Part III: Of knowledge and probability

Section I. Of knowledge

There are [1] seven different kinds of philosophical relation, *viz. resemblance, identity, relations of time and place, proportion in quantity or number, degrees in any quality, contrariety, and causation.* These relations may be divided into two classes; into such as depend entirely on the ideas, which we compare together, and such as may be chang'd without any change in the ideas. 'Tis from the idea of a triangle, that we discover the relation of equality, which its three angles bear to two right ones; and this relation is invariable, as long as our idea remains the same. On the contrary, the relations of *contiguity* and *distance* betwixt two objects may be chang'd merely by an alteration of their place, without any change on the objects themselves or on their ideas; and the place depends on a hundred different accidents, which cannot be foreseen by the mind. 'Tis the same case with *identity* and *causation.* Two objects, tho' perfectly resembling each other, and even appearing in the same place at different times, may be numerically different: And as the power, by which one object produces another, is never discoverable merely from their idea, 'tis evident *cause* and *effect* are relations, of which we receive information from experience, and not from any abstract reasoning or reflection. There is no single phænomenon, even the most simple, which can be accounted for from the qualities of the objects, as they appear to us; or which we cou'd foresee without the help of our memory and experience.

It appears, therefore, that of these seven philosophical relations, there remain only four, which depending solely upon ideas, can be the objects of knowledge and certainty. These four are *resemblance, contrariety, degrees of quality, and* proportions in quantity or number. *Three of these relations* are discoverable at first sight, and fall more properly under the province of intuition than demonstration. When any objects *resemble* each other, the resemblance will at first strike the eye, or rather the mind; and seldom requires a second examination. The case is the same with *contrariety,* and with the *degrees* of any *quality*. No one can once doubt but existence and non-existence destroy each other, and are perfectly incompatible and contrary. And tho' it be impossible to judge exactly of the degrees of any quality, such as colour, taste, heat, cold, when the difference betwixt them is very small; yet 'tis easy to decide, that any of them is superior or inferior to another, when their difference is considerable. And this decision we always pronounce at first sight, without any enquiry or reasoning.

We might proceed, after the same manner, in fixing the *proportions* of *quantity* or *number*, and might at one view observe a superiority or inferiority betwixt any numbers, or figures; especially where the difference is very great and remarkable. As to equality or any exact proportion, we can only guess at it from a single consideration; except in very short numbers, or very limited portions of extension; which are comprehended in an instant, and where we perceive an impossibility of falling into any considerable error. In all other cases we must settle the proportions with some liberty, or proceed in a more *artificial* manner.

I have already observ'd, that geometry, or the *art*, by which we fix the proportions of figures; tho' it much excels, both in universality and exactness, the loose judgments of the senses and imagination; yet never attains a perfect precision and exactness. Its first principles are still drawn from the general appearance of the objects; and that appearance can never afford us any security, when we examine the

prodigious minuteness of which nature is susceptible. Our ideas seem to give a perfect assurance, that no two right lines can have a common segment; but if we consider these ideas, we shall find, that they always suppose a sensible inclination of the two lines, and that where the angle they form is extremely small, we have no standard of a right line so precise as to assure us of the truth of this proposition. 'Tis the same case with most of the primary decisions of the mathematics. There remain, therefore, algebra and arithmetic as the only sciences, in which we can carry on a chain of reasoning to any degree of intricacy, and yet preserve a perfect exactness and certainty. We are possest of a precise standard, by which we can judge of the equality and proportion of numbers; and according as they correspond or not to that standard, we determine their relations, without any possibility of error. When two numbers are so combin'd, as that the one has always an unite answering to every unite of the other, we pronounce them equal; and 'tis for want of such a standard of equality in extension, that geometry can scarce be esteem'd a perfect and infallible science.

But here it may not be amiss to obviate a difficulty, which may arise from my asserting, that tho' geometry falls short of that perfect precision and certainty, which are peculiar to arithmetic and algebra, yet it excels the imperfect judgments of our senses and imagination. The reason why I impute any defect to geometry, is, because its original and fundamental principles are deriv' d merely from appearances; and it may perhaps be imagin'd, that this defect must always attend it, and keep it from ever reaching a greater exactness in the comparison of objects or ideas, than what our eye or imagination alone is able to attain. I own that this defect so far attends it, as to keep it from ever aspiring to a full certainty: But since these fundamental principles depend on the easiest and least deceitful appearances, they bestow on their consequences a degree of exactness, of which these consequences are singly incapable. 'Tis impossible for the eye to determine the angles of a chiliagon to be equal to 1996 right angles, or make any conjecture, that approaches this proportion; but when it determines, that right lines cannot concur; that we cannot draw more than one right line between two given points; its mistakes can never be of any consequence. And this is the nature and use of geometry, to run us up to such appearances, as, by reason of their simplicity, cannot lead us into any considerable error.

I shall here take occasion to propose a second observation concerning our demonstrative reasonings, which is suggested by the same subject of the mathematics. 'Tis usual with mathematicians, to pretend, that those ideas, which are their objects, are of so refin'd and spiritual a nature, that they fall not under the conception of the fancy, but must be comprehended by a pure and intellectual view, of which the superior faculties of the soul are alone capable. The same notion runs thro' most parts of philosophy, and is principally made use of to explain our abstract ideas, and to shew how we can form an idea of a triangle, for instance, which shall neither be an isoceles nor scalenurn, nor be confin'd to any particular length and proportion of sides. 'Tis easy to see, why philosophers are so fond of this notion of some spiritual and refin'd perceptions; since by that means they cover many of their absurdities, and may refuse to submit to the decisions of clear ideas, by appealing to such as are obscure and uncertain. But to destroy this artifice, we need but reflect on that principle so oft insisted on, *that all our ideas are copy'd from our impressions.* For from thence we may immediately conclude, that since all impressions are clear and precise, the ideas, which are copy'd from them, must be of the same nature, and can never, but from our fault, contain any thing so dark and intricate. An idea is by its very nature weaker and fainter than an impression; but being in every other respect the same, cannot imply any very great mystery. If its weakness render it obscure, 'tis our business to remedy that defect, as much as possible, by keeping the idea steady and precise; and till we have done so, 'tis in vain to pretend to reasoning and philosophy.

1. Part I. sect. 5.

Section II. Of probability; and of the idea of cause and effect

This is all I think necessary to observe concerning those four relations, which are the foundation of science; but as to the other three, which depend not upon the idea, and may be absent or present even while *that* remains the same, 'twill be proper to explain them more particularly. These three relations are *identity, the situations in time and place, and causation.*

All kinds of reasoning consist in nothing but a companion, and a discovery of those relations, either constant or inconstant, which two or more objects bear to each other. This comparison we may make, either when both the objects are present to the senses, or when neither of them is present, or when only one. When both the objects are present to the senses along with the relation, we call *this* perception rather than reasoning; nor is there in this case any exercise of the thought, or any action, properly speaking, but a mere passive admission of the impressions thro' the organs of sensation. According to this way of thinking, we ought not to receive as reasoning any of the observations we may make concerning *identity*, and the *relations* of *time* and *place*; since in none of them the mind can go beyond what is immediately present to the senses, either to discover the real existence or the relations of objects. 'Tis only *causation*, which produces such a connexion, as to give us assurance from the existence or action of one object, that 'twas follow'd or preceded by any other existence or action; nor can the other two relations be ever made use of in reasoning, except so far as they either affect or are affected by it. There is nothing in any objects to perswade us, that they are either always *remote* or always *contiguous*; and when from experience and observation we discover, that their relation in this particular is invariable, we always conclude there is some secret *cause*, which separates or unites them. The same reasoning extends to *identity*. We readily suppose an object may continue individually the same, tho' several times absent from and present to the senses; and ascribe to it an identity, notwithstanding the interruption of the perception, whenever we conclude, that if we had kept our eye or hand constantly upon it, it wou'd have convey'd an invariable and uninterrupted perception. But this conclusion beyond the impressions of our senses can be founded only on the connexion of *cause and effect*; nor can we otherwise have any security, that the object is not chang'd upon us, however much the new object may resemble that which was formerly present to the senses. Whenever we discover such a perfect resemblance, we consider, whether it be common in that species of objects; whether possibly or probably any cause cou'd operate in producing the change and resemblance; and according as we determine concerning these causes and effects, we form our judgment concerning the identity of the object.

Here then it appears, that of those three relations, which depend not upon the mere ideas, the only one, that can be trac'd beyond our senses, and informs us of existences and objects, which we do not see or feel, is *causation*. This relation, therefore, we shall endeavour to explain fully before we leave the subject of the understanding.

To begin regularly, we must consider the idea of *causation*, and see from what origin it is deriv'd. 'Tis impossible to reason justly, without understanding perfectly the idea concerning which we reason; and 'tis impossible perfectly to understand any idea, without tracing it up to its origin, and examining that primary impression, from which it arises. The examination of the impression bestows a clearness on

the idea; and the examination of the idea bestows a like clearness on all our reasoning.

Let us therefore cast our eye on any two objects, which we call cause and effect, and turn them on all sides, in order to find that impression, which produces an idea of such prodigious consequence. At first sight I perceive, that I must not search for it in any of the particular qualities of the objects; since, which-ever of these qualities I pitch on, I find some object, that is not possest of it, and yet falls under the denomination of cause or effect. And indeed there is nothing existent, either externally or internally, which is not to be consider'd either as a cause or an effect; tho' 'tis plain there is no one quality, which universally belongs to all beings, and gives them a title to that denomination. The idea, then, of causation must be deriv'd from some *relation* among objects; and that relation we must now endeavour to discover. I find in the first place, that whatever objects are consider'd as causes or effects, are *contiguous*; and that nothing can operate in a time or place, which is ever so little remov'd from those of its existence. Tho' distant objects may sometimes seem productive of each other, they are commonly found upon examination to be link'd by a chain of causes, which are contiguous among themselves, and to the distant objects; and when in any particular instance we cannot discover this connexion, we still presume it to exist. We may therefore consider the relation of contiguity as essential to that of causation; at least may suppose it such, according to the general opinion, till we can find a more [1] proper occasion to clear up this matter, by examining what objects are or are not susceptible of juxta-position and conjunction.

The second relation I shall observe as essential to causes and effects, is not so universally acknowledge'd, but is liable to some controversy. 'Tis that of priority of time in the cause before the effect. Some pretend that 'tis not absolutely necessary a cause shou'd precede its effect; but that any object or action, in the very first moment of its existence, may exert its productive quality, and give rise to another object or action, perfectly co-temporary with itself. But beside that experience in most instances seems to contradict this opinion, we may establish the relation of priority by a kind of inference or reasoning. 'Tis an establish'd maxim both in natural and moral philosophy, that an object, which exists for any time in its full perfection without producing another, is not its sole cause; but is assisted by some other principle, which pushes it from its state of inactivity, and makes it exert that energy, of which it was secretly possest. Now if any cause may be perfectly co-temporary with its effect, 'tis certain, according to this maxim, that they must all of them be so; since any one of them, which retards its operation for a single moment, exerts not itself at that very individual time, in which it might have operated; and therefore is no proper cause. The consequence of this wou'd be no less than the destruction of that succession of causes, which we observe in the world; and indeed, the utter annihilation of time. For if one cause were co-temporary with its effect, and this effect with *its* effect, and so on, 'tis plain there wou'd be no such thing as succession, and all objects must be co-existent.

If this argument appear satisfactory, 'tis well. If not, I beg the reader to allow me the same liberty, which I have us'd in the preceding case, of supposing it such. For he shall find, that the affair is of no great importance.

Having thus discover'd or suppos'd the two relations of *contiguity* and *succession* to be essential to causes and effects, I find I am stopt short, and can proceed no farther in considering any single instance of cause and effect. Motion in one body is regarded upon impulse as the cause of motion in another. When we consider these objects with the utmost attention, we find only that the one body approaches the other; and that the motion of it precedes that of the other, but without any sensible interval. 'Tis in vain to rack ourselves with *farther* thought and reiiection upon this subject. We can go no *farther* in considering this particular instance.

Shou'd any one leave this instance, and pretend to define a cause, by saying it is something productive of another, 'tis evident he wou'd say nothing. For what does he mean by *production*? Can he give any definition of it, that will not be the same with that of causation? If he can; I desire it may be produc'd. If he cannot; he here runs in a circle, and gives a synonymous term instead of a definition.

Shall we then rest contented with these two relations of contiguity and succession, as affording a compleat idea of causation? By no means. An object may be contiguous and prior to another, without being consider'd as its cause. There is a necessary connexion to be taken into consideration; and that relation is of much greater importance, than any of the other two above-mention'd.

Here again I turn the object on all sides, in order to discover the nature of this necessary connexion, and find the impression, or impressions, from which its idea may be deriv'd. When I cast my eye on the *known qualities* of objects, I immediately discover that the relation of cause and effect depends not in the least on *them*. When I consider their *relations*, I can find none but those of contiguity and succession; which I have already regarded as imperfect and unsatisfactory. Shall the despair of success make me assert, that I am here possest of an idea, which is not preceded by any similar impression? This wou'd be too strong a proof of levity and inconstancy; since the contrary principle has been already so firmly establish'd, as to admit of no farther doubt; at least, till we have more fully examin'd the present difficulty.

We must, therefore, proceed like those, who being in search of any thing that lies conceal'd from them, and not finding it in the place they expected, beat about all the neighbouring fields, without any certain view or design, in hopes their good fortune will at last guide them to what they search for. 'Tis necessary for us to leave the direct survey of this question concerning the nature of that *necessary connexion*, which enters into our idea of cause and effect; and endeavour to find some other questions, the examination of which will perhaps afford a hint, that may serve to clear up the present difficulty. Of these questions there occur two, which I shall proceed to examine, *viz.*

First, For what reason we pronounce it *necessary*, that every thing whose existence has a beginning, shou'd also have a cause?

Secondly, Why we conclude, that such particular causes must *necessarily* have such particular effects; and what is the nature of that *inference* we draw from the one to the other, and of the *belief* we repose in it?

I shall only observe before I proceed any farther, that tho' the ideas of cause and effect be deriv'd from the impressions of reflection as well as from those of sensation, yet for brevity's sake, I commonly mention only the latter as the origin of these ideas; tho' I desire that whatever I say of them may also extend to the former. Passions are connected with their objects and with one another; no less than external bodies are connected together. The same relation, then, of cause and effect, which belongs to one, must be common to all of them.

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1. Part IV. sect. 5.

Section III. Why a cause is always necessary?

To begin with the first question concerning the necessity of a cause: 'Tis a general maxim in philosophy, that *what-ever* begins to exist, must have a cause of existence. This is commonly taken for granted in all reasonings, without any proof given or demanded 'Tis suppos'd to be founded on intuition, and to be one of those maxims, which tho' they may be deny'd with the lips, 'tis impossible for men in their hearts really to doubt of. But if we examine this maxim by the idea of knowledge above—explain'd, we shall discover in it no mark of any such intuitive certainty; but on the contrary shall find, that 'tis of a nature quite foreign to that species of conviction.

All certainty arises from the comparison of ideas, and from the discovery of such relations as are unalterable, so long as the ideas continue the same. These relations are *resemblance, proportions in quantity and number, degrees of any quality, and contrariety*; none of which are imply'd in this proposition, *Whatever has a beginning has also a cause of existence.* That proposition therefore is not intuitively certain. At least any one, who wou'd assert it to be intuitively certain, must deny these to be the only infallible relations, and must find some other relation of that kind to be imply'd in it; which it will then be time enough to examine.

But here is an argument, which proves at once, that the foregoing proposition is neither intuitively nor demonstrably certain. We can never demonstrate the necessity of a cause to every new existence, or new modification of existence, without shewing at the same time the impossibility there is, that any thing can ever begin to exist without some productive principle; and where the latter proposition cannot be prov'd, we must despair of ever being able to prove the former. Now that the latter proposition is utterly incapable of a demonstrative proof, we may satisfy ourselves by considering, that as all distinct ideas are separable from each other, and as the ideas of cause and effect are evidently distinct, 'twill be easy for us to conceive any object to be non-existent this moment, and existent the next, without conjoining to it the distinct idea of a cause or productive principle. The separation, therefore, of the idea of a cause from that of a beginning of existence, is plainly possible for the imagination; and consequently the actual separation of these objects is so far possible, that it implies no contradiction nor absurdity; and is therefore incapable of being refuted by any reasoning from mere ideas; without which 'tis impossible to demonstrate the necessity of a cause.

Accordingly we shall find upon examination, that every demonstration, which has been produc'd for the necessity of a cause, is fallacious and sophistical. All the points of time and place,[1] say some philosophers, in which we can suppose any object to begin to exist, are in themselves equal; and unless there be some cause, which is peculiar to one time and to one place, and which by that means determines and fixes the existence, it must remain in eternal suspence; and the object can never begin to be, for want of something to fix its beginning. But I ask; Is there any more difficulty in supposing the time and place to be fix'd without a cause, than to suppose the existence to be determin'd in that manner? The first question that occurs on this subject is always, *whether* the object shall exist or not: The next, *when* and *where* it shall begin to exist. If the removal of a cause be intuitively absurd in the one case, it must be so in the other: And if that absurdity be not clear without a proof in the one case, it will equally require one in the other. The absurdity, then, of the one supposition can never be a proof of that of the other; since they are both upon the same footing, and must stand or fall by the same reasoning.

The second argument,[2] which I find us'd on this head, labours under an equal difficulty. Every thing, 'tis said, must have a cause; for if any thing wanted a cause, *it* wou'd produce *itself*; that is, exist before it existed; which is impossible. But this reasoning is plainly inconclusive; because it supposes, that in our denial of a cause we still grant what we expresly deny, *vis.* that there must be a cause; which

therefore is taken to be the object itself; and *that*, no doubt, is an evident contradiction. But to say that any thing is produc'd, or to express myself more properly, comes into existence, without a cause, is not to affirm, that 'tis itself its own cause; but on the contrary in excluding all external causes, excludes *a fortiori* the thing itself which is created. An object, that exists absolutely without any cause, certainly is not its own cause; and when you assert, that the one follows from the other, you suppose the very point in question, and take it for granted, that 'tis utterly impossible any thing can ever begin to exist without a cause, but that upon the exclusion of one productive principle, we must still have recourse to another.

'Tis exactly the same case with the[3] third argument, which has been employ'd to demonstrate the necessity of a cause. Whatever is produc'd without any cause, is produc'd by *nothing*; or in other words, has nothing for its cause. But nothing can never be a cause, no more than it can be something, or equal to two right angles. By the same intuition, that we perceive nothing not to be equal to two right angles, or not to be something, we perceive, that it can never be a cause; and consequently must perceive, that every object has a real cause of its existence.

I believe it will not be necessary to employ many words in shewing the weakness of this argument, after what I have said of the foregoing. They are all of them founded on the same fallacy, and are deriv'd from the same turn of thought. 'Tis sufficient only to observe, that when we exclude all causes we really do exclude them, and neither suppose nothing nor the object itself to be the causes of the existence; and consequently can draw no argument from the absurdity of these suppositions to prove the absurdity of that exclusion. If every thing must have a cause, it follows, that upon the exclusion of other causes we must accept of the object itself or of nothing as causes. But 'tis the very point in question, whether every thing must have a cause or not; and therefore, according to all just reasoning, it ought never to be taken for granted.

They are still more frivolous, who say, that every effect must have a cause, because 'tis imply'd in the very idea of effect. Every effect necessarily pre-supposes a cause; effect being a relative term, of which cause is the correlative. But this does not prove, that every being must be preceded by a cause; no more than it follows, because every husband must have a wife, that therefore every man must be marry'd. The true state of the question is, whether every object, which begins to exist, must owe its existence to a cause; and this I assert neither to be intuitively nor demonstratively certain, and hope to have prov'd it sufficiently by the foregoing arguments.

Since it is not from knowledge or any scientific reasoning, that we derive the opinion of the necessity of a cause to every new production, that opinion must necessarily arise from observation and experience. The next question, then, shou'd naturally be, *how experience gives rise to such a principle?* But as I find it will be more convenient to sink this question in the following, *Why we conclude, that such particular causes must necessarily have such particular effects, and why we form an inference from one to another?* we shall make that the subject of our future enquiry. "Twill, perhaps, be found in the end, that the same answer will serve for both questions.

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1. Mr. *Hobbes*.
2. Dr *Clarke* and others.
3. Mr. *Locke*.

Section IV. Of the component parts of our reasonings concerning causes and effects

Tho' the mind in its reasonings from causes or effects carries its view beyond those objects, which it sees or remembers, it must never lose sight of them entirely, nor reason merely upon its own ideas, without some mixture of impressions, or at least of ideas of the memory, which are equivalent to impressions. When we infer effects from causes, we must establish the existence of these causes; which we have only two ways of doing, either by an immediate perception of our memory or senses, or by an inference from other causes; which causes again we must ascertain in the same manner, either by a present impression, or by an inference from *their* causes, and so on, till we arrive at some object, which we see or remember. 'Tis impossible for us to carry on our inferences *in infinitum*; and the only thing, that can stop them, is an impression of the memory or senses, beyond which there is no room for doubt or enquiry.

To give an instance of this, we may chuse any point of history, and consider for what reason we either believe or reject it. Thus we believe that Cæsar was kill'd in the senate-house on the *ides* of *March*; and that because this fact is establish'd on the unanimous testimony of historians, who agree to assign this precise time and place to that event. Here are certain characters and letters present either to our memory or senses; which characters we likewise remember to have been us'd as the signs of certain ideas; and these ideas were either in the minds of such as were immediately present at that action, and receiv'd the ideas directly from its existence; or they were deriv'd from the testimony of others, and that again from another testimony, by a visible gradation, till we arrive at those who were eye-witnesses and spectators of the event. 'Tis obvious all this chain of argument or connexion of causes and effects, is at first founded on those characters or letters, which are seen or remember'd, and that without the authority either of the memory or senses our whole reasoning wou'd be chimerical and without foundation. Every link of the chain wou'd in that case hang upon another; but there wou'd not be any thing fix'd to one end of it, capable of sustaining the whole; and consequently there wou'd be no belief nor evidence. And this actually is the case with all *hypothetical* arguments, or reasonings upon a supposition; there being in them, neither any present impression, nor belief of a real existence.

I need not observe, that 'tis no just objection to the present doctrine, that we can reason upon our past conclusions or principles, without having recourse to those impressions, from which they first arose. For even supposing these impressions shou'd be entirely effac'd from the memory, the conviction they produc'd may still remain; and 'tis equally true, that all reasonings concerning causes and effects are originally deriv'd from some impression; in the same manner, as the assurance of a demonstration proceeds always from a comparison of ideas, tho' it may continue after the comparison is forgot.

Section IX. Of the effect of other relations, and other habits

However convincing the foregoing arguments may appear, we must not rest contented with them, but must turn the subject on every side, in order to find some new points of view, from which we may illustrate and confirm such extraordinary, and such fundamental principles. A scrupulous hesitation to receive any new hypothesis is so laudable a disposition in philosophers, and so necessary to the

examination of truth, that it deserves to be comply'd with, and requires that every argument be produc'd, which may tend to their satisfaction, and every objection remov'd, which may stop them in their reasoning.

I have often observ'd, that, beside cause and effect, the two relations of resemblance and contiguity, are to be consider'd as associating principles of thought, and as capable of conveying the imagination from one idea to another. I have also observ'd, that when of two objects connected together by any of these relations, one is immediately present to the memory or senses, not only the mind is convey'd to its co-relative by means of the associating principle; but likewise conceives it with an additional force and vigour, by the united operation of that principle, and of the present impression. All this I have observ'd, in order to confirm by analogy, my explication of our judgments concerning cause and effect. But this very argument may perhaps, be turn'd against me, and instead of a confirmation of my hypothesis, may become an objection to it. For it may be said, that if all the parts of that hypothesis be true, *viz. that* these three species of relation are deriv'd from the same principles; *that* their effects in in forcing and inlivening our ideas are the same; and *that* belief is nothing but a more forcible and vivid conception of an idea; it shou'd follow, that that action of the mind may not only be deriv'd from the relation of cause and effect, but also from those of contiguity and resemblance. But as we find by experience, that belief arises only from causation, and that we can draw no inference from one object to another, except they be corrected by this relation, we may conclude, that there is some error in that reasoning, which leads us into such difficulties.

This is the objection; let us now consider its solution. 'Tis evident, that whatever is present to the memory, striking upon the mind with a vivacity, which resembles an immediate impression, must become of considerable moment in all the operations of the mind, and must easily distinguish itself above the mere fictions of the imagination. Of these impressions or ideas of the memory we form a kind of system, comprehending whatever we remember to have been present, either to our internal perception or senses; and every particular of that system join'd, to the present impressions, we are pleas'd to call a *reality*. But the mind stops not here. For finding, that with this system of perceptions, there is another connected by custom, or if you will, by the relation of cause or effect, it proceeds to the consideration of their ideas; and as it feels that 'tis in a manner necessarily determin'd to view these particular ideas, and that the custom or relation, by which it is determin'd, admits not of the least change, it forms them into a new system, which it likewise dignifies with the title of *realities*. The first of these systems is the object of the memory and senses; the second of the judgment.

'Tis this latter principle which peoples the world, and brings us acquainted with such existences, as by their removal in time and place, lie beyond the reach of the senses and memory. By means of it I paint the universe in my imagination, and fix my attention on any part of it I please. I form an idea of Rome, which I neither see nor remember; but which is connected with such impressions as I remember to have received from the conversation and books of travellers and historians. This idea of *Rome* I place in a certain situation on the idea of an object, which I call the globe. I join to it the conception of a particular government, and religion, and manners. I look backward and consider its first foundation; its several revolutions, successes, and misfortunes. All this, and every thing else, which I believe, are nothing but ideas; tho' by their force and settled order, arising from custom and the relation of cause and effect, they distinguish themselves from the other ideas, which are merely the offspring of the imagination.

As to the influence of contiguity and resemblance, we may observe, that if the contiguous and resembling object be comprehended in this system of realities, there is no doubt but these two relations

will assist that of cause and effect, and infix the related idea with more force in the imagination. This I shall enlarge upon presently. Mean while I shall carry my observation a step farther, and assert, that even where the related object is but feign'd, the relation will serve to enliven the idea, and encrease its influence. A poet, no doubt, will be the better able to form a strong description of the *Elysian* fields, that he prompts his imagination by the view of a beautiful meadow or garden; as at another time he may by his fancy place himself in the midst of these fabulous regions, that by the feign'd contiguity he may enliven his imagination.

But tho' I cannot altogether exclude the relations of resemblance and contiguity from operating on the fancy in this manner, 'tis observable that, when single, their influence is very feeble and uncertain. As the relation of cause and effect is requisite to persuade us of any real existence, so is this persuasion requisite to give force to these other relations. For where upon the appearance of an impression we not only feign another object, but likewise arbitrarily, and of our mere good-will and pleasure give it a particular relation to the impression, this can have but a small effect upon the mind; nor is there any reason, why, upon the return of the same impression, we shou'd be determin'd to place the same object in the same relation to it. There is no manner of necessity for the mind to feign any resembling and contiguous objects; and if it feigns such, there is as little necessity for it always to confine itself to the same, without any difference or variation. And indeed such a fiction is founded on so little reason, that nothing but pure *caprice* can determine the mind to form it; and that principle being fluctuating and uncertain, 'tis impossible it can ever operate with any considerable degree of force and constancy. The mind forsees and anticipates the change; and even from the very first instant feels the looseness of its actions, and the weak hold it has of its objects. And as this imperfection is very sensible in every single instance, it still encreases by experience and observation, when we compare the several instances we may remember, and form a *general rule* against the reposing any assurance in those momentary glimpses of light, which arise in the imagination from a feign'd resemblance and contiguity.

The relation of cause and effect has all the opposite advantages. The objects it presents are fixt and unalterable. The impressions of the memory never change in any considerable degree; and each impression draws along with it a precise idea, which takes its place in the imagination, as something solid and real, certain and invariable. The thought is always determin'd to pass from the impression to the idea, and from that particular impression to that particular idea, without any choice or hesitation.

But not content with removing this objection, I shall endeavour to extract from it a proof of the present doctrine. Contiguity and resemblance have an effect much inferior to causation; but still have some effect, and augment the conviction of any opinion, and the vivacity of any conception. If this can be prov'd in several new instances, beside what we have already observ'd, 'twill be allow'd no inconsiderable argument, that belief is nothing but a lively idea related to a present impression.

To begin with contiguity; it has been remark'd among the *Mahometans* as well as *Christians*, that those *pilgrims*, who have seen Mecca or the Holy Land are ever after more faithful and zealous believers, than those who have not had that advantage. A man, whose memory presents him with a lively image of the *Red-Sea, and the Desert, and Jerusalem, and Galilee*, can never doubt of any miraculous events, which are related either by *Moses or the Evangelists.* The lively idea of the places passes by an easy transition to the facts, which are suppos'd to have been related to them by contiguity, and encreases the belief by encreasing the vivacity of the conception. The remembrance of these fields and rivers has the same influence on the vulgar as a new argument; and from the same causes.

We may form a like observation concerning *resemblance*. We have remark'd, that the conclusion, which we draw from a present object to its absent cause or effect, is never founded on any qualities, which we observe in that object, consider'd in itself; or, in other words, that 'tis impossible to determine. otherwise than by experience, what will result from any phænomenon, or what has preceded it. But tho' this be so evident in itself, that it seem'd not to require any proof; yet some philosophers have imagin'd that there is an apparent cause for the communication of motion, and that a reasonable man might immediately infer the motion of one body from the impulse of another, without having recourse to any past observation. That this opinion is false will admit of an easy proof. For if such an inference may be drawn merely from the ideas of body, of motion, and of impulse, it must amount to a demonstration, and must imply the absolute impossibility of any contrary supposition. Every effect, then, beside the communication of motion, implies a formal contradiction; and 'tis impossible not only that it can exist, but also that it can be conceiv'd. But we may soon satisfy ourselves of the contrary, by forming a clear and consistent idea of one body's moving upon another, and of its rest immediately upon the contact; or of its returning back in the same line, in which it came; or of its annihilation; or circular or elliptical motion: and in short, of an infinite number of other changes, which we may suppose it to undergo. These suppositions are all consistent and natural; and the reason, why we imagine the communication of motion to be more consistent and natural not only than those suppositions, but also than any other natural effect, is founded on the relation of *resemblance* betwixt the cause and effect, which is here united to experience, and binds the objects in the closest and most intimate manner to each other, so as to make us imagine them to be absolutely inseparable. Resemblance, then, has the same or a parallel influence with experience; and as the only immediate effect of experience is to associate our ideas together, it follows, that all belief arises from the association of ideas, according to my hypothesis.

'Tis universally allow'd by the writers on optics, that the eye at all times sees an equal number of physical points, and that a man on the top of a mountain has no larger an image presented to his senses, than when he is cooped up in the narrowest court or chamber. 'Tis only by experience that he infers the greatness of the object from some peculiar qualities of the image; and this inference of the judgment he confounds with sensation, as is common on other occasions. Now 'tis evident, that the inference of the judgment is here much more lively than what is usual in our common reasonings, and that a man has a more vivid conception of the vast extent of the ocean from the image he receives by the eye, when he stands on the top of the high promontory, than merely from hearing the roaring of the waters. He feels a more sensible pleasure from its magnificence; which is a proof of a more lively idea: And he confounds his judgment with sensation; which is another proof of it. But as the inference is equally certain and immediate in both cases, this superior vivacity of our conception in one case can proceed from nothing but this, that in drawing an inference from the sight, beside the customary conjunction, there is also a resemblance betwixt the image and the object we infer; which strengthens the relation, and conveys the vivacity of the impression to the related idea with an easier and more natural movement.

No weakness of human nature is more universal and conspicuous than what we commonly call Credulity, or a too easy faith in the testimony of others; and this weakness is also very naturally accounted for from the influence of resemblance. When we receive any matter of fact upon human testimony, our faith arises from the very same origin as our inferences from causes to effects, and from effects to causes; nor is there any thing but our *experience* of the governing principles of human nature, which can give us any assurance of the veracity of men. But tho' experience be the true standard of this, as well as of all other judgments, we seldom regulate ourselves entirely by it; but have a remarkable propensity to believe whatever is reported, even concerning apparitions, enchantments,

and prodigies, however contrary to daily experience and observation. The words or discourses of others have an intimate connexion with certain ideas in their mind; and these ideas have also a connexion with the facts or objects, which they represent. This latter connexion is generally much over-rated, and commands our assent beyond what experience will justify; which can proceed from nothing beside the resemblance betwixt the ideas and the facts. Other effects only point out their causes in an oblique manner; but the testimony of men does it directly, and is to be consider'd as an image as well as an effect. No wonder, therefore, we are so rash in drawing our inferences from it, and are less guided by experience in our judgments concerning it, than in those upon any other subject.

As resemblance, when conjoin'd with causation, fortifies our reasonings; so the want of it in any very great degree is able almost entirely to destroy them. Of this there is a remarkable instance in the universal carelessness and stupidity of men with regard to a future state, where they show as obstinate an incredulity, as they do a blind credulity on other occasions. There is not indeed a more ample matter of wonder to the studious, and of regret to the pious man, than to observe the negligence of the bulk of mankind concerning their approaching condition; and 'tis with reason, that many eminent theologians have not scrupled to affirm, that tho' the vulgar have no formal principles of infidelity, yet they are really infidels in their hearts, and have nothing like what we can call a belief of the eternal duration of their souls. For let us consider on the one hand what divines have display'd with such eloquence concerning the importance of eternity; and at the same time reflect, that tho' in matters of rhetoric we ought to lay our account with some exaggeration, we must in this case allow, that the strongest figures are infinitely inferior to the subject: And after this let us view on the other hand the prodigious security of men in this particular: I ask, if these people really believe what is inculcated on them, and what they pretend to affirm; and the answer is obviously in the negative. As belief is an act of the mind arising from custom, 'tis not strange the want of resemblance shou'd overthrow what custom has establish'd, and diminish the force of the idea, as much as that latter principle encreases it. A future state is so far remov'd from our comprehension, and we have so obscure an idea of the manner, in which we shall exist after the dissolution of the body, that all the reasons we can invent, however strong in themselves, and however much assisted by education, are never able with slow imaginations to surmount this difficulty, or bestow a sufficient authority and force on the idea. I rather choose to ascribe this incredulity to the faint idea we form of our future condition, deriv'd from its want of resemblance to the present life, than to that deriv'd from its remoteness. For I observe, that men are every where concern'd about what may happen after their death, provided it regard this world; and that there are few to whom their name, their family, their friends, and their country are in any period of time entirely indifferent.

And indeed the want of resemblance in this case so entirely destroys belief, that except those few, who upon cool reflection on the importance of the subject, have taken care by repeated meditation to imprint in their minds the arguments for a future state, there scarce are any, who believe the immortality of the soul with a true and establish'd judgment; such as is deriv'd from the testimony of travellers and historians. This appears very conspicuously wherever men have occasion to compare the pleasures and pains, the rewards and punishments of this life with those of a future; even tho' the case does not concern themselves, and there is no violent passion to disturb their judgment. The *Roman Catholicks* are certainly the most zealous of any sect in the christian world; and yet you'll find few among the more sensible people of that communion, who do not blame the *Gunpowder-treason,* and the massacre of St. *Bartholomew,* as cruel and barbarous, tho' projected or executed against those very people, whom without any scruple they condemn to eternal and infinite punishments. All we can say in excuse for this inconsistency is, that they really do not believe what they affirm concerning a future state; nor is there any better proof of it than the very inconsistency.

We may add to this a remark; that in matters of religion men take a pleasure in being terrify'd, and that no preachers are so popular, as those who excite the most dismal and gloomy passions. In the common affairs of life, where we feel and are penetrated with the solidity of the subject, nothing can be more disagreeable than fear and terror; and 'tis only in dramatic performances and in religious discourses, that they ever give pleasure. In these latter cases the imagination reposes itself indolently on the idea; and the passion, being soften'd by the want of belief in the subject, has no more than the agreeable effect of enlivening the mind, and fixing the attention.

The present hypothesis will receive additional confirmation, if we examine the effects of other kinds of custom, as well as of other relations. To understand this we must consider, that custom, to which I attribute all belief and reasoning, may operate upon the mind in invigorating an idea after two several ways. For supposing that in all past experience we have found two objects to have been always conjoin'd together, 'tis evident, that upon the appearance of one of these objects in an impression, we must from custom make an easy transition to the idea of that object, which usually attends it; and by means of the present impression and easy transition must conceive that idea in a stronger and more lively manner, than we do any loose floating image of the fancy. But let us next suppose, that a mere idea alone, without any of this curious and almost artificial preparation, shou'd frequently make its appearance in the mind, this idea must by degrees acquire a facility and force; and both by its firm hold and easy introduction distinguish itself from any new and unusual idea. This is the only particular, in which these two kinds of custom agree; and if it appear, that their effects on the judgment are similar and proportion able, we may certainly conclude, that the foregoing explication of that faculty is satisfactory. But can we doubt of this agreement in their influence on the judgment, when we consider the nature and effects of education?

All those opinions and notions of things, to which we have been accustom'd from our infancy, take such deep root, that 'tis impossible for us, by all the powers of reason and experience, to eradicate them; and this habit not only approaches in its influence, but even on many occasions prevails over that which arises from the constant and inseparable union of causes and effects. Here we must not be contented with saying, that the vividness of the idea produces the belief: We must maintain that they are individually the same. The frequent repetition of any idea infixes it in the imagination; but cou'd never possibly of itself produce belief; if that act of the mind was, by the original constitution of our natures, annex'd only to a reasoning and comparison of ideas. Custom may lead us into some false comparison of ideas. This is the utmost effect we can conceive of it. But 'tis certain it cou'd never supply the place of that comparison, nor produce any act of the mind, which naturally belong'd to that principle.

A person, that has lost a leg or an arm by amputation, endeavours for a long time afterwards to serve himself with them. After the death of any one, 'tis a common remark of the whole family, but especially of the servants, that they can scarce believe him to be dead, but still imagine him to be in his chamber or in any other place, where they were accustom'd to find him. I have often heard in conversation, after talking of a person, that is any way celebrated, that one, who has no acquaintance with him, will say, *I have never seen such-a-one, but almost fancy I have; so often have I heard talk talk of him.* All these are parallel instances.

If we consider this argument from *education* in a proper light, 'twill appear very convincing; and the more so, that 'tis founded on one of the most common phænomena, that is any where to be met with. I am persuaded, that upon examination we shall find more than one half of those opinions, that prevail among mankind, to be owing to education, and that the principles, which are thus implicitly embrac'd,

over-ballance those, which are owing either to abstract reasoning or experience. As liars, by the frequent repetition of their lies, come at last to remember them; so the judgment, or rather the imagination, by the like means, may have ideas so strongly imprinted on it, and conceive them in so full a light, that they may operate upon the mind in the same manner with those, which the senses, memory or reason present to us. But as education is an artificial and not a natural cause, and as its maxims are frequently contrary to reason, and even to themselves in different times and places, it is never upon that account recogniz'd by philosophers; tho' in reality it be built almost on the same foundation of custom and repetition as our reasonings from ca ses and effects[1] .

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1. In general we may observe, that as our assent to all probable reasonings on the vivacity of ideas, it resembles many of those whimsies and prejudices, which are rejected under the opprobrious character of being the offspring of the imagination. By this expression it appears that the word, imagination, is commonly us'd in two different senses; and tho' nothing be more contrary to true philosophy, than this inaccuracy, yet in the following reasonings I have often been oblig'd to fall into it. When I oppose the imagination to the memory, I mean the faculty, by which we form our fainter ideas. When I oppose it to reason, I mean the same faculty, excluding only our demonstrative and probable reasonings. When I oppose it to neither, 'tis indifferent whether it be taken the larger or more limited sense, or at least the context will sufficiently explain the meaning.

Section V. Of the impressions of the senses and memory

In this kind of reasoning, then, from causation, we employ materials, which are of a mix'd and heterogeneous nature, and which, however connected, are yet essentially different from each other. All our arguments concerning causes and effects consist both of an impression of the memory or senses, and of the idea of that existence, which produces the object of the impression, or is produc'd by it. Here therefore we have three things to explain, *viz. First*, The original impression. *Secondly*, The transition to the idea of the connected cause or effect. *Thirdly*, The nature and qualities of that idea.

As to those *impressions*, which arise from the senses, their ultimate cause is, in my opinion, perfectly inexplicable by human reason, and 'twill always be impossible to decide with certainty, whether they arise immediately from the object, or are produc'd by the reative power of the mind, or are deriv'd from the author of our being. Nor is such a question any way material to our present purpose. We may draw inferences from the coherence of our perceptions, whether they be true or false; whether they represent nature justly, or be mere illusions of the senses.

When we search for the characteristic, which distinguishes the *memory* from the imagination, we must immediately perceive, that it cannot lie in the simple ideas it presents to us; since both these faculties borrow their simple ideas from the impressions, and can never go beyod these original perceptions. These faculties ar as little distinguish'd from each other by the arrangement of their complex ideas. For tho' it be a peculiar property of the memory to preserve the original order and position of its ideas, while the imagination transposes and changes them, as it pleases; yet this difference is not sufficient to distinguish them in their operation, or make us know the one from the other; it being impossible to recal the past impressions, in order to compare them with our present ideas, and see whether their arrangement be exactly similar. Since therefore the memory is known, neither by the order of its *complex* ideas, nor the nature of its *simple* ones; it follows, that the difference betwixt it and the

imagination lies in its superior force and vivacity. A man may indulge his fancy in feigning any past scene of adventures; nor wou'd there be any possibility of distinguishing this from a remembrance of a like kind, were not the ideas of the imagination fainter and more obscure.

A painter, who intended to represent a passion or emotion of any kind, wou'd endeavour to get a sight of a person actuated by a like emotion, in order to enliven his ideas, and give them a force and vivacity superior to what is found in those, which are mere fictions of the imagination. The more recent this memory is, the clearer is the idea; and when after a long interval he would return to the contemplation of his object, he always finds its idea to be much decay'd, if not wholly obliterated. We are frequently in doubt concerning the ideas of the memory, as they become very weak and feeble; and are at a loss to determine whether any image proceeds from the fancy or the memory, when it is not drawn in such lively colours as distinguish that latter faculty. I think, I remember such an event, says one; but am not sure. A long tract of time has almost worn it out of my memory, and leaves me uncertain whether or not it be the pure offspring of my fancy.

And as an idea of the memory, by losing its force and vivacity, may degenerate to such a degree, as to be taken for an idea of the imagination; so on the other hand an idea of the imagination may acquire such a force and vivacity, as to pass for an idea of the memory, and counterfeit its effects on the belief and judgment. This is noted in the case of liars; who by the frequent repetition of their lies, come at last to believe and remember them, as realities; custom and habit having in this case, as in many others, the same influence on the mind as nature, and infixing the idea with equal force and vigour.

Thus it appears, that the *belief* or *assent*, which always attends the memory and senses, is nothing but the vivacity of those perceptions they present; and that this alone distinguishes them from the imagination. To believe is in this case to feel an immediate impression of the senses, or a repetition of that impression in the memory. 'Tis merely the force and liveliness of the perception, which constitutes the first act of the judgment, and lays the foundation of that reasoning, which we build upon it, when we trace the relation of cause and effect.

Section VI. Of the inference from the impression to the idea

'Tis easy to observe, that in tracing this relation, the inference we draw from cause to effect, is not deriv'd merely from a survey of these particular objects, and from such a penetration into their essences as may discover the dependence of the one upon the other. There is no object, which implies the existence of any other if we consider these objects in themselves, and never look beyond the ideas which we form of them. Such an inference wou'd amount to knowledge, and wou'd imply the absolute contradiction and impossibility of conceiving any thing different. But as all distinct ideas are separable, 'tis evident there can be no impossibility of that kind. When we pass from a present impression to the idea of any object, we might possibly have separated the idea from the impression, and have substituted any other idea in its room.

'Tis therefore by experience only, that we can infer the existence of one object from that of another. The nature of experience is this. We remember to have had frequent instances of the existence of one species of objects; and also remember, that the individuals of another species of objects have always attended them, and have existed in a regular order of contiguity and succession with regard to them.

Thus we remember to have seen that species of object we call *flame*, and to have felt that species of sensation we call *heat*. We likewise call to mind their constant conjunction in all past instances. Without any farther ceremony, we call the one *cause* and the other *effect*, and infer the existence of the one from that of the other. In all those instances, from which we learn the conjunction of particular causes and effects, both the causes and effects have been perceiv'd by the senses, and are remember'd: But in all cases, wherein we reason concerning them, there is only one perceiv'd or remember'd, and the other is supply'd in conformity to our past experience.

Thus in advancing we have insensibly discover'd a new relation betwixt cause and effect, when we least expected it, and were entirely employ'd upon another subject. This relation is their constant conjunction. Contiguity and succession are not sufficient to make us pronounce any two objects to be cause and effect, unless we perceive, that these two relations are preserv'd in several instances. We may now see the advantage of quitting the direct survey of this relation, in order to discover the nature of that *necessary connexion*, which makes so essential a part of it. There are hopes, that by this means we may at last arrive at our propos'd end; tho' to tell the truth, this new-discover'd relation of a constant conjunction seems to advance us but very little in our way. For it implies no more than this, that like objects have always been plac'd in like relations of contiguity and succession; and it seems evident, at least at first sight, that by this means we can never discover any new idea, and can only multiply, but not enlarge the objects of our mind. It may be thought, that what we learn not from one object, we can never learn from a hundred, which are all of the same kind, and are perfectly resembling in every circumstance. As our senses shew us in one instance two bodies, or motions, or qualities in certain relations of succession and contiguity; so our memory presents us only with a multitude of instances, wherein we always find like bodies, motions, or qualities in like relations. From the mere repetition of any past impression, even to infinity, there never will arise any new original idea, such as that of a necessary connexion; and the number of impressions has in this case no more effect than if we confin'd ourselves to one only. But tho' this reasoning seems just and obvious; yet as it wou'd be folly to despair too soon, we shall continue the thread of our discourse; and having found, that after the discovery of the constant conjunction of any objects, we always draw an inference from one object to another, we shall now examine the nature of that inference, and of the transition from the impression to the idea. Perhaps 'twill appear in the end, that the necessary connexion depends on the inference, instead of the inference's depending on the necessary connexion. Since it appears, that the transition from an impression present to the memory or senses to the idea of an object, which we call cause or effect, is founded on past *experience*, and on our remembrance of their *constant conjunction*, the next question is, Whether experience produces the idea by means of the understanding or of the imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions. If reason determin'd us, it wou'd proceed upon that principle, *that instances, of which we have had no experience, must resemble those, of which we have had experience, and that the course of nature continues always uniformly the same.* In order therefore to clear up this matter, let us consider all the arguments, upon which such a proposition may be suppos'd to be founded; and as these must be deriv' d either from *knowledge* or *probability*, let us cast our eye on each of these degrees of evidence, and see whether they afford any just conclusion of this nature.

Our foregoing method of reasoning will easily convince us, that there can be no *demonstrative* arguments to prove, *that those instances, of which we have had no experience,* resemble those, of which we have had experience. *We can at* least conceive a change in the course of nature; which sufficiently proves, that such a change is not absolutely impossible. To form a clear idea of any thing, is an undeniable argument for its possibility, and is alone a refutation of any pretended demonstration against it.

Probability, as it discovers not the relations of ideas, consider'd as such, but only those of objects, must in some respects be founded on the impressions of our memory and senses, and in some respects on our ideas. Were there no mixture of any impression in our probable reasonings, the conclusion wou'd be entirely chimerical: And were there no mixture of ideas, the action of the mind, in observing the relation, wou'd, properly speaking, be sensation, not reasoning. 'Tis therefore necessary, that in all probable reasonings there be something present to the mind, either seen or remember'd; and that from this we infer something connected with it, which is not seen nor remember'd.

The only connexion or relation of objects, which can lead us beyond the immediate impressions of our memory and senses, is that of cause and effect; and that because 'tis the only one, on which we can found a just inference from one object to another. The idea of cause and effect is deriv'd from *experience*, which informs us, that such particular objects, in all past instances, have been constantly conjoin'd with each other: And as an object similar to one of these is suppos'd to be immediately present in its impression, we thence presume on the existence of one similar to its usual attendant. According to this account of things, which is, I think, in every point unquestionable, probability is founded on the presumption of a resemblance betwixt those objects, of which we have had experience, and those, of which we have had none; and therefore 'tis impossible, this presumption can arise from probability. The same principle cannot be both the cause and effect of another; and this is, perhaps, the only proposition concerning that relation, which is either intuitively or demonstratively certain.

Shou'd any one think to elude this argument; and without determining whether our reasoning on this subject be deriv'd from demonstration or probability, pretend that all conclusions from causes and effects are built on solid reasoning: I can only desire, that this reasoning may be produc'd, in order to be expos'd to our examination. It may, perhaps, be said, that after experience of the constant conjunction of certain objects, we reason in the following manner. Such an object is always found to produce another. 'Tis impossible it cou'd have this effect, if it was not endow'd with a power of production. The power necessarily implies the effect; and therefore there is a just foundation for drawing a conclusion from the existence of one object to that of its usual attendant. The past production implies a power: The power implies a new production: And the new production is what we infer from the power and the past production.

'Twere easy for me to shew the weakness of this reasoning, were I willing to make use of those observations I have already made, that the idea of *production* is the same with that of *causation*, and that no existence certainly and demonstratively implies a power in any other object; or were it proper to anticipate what I shall have occasion to remark afterwards concerning the idea we form of *power* and *efficacy*. But as such a method of proceeding may seem either to weaken my system, by resting one part of it on another, or to breed a confusion in my reasoning, I shall endeavour to maintain my present assertion without any such assistance.

It shall therefore be allow'd for a moment, that the production of one object by another in any one instance implies a power; and that this power is connected with its effect. But it having been already prov'd, that the power lies not in the sensible qualities of the cause; and there being nothing but the sensible qualities present to us; I ask, why in other instances you presume that the same power still exists, merely upon the appearance of these qualities? Your appeal to past experience decides nothing in the present case; and at the utmost can only prove, that that very object, which produc'd any other, was at that very instant endow'd with such a power; but can never prove, that the same power must continue in the same object or collection of sensible qualities; much less, that a like power is always conjoin'd with like sensible qualities. Shou'd it be said, that we have experience, that the same power

continues united with the same object, and that like objects are endow'd with like powers, I wou'd renew my question, *why from these experience we form any conclusion beyond those past instances, of which we have had experience.* If you answer this question in the same manner as the preceding, your answer gives still occasion to a new question of the same kind, even *in infinitum*; which clearly proves, that the foregoing reasoning had no just foundation.

Thus not only our reason fails us in the discovery of the *ultimate connexion* of causes and effects, but even after experience has inform'd us of their *constant conjunction*, 'tis impossible for us to satisfy ourselves by our reason, why we shou'd extend that experience beyond those particular instances, which have fallen under our observation. We suppose, but are never able to prove, that there must be a resemblance betwixt those objects, of which we have had experience, and those which lie beyond the reach of our discovery.

We have already taken notice of certain relations, which make us pass from one object to another, even tho' there be no reason to determine us to that transition; and this we may establish for a general rule, that wherever the mind constantly and uniformly makes a transition without any reason, it is influenc'd by these relations. Now this is exactly the present case. Reason can never shew us the connexion of one object with another, tho' aided by experience, and the observation of their constant conjunction in all past instances. When the mind, therefore, passes from the idea or impression of one object to the idea or belief of another, it is not determin'd by reason, but by certain principles, which associate together the ideas of these objects, and unite them in the imagination. Had ideas no more union in the fancy than objects seem to have to the understanding, we cou'd never draw any inference from causes to effects, nor repose belief in any matter of fact. The inference, therefore, depends solely on the union of ideas.

The principles of union among ideas I have reduc'd to three general ones, and have asserted, that the idea or impression of any object naturally introduces the idea of any other object, that is resembling, contiguous to, or connected with it. These principles I allow to be neither the *infallible* nor the *sole* causes of an union among ideas. They are not the infallible causes. For one may fix his attention during some time on any one object without looking farther. They are not the sole causes. For the thought has evidently a very irregular motion in running along its objects, and may leap from the heavens to the earth, from one end of the creation to the other, without any certain method or order. But tho' I allow this weakness in these three relations, and this irregularity in the imagination; yet I assert that the only *general* principles, which associate ideas, are resemblance, contiguity and causation.

There is indeed a principle of union among ideas, which at first sight may be esteem'd different from any of these, but will be found at the bottom to depend on the same origin. When ev'ry individual of any species of objects is found by experience to be constantly united with an individual of another species, the appearance of any new individual of either species naturally conveys the thought to its usual attendant. Thus because such a particular idea is commonly annex'd to such a particular word, nothing is requir'd but the hearing of that word to produce the correspondent idea; and 'twill scarce be possible for the mind, by its utmost efforts, to prevent that transition. In this case it is not absolutely necessary, that upon hearing such a particular sound, we shou'd reflect on any past experience, and consider what idea has been usually connected with the sound. The imagination of itself supplies the place of this reflection, and is so accustom'd to pass from the word to the idea, that it interposes not a moment's delay betwixt the hearing of the one, and the conception of the other.

But tho' I acknowledge this to be a true principle of association among ideas, I assert it to be the very same with that betwixt the ideas of cause and effect, and to be an essential part in all our reasonings from that relation. We have no other notion of cause and effect, but that of certain objects, which have been *always conjoin'd* together, and which in all past instances have been found inseparable. We cannot penetrate into the reason of the conjunction. We only observe the thing itself, and always find that from the constant conjunction the objects acquire an union in the imagination. When the impression of one becomes present to us, we immediately form an idea of its usual attendant; and consequently we may establish this as one part of the definition of an opinion or belief, that 'tis *an idea related to or associated with a present impression.*

Thus tho' causation be a *philosophical* relation, as implying contiguity, succession, and constant conjunction, yet 'tis only so far as it is a *natural* relation, and produces an union among our ideas, that we are able to reason upon it, or draw any inference from it.

Section VII. Of the nature of the idea, or belief

The idea of an object is an essential part pf the belief of it, but not the whole. We conceive many things, which we do not believe. In order then to discover more fully the nature of belief, or the qualities of those ideas we assent to, let us weigh the following considerations.

'Tis evident, that all reasonings from causes or effects terminate in conclusions, concerning matter of fact; that is, concerning the existence of objects or of their qualities. 'Tis also evident, that the idea of existence is nothing different from the idea of any object, and that when after the simple conception of any thing we wou'd conceive it as existent, we in reality make no addition to or alteration on our first idea. Thus when we affirm, that God is existent, we simply form the idea of such a being, as he is represented to us; nor is the existence, which we attribute to him, conceiv'd by a particular idea, which we join to the idea of his other qualities, and can again separate and distinguish from them. But I go farther; and not content with asserting, that the conception of the existence of any object is no addition to the simple conception of it, I likewise maintain, that the belief of the existence joins no new ideas to those, which compose the idea of the object. When I think of God, when I think of him as existent, and when I believe him to be existent, my idea of him neither encreases nor diminishes. But as 'tis certain there is a great difference betwixt the simple conception of the existence of an object, and the belief of it, and as this difference lies not in the parts or composition of the idea, which we conceive; it follows, that it must lie in the manner, in which we conceive it.

Suppose a person present with me, who advances propositions, to which I do not assent, *that* Cæsar *dy'd in his bed, that silver is more fusible than lead, or mercury heavier than gold;* 'tis evident, that notwithstanding my incredulity, I clearly understand his meaning, and form all the same ideas, which he forms. My imagination is endow'd with the same powers as his; nor is it possible for him to conceive any idea, which I cannot conceive; or conjoin any, which I cannot conjoin. I therefore ask, Wherein consists the difference betwixt believing and disbelieving any proposition? The answer is easy with regard to propositions, that are prov'd by intuition or demonstration. In that case, the person, who assents, not only conceives the ideas according to the proposition, but is necessarily determin'd to conceive them in that particular manner, either immediately or by the interposition of other ideas. Whatever is absurd is unintelligible; nor is it possible for the imagination to conceive any thing contrary to a demonstration. But as in reasonings from causation, and concerning matters of fact, this absolute necessity cannot take place, and the imagination is free to conceive both sides of the question,

I still ask, *Wherein consists the difference betwixt incredulity and belief?* since in both cases the conception of the idea is equally possible and requisite.

'Twill not be a satisfactory answer to say, that a person, who does not assent to a proposition you advance; after having conceiv'd the object in the same manner with you; immediately conceives it in a different manner, and has different ideas of it. This answer is unsatisfactory; not because it contains any falsehood, but because it discovers not all the truth. 'Tis confest, that in all cases, wherein we dissent from any person, we conceive both sides of the question; but as we can believe only one, it evidently follows, that the belief must make some difference betwixt that conception to which we assent, and that from which we dissent. We may mingle, and unite, and separate, and confound, and vary our ideas in a hundred different ways; but 'till there appears some principle, which fixes one of these different situations, we have in reality no opinion: And this principle, as it plainly makes no addition to our precedent ideas, can only change the *manner* of our conceiving them.

All the perceptions of the mind are of two kinds, *viz.* impressions and ideas, which differ from each other only in their different degrees of force and vivacity. Our ideas are copy'd from our impressions, and represent them in all their parts. When you wou'd any way vary the idea of a particular object, you can only encrease or diminish its force and vivacity. If you make any other change on it, it represents a different object or impression. The case is the same as in colours. A particular shade of any colour may acquire a new degree of liveliness or brightness without any other variation. But when you produce any other variation, 'tis no longer the same shade or colour. So that as belief does nothing but vary the manner, in which we conceive any object, it can only bestow on our ideas an additional force and vivacity. An opinion, therefore, or belief may be most accurately defin'd, A lively idea related to or associated with a present impression[1] .

Here are the heads of those arguments, which lead us to this conclusion. When we infer the existence of an object from that of others, some object must always be present either to the memory or senses, in order to be the foundation of our reasoning; since the mind cannot run up with its inferences *in infinitum*. Reason can never satisfy us that the existence of any one object does ever imply that of another; so that when we pass from the impression of one to the idea or belief of another, we are not determin'd by reason, but by custom or a principle of association. But belief is somewhat more than a simple idea. 'Tis a particular manner of forming an idea: And as the same idea can only be vary'd by a variation of its degrees of force and vivacity; it follows upon the whole, that belief is a lively idea produc'd by a relation to a present impression, according to the foregoing definition.

This definition will also be found to be entirely conformable to every one's feeling and experience. Nothing is more evident, than that those ideas, to which we assent, are more strong, firm and vivid, than the loose reveries of a castle builder. If one person sits down to read a book as a romance, and another as a true history, they plainly receive

the same ideas, and in the same order; nor does the incredulity of the one, and the belief of the other hinder them from putting the very same sense upon their author. His words produce the same ideas in both; tho' his testimony has not the same influence on them. The latter has a more lively conception of all the incidents. He enters deeper into the concerns of the persons: represents to himself their actions, and characters, and friendships, and enmities: He even goes so far as to form a notion of their features, and air, and person. While the former, who gives no credit to the testimony of the author, has a more faint and languid conception of all these particulars; and except on account of the style and ingenuity

of the composition, can receive little entertainment from it.

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1. We may here take occasion to observe a very remarkable error, which being frequently inculcated in the schools, has become a kind of establish'd maxim, and is universally received by all logicians. This error consists in the vulgar division of the acts of the understanding, into *conception*, *judgment* and *reasoning*, and in the definitions we give of them. Conception is defin'd to be the simple survey of one or more ideas: Judgment to be the separating or uniting of different ideas: Reasoning to be the separating or uniting of different ideas by the interposition of others, which show the relation they bear to each other. But these distinctions and definitions are faulty in very considerable articles. For *first*, 'tis far from being true, that in every judgment, which we form, we unite two different ideas; since in that proposition, *God is*, or indeed any other, which regards existence, the idea of existence is no distinct idea, which we unite with that of the object, and which is capable of forming a compound idea by the union. *Secondly*, As we can thus form a proposition, which contains only one idea, so we may exert our reason without employing more than two ideas, and without having recourse to a third to serve as a medium betwixt them. We infer a cause immediately from its effect; and this inference is not only a true species of reasoning, but the strongest of all others, and more convincing than when we interpose another idea to connect the two extremes. What we may in general affirm concerning these three acts of the understanding is, that taking them in a proper light, they all resolve themselves into the first, and are nothing but particular ways of conceiving our objects. Whether we consider a single object, or several; whether we dwell on these objects, or run from them to others; and in whatever form or order we survey them, the act of the mind exceeds not a simple conception; and the only remarkable difference, which occurs on this occasion, is, when we join belief to the conception, and are perswaded of the truth of what we conceive. This act of the mind has never yet been explain'd by any philosopher; and therefore I am at liberty to propose my hypothesis concerning it; which is, that 'tis only a strong and steady conception of any idea, and such as approaches in some measure to an immediate impression.

Section VIII. Of the causes of belief

Having thus explain'd the nature of belief; and shewn that it consists in a lively idea related to a present impression; let us now proceed to examine from what principles it is deriv'd, and what bestows the vivacity on the idea.

I wou'd willingly establish it as a general maxim in the science of human nature, *that when any impression becomes present to us, it not only transports the mind to such ideas as are related to it, but likewise communicates to them a share of its force and vivacity.* All the operations of the mind depend in a great measure on its disposition, when it performs them; and according as the spirits are more or less elevated, and the attention more or less fix'd, the action will always have more or less vigour and vivacity. When therefore any object is presented, which elevates and enlivens the thought, every action, to which the mind applies itself, will be more strong and vivid, as long as that disposition continues. Now 'tis evident the continuance of the disposition depends entirelyon the objects, about which the mind is employ'd; and that any new object naturally gives a new direction to the spirits, and changes the disposition; as on the contrary, when the mind fixes constantly on the same object, or passes easily and insensibly along related objects, the disposition has a much longer duration. Hence it happens, that when the mind is once inliven'd by a present impression, it proceeds to form a more lively idea of the related objects, by a natural transition of the disposition from the one to the other. The change of the objects is so easy, that the mind is scarce sensible of it, but applies itself to the conception of the related idea with all the force and vivacity it acquir'd from the present impression.

If in considering the nature of relation, and that facility of transition, which is essential to it, we can satisfy ourselves concerning the reality of this phænomenon, 'tis well: But I must confess I place my

chief confidence in experience to prove so material a principle. We may, therefore, observe, as the first experiment to our present purpose, that upon the appearance of the picture of an absent friend, our idea of him is evidently inliven'd by the *resemblance*, and that every passion, which that idea occasions, whether of joy or sorrow, acquires new force and vigour. In producing this effect there concur both a relation and a present impression. Where the picture bears him no resemblance, or at least was not intended for him, it never so much as conveys our thought to him: And where it is absent, as well as the person; tho' the mind may pass from the thought of the one to that of the other; it feels its idea to be rather weaken'd than inliven'd by that transition. We take a pleasure in viewing the picture of a friend, when 'tis set before us; but when 'tis remov'd, rather choose to consider him directly, than by reflexion in an image, which is equally distant and obscure.

The ceremonies of the *Roman Catholic* religion may be consider'd as experiments of the same nature. The devotees of that strange superstition usually plead in excuse of the mummeries, with which they are upbraided, that they feel the good effect of those external motions, and postures, and actions, in inlivening their devotion, and quickening their fervour, which otherwise wou'd decay away, if directed entirely to distant and immaterial objects. We shadow out the objects of our faith, say they, in sensible types and images, and render them more present to us by the immediate presence of these types, than 'tis possible for us to do, merely by an intellectual view and contemplation. Sensible objects have always a greater influence on the fancy than any other; and this influence they readily convey to those ideas, to which they are related, and which they resemble. I shall only infer from these practices, and this reasoning, that the effect of resemblance in inlivening the idea is very common; and as in every case a resemblance and a present impression must concur, we are abundantly supply'd with experiments to prove the reality of the foregoing principle.

We may add force to these experiments by others of a different kind, in considering the effects of *contiguity*, as well as of *resemblance*. 'Tis certain, that distance diminishes the force of every idea, and that upon our approach to any object; tho' it does not discover itself to our senses; it operates upon the mind with an influence that imitates an immediate impression. The thinking on any object readily transports the mind to what is contiguous; but 'tis only the actual presence of an object that transports it with a superior vivacity. When I am a few miles from home, whatever relates to it touches me more nearly than when I am two hundred leagues distant; tho' even at that distance the reflecting on any thing in the neighbourhood of my friends and family naturally produces an idea of them. But as in this latter case, both the objects of the mind are ideas; notwithstanding there is an easy transition betwixt them; that transition alone is not able to give a superior vivacity to any of the ideas, for want of some immediate impression.

No one can doubt but causation has the same influence as the other two relations of resemblance and contiguity. Superstitious people are fond of the relicts of saints and holy men for the same reason that they seek after types and images, in order to inliven their devotion, and give them a more intimate and strong conception of those exemplary lives, which they desire to imitate. Now 'tis evident, one of the best relicks a devotee cou'd procure, wou'd be the handy work of a saint; and if his cloaths and furniture are ever to be consider'd in this light, 'tis because they were once at his disposal, and were mov'd and affected by him; in which respect they are to be consider'd as imperfect effects, and as connected with him by a shorter chain of consequences than any of those, from which we learn the reality of his existence. This phænomenon clearly proves, that a present impression with a relation of causation may enliven any idea, and consequently produce belief or assent, according to the precedent definition of it.

But why need we seek for other arguments to prove, that a present impression with a relation or transition of the fancy may inliven any idea, when this very instance of our reasonings from cause and effect will alone suffice to that purpose? 'Tis certain we must have an idea of every matter of fact, which we believe. 'Tis certain, that this idea arises only from a relation to a present impression. 'Tis certain, that the belief super-adds nothing to the idea, but only changes our manner of conceiving it, and renders it more strong and lively. The present conclusion concerning the influence of relation is the immediate consequence of all these steps; and every step appears to me sure and infallible. There enters nothing into this operation of the mind but a present impression, a lively idea, and a relation or association in the fancy betwixt the impression and idea; so that there can be no suspicion of mistake.

In order to put this whole affair in a fuller light, let us consider it as a question in natural philosophy, which we must determine by experience and observation. I suppose there is an object presented, from which I draw a certain conclusion, and form to myself ideas, which I am said to believe or assent to. Here 'tis evident, that however that object, which is present to my senses, and that other, whose existence I infer by reasoning, may be thought to influence each other by their particular powers or qualities; yet as the phænomenon of belief, which we at present examine, is merely internal, these powers and qualities, being entirely unknown, can have no hand in producing it. 'Tis the present impression, which is to be consider'd as the true and real cause of the idea, and of the belief which attends it. We must therefore endeavour to discover by experiments the particular qualities, by which 'tis enabled to produce so extraordinary an effect.

First then I observe, that the present impression has not this effect by its own proper power and efficacy, and when consider'd alone, as a single perception, limited to the present moment. I find, that an impression, from which, on its first appearance, I can draw no conclusion, may afterwards become the foundation of belief, when I have had experience of its usual consequences. We must in every case have observ'd the same impression in past instances, and have found it to be constantly conjoin'd with some other impression. This is confirm'd by such a multitude of experiments, that it admits not of the smallest doubt.

From a second observation I conclude, that the belief which attends the present impression, and is produc'd by a number of past impressions and conjunctions; that this belief, I say, arises immediately, without any new operation of the reason or imagination. Of this I can be certain, because I never am conscious of any such operation, and find nothing in the subject, on which it can be founded. Now as we call every thing custom, which proceeds from a past repetition, without any new reasoning or conclusion, we may establish it as a certain truth, that all the belief, which follows upon any present impression, is deriv'd solely from that origin. When we are accustom'd to see two impressions conjoin'd together, the appearance or idea of the one immediately carries us to the idea of the other.

Being fully satisfy'd on this head, I make a third set of experiments, in order to know, whether any thing be requisite, beside the customary transition, towards the production of this phænomenon of belief. I therefore change the first impression into an idea; and observe, that tho' the customary transition to the correlative idea still remains, yet there is in reality no belief nor persuasion. A present impression, then, is absolutely requisite to this whole operation; and when after this I compare an impression with an idea, and find that their only difference consists in their different degrees of force and vivacity, I conclude upon the whole, that belief is a more vivid and intense conception of an idea, proceeding from its relation to a present impression.

Thus all probable reasoning is nothing but a species of sensation. 'Tis not solely in poetry and music, we must follow our taste and sentiment, but likewise in philosophy. When I am convinc'd of any principle, 'tis only an idea, which strikes more strongly upon me. When I give the preference to one set of arguments above another, I do nothing but decide from my feeling concerning the superiority of their influence. Objects have no discoverable connexion together; nor is it from any other principle but custom operating upon the imagination, that we can draw any inference from the appearance of one to the existence of another.

'Twill here be worth our observation, that the past experience, on which all our judgments concerning cause and effect depend, may operate on our mind in such an insensible manner as never to be taken notice of, and may even in some measure be unknown to us. A person, who stops short in his journey upon meeting a river in his way, foresees the consequences of his proceeding forward; and his knowledge of these consequences is convey'd to him by past experience, which informs him of such certain conjunctions of causes and effects. But can we think, that on this occasion he reflects on any past experience, and calls to remembrance instances, that he has seen or heard of, in order to discover the effects of water on animal bodies? No surely; this is not the method in which he proceeds in his reasoning. The idea of sinking is so closely connected with that of water, and the idea of suffocating with that of sinking, that the mind makes the transition without the assistance of the memory. The custom operates before we have time for reflection. The objects seem so inseparable, that we interpose not a moment's delay in passing from the one to the other. But as this transition proceeds from experience, and not from any primary connexion betwixt the ideas, we must necessarily acknowledge, that experience may produce a belief and a judgment of causes and effects by a secret operation, and without being once thought of. This removes all pretext, if there yet remains any, for asserting that the mind is convinc'd by reasoning of that principle, *that instances of which we have no experience, must necessarily resemble those, of which we have.* For we here find, that the understanding or imagination can draw inferences from past experience, without reflecting on it; much more without forming any principle concerning it, or reasoning upon that principle.

In general we may observe, that in all the most establish'd and uniform conjunctions of causes and effects, such as those of gravity, impulse, solidity, &c., the mind never carries its view expressly to consider any past experience: Tho' in other associations of objects, which are more rare and unusual, it may assist the custom and transition of ideas by this reflection. Nay we find in some cases, that the reflection produces the belief without the custom; or more properly speaking, that the reflection produces the custom in an *oblique* and *artificial* manner. I explain myself. 'Tis certain, that not only in philosophy, but even in common life, we may attain the knowledge of a particular cause merely by one experiment, provided it be made with judgment, and after a careful removal of all foreign and superfluous circumstances. Now as after one experiment of this kind, the mind, upon the appearance either of the cause or the effect, can draw an inference concerning the existence of its correlative; and as a habit can never be acquir'd merely by one instance; it may be thought, that belief cannot in this case be esteem'd the effect of custom. But this difficulty will vanish, if we consider, that tho' we are here suppos'd to have had only one experiment of a particular effect, yet we have many millions to convince us of this principle; *that like objects, plac'd in like circumstances, will always produce like effects;* and as this principle has establish'd itself by a sufficient custom, it bestows an evidence and firmness on any opinion, to which it can be apply'd. The connexion of the ideas is not habitual after one experiment; but this connexion is comprehended under another principle, that is habitual; which brings us back to our hypothesis. In all cases we transfer our experience to instances, of which we have no experience, either *expressly* or *tacitly*, either *directly* or *indirectly*.

I must not conclude this subject without observing, that 'tis very difficult to talk of the operations of the mind with perfect propriety and exactness; because common language has seldom made any very nice distinctions among them, but has generally call'd by the same term all such as nearly resemble each other. And as this is a source almost inevitable of obscurity and confusion in the author; so it may frequently give rise to doubts and objections in the reader, which otherwise he wou'd never have dream'd of. Thus my general position, that an opinion or belief is *nothing but a strong and lively idea deriv'd from a present impression related to it*, may be liable to the following objection, by reason of a little ambiguity in those words *strong and lively*. It may be said, that not only an impression may give rise to reasoning, but that an idea may also have the same influence; especially upon my principle, *that all our ideas are deriv'd from correspondent impressions*. For suppose I form at present an idea, of which I have forgot the correspondent impression, I am able to conclude from this idea, that such an impression did once exist; and as this conclusion is attended with belief, it may be ask'd, from whence are the qualities of force and vivacity deriv'd, which constitute this belief? And to this I answer very readily, *from the present idea*. For as this idea is not here consider'd as the representation of any absent object, but as a real perception in the mind, of which we are intimately conscious, it must be able to bestow on whatever is related to it the same quality, call it *firmness, or solidity, or force, or vivacity*, with which the mind reflects upon it, and is assur'd of its present existence. The idea here supplies the place of an impression, and is entirely the same, so far as regards our present purpose.

Upon the same principles we need not be surpriz'd to hear of the remembrance of an idea; that is, of the idea of an idea, and of its force and vivacity superior to the loose conceptions of the imagination. In thinking of our past thoughts we not only delineate out the objects, of which we were thinking, but also conceive the action of the mind in the meditation, that certain *je-ne-scai-quoi*, of which 'tis impossible to give any definition or description, but which every one sufficiently understands. When the memory offers an idea of this, and represents it as past, 'tis easily conceiv'd how that idea may have more vigour and firmness, than when we think of a past thought, of which we have no remembrance.

After this any one will understand how we may form the idea of an impression and of an idea, and how we may believe the existence of an impression and of an idea.

Section X. Of the influence of belief

But tho' education be disclaim'd by philosophy, as a fallacious ground of assent to any opinion, it prevails nevertheless in the world, and is the cause why all systems are apt to be rejected at first as new and unusual. This perhaps will be the fate of what I have here advanc'd concerning *belief*, and tho' the proofs I have produc'd appear to me perfectly conclusive, I expect not to make many proselytes to my opinion. Men will scarce ever be persuaded, that effects of such consequence can flow from principles, which are seemingly so inconsiderable, and that the far greatest part of our reasonings, with all our actions and passions, can be deriv'd from nothing but custom and habit. To obviate this objection, I shall here anticipate a little what wou'd more properly fall under our consideration afterwards, when we come to treat of the passions and the sense of beauty.

There is implanted in the human mind a perception of pain and pleasure, as the chief spring and moving principle of all its actions. But pain and pleasure have two ways of making their appearance in the mind; of which the one has effects very different from the other. They may either appear in impression to the actual feeling, or only in idea, as at present when I mention them. 'Tis evident the induence of these upon our actions is far from being equal. Impressions always actuate the soul, and

that in the highest degree; but 'tis not every idea which has the same efect. Nature has proceeded with caution in this case, and seems to have carefully avoided the inconveniences of two extremes. Did impressions alone influence the will, we should every moment of our lives be subject to the greatest calamities; because, tho' we foresaw their approach, we should not be provided by nature with any principle of action, which might impel us to avoid them. On the other hand, did every idea influence our actions, our condition would not be much mended. For such is the unsteadiness and activity of thought, that the images of every thing, especially of goods and evils, are always wandering in the mind; and were it mov'd by every idle conception of this kind, it would never enjoy a moment's peace and tranquillity.

Nature has, therefore, chosen a medium, and has neither bestow'd on every idea of good and evil the power of actuating the will, nor yet has entirely excluded them from this influence. Tho' an idle fiction has no efficacy, yet we find by experience, that the ideas of those objects, which we believe either are or will be existent, produce in a lesser degree the same effect with those impressions, which are immediately present to the senses and perception. The effect, then, of belief is to raise up a simple idea to an equality with our impressions, and bestow on it a like influence on the passions. This effect it can only have by making an idea approach an impression in force and vivacity. For as the different degrees of force make all the original difference betwixt an impression and an idea, they must of consequence be the source of all the differences in the effects of these perceptions, and their removal, in whole or in part, the cause of every new resemblance they acquire. Wherever we can make an idea approach the impressions in force and vivacity, it will likewise imitate them in its influence on the mind; and *vice versa*, where it imitates them in that influence, as in the present case, this must proceed from its approaching them in force and vivacity. Belief, therefore, since it causes an idea to imitate the effects of the impressions, must make it resemble them in these qualities, and is nothing but *a more vivid and intense conception of any idea.* This, then, may both serve as an additional argument for the present system, and may give us a notion after what manner our reasonings from causation are able to operate on the will and passions.

As belief is almost absolutely requisite to the exciting our passions, so the passions in their turn are very favourable to belief; and not only such facts as convey agreeable emotions, but very often such as give pain, do upon that account become more readily the objects of faith and opinion. A coward, whose fears are easily awaken'd, readily assents to every account of danger he meets with; as a person of a sorrowful and melancholy disposition is very credulous of every thing, that nourishes his prevailing passion. When any affecting object is presented, it gives the alarm, and excites immediately a degree of its proper passion; especially in persons who are naturally inclined to that passion. This emotion passes by an easy transition to the imagination; and diffusing itself over our idea of the affecting object, makes us form that idea with greater force and vivacity, and consequently assent to it, according to the precedent system. Admiration and surprize have the same effect as the other passions; and accordingly we may observe, that among the vulgar, quacks and projectors meet with a more easy faith upon account of their magnificent pretensions, than if they kept themselves within the bounds of moderation. The first astonishment, which naturally attends their miraculous relations, spreads itself over the whole soul, and so vivifies and enlivens the idea, that it resembles the inferences we draw from experience. This is a mystery, with which we may be already a little acquainted, and which we shall have farther occasion to be let into in the progress of this treatise.

After this account of the influence of belief on the passions, we shall find less difficulty in explaining its effects on the imagination, however extraordinary they may appear. 'Tis certain we cannot take pleasure in any discourse, where our judgment gives no assent to those images which are presented to

our fancy. The conversation of those, who have acquir'd a habit of lying, tho' in affairs of no moment, never gives any satisfaction; and that because those ideas they present to us, not being attended with belief, make no impression upon the mind. Poets themselves, tho' liars by profession, always endeavour to give an air of truth to their fictions; and where that is totally neglected, their performances, however ingenious, will never be able to afford much pleasure. In short, we may observe, that even when ideas have no manner of influence on the will and passions, truth and reality are still requisite, in order to make them entertaining to the imagination.

But if we compare together all the phænomena that occur on this head, we shall find, that truth, however necessary it may seem in all works of genius, has no other effect than to procure an easy reception for the ideas, and to make the mind acquiesce in them with satisfaction, or at least without reluctance. But as this is an effect, which may easily be supposed to flow from that solidity and force, which, according to my system, attend those ideas that are establish'd by reasonings from causation; it follows, that all the influence of belief upon the fancy may be explained from that system. Accordingly we may observe, that wherever that influence arises from any other principles beside truth or reality, they supply its place, and give an equal entertainment to the imagination. Poets have form'd what they call a poetical system of things, which tho' it be believ'd neither by themselves nor readers, is commonly esteem'd a sufficient foundation for any fiction. We have been so much accustom'd to the names of Mars, Jupiter, Venus, that in the same manner as education infixes any opinion, the constant repetition of these ideas makes them enter into the mind ith facility, and prevail upon the fancy, without influencing the judgment. In like manner tragedians always borrow their fable, or at least the names of their principal actors, from some known passage in history; and that not in order to deceive the spectators; for they will frankly confess, that truth is not in any circumstance inviolably observed; but in order to procure a more easy reception into the imagination for those extraordinary events, which they represent. But this is a precaution, which is not required of comic poets, whose personages and incidents, being of a more familiar kind, enter easily into the conception, and are received without any such formality, even tho' at first sight they be known to be fictitious, and the pure offspring of the fancy.

This mixture of truth and falshood in the fables of tragic poets not only serves our present purpose, by shewing, that the imagination can be satisfy'd without any absolute belief or assurance; but may in another view be regarded as a very strong confirmation of this system. 'Tis evident, that poets make use of this artifice of borrowing the names of their persons, and the chief events of their poems, from history, in order to procure a more easy reception for the whole, and cause it to make a deeper impression on the fancy and affections. The several incidents of the piece acquire a kind of relation by being united into one poem or representation; and if any of these incidents be an object of belief, it bestows a force and vivacity on the others, which are related to it. The vividness of the first conception diffuses itself along the relations, and is convey'd, as by so many pipes or canals, to every idea that has any communication with the primary one. This, indeed, can never amount to a perfect assurance; and that because the union among the ideas is, in a manner, accidental: But still it approaches so near, in its influence, as may convince us, that they are deriv'd from the same origin. Belief must please the imagination by means of the force and vivacity which attends it; since every idea, which has force and vivacity, is found to be agreeable to that faculty.

To confirm this we may observe, that the assistance is mutual betwixt the judgment and fancy, as well as betwixt the judgment and passion; and that belief not only gives vigour to the imagination, but that a vigorous and strong imagination is of all talents the most proper to procure belief and authority. 'Tis difficult for us to withold our assent from what is painted out to us in all the colours of eloquence; and

the vivacity produc'd by the fancy is in many cases greater than that which arises from custom and experience. We are hurried away by the lively imagination of our author or companion; and even he himself is often a victim to his own fire and genius.

Nor will it be amiss to remark, that as a lively imagination very often degenerates into madness or folly, and bears it a great resemblance in its operations; so they influence the judgment after the same manner, and produce belief from the very same principles. When the imagination, from any extraordinary ferment of the blood and spirits, acquires such a vivacity as disorders all its powers and faculties, there is no means of distinguishing betwixt truth and falshood; but every loose fiction or idea, having the same influence as the impressions of the memory, or the conclusions of the judgment, is receiv'd on the same footing, and operates with equal force on the passions. A present impression and a customary transition are now no longer necessary to inliven our ideas. Every chimera of the brain is as vivid and intense as any of those inferences, which we formerly dignify'd with the name of conclusions concerning matters of fact, and sometimes as the present impressions of the senses.

We may observe the same effect of poetry in a lesser degree; only with this difference, that the least reflection dissipates the illusions of poetry, and places the objects in their proper light. 'Tis however certain, that in the warmth of a poetical enthusiasm, a poet has a counterfeit belief, and even a kind of vision of his objects: And if there be any shadow of argument to support this belief; nothing contributes more to his full conviction than a blaze of poetical figures and images, which have their effect upon the poet himself, as well as upon his readers.

Section XI. Of the probability of chances

But in order to bestow on this system its full force and evidence, we must carry our eye from it a moment to consider its consequences, and explain from the same principles some other species of reasoning, which are deriv'd from the same origin.

Those philosophers, who have divided human reason into *knowledge and probability*, and have defin'd the first to be *that evidence, which arises from the comparison of ideas*, are oblig'd to comprehend all our arguments from causes or effects under the general term of probability. But tho' every one be free to use his terms in what sense he pleases; and accordingly in the precedent part of this discourse, I have follow'd this method of expression; 'tis however certain, that in common discourse we readily affirm, that many arguments from causation exceed probability, and may be receiv'd as a superior kind of evidence. One wou'd appear ridiculous, who wou'd say, that 'tis only probable the sun will rise to-morrow, or that all men must dye; tho' 'tis plain we have no further assurance of these facts, than what experience affords us. For this reason, 'twould perhaps be more convenient, in order at once to preserve the common signification of words, and mark the several degrees of evidence, to distinguish human reason into three kinds, viz. *that from knowledge, from proofs, and from probabilities*. By knowledge, I mean the assurance arising from the comparison of ideas. By proofs, those arguments, which are deriv'd from the relation of cause and effect, and which are entirely free from doubt and uncertainty. By probability, that evidence, which is still attended with uncertainty. 'Tis this last species of reasoning, I proceed to examine.

Probability or reasoning from conjecture may be divided into two kinds, *viz.* that which is founded on *chance*, and that which arises from causes. We shall consider each of these in order.

The idea of cause and effect is deriv'd from experience, which presenting us with certain objects constantly conjoin'd with each other, produces such a habit of surveying them in that relation, that we cannot without a sensible violence survey them in any other. On the other hand, as chance is nothing real in itself; and, properly speaking, is merely the negation of a cause, its influence on the mind is contrary to that of causation; and 'tis essential to it, to leave the imagination perfectly indifferent, either to consider the existence or non-existence of that object, which is regarded as contingent. A cause traces the way to our thought, and in a manner forces us to survey such certain objects, in such certain relations. Chance can only destroy this determination of the thought, and leave the mind in its native situation of indifference; in which, upon the absence of a cause, 'tis instantly re-instated.

Since therefore an entire indifference is essential to chance, no one chance can possibly be superior to another, otherwise than as it is compos'd of a superior number of equal chances. For if we affirm that one chance can, after any other manner, be superior to another, we must at the same time affirm, that there is something, which gives it the superiority, and determines the event rather to that side than the other: That is, in other words, we must allow of a cause, and destroy the supposition of chance; which we had before establish'd. A perfect and total indifference is essential to chance, and one total indifference can never in itself be either superior or inferior to another. This truth is not peculiar to my system, but is acknowledge'd by every one, that forms calculations concerning chances.

And here 'tis remarkable, that tho' chance and causation be directly contrary, yet 'tis impossible for us to conceive this combination of chances, which is requisite to render one hazard superior to another, without supposing a mixture of causes among the chances, and a conjunction of necessity in some particulars, with a total indifference in others. Where nothing limits the chances, every notion, that the most extravagant fancy can form, is upon a footing of equality; nor can there be any circumstance to give one the advantage above another. Thus unless we allow, that there are some causes to make the dice fall, and preserve their form in their fall, and lie upon some one of their sides, we can form no calculation concerning the laws of hazard. But supposing these causes to operate, and supposing likewise all the rest to be indifferent and to be determin'd by chance, 'tis easy to arrive at a notion of a superior combination of chances. A dye, that has four sides mark'd with a certain number of spots, and only two with another, affords us an obvious and easy instance of this superiority. The mind is here limited by the causes to such a precise number and quality of the events; and at the same time is undetermin'd in its choice of any particular event.

Proceeding then in that reasoning, wherein we have advanc'd three steps; *that* chance is merely the negation of a cause, and produces a total indifference in the mind; *that* one negation of a cause and one total indifference can never be superior or inferior to another; and *that* there must always be a mixture of causes among the chances, in order to be the foundation of any reasoning: We are next to consider what effect a superior combination of chances can have upon the mind, and after what manner it influences our judgment and opinion. Here we may repeat all the same arguments we employ'd in examining that belief, which arises from causes; and may prove after the same manner, that a superior number of chances produces our assent neither by *demonstration* nor *probability*. 'Tis indeed evident, that we can never by the comparison of mere ideas make any discovery, which can be of consequence in this affair, and that 'tis impossible to prove with certainty, that any event must fall on that side where there is a superior number of chances. To suppose in this case any certainty, were to overthrow what we have establish'd concerning the opposition of chances, and their perfect equality and indifference.

Shou'd it be said, that tho' in an opposition or chances 'tis impo sible to determine with *certainty*, on which side the event will fall, yet we can pronounce with certainty, that 'tis more likely and probable,

'twill be on that side where there is a superior number of chances, than where there is an inferior: Shou'd this be said, I wou'd ask, what is here meant by *likelihood and probability?* The likelihood and probability of chances is a superior number of equal chances; and consequently when we say 'tis likely the event will fall on the side, which is superior, rather than on the inferior, we do no more than affirm, that where there is a superior number of chances there is actually a superior, and where there is an inferior there is an inferior; which are identical propositions, and of no consequence. The question is, by what means a superior number of equal chances operates upon the mind, and produces belief or assent; since it appears, that 'tis neither by arguments deriv'd from demonstration, nor from probability.

In order to clear up this difficulty, we shall suppose a person to take a dye, form'd after such a manner as that four of its sides are mark'd with one figure, or one number of spots, and two with another; and to put this dye into the box with an intention of throwing it: 'Tis plain, he must conclude the one figure to be more probable than the other, and give the preference to that which is inscrib'd on the greatest number of sides. He in a manner believes, that this will lie uppermost; tho' still with hesitation and doubt, in proportion to the number of chances, which are contrary: And according as these contrary chances diminish, and the superiority encreases on the other side, his belief acquires new degrees of stability and assurance. This belief arises from an operation of the mind upon the simple and limited object before us; and therefore its nature will be the more easily discover'd and explain'd. We have nothing but one single dye to contemplate, in order to comprehend one of the most curious operations of the understanding.

This dye form'd as above, contains three circumstances worthy of our attention. *First*, Certain causes, such as gravity, solidity, a. cubical figure, *&c.* which determine it to fall, to preserve its form in its fall, and to turn up one of its sides. *Secondly*, A certain number of sides, which are suppos'd indifferent. *Thirdly*, A certain figure, inscrib'd on each side. These three particulars form the whole nature of the dye, so far as relates to our present purpose; and consequently are the only circumstances regarded by the mind in its forming a judgment concerning the result of such a throw. Let us, therefore, consider gradually and carefully what must be the influence of these circumstances on the thought and imagination.

First, We have already observ'd, that the mind is determin'd by custom to pass from any cause to its effect, and that upon the appearance of the one, 'tis almost impossible for it not to form an idea of the other. Their constant conjunction in past instances has produc'd such a habit in the mind, that it always conjoins them in its thought, and infers the existence of the one from that of its usual attendant. When it considers the dye as no longer supported by the box, it cannot without violence regard it as suspended in the air; but naturally places it on the table, and views it as turning up one of its sides. This is the effect of the intermingled causes, which are requisite to our forming any calculation concerning chances.

Secondly, 'Tis suppos'd, that tho' the dye be necessarily determin'd to fall, and turn up one of its sides, yet there is nothing to fix the particular side, but that this is determin'd entirely by chance. The very nature and essence of chance is a negation of causes, and the leaving the mind in a perfect indifference among those events, which are suppos'd contingent. When therefore the thought is determin'd by the causes to consider the dye as falling and turning up one of its sides, the chances present all these sides as equal, and make us consider every one of them, one after another, as alike probable and possible. The imagination passes from the cause, *viz.* the throwing of the dye, to the effect, *viz.* the turning up one of the six sides; and feels a kind of impossibility both of stopping short in the way, and of forming any other idea. But as all these six sides are incompatible, and the dye cannot turn up above one at

once, this principle directs us not to consider all of them at once as lying uppermost; which we look upon as impossible: Neither does it direct us with its entire force to any particular side; for in that case this side wou'd be consider'd as certain and inevitable; but it directs us to the whole six sides after such a manner as to divide its force equally among them. We conclude in general, that some one of them must result from the throw: We run all of them over in our minds: The determination of the thought is common to all; but no more of its force falls to the share of any one, than what is suitable to its proportion with the rest. 'Tis after this manner the original impulse, and consequently the vivacity of thought, arising from the causes, is divided and split in pieces by the intermingled chances.

We have already seen the influence of the two first qualities of the dye, *viz.* the *causes*, and the *number* and *indifference* of the sides, and have learn'd how they give an impulse to the thought, and divide that impulse into as many parts as there are unites in the number of sides. We must now consider the effects of the third particular, *viz.* the *figures* inscrib'd on each side. 'Tis evident that where several sides have the same figure inscrib'd on them, they must concur in their influence on the mind, and must unite upon one image or idea of a figure all those divided impulses, that were dispers'd over the several sides, upon which that figure is inscrib'd. Were the question only what side will be turn'd up, these are all perfectly equal, and no one cou'd ever have any advantage above another. But as the question is concerning the figure, and as the same figure is presented by more than one side; 'tis evident, that the impulses belonging to all these sides must re-unite in that one figure, and become stronger and more forcible by the union. Four sides are suppos'd in the present case to have the same figure inscrib'd on them, and two to have another figure. The impulses of the former are, therefore, superior to those of the latter. But as the events are contrary, and 'tis impossible both these figures can be turn'd up; the impulses likewise become contrary, and the inferior destroys the superior, as far as its strength goes. The vivacity of the idea is always proportionable to the degrees of the impulse or tendency to the transition; and belief is the same with the vivacity of the idea, according to the precedent doctrine.

Section XII. Of the probability of causes

What I have said concerning the probability of chances can serve to no other purpose, than to assist us in explaining the probability of causes; since 'tis commonly allow'd by philosophers, that what the vulgar call chance is nothing but a secret and conceal'd cause. That species of probability, therefore, is what we must chiefly examine.

The probabilities of causes are of several kinds; but are all deriv'd from the same origin, *viz.* the association of ideas to a present impression. *As the habit, which produces the association,* arises from the frequent conjunction of objects, it must arrive at its perfection by degrees, and must acquire new force from each instance, that falls under our observation. The first instance has little or no force: The second makes some addition to it: The third becomes still more sensible; and 'tis by these slow steps, that our judgment arrives at a full assurance. But before it attains this pitch of perfection, it passes thro' several inferior degrees, and in all of them is only to be esteem'd a presumption or probability. The gradation, therefore, from probabilities to proofs is in many cases insensible; and the difference betwixt these kinds of evidence is more easily perceiv'd in the remote degrees, than in the near and contiguous.

'Tis worthy of remark on this occasion, that tho' the species of probability here explain'd be the first in order, and naturally takes place before any entire proof can exist, yet no one, who is arriv'd at the age of maturity, can any longer be acquainted with it. 'Tis true, nothing is more common than for people of

the most advanc'd knowledge to have attain'd only an imperfect experience of many particular events; which naturally produces only an imperfect habit and transition: But then we must consider, that the mind, having form'd another observation concerning the connexion of causes and effects, gives new force to its reasoning from that observation; and by means of it can build an argument on one single experiment, when duly prepar'd and examin'd. What we have found once to follow from any object, we conclude will for ever follow from it; and if this maxim be not always built upon as certain, 'tis not for want of a sufficient number of experiments, but because we frequently meet with instances to the contrary; which leads us to the second species of probability, where there is a *contrariety* in our experience and observation.

'Twou'd be very happy for men in the conduct of their lives and actions, were the same objects always conjoin'd together, and we had nothing to fear but the mistakes of our own judgment, without having any reason to apprehend the uncertainty of nature. But as 'tis frequently found, that one observation is contrary to another, and that causes and effects follow not in the same order, of which we have had experience, we are oblig'd to vary our reasoning on account of this uncertainty, and take into consideration the contrariety of events. The first question, that occurs on this head, is concerning the nature and causes of the contrariety.

The vulgar, who take things according to their first appearance, attribute the uncertainty of events to such an uncertainty in the causes, as makes them often fail of their usual influence, tho' they meet with no obstacle nor impediment in their operation. But philosophers observing, that almost in every part of nature there is contain'd a vast variety of springs and principles, which are hid, by reason of their minuteness or remoteness, find that 'tis at least possible the contrariety of events may not proceed from any contingency in the cause, but from the secret operation of contrary causes. This possibility is converted into certainty by farther observation, when they remark, that upon an exact scrutiny, a contrariety of effects always betrays a contrariety of causes, and proceeds from their mutual hindrance and opposition. A peasant can give no better reason for the stopping of any clock or watch than to say, that commonly it does not go right: But an artizan easily perceives, that the same force in the spring or pendulum has always the same influence on the wheels; but fails of its usual effect, perhaps by reason of a grain of dust, which puts a stop to the whole movement. From the observation of several parallel instances, philosophers form a maxim, that the connexion betwixt all causes and effects is equally necessary, and that its seeming uncertainty in some instances proceeds from the secret opposition of contrary causes.

But however philosophers and the vulgar may differ in their explication of the contrariety of events, their inferences from it are always of the same kind, and founded on the same principles. A contrariety of events in the past may give us a kind of hesitating belief for the future after two several ways. *First*, By producing an imperfect habit and transition from the present impression to the related idea. When the conjunction of any two objects is frequent, without being entirely constant, the mind is determin'd to pass from one object to the other; but not with so entire a habit, as when the union is uninterrupted, and all the instances we have ever met with are uniform and of a piece. We End from common experience, in our actions as well as reasonings, that a constant perseverance in any course of life produces a strong inclination and tendency to continue for the future; tho' there are habits of inferior degrees of force, proportion'd to the inferior degrees of steadiness and uniformity in our conduct.

There is no doubt but this principle sometimes takes place, and produces those inferences we draw from contrary phænomena; tho' I am persuaded, that upon examination we shall not find it to be the principle, that most commonly influences the mind in this species of reasoning. When we follow only

the habitual determination of the mind, we make the transition without any reflection, and interpose not a moments delay betwixt the view of one object and the belief of that, which is often found to attend it. As the custom depends not upon any deliberation, it operates immediately, without allowing any time for reflection. But this method of proceeding we have but few instances of in our probable reasonings; and even fewer than in those, which are deriv'd from the uninterrupted conjunction of objects. In the former species of reasoning we commonly take knowingly into consideration the contrariety of past events; we compare the different sides of the contrariety, and carefully weigh the experiments, which we have on each side: Whence we may conclude, that our reasonings of this kind arise not *directly* from the habit, but in an *oblique* manner; which we must now endeavour to explain.

'Tis evident, that when an object is attended with contrary effects, we judge of them only by our past experience, and always consider those as possible, which we have observ'd to follow from it. And as past experience regulates our judgment concerning the possibility of these effects, so it does that concerning their probability; and that effect, which has been the most common, we always esteem the most likely. Here then are two things to be consider'd, *viz.* the *reasons* which determine us to make the past a standard for the future, and the manner how we extract a single judgment from a contrariety of past events.

First we may observe, that the supposition, *that the future resembles the past,* is not founded on arguments of any kind, but is deriv'd entirely from habit, by which we are determin'd to expect for the future the same train of objects, to which we have been accustom'd. This habit or determination to transfer the past to the future is full and perfect; and consequently the first impulse of the imagination in this species of reasoning is endow'd with the same qualities.

But, *secondly*, when in considering past experiments we find them of a contrary nature, this determination, tho' full and perfect in itself, presents us with no steady object, but offers us a number of disagreeing images in a certain order and proportion. The first impulse, therefore, is here broke into pieces, and diffuses itself over all those images, of which each partakes an equal share of that force and vivacity, that is deriv'd from the impulse. Any of these past events may again happen; and we judge, that when they do happen, they will be mix'd in the same proportion as in the past.

If our intention, therefore, be to consider the proportions of contrary events in a great number of instances, the images presented by our past experience must remain in their *first form*, and preserve their first proportions. Suppose, for instance, I have found by long observation, that of twenty ships, which go to sea, only nineteen return. Suppose I see at present twenty ships that leave the port: I transfer my past experience to the future, and represent to myself nineteen of these ships as returning in safety, and one as perishing. Concerning this there can be no difficulty. But as we frequently run over those several ideas of past events, in order to form a judgment concerning one single event, which appears uncertain; this consideration must change the *first form* of our ideas, and draw together the divided images presented by experience; since 'tis to *it* we refer the determination of that particular event, upon which we reason. Many of these images are suppos'd to concur, and a superior number to concur on one side. These agreeing images unite together, and render the idea more strong and lively, not only than a mere fiction of the imagination, but also than any idea, which is supported by a lesser number of experiments. Each new experiment is as a new stroke of the pencil, which bestows an additional vivacity on the colours, without either multiplying or enlarging the figure. This operation of the mind has been so fully explain'd in treating of the probability of chance, that I need not here endeavour to render it more intelligible. Every past experiment may be consider'd as a kind of chance; it being uncertain to us, whether the object will exist comformable to one experiment or another: And

for this reason every thing that has been said on the one subject is applicable to both. Thus upon the whole, contrary experiments produce an imperfect belief, either by weakening the habit, or by dividing and afterwards joining in different parts, that *perfect* habit, which makes us conclude in general, that instances, of which we have no experience, must necessarily resemble those of which we have.

To justify still farther this account of the second species of probability, where we reason with knowledge and reflection from a contrariety of past experiments, I shall propose the following considerations, without fearing to give offence by that air of subtilty, which attends them. Just reasoning ought still, perhaps, to retain its force, however subtile; in the same manner as matter preserves its solidity in the air, and fire, and animal spirits, as well as in the grosser and more sensible forms.

First, We may observe, that there is no probability so great as not to allow of a contrary possibility; because otherwise 'twou'd cease to be a probability, and wou'd become a certainty. That probability of causes, which is most extensive, and which we at present examine, depends on a contrariety of experiments; and 'tis evident an experiment in the past proves at least a possibility for the future.

Secondly, The component parts of this possibility and probability are of the same nature, and differ in number only, but not in kind. It has been observ'd, that all single chances are entirely equal, and that the only circumstance, which can give any event, that is contingent, a superiority over another, is a superior number of chances. In like manner, as the uncertainty of causes is discover'd by experience, which presents us with a view of contrary events, 'tis plain, that when we transfer the past to the future, the known to the unknown, every past experiment has the same weight, and that 'tis only a superior number of them, which can throw the ballance on any side. The possibility, therefore, which enters into every reasoning of this kind, is compos'd of parts, which are of the same nature both among themselves, and with those, that compose the opposite probability.

Thirdly, We may establish it as a certain maxim, that in all moral as well as natural phænomena, wherever any cause consists of a number of parts, and the effect encreases or diminishes, according to the variation of that number, the effect, properly speaking, is a compounded one, and arises from the union of the several effects, that proceed from each part of the cause. Thus because the gravity of a body encreases or diminishes by the encrease or diminution of its parts, we conclude that each part contains this quality and contributes to the gravity of the whole. The absence or presence of a part of the cause is attended with that of a proportionable part of the effect. This connexion or constant conjunction sufficiently proves the one part to be the cause of the other. As the belief, which we have of any event, encreases or diminishes according to the number of chances or past experiments, 'tis to be consider'd as a compounded effect, of which each part arises from a proportionable number of chances or experiments.

Let us now join these three observations, and see what conclusion we can draw from them. To every probability there is an opposite possibility. This possibility is compos'd of parts, that are entirely of the same nature with those of the probability; and consequently have the same influence on the mind and understanding. The belief, which attends the probability, is a compounded effect, and is form'd by the concurrence of the several effects, which proceed from each part of the probability. Since therefore each part of the probability contributes to the production of the belief, each part of the possibility must have the same influence on the opposite side; the nature of these parts being entirely the same. The contrary belief, attending the possibility, implies a view of a certain object, as well as the probability

does an opposite view. In this particular both these degrees of belief are alike. The only manner then, in which the superior number of similar component parts in the one can exert its influence, and prevail above the inferior in the other, is by producing a stronger and more lively view of its object. Each part presents a particular view; and all these views uniting together produce one general view, which is fuller and more distinct by the greater number of causes or principles, from which it is deriv'd.

The component parts of the probability and possibility, being alike in their nature, must produce like effects; and the likeness of their effects consists in this, that each of them presents a view of a particular object. But tho' these parts be alike in their nature, they are very different in their quantity and number; and this difference must appear in the effect as well as the similarity. Now as the view they present is in both cases full and entire, and comprehends the object in all its parts, 'tis impossible that in this particular there can be any difference; nor is there any thing but a superior vivacity in the probability, arising from the concurrence of a superior number of views, which can distinguish these effects.

Here is almost the same argument in a different light. All our reasonings concerning the probability of causes are founded on the transferring of past to future. The transferring of any past experiment to the future is sufficient to give us a view of the object; whether that experiment be single, or combin'd with others of the same kind; whether it be entire, or oppos'd by others of a contrary kind. Suppose, then, it acquires both these qualities of combination and opposition, it loses not upon that account its former power of presenting a view of the object, but only concurs with and opposes other experiments, that have a like influence. A question, therefore, may arise concerning the manner both of the concurrence and opposition. As to the *concurrence,* there is only the choice left betwixt these two hypotheses. *First,* That the view of the object, occasion'd by the transference of each past experiment, preserves itself entire, and only multiplies the number of views. Or, *secondly,* That it runs into the other similar and correspondent views, and gives them a superior degree of force and vivacity. But that the first hypothesis is erroneous, is evident from experience, which informs us, that the belief, attending any reasoning, consists in one conclusion, not in a multitude of similar ones, which wou'd only distract the mind, and in many cases wou'd be too numerous to be comprehended distinctly by any finite capacity. It remains, therefore, as the only reasonable opinion, that these similar views run into each other, and unite their forces; so as to produce a stronger and clearer view, than what arises from any one alone. This is the manner, in which past experiments concur, when they are transfer'd to any future event. As to the manner of their *opposition,* 'tis evident, that as the contrary views are incompatible with each other, and 'tis impossible the object can at once exist conformable to both of them, their influence becomes mutually destructive, and the mind is determin'd to the superior only with that force, which remains after subtracting the inferior.

I am sensible how abstruse all this reasoning must appear to the generality of readers, who not being accustom'd to such profound reflections on the intellectual faculties of the mind, will be apt to reject as chimerical whatever strikes not in with the common receiv'd notions, and with the easiest and most obvious principles of philosophy. And no doubt there are some pains requir'd to enter into these arguments; tho' perhaps very little are necessary to perceive the imperfection of every vulgar hypothesis on this subject, and the little light, which philosophy can yet afford us in such sublime and such curious speculations. Let men be once fully perswaded of these two principles, *That there is nothing in any object, consider'd in itself, which can afford us a reason for drawing a conclusion beyond it;* and, *That even after the observation of the frequent or constant conjunction of objects, we have no reason to draw any inference concerning any object beyond those of which we have had experience;* I say, let men be once fully convinc'd of these two principles, and this will throw them so

loose from all common systems, that they will make no difficulty of receiving any, which may appear the most extraordinary. These principles we have found to be sufficiently convincing, even with regard to our most certain reasonings from causation: But I shall venture to affirm, that with regard to these conjectural or probable reasonings they still acquire a new degree of evidence.

First, 'Tis obvious, that in reasonings of this kind, 'tis not the object presented to us, which, consider'd in itself, affords us any reason to draw a conclusion concerning any other object or event. For as this latter object is suppos'd uncertain, and as the uncertainty is deriv'd from a conceal'd contrariety of causes in the former, were any of the causes plac'd in the known qualities of that object, they wou'd no longer be conceal'd, nor wou'd our conclusion be uncertain.

But, *secondly*, 'tis equally obvious in this species of reasoning, that if the transference of the past to the future were founded merely on a conclusion of the understanding, it cou'd never occasion any belief or assurance. When we transfer contrary experiments to the future, we can only repeat these contrary experiments with their particular proportions; which cou'd not produce assurance in any single event, upon which we reason, unless the fancy melted together all those images that concur, and extracted from them one single idea or image, which is intense and lively in proportion to the number of experiments from which it is deriv'd, and their superiority above their antagonists. Our past experience presents no determinate object; and as our belief, however faint, fixes itself on a determinate object, 'tis evident that the belief arises not merely from the transference of past to future, but from some operation of the *fancy* conjoin'd with it. This may lead us to conceive the manner, in which that faculty enters into all our reasonings.

I shall conclude this subject with two reflections, which may deserve our attention. The *first* may be explain'd after this manner. When the mind forms a reasoning concerning any matter of fact, which is only probable, it casts its eye backward upon past experience, and transferring it to the future, is presented with so many contrary views of its object, of which those that are of the same kind uniting together, and running into one act of the mind, serve to fortify and inliven it. But suppose that this multitude of views or glimpses of an object proceeds not from experience, but from a voluntary act of the imagination; this effect does not follow, or at least, follows not in the same degree. For tho' custom and education produce belief by such a repetition, as is not deriv'd from experience, yet this requires a long tract of time, along with a very frequent and *undersign'd* repetition. In general we may pronounce, that a person, who wou'd[1] *voluntarily* repeat any idea in his mind, tho' supported by one past experience, wou'd be no more inclin'd to believe the existence of its object, than if he had contented himself with one survey of it. Beside the effect of design; each act of the mind, being separate and independent, has a separate influence, and joins not its force with that of its fellows. Not being united by any common object, producing them, they have no relation to each other; and consequently make no transition or union of forces. This phænomenon we shall understand better afterwards.

My second reflection is founded on those large probabilities, which the mind can judge of, and the minute differences it can observe betwixt them. When the chances or experiments on one side amount to ten thousand, and on the other to ten thousand and one, the judgment gives the preference to the latter, upon account of that superiority; tho' 'tis plainly impossible for the mind to run over every particular view, and distinguish the superior vivacity of the image arising from the superior number, where the difference is so inconsiderable. We have a parallel instance in the affections. 'Tis evident, according to the principles above mention'd, that when an object produces any passion in us, which varies according to the different quantity of the object; I say, 'tis evident, that the passion, properly speaking, is not a simple emotion, but a compounded one, of a great number of weaker passions,

deriv'd from a view of each part of the object. For otherwise 'twere impossible the passion shou'd encrease by the encrease of these parts. Thus a man, who desires a thousand pound, has in reality a thousand or more desires, which uniting together, seem to make only one passion; tho' the composition evidently betrays itself upon every alteration of the object, by the preference he gives to the larger number, if superior only by an unite. Yet nothing can be more certain, than that so small a difference wou'd not be discernible in the passions, nor cou'd render them distinguishable from each other. The difference, therefore, of our conduct in preferring the greater number depends not upon our passions, but upon custom, and *general rules*. We have found in a multitude of instances, that the augmenting the numbers of any sum augments the passion, where the numbers are precise and the difference sensible. The mind can perceive from its immediate feeling, that three guineas produce a greater passion than two; and *this* it transfers to larger numbers, because of the resemblance; and by a general rule assigns to a thousand guineas, a stronger passion than to nine hundred and ninety nine. These general rules we shall explain presently.

But beside these two species of probability, which are deriv'd from an *imperfect* experience and from *contrary* causes, there is a third arising from Analogy, which differs from them in some material circumstances. According to the hypothesis above explain'd all kinds of reasoning from causes or effects are founded on two particulars, *viz.* the constant conjunction of any two objects in all past experience, and the resemblance of a present object to any one of them. The effect of these two particulars is, that the present object invigorates and inlivens the imagination; and the resemblance, along with the constant union, conveys this force and vivacity to the related idea; which we are therefore said to believe, or assent to. If you weaken either the union or resemblance, you weaken the principle of transition, and of consequence that belief, which arises from it. The vivacity of the first impression cannot be fully convey'd to the related idea, either where the conjunction of their objects is not constant, or where the present impression does not perfectly resemble any of those, whose union we are accustom'd to observe. In those probabilities of chance and causes above explain'd, 'tis the constancy of the union, which is diminish'd; and in the probability deriv'd from analogy, 'tis the resemblance only, which is affected. Without some degree of resemblance, as well as union, 'tis impossible there can be any reasoning: but as this resemblance admits of many different degrees, the reasoning becomes proportionally more or less firm and certain. An experiment loses of its force, when transfer'd to instances, which are not exactly resembling; tho' 'tis evident it may still retain as much as may be the foundation of probability, as long as there is any resemblance remaining.

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1. Pages xxii, xxiii.

Section XIII. Of unphilosophical probability

All these kinds of probability are receiv'd by philosophers, and allow'd to be reasonable foundations of belief and opinion. But there are others, that are deriv'd from the same principles, tho' they have not had the good fortune to obtain the same sanction. The *first* probability of this kind may be accounted for thus. The diminution of the union, and of the resemblance, as above explained, diminishes the facility of the transition, and by that means weakens the evidence; and we may farther observe, that the same diminution of the evidence will follow from a diminution of the impression, and from the shading of those colours, under which it appears to the memory or senses. The argument, which we found on any matter of fact we remember, is more or less convincing, according as the fact is recent or remote; and tho' the difference in these degrees of evidence be not receiv'd by philosophy as solid and

legitimate; because in that case an argument must have a different force to day, from what it shall have a month hence; yet notwithstanding the opposition of philosophy, 'tis certain, this circumstance has a considerable influence on the understanding, and secretly changes the authority of the same argument, according to the different times, in which it is propos'd to us. A greater force and vivacity in the impression naturally conveys a greater to the related idea; and 'tis on the degrees of force and vivacity, that the belief depends, according to the foregoing system.

There is a *second* difference, which we may frequently observe in our degrees of belief and assurance, and which never fails to take place, tho' disclaimed by philosophers. An experiment, that is recent and fresh in the memory, affects us more than one that is in some measure obliterated; and has a superior influence on the judgment, as well as on the passions. A lively impression produces more assurance than a faint one; because it has more original force to communicate to the related idea, which thereby acquires a greater force and vivacity. A recent observation has a like effect; because the custom and transition is there more entire, and preserves better the original force in the communication. Thus a drunkard, who has seen his companion die of a debauch, is struck with that instance for some time, and dreads a like accident for himself: But as the memory of it decays away by degrees, his former security returns, and the danger seems less certain and real. I add, as a third instance of this kind, that tho' our reasonings from proofs and from probabilities be considerably different from each other, yet the former species of reasoning often degenerates insensibly into the latter, by nothing but the multitude of connected arguments. 'Tis certain, that when an inference is drawn immediately from an object, without any intermediate cause or effect, the conviction is much stronger, and the persuasion more lively, than when the imagination is carry'd thro' a long chain of connected arguments, however infallible the connexion of each link may be esteem'd. 'Tis from the original impression, that the vivacity of all the ideas is deriv'd, by means of the customary transition of the imagination; and 'tis evident this vivacity must gradually decay in proportion to the distance, and must lose somewhat in each transition. Sometimes this distance has a greater influence than even contrary experiments wou'd have; and a man may receive a more lively conviction from a probable reasoning, which is close and immediate, than from a long chain of consequences, tho' just and conclusive in each part. Nay 'tis seldom such reasonings produce any conviction; and one must have a very strong and firm imagination to preserve the evidence to the end, where it passes thro' so many stages.

But here it may not be amiss to remark a very curious phænomenon, which the present subject suggests to us. 'Tis evident there is no point of ancient history, of which we can have any assurance, but by passing thro' many millions of causes and effects, and thro' a chain of arguments of almost an immeasurable length. Before the knowledge of the fact cou'd come to the first historian, it must be convey'd thro' many mouths; and after it is committed to writing, each new copy is a new object, of which the connexion with the foregoing is known only by experience and observation. Perhaps, therefore, it may be concluded from the precedent reasoning, that the evidence of all ancient history must now be lost; or at least, will be lost in time, as the chain of causes encreases, and runs on to a greater length. But as it seems contrary to common sense to think, that if the republic of letters, and the art of printing continue on the same footing as at present, our posterity, even after a thousand ages, can ever doubt if there has been such a man as Julius Cæsar; this may be consider'd as an objection to the present system. If belief consisted only in a certain vivacity, convey'd from an original impression, it wou'd decay by the length of the transition, and must at last be utterly extinguish'd: And *vice versa*, if belief on some occasions be not capable of such an extinction; it must be something different from that vivacity.

Before I answer this objection I shall observe, that from this topic there has been borrow'd a very celebrated argument against the *Christian Religion*; but with this difference, that the connexion betwixt each link of the chain in human testimony has been there suppos'd not to go beyond probability, and to be liable to a degree of doubt and uncertainty. And indeed it must be confest, that in this manner of considering the subject, (which however is not a true one) there is no history or tradition, but what must in the end lose all its force and evidence. Every new probability diminishes the original conviction; and however great that conviction may be suppos'd, 'tis impossible it can subsist under such reiterated diminutions. This is true in general; tho' we shall find[1] afterwards, that there is one very memorable exception, which is of vast consequence in the present subject of the understanding.

Mean while to give a solution of the preceding objection upon the supposition, that historical evidence amounts at first to an entire proof; let us consider, that tho' the links are innumerable, that connect any original fact with the present impression, which is the foundation of belief; yet they are all of the same kind, and depend on the fidelity of Printers and Copists. One edition passes into another, and that into a third, and so on, till we come to that volume we peruse at present. There is no variation in the steps. After we know one, we know all of them; and after we have made one, we can have no scruple as to the rest. This circumstance alone preserves the evidence of history, and will perpetuate the memory of the present age to the latest posterity. If all the long chain of causes and effects, which connect any past event with any volume of history, were compos'd of parts different from each other, and which 'twere necessary for the mind distinctly to conceive, 'tis impossible we shou'd preserve to the end any belief or evidence. But as most of these proofs are perfectly resembling, the mind runs easily along them, jumps from one part to another with facility, and forms but a confus'd and general notion of each link. By this means a long chain of argument, has as little effect in diminishing the original vivacity, as a much shorter wou'd have, if compos'd of parts, which were different from each other, and of which each requir'd a distinct consideration.

A fourth unphilosophical species of probability is that deriv'd from *general rules*, which we rashly form to ourselves, and which are the source of what we properly call Prejudice. An *Irishman* cannot have wit, and a *Frenchman* cannot have solidity; for which reason, tho' the conversation of the former in any instance be visibly very agreeable, and of the latter very judicious, we have entertain'd such a prejudice against them, that they must be dunces or fops in spite of sense and reason. Human nature is very subject to errors of this kind; and perhaps this nation as much as any other.

Shou'd it be demanded why men form general rules, and allow them to influence their judgment, even contrary to present observation and experience, I shou'd reply, that in my opinion it proceeds from those very principles, on which all judgments concerning causes and effects depend. Our judgments concerning cause and effect are deriv'd from habit and experience; and when we have been accustom'd to see one object united to another, our imagination passes from the first to the second, by a natural transition, which precedes reflection, and which cannot be prevented by it. Now 'tis the nature of custom not only to operate with its full force, when objects are presented, that are exactly the same with those to which we have been accustom'd; but also to operate in an inferior degree, when we discover such as are similar; and tho' the habit loses somewhat of its force by every difference, yet 'tis seldom entirely destroy'd, where any considerable circumstances remain the same. A man, who has contracted a custom of eating fruit by the use of pears or peaches, will satisfy himself with melons, where he cannot find his favourite fruit; as one, who has become a drunkard by the use of red wines, will be carried almost with the same violence to white, if presented to him. From this principle I have accounted for that species of probability, deriv'd from analogy, where we transfer our experience in past instances to objects which are resembling, but are not exactly the same with those concerning

which we have had experience. In proportion as the resemblance decays, the probability diminishes; but still has some force as long as there remain any traces of the resemblance.

This observation we may carry farther; and may remark, that tho' custom be the foundation of all our judgments, yet sometimes it has an effect on the imagination in opposition to the judgment, and produces a contrariety in our sentiments concerning the same object. I explain myself. In almost all kinds of causes there is a complication of circumstances, of which some are essential, and others superfluous; some are absolutely requisite to the production of the effect, and others are only conjoin'd by accident. Now we may observe, that when these superfluous circumstances are numerous, and remarkable, and frequently conjoin'd with the essential, they have such an influence on the imagination, that even in the absence of the latter they carry us on to the conception of the usual effect, and give to that conception a force and vivacity, which make it superior to the mere fictions of the fancy. We may correct this propensity by a reflection on the nature of those circumstances; but 'tis still certain, that custom takes the start, and gives a biass to the imagination.

To illustrate this by a familiar instance, let us consider the case of a man, who being hung out from a high tower in a cage of iron cannot forbear trembling, when he surveys the precipice below him, tho' he knows himself to be perfectly secure from falling, by his experience of the solidity of the iron, which supports him; and tho' the ideas of fall and descent, and harm and death, be deriv'd solely from custom and experience. The same custom goes beyond the instances, from which it is deriv'd, and to which it perfectly corresponds; and influences his ideas of such objects as are in some respect resembling, but fall not precisely under the same rule. The circumstances of depth and descent strike so strongly upon him, that their influence cannot be destroy'd by the contrary circumstances of support and solidity, which ought to give him a perfect security. His imagination runs away with its object, and excites a passion proportion'd to it. That passion returns back upon the imagination and inlivens the idea; which lively idea has a new influence on the passion, and in its turn augments its force and violence; and both his fancy and affections, thus mutually supporting each other, cause the whole to have a very great influence upon him.

But why need we seek for other instances, while the present subject of [philosophical][2] probabilities offers us so obvious an one, in the opposition betwixt the judgment and imagination arising from these effects of custom? According to my system, all reasonings are nothing but the effects of custom; and custom has no influence, but by in livening the imagination, and giving us a strong conception of any object. It may, therefore, be concluded, that our judgment and imagination can never be contrary, and that custom cannot operate on the latter faculty after such a manner, as to render it opposite to the former. This difficulty we can remove after no other manner, than by supposing the influence of general rules. We shall afterwards take notice of some general rules, by which we ought to regulate our judgment concerning causes and effects; and these rules are form'd on the nature of our understanding, and on our experience of its operations in the judgments we form concerning objects. By them we learn to distinguish the accidental circumstances from the efficacious causes; and when we find that an effect can be produc'd without the concurrence of any particular circumstance, we conclude that that circumstance makes not a part of the efficacious cause, however frequently conjoin'd with it. But as this frequent conjunction necessarily makes it have some effect on the imagination, in spite of the opposite conclusion from general rules, the opposition of these two principles produces a contrariety in our thoughts, and causes us to ascribe the one inference to our judgment, and the other to our imagination. The general rule is attributed to our judgment; as being more extensive and constant. The exception to the imagination; as being more capricious and uncertain.

Thus our general rules are in a manner set in opposition to each other. When an object appears, that resembles any cause in very considerable circumstances, the imagination naturally carries us to a lively conception of the usual effect, tho' the object be different in the most material and most efficacious circumstances from that cause. Here is the first influence of general rules. But when we take a review of this act of the mind, and compare it with the more general and authentic operations of the understanding, we find it to be of an irregular nature, and destructive of all the most establish'd principles of reasonings; which is the cause of our rejecting it. This is a second influence of general rules, and implies the condemnation of the former. Sometimes the one, sometimes the other prevails, according to the disposition and character of the person. The vulgar are commonly guided by the first, and wise men by the second. Mean while the sceptics may here have the pleasure of observing a new and signal contradiction in our reason, and of seeing all philosophy ready to be subverted by a principle of human nature, and again sav'd by a new direction of the very same principle. The following of general rules is a very unphilosophical species of probability; and yet 'tis only by following them that we can correct this, and all other unphilosophical probabilities.

Since we have instances, where general rules operate on the imagination even contrary to the judgment, we need not be surpriz'd to see their effects encrease, when conjoin'd with that latter faculty, and to observe that they bestow on the ideas they present to us a force superior to what attends any other. Every one knows, there is an indirect manner of insinuating praise or blame, which is much less shocking than the open flattery or censure of any person. However he may communicate his sentiments by such secret insinuations, and make them known with equal certainty as by the open discovery of them, 'tis certain that their influence is not equally strong and powerful. One who lashes me with conceal'd strokes of satire, moves not my indignation to such a degree, as if he flatly told me I was a fool and coxcomb; tho' I equally understand his meaning, as if he did. This difference is to be attributed to the influence of general rules.

Whether a person openly abuses me, or slyly intimates his contempt, in neither case do I immediately perceive his sentiment or opinion; and 'tis only by signs, that is, by its effects, I become sensible of it. The only difference, then, betwixt these two cases consists in this, that in the open discovery of his sentiments he makes use of signs, which are general and universal; and in the secret-intimation employs such as are more singular and uncommon. The effect of this circumstance is, that the imagination, in running from the present impression to the absent idea, makes the transition with greater facility, and consequently conceives the object with greater force, where the connexion is common and universal, than where it is more rare and particular. Accordingly we may observe, that the open declaration of our sentiments is call'd the taking off the mask, as the secret intimation of our opinions is said to be the veiling of them. The difference betwixt an idea produc'd by a general connexion, and that arising from a particular one is here compar'd to the difference betwixt an impression and an idea. This difference in the imagination has a suitable effect on the passions; and this effect is augmented by another circumstance. A secret intimation of anger or contempt shews that we still have some consideration for the person, and avoid the directly abusing him. This makes a conceal'd satire less disagreeable; but still this depends on the same principle. For if an idea were not more feeble, when only intimated, it wou'd never be esteem'd a mark of greater respect to proceed in this method than in the other.

Sometimes scurrility is less displeasing than delicate satire, because it revenges us in a manner for the injury at the very time it is committed, by affording us a just reason to blame and contemn the person, who injures us. But this phænomenon likewise depends upon the same principle. For why do we blame all gross and injurious language, unless it be, because we esteem it contrary to good breeding and

humanity? And why is it contrary, unless it be more shocking than any delicate satire? The rules of good-breeding condemn whatever is openly disobliging, and gives a sensible pain and confusion to those, with whom we converse. After this is once establish'd, abusive language is universally blam'd, and gives less pain upon account of its coarseness and incivility, which render the person despicable, that employs it. It becomes less disagreeable, merely because originally it is more so; and 'tis more disagreeable, because it affords an inference by general and common rules, that are palpable and undeniable.

To this explication of the different influence of open and conceal'd flattery or satire, I shall add the consideration of another phænomenon, which is analogous to it. There are many particulars in the point of honour both of men and women, whose violations, when open and avow'd, the world never excuses, but which it is more apt to overlook, when the appearances are sav'd, and the transgression is secret and conceal'd. Even those, who know with equal certainty, that the fault is committed, pardon it more easily, when the proofs seem in some measure oblique and equivocal, than when they are direct and undeniable. The same idea is presented in both cases, and, properly speaking, is equally assented to by the judgment; and yet its influence is different, because of the different manner, in which it is presented. Now if we compare these two cases, of the *open* and *conceal'd* violations of the laws of honour, we shall find, that the difference betwixt them consists in this, that in the first case the sign, from which we infer the blameable action, is single, and suffices alone to be the foundation of our reasoning and judgment; whereas in the latter the signs are numerous, and decide little or nothing when alone and unaccompany'd with many minute circumstances, which are almost imperceptible. But 'tis certainly true, that any reasoning is always the more convincing, the more single and united it is to the eye, and the less exercise it gives to the imagination to collect all its parts, and run from them to the correlative idea, which forms the conclusion. The labour of the thought disturbs the regular progress of the sentiments, as we shall observe presently. The idea strikes not on us with such vivacity; and consequently has no such influence on the passion and imagination.

From the same principles we may account for those observations of the Cardinal de Retz, *that there are many things, in which the world wishes to be deceiv'd;* and *that it more easily excuses a person in acting than in talking contrary to the decorum of his profession and character*. A fault in words is commonly more open and distinct than one in actions, which admit of many palliating excuses, and decide not so clearly concerning the intention and views of the actor.

Thus it appears upon the whole, that every kind of opinion or judgment, which amounts not to knowledge, is deriv'd entirely from the force and vivacity of the perception, and that these qualities constitute in the mind, what we call the belief of the existence of any object. This force and this vivacity are most conspicuous in the memory; and therefore our confidence in the veracity of that faculty is the greatest imaginable, and equals in many respects the assurance of a demonstration. The next degree of these qualities is that deriv'd from the relation of cause and effect; and this too is very great, especially when the conjunction is found by experience to be perfectly constant, and when the object, which is present to us, exactly resembles those, of which we have had experience. But below this degree of evidence there are many others, which have an influence on the passions and imagination, proportion'd to that degree of force and vivacity, which they communicate to the ideas. 'Tis by habit we make the transition from cause to effect; and 'tis from some present impression we borrow that vivacity, which we diffuse over the correlative idea. But when we have not observ'd a sufficient number of instances, to produce a strong habit; or when these instances are contrary to each other; or when the resemblance is not exact; or the present impression is faint and obscure; or the experience in some measure obliterated from the memory; or the connexion dependent on a long chain

of objects; or the inference deriv'd from general rules, and yet not conformable to them: In all these cases the evidence diminishes by the diminution of the force and in tenseness of the idea. This therefore is the nature of the judgment and probability.

What principally gives authority to this system is, beside the undoubted arguments, upon which each part is founded, the agreement of these parts, and the necessity of one to explain another. The belief, which attends our memory, is of the same nature with that, which is deriv'd from our judgments: Nor is there any difference betwixt that judgment, which is deriv'd from a constant and uniform connexion of causes and effects, and that which depends upon an interrupted and uncertain. 'Tis indeed evident, that in all determinations, where the mind decides from contrary experiments, 'tis first divided within itself, and has an inclination to either side in proportion to the number of experiments we have seen and remember. This contest is at last determin'd to the advantage of that side, where we observe a superior number of these experiments; but still with a diminution of force in the evidence correspondent to the number of the opposite experiments. Each possibility, of which the probability is compos'd, operates separately upon the imagination; and 'tis the larger collection of possibilities, which at last prevails, and that with a force proportionable to its superiority. All these phænomena lead directly to the precedent system; nor will it ever be possible upon any other principles to give a satisfactory and consistent explication of them. Without considering these judgments as the effects of custom on the imagination, we shall lose ourselves in perpetual contradiction and absurdity.

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1. Part IV. sect. 1.
2. Sect. 15 [unphilosophical ?].

Section XIV. Of the idea of necessary connexion

Having thus explain'd the manner, *in which we reason beyond our immediate impressions, and conclude that such particular causes must have such particular effects;* we must now return upon our footsteps to examine that question, which first occur'd to us, and which we dropt in our way, *viz. What is our idea of necessity, when we say that two objects are* necessarily connected together. *Upon this head I repeat what* I have often had occasion to observe, that as we have no idea, that is not deriv'd from an impression, we must find some impression, that gives rise to this idea of necessity, if we assert we have really such an idea. In order to this I consider, in what objects necessity is commonly suppos'd to lie; and finding that it is always ascrib'd to causes and effects, I turn my eye to two objects suppos'd to be plac'd in that relation; and examine them in all the situations, of which they are susceptible. I immediately perceive, that they are *contiguous* in time and place, and that the object we call cause *precedes* the other we call effect. In no one instance can I go any farther, nor is it possible for me to discover any third relation betwixt these objects. I therefore enlarge my view to comprehend several instances; where I find like objects always existing in like relations of contiguity and succession. At first sight this seems to serve but little to my purpose. The reflection on several instances only repeats the same objects; and therefore can never give rise to a new idea. But upon farther enquiry I find, that the repetition is not in every particular the same, but produces a new impression, and by that means the idea, which I at present examine. For after a frequent repetition, I find, that upon the appearance of one of the objects, the mind is *determin'd* by custom to consider its usual attendant, and to consider it in a stronger light upon account of its relation to the first object. 'Tis this impression, then, or *determination*, which affords me the idea of necessity.

I doubt not but these consequences will at first sight be receiv'd without difficulty, as being evident deductions from principles, which we have already establish'd, and which we have often employ'd in our reasonings. This evidence both in the first principles, and in the deductions, may seduce us unwarily into the conclusion, and make us imagine it contains nothing extraordinary, nor worthy of our curiosity. But tho' such an inadvertence may facilitate the reception of this reasoning, 'twill make it be the more easily forgot; for which reason I think it proper to give warning, that I have just now examin'd one of the most sublime questions in philosophy, *viz. that concerning the power and efficacy of causes;* where all the sciences seem so much interested. Such a warning will naturally rouze up the attention of the reader, and make him desire a more full account of my doctrine, as well as of the arguments, on which it is founded. This request is so reasonable, that I cannot refuse complying with it; especially as I am hopeful that these principles, the more they are examin'd, will acquire the more force and evidence.

There is no question, which on account of its importance, as well as difficulty, has caus'd more disputes both among antient and modern philosophers, than this concerning the efficacy of causes, or that quality which makes them be followed by their effects. But before they enter'd upon these disputes, methinks it wou'd not have been improper to have examin'd what idea we have of that efficacy, which is the subject of the controversy. This is what I find principally wanting in their reasonings, and what I shall here endeavour to supply.

I begin with observing that the terms of *efficacy, agency, power, force, energy, necessity, connexion,* and *productive quality,* are all nearly synonymous; and therefore 'tis an absurdity to employ any of them in defining the rest. By this observation we reject at once all the vulgar definitions, which philosophers have given of power and efficacy; and instead of searching for the idea in these definitions, must look for it in the impressions, from which it is originally deriv'd. If it be a compound idea, it must arise from compound impressions. If simple, from simple impressions.

I believe the most general and most popular explication of this matter, is to say,[1] that finding from experience, that there are several new productions in matter, such as the motions and variations of body, 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 and efficacy. But to be convinc'd that this explication is more popular than philosophical, we need but reflect on two very obvious principles. *First,* That reason alone can never give rise to any original idea, and *secondly,* that reason, as distinguish'd from experience, can never make us conclude, that a cause or productive quality is absolutely requisite to every beginning of existence. Both these considerations have been sufficiently explain'd; and therefore shall not at present be any farther insisted on.

I shall only infer from them, that since reason can never give rise to the idea of efficacy, that idea must be deriv'd from experience, and from some particular instances of this efficacy, which make their passage into the mind by the common channels of sensation or reflection. Ideas always represent their objects or impressions; and *vice versa,* there are some objects necessary to give rise to every idea. If we pretend, therefore, to have any just idea of this efficacy, we must produce some instance, wherein the efficacy is plainly discoverable to the mind, and its operations obvious to our consciousness or sensation. By the refusal of this, we acknowledge, that the idea is impossible and imaginary; since the principle of innate ideas, which alone can save us from this dilemma, has been already refuted, and is now almost universally rejected in the learned world. Our present business, then, must be to ind some natural production, where the operation and efficacy of a cause can be clearly conceiv'd and comprehended by the mind, without any danger of obscurity or mistake.

In this research we meet with very little encouragement from that prodigious diversity, which is found in the opinions of those philosophers, who have pretended to explain the secret force and energy of causes[2] . There are some, who maintain, that bodies operate by their substantial form; others, by their accidents or qualities; several, by their matter and form; some, by their form and accidents; others, by certain virtues and faculties distinct from all this. All these sentiments again are mix'd and vary'd in a thousand different ways; and form a strong presumption, that none of them have any solidity or evidence. and that the supposition of an efficacy in any of the known qualities of matter is entirely without foundation. This presumption must encrease upon us, when we consider, that these principles of substantial forms, and accidents, and faculties, are not in reality any of the known properties of bodies, but are perfectly unintelligible and inexplicable. For 'tis evident philosophers wou'd never have had recourse to such obscure and uncertain principles had they met with any satisfaction in such as are clear and intelligible; especially in such an affair as this, which must be an object of the simplest understanding, if not of the senses. Upon the whole, we may conclude, that 'tis impossible in any one instance to shew the principle, in which the force and agency of a cause is plac'd; and that the most refin'd and most vulgar understandings are equally at a loss in this particular. If any one think proper to refute this assertion, he need not put himself to the trouble of inventing any long reasonings; but may at once shew us an instance of a cause, where we discover the power or operating principle. This defiance we are oblig'd frequently to make use of as being almost the only means of proving a negative in philosophy.

The small success, which has been met with in all the attempts to fix this power, has at last oblig'd philosophers to conclude, that the ultimate force and efficacy of nature is perfectly unknown to us, and that 'tis in vain we search for it in all the known qualities of matter. In this opinion they are almost unanimous; and 'tis only in the inference they draw from it, that they discover any difference in their sentiments. For some of them, as the *Cartesians* in particular, having establish'd it as a principle, that we are perfectly acquainted with the essence of matter, have very naturally inferr'd, that it is endow'd with no efficacy, and that 'tis impossible for it of itself to communicate motion, or produce any of those effects, which we ascribe to it. As the essence of matter consists in extension, and as extension implies not actual motion, but only mobility; they conclude, that the energy, which produces the motion, cannot lie in the extension.

This conclusion leads them into another, which they regard as perfectly unavoidable. Matter, say they, is in itself entirely unactive, and depriv' d of any power, by which it may produce, or continue, or communicate motion: But since these effects are evident to our senses, and since the power, that produces them, must be plac'd somewhere, it must lie in the Deity, or that divine being, who contains in his nature all excellency and perfection. 'Tis the deity, therefore, who is the prime mover of the universe, and who not only first created matter, and gave it it's original impulse, but likewise by a continu'd exertion of omnipotence, supports its existence, and successively bestows on it all those motions, and configurations, and qualities, with which it is endow'd.

This opinion is certainly very curious, and well worth our attention; but 'twill appear superfluous to examine it in this place, if we reflect a moment on our present purpose in taking notice of it. We have establish'd it as a principle, that as all ideas are deriv'd from impressions, or some precedent *perceptions*, 'tis impossible we can have any idea of power and efficacy, unless some instances can be produc'd, wherein this power *is perceiv'd* to exert itself. Now as these instances can never be discover'd in body, the *Cartesians*, proceeding upon their principle of innate ideas, have had recourse to a supreme spirit or deity, whom they consider as the only active being in the universe, and as the immediate cause of every alteration in matter. But the principle of innate ideas being allow'd to be

false, it follows, that the supposition of a deity can serve us in no stead, in accounting for that idea of agency, which we search for in vain in all the objects, which are presented to our senses, or which we are internally conscious of in our own minds. For if every idea be deriv'd from an impression, the idea of a deity proceeds from the same origin; and if no impression, either of sensation or reflection, implies any force or efficacy, 'tis equally impossible to discover or even imagine any such active principle in the deity. Since these philosophers, therefore, have concluded, that matter cannot be endow'd with any efficacious principle, because 'tis impossible to discover in it such a principle; the same course of reasoning shou'd determine them to exclude it from the supreme being. Or if they estem that opinion absurd and impious, as it really is, I shall tell them how they may avoid it; and that is, by concluding from the very first, that they have no adequate idea of power or efficacy in any object; since neither in body nor spirit, neither in superior nor inferior natures, are they able to discover one single instance of it.

The same conclusion is unavoidable upon the hypothesis of those, who maintain the efficacy of second causes, and attribute a derivative, but a real power and energy to matter. For as they confess, that this energy lies not in any of the known qualities of matter, the difficulty still remains concerning the origin of its idea. If we have really an idea of power, we may attribute power to an unknown quality: But as 'tis impossible, that that idea can be deriv'd from such a quality, and as there is nothing in known qualities, which can produce it; it follows that we deceive ourselves, when we imagine we are possest of any idea of this kind, after the manner we commonly understand it. All ideas are deriv'd from, and represent impressions. We never have any impression, that contains any power or efficacy. We never therefore have any idea of power.

It has been establish'd as a certain principle, that general or abstract ideas are nothing but individual ones taken in a certain light, and that, in effecting on any object, 'tis as impossible to exclude from our thought all particular degrees of quantity and quality as from the real nature of things. If we be possest, therefore, of any idea of power in general, we must also be able to conceive some particular species of it; and as power cannot subsist alone, but is always regarded as an attribute of some being or existence, we must be able to place this power in some particular being, and conceive that being as endow'd with a real force and energy, by which such a particular effect necessarily results from its operation. We must distinctly and particularly conceive the connexion betwixt the cause and effect, and be able to pronounce, from a simple view of the one, that it must be follow'd or preceded by the other. This is the true manner of conceiving a particular power in a particular body: and a general idea being impossible without an individual; where the latter is impossible, 'tis certain the former can never exist. Now nothing is more evident, than that the human mind cannot form such an idea of two objects, as to conceive any connexion betwixt them, or comprehend distinctly that power or efficacy, by which they are united. Such a connexion wou'd amount to a demonstration, and wou'd imply the absolute impossibility for the one object not to follow, or to be conceiv'd not to follow upon the other: Which kind of connexion has already been rejected in all cases. If any one is of a contrary opinion, and thinks he has attain'd a notion of power in any particular object, I desire he may point out to me that object. But till I meet with such-a-one, which I despair of, I cannot forbear concluding, that since we can never distinctly conceive how any particular power can possibly reside in any particular object, we deceive ourselves in imagining we can form any such general idea.

Thus upon the whole we may infer, that when we talk of any being, whether of a superior or inferior nature, as endow'd with a power or force, proportion'd to any effect; when we speak of a necessary connexion betwixt objects, and suppose, that this connexion depends upon an efficacy or energy, with which any of these objects are endow'd; in all these expressions, *so applied,* we have really no distinct

meaning, and make use only of common words, without any clear and determinate ideas. But as 'tis more probable, that these expressions do here lose their true meaning by being *wrong apply'd*, than that they never have any meaning; 'twill be proper to bestow another consideration on this subject, to see if possibly we can discover the nature and origin of those ideas, we annex to them.

Suppose two objects to be presented to us, of which the one is the cause and the other the effect; 'tis plain, that from the simple consideration of one, or both these objects we never shall perceive the tie, by which they are united, or be able certainly to pronounce, that there is a connexion betwixt them. 'Tis not, therefore, from any one instance, that we arrive at the idea of cause and effect, of a necessary connexion of power, of force, of energy, and of efficacy. Did we never see any but particular conjunctions of objects, entirely different from each other, we shou'd never be able to form any such ideas.

But again; suppose we observe several instances, in which the same objects are always conjoin'd together, we immediately conceive a connexion betwxxt them, and begin to draw an inference from one to another. This multiplicity of resembling instances, therefore, constitutes the very essence of power or connexion, and is the source, from which the idea of it arises. In order, then, to understand the idea of power, we must consider that multiplicity; nor do I ask more to give a solution of that difficulty, which has so long perplex'd us. For thus I reason. The repetition of perfectly similar instances can never alone give rise to an original idea, different from what is to be found in any particular instance, as has been observ'd, and as evidently follows from our fundamental principle, *that all ideas are copy'd from impressions.* Since therefore the idea of power is a new original idea, not to be found in any one instance, and which yet arises from the repetition of several instances, it follows, that the repetition *alone* has not that effect, but must either *discover* or *produce* something new, which is the source of that idea. Did the repetition neither discover nor produce any thing new, our ideas might be multiply'd by it, but wou'd not be enlarg'd above what they are upon the observation of one single instance. Every enlargement, therefore, (such as the idea of power or connexion) which arises from the multiplicity of similar instances, is copy'd from some effects of the multiplicity, and will be perfectly understood by understanding these effects. Wherever we find any thing new to be discover'd or produc'd by the repetition, there we must place the power, and must never look for it in any other object.

But 'tis evident, in the first place, that the repetition of like objects in like relations of succession and contiguity *discovers* nothing new in any one of them; since we can draw no inference from it, nor make it a subject either of our demonstrative or probable reasonings;[3] as has been already prov'd. Nay suppose we cou'd draw an inference, 'twou'd be of no consequence in the present case; since no kind of reasoning can give rise to a new idea, such as this of power is; but wherever we reason, we must antecedently be possest of clear ideas, which may be the objects of our reasoning. The conception always precedes the understanding; and where the one is obscure, the other is uncertain; where the one fails, the other must fail also.

Secondly, 'Tis certain that this repetition of similar objects in similar situations *produces* nothing new either in these objects, or in any external body. For 'twill readily be allow'd, that the several instances we have of the conjunction of resembling causes and effects are in themselves entirely independent, and that the communication of motion, which I see result at present from the shock of two billiard-balls, is totally distinct from that which I saw result from such an impulse a twelve-month ago. These impulses have no influence on each other. They are entirely divided by time and place; and the one might have existed and communicated motion, tho' the other never had been in being.

There is, then, nothing new either discover'd or produc'd in any objects by their constant conjunction, and by the uninterrupted resemblance of their relations of succession and contiguity. But 'tis from this resemblance, that the ideas of necessity, of power, and of efficacy, are deriv'd. These ideas, therefore, represent not any thing, that does or can belong to the objects, which are constantly conjoin'd. This is an argument, which, in every view we can examine it, will be found perfectly unanswerable. Similar instances are still the first source of our idea of power or necessity; at the same time that they have no influence by their similarity either on each other, or on any external object. We must therefore, tum ourselves to some other quarter to seek the origin of that idea.

Tho' the several resembling instances, which give rise to the idea of power, have no influence on each other, and can never produce any new quality *in the object*, which can be the model of that idea, yet the *observation* of this resemblance produce a new impression *in the mind*, which is its real model. For after we have observ'd the resemblance in a sufficient number of instances, we immediately feel a determination of the mind to pass from one object to its usual attendant, and to conceive it in a stronger light upon account of that relation. This determination is the only effect of the resemblance; and therefore must be the same with power or efficacy, whose idea is deriv'd from the resemblance. The several instances of resembling conjunctions leads us into the notion of power and necessity. These instances are in themselves totally distinct from each other, and have no union but in the mind, which observes them, and collects their ideas. Necessity, then, is the effect of this observation, and is nothing but an internal impression of the mind, or a determination to carry our thoughts from one object to another. Without considering it in this view, we can never arrive at the most distant notion of it, or be able to attribute it either to external or internal objects, to spirit or body, to causes or effects.

The necessary connexion betwixt causes and effects is the foundation of our inference from one to the other. The foundation of our inference is the transition arising from the accustom'd union. These are, therefore, the same.

The idea of necessity arises from some impression. There is no impression convey'd by our senses, which can give rise to that idea. It must, therefore, be deriv'd from some internal impression, or impression of reflection. There is no internal impression, which has any relation to the present business, but that propensity, which custom produces, to pass from an object to the idea of its usual attendant. This therefore is the essence of necessity. Upon the whole, necessity is something, that exists in the mind, not in objects; nor is it, possible for us ever to form the most distant idea of it, consider'd as a quality in bodies. Either we have no idea of necessity, or necessity is nothing but that determination of the thought to pass from causes to effects and from effects to causes, according to their experience'd union.

Thus as the necessity, which makes two times two equal to four, or three angles of a triangle equal to two right ones, lies only in the act of the understanding, by which we consider and compare these ideas; in like manner the necessity or power, which unites causes and effects, lies in the determination of the mind to pass from the one to the other. The efficacy or energy of causes is neither plac'd in the causes themselves, nor in the deity, nor in the concurrence of these two principles; but belongs entirely to the soul, which considers the union of two or more objects in all past instances. 'Tis here that the real power of causes is plac'd, along with their connexion and necessity.

I am sensible, that of all the paradoxes, which I have had, or shall hereafter have occasion to advance in the course of this treatise, the present one is the most violent, and that 'tis merely by dint of solid

proof and reasoning I can ever hope it will have admission, and overcome the inveterate prejudices of mankind. Before we are reconcil'd to this doctrine, how often must we repeat to ourselves, *that* the simple view of any two objects or actions, however related, can never give us any idea of power, or of a connexion betwixt them: *that* this idea arises from the repetition of their union: *that* the repetition neither discovers nor causes any thing in the objects, but has an influence only on the mind, by that customary transition it produces: *that* this customary transition is, therefore, the same with the power and necessity; which are consequently qualities of perceptions, not of objects, and are internally felt by the soul, and not perceiv'd externally in bodies? There is commonly an astonishment attending every thing extraordinary; and this astonishment changes immediately into the highest degree of esteem or contempt, according as we approve or disapprove of the subject. I am much afraid, that tho' the foregoing reasoning appears to me the shortest and most decisive imaginable; yet with the generality of readers the biass of the mind will prevail, and give them a prejudice against the present doctrine.

This contrary biass is easily accounted for. 'Tis a common observation, that the mind has a great propensity to spread itself on external objects, and to conjoin with them any internal impressions, which they occasion, and which always make their appearance at the same time that these objects discover themselves to the senses. Thus as certain sounds and smells are always found to attend certain visible objects, we naturally imagine a conjunction, even in place, betwixt the objects and qualities, tho' the qualities be of such a nature as to admit of no such conjunction, and really exist no where. But of this more fully[4] hereafter. Mean while 'tis sufficient to observe, that the same propensity is the reason, why we suppose necessity and power to lie in the objects we consider, not in our mind, that considers them; notwithstanding it is not possible for us to form the most distant idea of that quality, when it is not taken for the determination of the mind, to pass from the idea of an object to that of its usual attendant.

But tho' this be the only reasonable account we can give of necessity, the contrary notion is so riveted in the mind from the principles above-mention'd, that I doubt not but my sentiments will be treated by many as extravagant and ridiculous. What! the efficacy of causes lie in the determination of the mind! As if causes did not operate entirely independent of the mind, and wou'd not continue their operation, even tho' there was no mind existent to contemplate them, or reason concerning them. Thought may well depend on causes for its operation, but not causes on thought. This is to reverse the order of nature, and make that secondary, which is really primary. To every operation there is a power proportion'd; and this power must be plac'd on the body, that operates. If we remove the power from one cause, we must ascribe it to another: But to remove it from all causes, and bestow it on a being, that is no ways related to the cause or effect, but by perceiving them, is a gross absurdity, and contrary to the most certain principles of human reason.

I can only reply to all these arguments, that the case is here much the same, as if a blind man shou'd pretend to find a great many absurdities in the supposition, that the colour of scarlet is not the same with the sound of a trumpet, nor light the same with solidity. If we have really no idea of a power or efficacy in any object, or of any real connexion betwixt causes and effects, 'twill be to little purpose to prove, that an efficacy is necessary in all operations. We do not understand our own meaning in talking so, but ignorantly confound ideas, which are entirely distinct from each other. I am, indeed, ready to allow, that there may be several qualities both in material and immaterial objects, with which we are utterly unacquainted; and if we please to call these *power* or *efficacy*, 'twill be of little consequence to the world. But when, instead of meaning these unknown qualities, we make the terms of power and efficacy signify something, of which we have a clear idea, and which is incompatible with those objects, to which we apply it, obscurity and error begin then to take place, and we are led astray by a

false philosophy. This is the case, when we transfer the determination of the thought to external objects, and suppose any real intelligible connexion betwixt them; that being a quality, which can only belong to the mind that considers them.

As to what may be said, that the operations of nature are independent of our thought and reasoning, I allow it; and accordingly have observ'd, that objects bear to each other the relations of contiguity and succession; that like objects may be observ'd in several instances to have like relations; and that all this is independent of, and antecedent to the operations of the understanding. But if we go any farther, and ascribe a power or necessary connexion to these objects; this is what we can never observe in them, but must draw the idea of it from what we feel internally in contemplating them. And this I carry so far, that I am ready to convert my present reasoning into an instance of it, by a subtility, which it will not be difficult to comprehend.

When any object is presented to us, it immediately conveys to the mind a lively idea of that object, which is usually found to attend it; and this determination of the mind forms the necessary connexion of these objects. But when we change the point of view, from the objects to the perceptions; in that case the impression is to be considered as the cause, and the lively idea as the effect; and their necessary connexion is that new determination, which we feel to pass from the idea of the one to that of the other. The uniting principle among our internal perceptions is as unintelligible as that among external objects, and is not known to us any other way than by experience. Now the nature and effects of experience have been already sufficiently examin'd and explain'd. It never gives us any insight into the internal structure or operating principle of objects, but only accustoms the mind to pass from one to another.

'Tis now time to collect all the different parts of this reasoning, and by joining them together form an exact definition of the relation of cause and effect, which makes the subject of the present enquiry. This order wou'd not have been excusable, of first examining our inference from the relation before we had explain'd the relation itself, had it been possible to proceed in a different method. But as the nature of the relation depends so much on that of the inference, we have been oblig'd to advance in this seemingly preposterous manner, and make use of terms before we were able exactly to define them, or fix their meaning. We shall now correct this fault by giving a precise definition of cause and effect.

There may two definitions be given of this relation, which are only different, by their presenting a different view of the same object, and making us consider it either as a *philosophical* or as a *natural* relation; either as a comparison of two ideas, or as an association betwixt them. We may define a cause to be 'An object precedent and contiguous to another, and where all the objects resembling the former are plac'd in like relations of precedence and contiguity to those objects, that resemble the latter.' If this definition be esteem'd defective, because drawn from objects foreign to the cause, we may substitute this other definition in its place, *viz.* 'A cause is an object precedent and contiguous to another, and so united with it, that the idea of the one determines the mind to form the idea of the other, and the impression of the one to form a more lively idea of the other.' Shou'd this definition also be rejected for the same reason, I know no other remedy, than that the persons, who express this delicacy, should substitute a juster definition in its place. But for my part I must own my incapacity for such an undertaking. When I examine with the utmost accuracy those objects, which are commonly denominated causes and effects, I find, in considering a single instance, that the one object is precedent and contiguous to the other; and in enlarging my view to consider several instances, I find only, that like objects are constantly plac'd in like relations of succession and contiguity. Again, when I consider the influence of this constant conjunction, I perceive, that such a relation can never be an object of

reasoning, and can never operate upon the mind, but by means of custom, which determines the imagination to make a transition from the idea of one object to that of its usual attendant, and from the impression of one to a more lively idea of the other. However extraordinary these sentiments may appear, I think it fruitless to trouble myself with any farther enquiry or reasoning upon the subject, but shall repose myself on them as on establish'd maxims.

'Twill only be proper, before we leave this subject, to draw some corollaries from it, by which we may remove several prejudices and popular errors, that have very much prevail'd in philosophy. First, We may learn from the foregoing doctrine, that all causes are of the same kind, and that in particular there is no foundation for that distinction, which we sometimes make betwixt efficient causes, and causes *sine qua non*; or betwixt efficient causes, and formal, and material, and exemplary, and final causes. For as our idea of efficiency is deriv'd from the constant conjunction of two objects, wherever this is observ'd, the cause is efficient; and where it is not, there can never be a cause of any kind. For the same reason we must reject the distinction betwixt *cause* and *occasion*, when suppos'd to signify any thing essentially different from each other. If constant conjunction be imply'd in what we call occasion, 'tis a real cause. If not, 'tis no relation at all, and cannot give rise to any argument or reasoning.

Secondly, The same course of reasoning will make us conclude, that there is but one kind of *necessity*, as there is but one kind of cause, and that the common distinction betwixt *moral* and *physical* necessity is without any foundation in nature. This clearly appears from the precedent explication of necessity. 'Tis the constant conjunction of objects, along with the determination of the mind, which constitutes a physical necessity: And the removal of these is the same thing with *chance*. As objects must either be conjoin'd or not, and as the mind must either be determin'd or not to pass from one object to another, 'tis impossible to admit of any medium betwixt chance and an absolute necessity. In weakening this conjunction and determination you do not change the nature of the necessity; since even in the operation of bodies, these have different degrees of constancy and force, without producing a different species of that relation.

The distinction, which we often make betwixt *power* and the *exercise* of it, is equally without foundation.

Thirdly, We may now be able fully to overcome all that repugnance, which 'tis so natural for us to entertain against the foregoing reasoning, by which we endeavour'd to prove, that the necessity of a cause to every beginning of existence is not founded on any arguments either demonstrative or intuitive. Such an opinion will not appear strange after the foregoing definitions. If we define a cause to be *an object precedent and contiguous to another, and where all the objects resembling the former are plac'd in a like relation of priority and contiguity to those objects, that resemble the latter;* we may easily conceive, that there is no absolute nor metaphysical necessity, that every beginning of existence shou'd be attended with such an object. If we define a cause to be, *An object precedent and contiguous to another, and so united with it in the imagination, that the idea of the one determines the mind to form the idea of the other, and the impression of the one to form a more lively idea of the other;* we shall make still less difficulty of assenting to this opinion. Such an influence on the mind is in itself perfectly extraordinary and incomprehensible; nor can we be certain of its reality, but from experience and observation.

I shall add as a fourth corollary, that we can never have reason to believe that any object exists, of which we cannot form an idea. For as all our reasonings concerning existence are deriv'd from

causation, and as all our reasonings concerning causation are deriv'd from the experience'd conjunction of objects, not from any reasoning or reflection, the same experience must give us a notion of these objects, and must remove all mystery from our conclusions. This is so evident, that 'twou'd scarce have merited our attention, were it not to obviate certain objections of this kind, which might arise against the following reasonings concerning *matter* and *substance*. I need not observe, that a full knowledge of the object is not requisite, but only of those qualities of it, which we believe to exist.

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1. See Mr. *Locke*; chapter of power.
2. See Father *Malbranche*, Book VI. Part ii. chap. 3, and the illustrations upon it.
3. Sect. 6.
4. Part. IV. sect. 5.

Section XV. Rules by which to judge of causes and effects

According to the precedent doctrine, there are no objects, which by the mere survey, without consulting experience, we can determine to be the causes of any other; and no objects, which we can certainly determine in the same manner not to be the causes. Any thing may produce any thing. Creation, annihilation, motion, reason, volition; all these may arise from one another, or from any other object we can imagine. Nor will this appear strange, if we compare two principles explain'd above, *that the constant conjunction of objects determines their causation*, and [1] *that properly speaking, no objects are contrary to each other, but existence and non-existance*. Where objects are not contrary, nothing hinders them from having that constant conjunction, on which the relation of cause and effect totally depends. Since therefore 'tis possible for all objects to become causes or effects to each other, it may be proper to fix some general rules, by which we may know when they really are so.

1. The cause and effect must be contiguous in space and time.

2. The cause must be prior to the effect.

3. There must be a constant union betwixt the cause and effect. 'Tis chiefly this quality, that constitutes the relation.

4. The same cause always produces the same effect, and the same effect never arises but from the same cause. This principle we derive from experience, and is the source of most of our philosophical reasonings. For when by any clear experiment we have discover'd the causes or effects of any phænomenon, we immediately extend our observation to every phænomenon of the same kind, without waiting for that constant repetition, from which the first idea of this relation is deriv'd.

5. There is another principle, which hangs upon this, *viz.* that where several different objects produce the same effect, it must be by means of some quality, which we discover to be common amongst them. For as like effects imply like causes, we must always ascribe the causation to the circumstance, wherein we discover the resemblance.

6. The following principle is founded on the same reason. The difference in the effects of two resembling objects must proceed from that particular, in which they differ. For as like causes always produce like effects, when in any instance we find our expectation to be disappointed, we must conclude that this irregularity proceeds from some difference in the causes.

7. When any object encreases or diminishes with the encrease or diminution of its cause, 'tis to be regarded as a compounded effect, deriv'd from the union of the several different effects, which arise from the several different parts of the cause. The absence or presence of one part of the cause is here suppos'd to be always attended with the absence or presence of a proportionable part of the effect. This constant conjunction sufficiently proves, that the one part is the cause of the other. We must, however, beware not to draw such a conclusion from a few experiments; A certain degree of heat gives pleasure; if you diminish that heat, the pleasure diminishes; but it does not follow, that if you augment it beyond a certain degree, the pleasure will likewise augment; for we find that it degenerates into pain.

8. The eighth and last rule I hall take notice of is, that an object, which exists for any time in its full perfection without any effect, is not the sole cause of that effect, but requires to be assisted by some other principle, which may forward its influence and operation. For as like effects necessarily follow from like causes, and in a contiguous time and place, their separation for a moment shews, that these causes are compleat ones.

Here is all the Logic I think proper to employ in my reasoning; and perhaps even this was not very necessary, but might have been supply'd by the natural principles of our understanding. Our scholastic headpieces and logicians shew no such superiority above the mere vulgar in their reason and ability, as to give us any inclination to imitate them in delivering a long system of rules and precepts to direct our judgment, in philosophy. All the rules of this nature are very easy in their invention, but extremely difficult in their application; and even experimental philosophy, which seems the most natural and simple of any, requires the utmost stretch of human judgment. There is no phænomenon in nature, but what is compounded and modify'd by so many different circumstances, that in order to arrive at the decisive point, we must carefully separate whatever is superfluous, and enquire by new experiments, if every particular circumstance of the first experiment was essential to it. These new experiments are liable to a discussion of the same kind; so that the utmost constancy is requir'd to make us persevere in our enquiry, and the utmost sagacity to choose the right way among so many that present themselves. If this be the case even in natural philosophy, how much more in moral, where there is a much greater complication of circumstances, and where those views and sentiments, which are essential to any action of the mind, are so implicit and obscure, that they often escape our strictest attention, and are not only unaccountable in their causes, but even unknown in their existence? I am much afraid, lest the small success I meet with in my enquiries will make this observation bear the air of an apology rather than of boasting.

If any thing can give me security in this particular, 'twill be the enlarging the sphere of my experiments as much as possible; for which reason it may be proper in this place to examine the reasoning faculty of brutes, as well as that of human creatures.

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1. Part I. sect. 5.

Section XVI. Of the reason of animals

Next to the ridicule of denying an evident truth, is that of taking much pains to defend it; and no truth appears to me more evident, than that beasts are endow'd with thought and reason as well as men. The arguments are in this case so obvious, that they never escape the most stupid and ignorant.

We are conscious, that we ourselves, in adapting means to ends, are guided by reason and design, and that 'tis not ignorantly nor casually we perform those actions, which tend to self-preservation, to the obtaining pleasure, and avoiding pain. When therefore we see other creatures, in millions of instances, perform like actions, and direct them to like ends, all our principles of reason and probability carry us with an invincible force to believe the existence of a like cause. 'Tis needless in my opinion to illustrate this argument by the enumeration of particulars. The smallest attention will supply us with more than are requisite. The resemblance betwixt the actions of animals and those of men is so entire in this respect, that the very first action of the first animal we shall please to pitch on, will afford us an incontestable argument for the present doctrine.

This doctrine is as useful as it is obvious, and furnishes us with a kind of touchstone, by which we may try every system in this species of philosophy. 'Tis from the resemblance of the external actions of animals to those we ourselves perform, that we judge their internal likewise to resemble ours; and the same principle of reasoning, carry'd one step farther, will make us conclude that since our internal actions resemble each other, the causes, from which they are deriv'd, must also be resembling. When any hypothesis, therefore, is advanc'd to explain a mental operation, which is common to men and beasts, we must apply the same hypothesis to both; and as every true hypothesis will abide this trial, so I may venture to affirm, that no false one will ever be able to endure it. The common defect of those systems, which philosophers have employ'd to account for the actions of the mind, is, that they suppose such a subtility and refinement of thought, as not only exceeds the capacity of mere animals, but even of children and the common people in our own species; who are notwithstanding susceptible of the same emotions and affections as persons of the most accomplish'd genius and understanding. Such a subtility is a clear proof of the falshood, as the contrary simplicity of the truth, of any system.

Let us therefore put our present system concerning the nature of the understanding to this decisive trial, and see whether it will equally account for the reasonings of beasts as for these of the human species.

Here we must make a distinction betwixt those actions of animals, which are of a vulgar nature, and seem to be on a level with their common capacities, and those more extraordinary instances of sagacity, which they sometimes discover for their own preservation, and the propagation of their species. A dog, that avoids fire and precipices, that shuns strangers, and caresses his master, affords us an instance of the first kind. A bird, that chooses with such care and nicety the place and materials of her nest, and sits upon her eggs for a due time, and in a suitable season, with all the precaution that a chymist is capable of in the most delicate projection, furnishes us with a lively instance of the second.

As to the former actions, I assert they proceed from a reasoning, that is not in itself different, nor founded on different principles, from that which appears in human nature. 'Tis necessary in the first place, that there be some impression immediately present to their memory or senses, in order to be the foundation of their judgment. From the tone of voice the dog infers his master's anger, and foresees his own punishment. From a certain sensation affecting his smell, he judges his game not to be far distant from him.

Secondly, The inference he draws from the present impression is built on experience, and on his observation of the conjunction of objects in past instances. As you vary this experience, he varies his reasoning. Make a beating follow upon one sign or motion for some time, and afterwards upon another; and he will successively draw different conclusions, according to his most recent experience.

Now let any philosopher make a trial, and endeavour to explain that act of the mind, which we call *belief* and give an account of the principles, from which it is deriv'd, independent of the influence of custom on the imagination, and let his hypothesis be equally applicable to beasts as to the human species; and after he has done this, I promise to embrace his opinion. But at the same time I demand as an equitable condition, that if my system be the only one, which can answer to all these terms, it may be receiv'd as entirely satisfactory and convincing. And that 'tis the only one, is evident almost without any reasoning. Beasts certainly never perceive any real connexion among objects. 'Tis therefore by experience they infer one from another. They can never by any arguments form a general conclusion, that those objects, of which they have had no experience, resemble those of which they have. 'Tis therefore by means of custom alone, that experience operates upon them. All this was sufficiently evident with respect to man. But with respect to beasts there cannot be the least suspicion of mistake; which must be own'd to be a strong confirmation, or rather an invincible proof of my system.

Nothing shews more the force of habit in reconciling us to any phænomenon, than this, that men are not astonish'd at the operations of their own reason, at the same time, that they admire the *instinct* of animals, and find a difficulty in explaining it, merely because it cannot be reduc'd to the very same principles. To consider the matter aright, reason is nothing but a wonderful and unintelligible instinct in our which carries us along a certain train of ideas, and endows them with particular qualities, according to their particular situations and relations. This instinct, 'tis true, arises from past observation and experience; but can any one give the ultimate reason, why past experience and observation produces such an effect, any more than why nature alone shou'd produce it? Nature may certainly produce whatever can arise from habit: Nay, habit is nothing but one of the principles of nature, and derives all its force from that origin.

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