendous machine.

But if we would have a more philosophical confutation of this theory, perhaps the two following reflections may suffice.

First, it seems to me that this theory of the universal energy and operation of the Supreme Being is too bold ever to carry conviction with it to a man sufficiently apprised of the weakness of human reason and the narrow limits to which it is confined in all its operations. Though the chain of arguments which conduct to it were ever so logical, there must arise a strong suspicion, if not an absolute assurance, that it has carried us quite beyond the reach of our faculties when it leads to conclusions so extraordinary and so remote from common life and experience. We arrived in fairyland long before we have reached the last steps of our theory; and *there* we have no reason to trust our common methods of argument or to think that our usual analogies and probabilities have any authority. Our line is too short to fathom such immense abysses. And however we may flatter ourselves that we are guided, in every step which we take, by a kind of verisimilitude and experience, we may be assured that this fancied experience has no

authority when we thus apply it to subjects that lie entirely out of the sphere of experience. But on this we shall have occasion to touch afterwards.¹⁷

Secondly, I cannot perceive any force in the arguments on which this theory is founded. We are ignorant, it is true, of the manner in which bodies operate on each other. Their force or energy is entirely incomprehensible. But are we not equally ignorant of the manner or force by which a mind, even the supreme mind, operates either on itself or on body? From where, I beseech you, do we acquire any idea of it? We have no sentiment or consciousness of this power in ourselves. We have no idea of the Supreme Being but what we learn from reflection on our own faculties. Were our ignorance, therefore, a good reason for rejecting anything, we should be led into that principle of denying all energy in the Supreme Being as much as in the grossest matter. We surely comprehend as little the operations of one as of the other. Is it more difficult to conceive that motion may arise from impulse than that it may arise from volition? All we know is our profound ignorance in both cases.¹⁸

17. Section XII.

18. I need not examine at length the *vis inertiae* which is so much talked of in the new philosophy and which is ascribed to matter. We find by experience that a body at rest or in motion continues forever in its present state until put from it by some new cause, and that a body impelled takes as much motion from the impelling body as it acquires itself. These are facts. When we call this a *vis inertiae*, we only mark these facts without pretending to have any idea of the inert power—in the same manner as, when we talk of gravity, we mean certain effects without comprehending that active power. It was never the meaning of Sir Isaac Newton to rob secondary causes of all force or energy, though some of his followers have endeavored to establish that theory upon his authority. On the contrary, that great philosopher had recourse to an ethereal active fluid to explain his universal attraction, though he was so cautious and modest as to allow that it was a mere hypothesis not to be insisted on without more experiments. I must confess that there is something in the fate of opinions a little extraordinary. Descartes insinuated that doctrine of the universal and sole efficacy of the Deity, without insisting on it. Malebranche and other Cartesians made it the foundation of all their philosophy. It had, however, no authority in England. Locke, Clarke, and Cudworth never so much as take notice of it, but suppose all along that matter has a real, though subordinate and derived power. By what means has it become so prevalent among our modern metaphysicians?

Part II

But to hasten to a conclusion of this argument, which is already drawn out to too great a length. We have sought in vain for an idea of power or necessary connection in all the sources from which we could suppose it to be derived. It appears that in single instances of the operation of bodies we never can, by our utmost scrutiny, discover anything but one event following another, without being able to comprehend any force or power by which the cause operates or any connection between it and its supposed effect. The same difficulty occurs in contemplating the operations of mind on body, where we observe the motion of the latter to follow upon the volition of the former, but are not able to observe or conceive the tie which binds together the motion and volition, or the energy by which the mind produces this effect. The authority of the will over its own faculties and ideas is not a whit more comprehensible, so that, upon the whole, there does not appear, throughout all nature, any one instance of connection which is conceivable by us. All events seem entirely loose and separate. One event follows another, but we never can observe any tie between them. They seem *conjoined*, but never *connected*. And as we can have no idea of anything which never appeared to our outward sense or inward sentiment, the necessary conclusion *seems* to be that we have no idea of connection or power at all and that these words are absolutely without any meaning when employed in either philosophical reasonings or common life.

But there still remains one method of avoiding this conclusion and one source which we have not yet examined. When any natural object or event is presented, it is impossible for us, by any sagacity or penetration to discover, or even conjecture, without experience, what event will result from it, or to carry our foresight beyond that object which is immediately present to the memory and senses. Even after one instance or experiment where we have observed a particular event to follow upon another, we are not entitled to form a general rule or foretell what will happen in like cases, it being justly esteemed an unpardonable temerity to judge of the whole course of nature from one single experiment, however accurate

or certain. But when one particular species of event has always, in all instances, been conjoined with another, we make no longer any scruple of foretelling one upon the appearance of the other and of employing that reasoning which can alone assure us of any matter of fact or existence. We then call the one object *cause*, the other *effect*. We suppose that there is some connection between them, some power in the one by which it infallibly produces the other and operates with the greatest certainty and strongest necessity.

It appears, then, that this idea of a necessary connection among events arises from a number of similar instances which occur, of the constant conjunction of these events, nor can that idea ever be suggested by any one of these instances surveyed in all possible lights and positions. But there is nothing in a number of instances, different from every single instance, which is supposed to be exactly similar, except only that after a repetition of similar instances the mind is carried by habit, upon the appearance of one event, to expect its usual attendant and to believe that it will exist. This connection, therefore, which we *feel* in the mind, this customary transition of the imagination from one object to its usual attendant, is the sentiment or impression from which we form the idea of power or necessary connection. Nothing further is in the case. Contemplate the subject on all sides, you will never find any other origin of that idea. This is the sole difference between one instance, from which we can never receive the idea of connection, and a number of similar instances by which it is suggested. The first time a man saw the communication of motion by impulse, as by the shock of two billiard balls, he could not pronounce that the one event was *connected*, but only that it was *conjoined* with the other. After he has observed several instances of this nature, he then pronounces them to be *connected*. What alteration has happened to give rise to this new idea of *connection*? Nothing but that he now *feels* these events to be *connected* in his imagination and can readily foretell the existence of one from the appearance of the other. When we say, therefore, that one object is connected with another, we mean only that they have acquired a connection in our thought and give rise to this inference by which they become

proofs of each other's existence—a conclusion, which is somewhat extraordinary, but which seems founded on sufficient evidence. Nor will its evidence be weakened by any general diffidence of the understanding or skeptical suspicion concerning every conclusion which is new and extraordinary. No conclusions can be more agreeable to skepticism than such as make discoveries concerning the weakness and narrow limits of human reason and capacity.

And what stronger instance can be produced of the surprising ignorance and weakness of the understanding than the present? For surely, if there is any relation among objects which it imports to us to know perfectly, it is that of cause and effect. On this are founded all our reasonings concerning matter of fact or existence. By means of it alone we attain any assurance concerning objects which are removed from the present testimony of our memory and senses. The only immediate utility of all sciences is to teach us how to control and regulate future events by their causes. Our thoughts and inquiries are, therefore, every moment employed about this relation; yet so imperfect are the ideas which we form concerning it that it is impossible to give any just definition of cause, except what is drawn from something extraneous and foreign to it. Similar objects are always conjoined with similar. Of this we have experience. Suitably to this experience, therefore, we may define a cause to be *an object followed by another and where all the objects similar to the first are followed by objects similar to the second*. Or, in other words, *where, if the first object had not been, the second never had existed*. The appearance of a cause always conveys the mind, by a customary transition, to the idea of the effect. Of this also we have experience. We may, therefore, suitably to this experience, form another definition of cause, and call it *an object followed by another and whose appearance always conveys the thought to that other*. But though both these definitions are drawn from circumstances foreign to the cause, we cannot remedy this inconvenience or attain any more perfect definition which may point out that circumstance in the cause which gives it a connection with its effect. We have no idea of this connection, nor even any distinct notion what it is

we desire to know when we endeavor at a conception of it. We say, for instance, that the vibration of this string is the cause of this particular sound. But what do we mean by that affirmation? We mean either that *this vibration is followed by this sound, and that all similar vibrations have been followed by similar sounds, or that this vibration is followed by this sound and that upon the appearance of one, the mind anticipates the senses and forms immediately an idea of the other.* We may consider the relation of cause and effect in either of these two lights; but beyond these, we have no idea of it.¹⁹

To recapitulate, therefore, the reasonings of this section: Every idea is copied from some preceding impression or sentiment; and where we cannot find any impression, we may be certain that there is no

19. According to these explications and definitions, the idea of *power* is relative as much as that of *cause*; and both have a reference to an effect or some other event constantly conjoined with the former. When we consider the *unknown* circumstance of an object by which the degree or quantity of its effect is fixed and determined, we call that its power. And, accordingly, it is allowed by all philosophers that the effect is the measure of the power. But if they had any idea of power as it is in itself, why could not they measure it in itself? The dispute whether the force of a body in motion is as its velocity or the square of its velocity, this dispute I say, did not need to be decided by comparing its effects in equal or unequal times, but by a direct mensuration and comparison.

As to the frequent use of the words force, power, energy, etc. which everywhere occur in common conversation as well as in philosophy, that is no proof that we are acquainted in any instance with the connecting principle between cause and effect or can account ultimately for the production of one thing by another. These words as commonly used have very loose meanings annexed to them and their ideas are very uncertain and confused. No animal can put external bodies in motion without the sentiment of a *nisus* or endeavor and every animal has a sentiment or feeling from the stroke or blow of an external object in motion. These sensations, which are merely animal and from which we can *a priori* draw no inference, we are apt to transfer to inanimate objects and to suppose that they have some such feelings whenever they transfer or receive motion. With regard to energies which are exerted without our annexing to them any idea of communicated motion, we consider only the constant experienced conjunction of the events; and as we *feel* a customary connection between the ideas, we transfer that feeling to the objects—as nothing is more usual than to apply to external bodies every internal sensation which they occasion.

idea. In all single instances of the operation of bodies or minds, there is nothing that produces any impression, nor consequently can suggest any idea of power or necessary connection. But when many uniform instances appear and the same object is always followed by the same event, we then begin to entertain the notion of cause and connection. We then *feel* a new sentiment or impression, namely, a customary connection in the thought or imagination between one object and its usual attendant and this sentiment is the original of that idea which we seek for. For as this idea arises from a number of similar instances and not from any single instance, it must arise from that circumstance in which the number of instances differ from every individual instance. But this customary connection or transition of the imagination is the only circumstance in which they differ. In every other particular they are alike. The first instance which we saw of motion communicated by the shock of two billiard balls (to return to this obvious illustration) is exactly similar to any instance that may, at present, occur to us, except only that we could not at first *infer* one event from the other, which we are enabled to do at present, after so long a course of uniform experience. I do not know whether the reader will readily apprehend this reasoning. I am afraid that, should I multiply words about it or throw it into a greater variety of lights, it would only become more obscure and intricate. In all abstract reasonings, there is one point of view which, if we can happily hit, we shall go further towards illustrating the subject than by all the eloquence and copious expression in the world. This point of view we should endeavor to reach, and reserve the flowers of rhetoric for subjects which are more adapted to them.

Section VIII: *Of Liberty and Necessity*

Part I

It might reasonably be expected in questions which have been canvassed and disputed with great eagerness since the first origin of science and philosophy that the meaning of all the terms, at least, should have been agreed upon among the disputants, and our inquiries, in the course of two thousand years, been