

Berkeley had demonstrated, to his satisfaction, that knowledge of distance is a learned and supplementary aspect of vision and not a given property of nature. By stating that perception of distance (and magnitude) was capable of reduction into simpler elements, he was encouraging those who came after him to analyze other perceptual experiences into more simple elements. Above all, he had shown that the problem of knowledge of space is not only a philosophical issue but a psychological problem.

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HUME ON
THE EMPIRICAL ORIGIN
OF IDEAS AND ASSOCIATION,
INCLUDING CAUSALITY, AND SELF

DAVID HUME (1711-1776), Scottish writer, philosopher, civil servant, and frustrated would-be professor, was severely critical of the conclusions reached by his predecessors, Berkeley and Locke, who were held in high esteem among academicians of his time, although he shared their conviction that knowledge arises from experience.

His reasons for trying to advance the study of human nature by empirical means was expressed in the introduction to *A Treatise of Human Nature*, first published in 1739:

It is evident, that all the sciences have a relation, greater or less, to human nature; and that, however wide any of them may seem to run from it, they still return back by one passage or another. Even *Mathematics*, *Natural Philosophy*, and *Natural Religion*, are in some measure dependent on the science of MAN; since they lie under the cognisance of men, and are judged of by their powers and faculties. It is impossible to tell what changes and improvements we might make in these sciences were we thoroughly acquainted with the extent and force of human understanding, and could explain the nature of the ideas we employ, and of the operations we perform in our reasonings. And these improvements are the more to be hoped for in natural religion, as it is not content with instructing us in the nature of superior powers, but carries its views further, to their disposition towards us, and our duties towards them; and consequently, we ourselves are not only the beings that reason, but also one of the objects concerning which we reason.

If, therefore, the sciences of mathematics, natural philosophy, and natural religion, have such a dependence on the knowledge of man, what

may be expected in the other sciences, whose connection with human nature is more close and intimate? The sole end of logic is to explain the principles and operations of our reasoning faculty, and the nature of our ideas; morals and criticism regard our tastes and sentiments; and politics consider men as united in society, and dependent on each other. In these four sciences of *Logic, Morals, Criticism, and Politics*, is comprehended almost everything which it can anyway import us to be acquainted with, or which can tend either to the improvement or ornament of the human mind. . . .

And, as the science of man is the only solid foundation for the other sciences, so, the only solid foundation we can give to this science itself must be laid on experience and observation.¹

The empirical science of psychology, then, is the foundation for the other sciences and, as a science, it is taken out of the realm of philosophy. Both of these assertions were to be reiterated often in the future. The second contention became the basic distinction between psychology as a branch of philosophy and psychology as a science (see Wundt, p. 128).

Just as Locke and Berkeley did before him, Hume plunged immediately into demonstration of the empirical origin of our ideas.

All the perceptions of the human mind resolve themselves into two distinct kinds, which I shall call *impressions* and *ideas*. The difference betwixt these consists in the degrees of force and liveliness, with which they strike upon the mind, and make their way into our thought or consciousness. Those perceptions which enter with most force and violence, we may name *impressions*; and, under this name, I comprehend all our sensations, passions, and emotions, as they make their first appearance in the soul. By *ideas*, I mean the faint images of these in thinking and reasoning; such as, for instance, are all the perceptions excited by the present discourse, excepting only those which arise from the sight and touch, and excepting the immediate pleasure or uneasiness it may occasion. I believe it will not be very necessary to employ many words in explaining this distinction. Every one of himself will readily perceive the difference betwixt feeling and thinking. The common degrees of these are easily distinguished; though it is not impossible but, in particular instances, they may very nearly approach to each other. Thus, in sleep, in a fever, in madness, or in any very violent emotions of soul, our ideas may approach to our impressions: as, on the other hand, it sometimes hap-

pens, that our impressions are so faint and low, that we cannot distinguish them from our ideas. But, notwithstanding this near resemblance in a few instances, they are in general so very different, that no one can make a scruple to rank them under distinct heads and assign to each a peculiar name to mark the difference.*

There is another division of our perceptions, which it will be convenient to observe, and which extends itself both to our impressions and ideas. This division is into *simple* and *complex*. Simple perceptions, or impressions and ideas, are such as admit of no distinction nor separation. The complex are the contrary to these, and may be distinguished into parts. Though a particular colour, taste, and smell, are qualities all united together in this apple, it is easy to perceive they are not the same, but are at least distinguishable from each other.

Having, by these divisions, given an order and arrangement to our objects, we may now apply ourselves to consider, with the more accuracy, their qualities and relations. The first circumstance that strikes my eye, is the great resemblance betwixt our impressions and ideas in every other particular, except their degree of force and vivacity. The one seems to be, in a manner, the reflection of the other; so that all the perceptions of the mind are double, and appear both as impressions and ideas. When I shut my eyes, and think of my chamber, the ideas I form are exact representations of the impressions I felt; nor is there any circumstance of the one, which is not to be found in the other. In running over my other perceptions, I find still the same resemblance and representation. Ideas and impressions appear always to correspond to each other. This circumstance seems to me remarkable, and engages my attention for a moment.

Upon a more accurate survey I find I have been carried away too far by the first appearance, and that I must make use of the distinction of perceptions into *simple* and *complex*, to limit this general decision, *that all our ideas and impressions are resembling*. I observe that many of our complex ideas never had impressions that corresponded to them, and that many of our complex impressions never are exactly copied in ideas. I can

* I here make use of these terms, *impression* and *idea*, in a sense different from what is usual, and I hope this liberty will be allowed me. Perhaps I rather restore the word *idea* to its original sense, from which Mr. Locke had perverted it, in making it stand for all our perceptions. By the term of *impression*, I would not be understood to express the manner in which our lively perceptions are produced in the soul, but merely the perceptions themselves; for which there is no particular name, either in the English or any other language that I know of.

imagine to myself such a city as the New Jerusalem, whose pavement is gold, and walls are rubies, though I never saw any such. I have seen Paris; but shall I affirm I can form such an idea of that city, as will perfectly represent all its streets and houses in their real and just proportions?

I perceive, therefore, that though there is, in general, a great resemblance betwixt our *complex* impressions and ideas, yet the rule is not universally true, that they are exact copies of each other. We may next consider how the case stands with our *simple* perceptions. After the most accurate examination of which I am capable, I venture to affirm, that the rule here holds without any exception, and that every simple idea has a simple impression, which resembles it, and every simple impression a correspondent idea. That idea of red, which we form in the dark, and that impression which strikes our eyes in sunshine, differ only in degree, not in nature. That the case is the same with all our simple impressions and ideas, it is impossible to prove by a particular enumeration of them. Every one may satisfy himself in this point by running over as many as he pleases. But if any one should deny this universal resemblance, I know no way of convincing him, but by desiring him to show a simple impression that has not a correspondent idea, or a simple idea that has not a correspondent impression. If he does not answer this challenge, as it is certain he cannot, we may, from his silence and our own observation, establish our conclusion.

Thus we find, that all simple ideas and impressions resemble each other; and, as the complex are formed from them, we may affirm in general, that these two species of perception are exactly correspondent. Having discovered this relation, which requires no further examination, I am curious to find some other of their qualities. Let us consider, how they stand with regard to their existence, and which of the impressions and ideas are causes, and which effects.

The full examination of this question is the subject of the present treatise; and, therefore, we shall here content ourselves with establishing one general proposition, *That all our simple ideas in their first appearance, are derived from simple impressions, which are correspondent to them, and which they exactly represent.*²

The major proposition is so effectively summarized in the last sentence that no further comment is necessary.

... To me, there appear to be only three principles of connexion among ideas, namely, *Resemblance, Contiguity* in time or place, and *Cause or Effect*.

That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original: the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others: and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it. But that this enumeration is complete, and that there are no other principles of association except these, may be difficult to prove to the satisfaction of the reader, or even to a man's own satisfaction. All we can do, in such cases, is to run over several instances, and examine carefully the principle which binds the different thoughts to each other, never stopping till we render the principle as general as possible. The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire.³

Of the three forms of association just discussed, cause and effect rated special scrutiny and is excerpted here because of its significance and because of the startling sceptical conclusion about it which Hume reached.

22. All reasonings concerning matter of fact seem to be founded on the relation of *Cause and Effect*. By means of that relation alone we can go beyond the evidence of our memory and senses. If you were to ask a man, why he believes any matter of fact, which is absent; for instance, that his friend is in the country, or in France; he would give you a reason; and this reason would be some other fact; as a letter received from him, or the knowledge of his former resolutions and promises. A man finding a watch or any other machine in a desert island, would conclude that there had once been men in that island. All our reasonings concerning fact are of the same nature. And here it is constantly supposed that there is a connexion between the present fact and that which is inferred from it. Were there nothing to bind them together, the inference would be entirely precarious. The hearing of an articulate voice and rational discourse in the dark assures us of the presence of some person: Why? because these are the effects of the human make and fabric, and closely con-

shall find that they are founded on the relation of cause and effect, and that this relation is either near or remote, direct or collateral. Heat and light are collateral effects of fire, and the one effect may justly be inferred from the other.

23. If we would satisfy ourselves, therefore, concerning the nature of that evidence, which assures us of matters of fact, we must enquire how we arrive at the knowledge of cause and effect.

I shall venture to affirm, as a general proposition, which admits of no exception, that the knowledge of this relation is not, in any instance, attained by reasonings *a priori*; but arises entirely from experience, when we find that any particular objects are constantly conjoined with each other. Let an object be presented to a man of ever so strong natural reason and abilities; if that object be entirely new to him, he will not be able, by the most accurate examination of its sensible qualities, to discover any of its causes or effects. Adam, though his rational faculties be supposed, at the very first, entirely perfect, could not have inferred from the fluidity and transparency of water that it would suffocate him, or from the light and warmth of fire that it would consume him. No object ever discovers, by the qualities which appear to the senses, either the causes which produced it, or the effects which will arise from it; nor can our reason, unassisted by experience, ever draw any inference concerning real existence and matter of fact.

24. This proposition, that causes and effects are discoverable, not by reason but by experience, will readily be admitted with regard to such objects, as we remember to have once been altogether unknown to us; since we must be conscious of the utter inability, which we then lay under, of foretelling what would arise from them. Present two smooth pieces of marble to a man who has no tincture of natural philosophy; he will never discover that they will adhere together in such a manner as to require great force to separate them in a direct line, while they make so small a resistance to a lateral pressure. Such events, as bear little analogy to the common course of nature, are also readily confessed to be known only by experience; nor does any man imagine that the explosion of gunpowder, or the attraction of a loadstone, could ever be discovered by arguments *a priori*. In like manner, when an effect is supposed to depend upon an intricate machinery or secret structure of parts, we make no difficulty in attributing all our knowledge of it to experience. Who will assert that he can give the ultimate reason, why milk or bread is proper nourishment for a man, not for a lion or a tiger?

But the same truth may not appear, at first sight, to have the same evidence with regard to events, which have become familiar to us from our first appearance in the world, which bear a close analogy to the whole course of nature, and which are supposed to depend on the simple qualities of objects, without any secret structure of parts. We are apt to imagine that we could discover these effects by the mere operation of our reason, without experience. We fancy, that were we brought on a sudden into this world, we could at first have inferred that one billiardball would communicate motion to another upon impulse; and that we needed not to have waited for the event, in order to pronounce with certainty concerning it. Such is the influence of custom, that, where it is strongest, it not only covers our natural ignorance, but even conceals itself, and seems not to take place, merely because it is found in the highest degree.

25. But to convince us that all the laws of nature, and all the operations of bodies without exception, are known only by experience, the following reflections may, perhaps, suffice. Were any object presented to us, and were we required to pronounce concerning the effect, which will result from it, without consulting past observation; after what manner, I beseech you, must the mind proceed in this operation? It must invent or imagine some event, which it ascribes to the object as its effect; and it is plain that this invention must be entirely arbitrary. The mind can never possibly find the effect in the supposed cause, by the most accurate scrutiny and examination. For the effect is totally different from the cause, and consequently can never be discovered in it. Motion in the second billiardball is a quite distinct event from motion in the first; nor is there anything in the one to suggest the smallest hint of the other. A stone or piece of metal raised into the air, and left without any support, immediately falls: but to consider the matter *a priori*, is there anything we discover in this situation which can beget the idea of a downward, rather than an upward, or any other motion, in the stone or metal?

And as the first imagination or invention of a particular effect, in all natural operations, is arbitrary, where we consult not experience; so must we also esteem the supposed effect or connexion between the cause and effect, which binds them together, and renders it impossible that any other effect could result from the operation of that cause. When I see, for instance, a billiardball moving a straight line towards another; even suppose motion in the second ball should by accident be suggested to me, as the result of their contact or impulse; may I not conceive, that a hundred different events might as well follow from that cause? May not

both these balls remain at absolute rest? May not the first ball return in a straight line, or leap off from the second in any line or direction? All these suppositions are consistent and conceivable. Why then should we give the preference to one, which is no more consistent or conceivable than the rest? All our reasonings *a priori* will never be able to show us any foundation for this preference.

In a word, then, every effect is a distinct event from its cause. It could not, therefore, be discovered in the cause, and the first invention or conception of it, *a priori*, must be entirely arbitrary. And even after it is suggested, the conjunction of it with the cause must appear equally arbitrary; since there are always many other effects, which, to reason, must seem fully as consistent and natural. In vain, therefore, should we pretend to determine any single event, or infer any cause or effect, without the assistance of observation and experience.

26. Hence, we may discover the reason why no philosopher, who is rational and modest, has ever pretended to assign the ultimate cause of any natural operation, or to show distinctly the action of that power, which produces any single effect in the universe. It is confessed, that the utmost effort of human reason is to reduce the principles, productive of natural phenomena, to a greater simplicity, and to resolve the many particular effects into a few general causes, by means of reasonings from analogy, experience, and observation. But as to the causes of these general causes, we should in vain attempt their discovery; nor shall we ever be able to satisfy ourselves, by any particular explication of them. These ultimate springs and principles are totally shut up from human curiosity and enquiry. Elasticity, gravity, cohesion of parts, communication of motion by impulse; these are probably the ultimate causes and principles which we shall ever discover in nature; and we may esteem ourselves sufficiently happy, if, by accurate enquiry and reasoning, we can trace up the particular phenomena to, or near to, these general principles. The most perfect philosophy of the natural kind only staves off our ignorance a little longer: as perhaps the most perfect philosophy of the moral or metaphysical kind serves only to discover larger portions of it. Thus the observation of human blindness and weakness is the result of all philosophy, and meets us at every turn, in spite of our endeavours to elude or avoid it.

27. Nor is geometry, when taken into the assistance of natural philosophy, ever able to remedy this defect, or lead us into the knowledge of ultimate causes, by all that accuracy of reasoning for which it is so justly celebrated. Every part of mixed mathematics proceeds upon the

supposition that certain laws are established by nature in her operations; and abstract reasonings are employed, either to assist experience in the discovery of these laws, or to determine their influence in particular instances, where it depends upon any precise degree of distance and quantity. Thus, it is a law of motion, discovered by experience, that the moment or force of any body in motion is in the compound ratio or proportion of its solid contents and its velocity; and consequently, that a small force may remove the greatest obstacle or raise the greatest weight, if, by any contrivance or machinery, we can increase the velocity of that force, so as to make it an overmatch for its antagonist. Geometry assists us in the application of this law, by giving us the just dimensions of all the parts and figures which can enter into any species of machine; but still the discovery of the law itself is owing merely to experience, and all the abstract reasonings in the world could never lead us one step towards the knowledge of it. When we reason *a priori*, and consider merely any object or cause, as it appears to the mind, independent of all observation, it never could suggest to us the notion of any distinct object, such as its effect; much less show us the inseparable and inviolable connexion between them. A man must be very sagacious who could discover by reasoning that crystal is the effect of heat, and ice of cold, without being previously acquainted with the operation of these qualities.⁴

Causality is nothing more than recurrent concomitance; a habit of mind originating in experience which leads us to expect the sequence of events. But, beyond this, there is no evidence that causality exists anywhere except in the mind, not in objects. This was a conclusion that Kant tried to dispel some thirty years later (p. 87).

Hume was similarly sceptical about the reality of mind or self, a position that Berkeley had defended.

There are some philosophers who imagine we are every moment intimately conscious of what we call our *self*; that we feel its existence and its continuance in existence; and are certain, beyond the evidence of a demonstration, both of its perfect identity and simplicity. . . . For my part, when I enter most intimately into what I call *myself*, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch *myself* at any time without a perception, and never can observe anything but the perception. When my perceptions are removed for any time, as by sound sleep, so long am I insensible of *myself*, and may truly be said not to exist. And were all my perceptions removed by death, and could I neither think, nor feel, nor

see, nor love, nor hate, after the dissolution of my body, I should be entirely annihilated, nor do I conceive what is further requisite to make me a perfect nonentity. If any one, upon serious and unprejudiced reflection, thinks he has a different notion of *himself*, I must confess I can reason no longer with him. All I can allow him is, that he may be in the right as well as I, and that we are essentially different in this particular. He may, perhaps, perceive something simple and continued, which he calls *himself*; though I am certain there is no such principle in me.

But setting aside some metaphysicians of this kind, I may venture to affirm of the rest of mankind, that they are nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement. Our eyes cannot turn in their sockets without varying our perceptions. Our thought is still more variable than our sight; and all our other senses and faculties contribute to this change; nor is there any single power of the soul, which remains unalterably the same, perhaps for one moment. The mind is a kind of theatre, where several perceptions successively make their appearance; pass, re-pass, glide away, and mingle in an infinite variety of postures and situations. There is properly no *simplicity* in it at one time, nor *identity* in different, whatever natural propensity we may have to imagine that simplicity and identity. The comparison of the theatre must not mislead us. They are the successive perceptions only, that constitute the mind; nor have we the most distant notion of the place, where these scenes are represented, or of the materials of which it is composed.

What then gives us so great a propensity to ascribe an identity to these successive perceptions, and to suppose ourselves possessed of an invariable and uninterrupted existence through the whole course of our lives? In order to answer this question we must distinguish betwixt personal identity, as it regards our thought or imagination, and as it regards our passions or the concern we take in ourselves. The first is our present subject; and to explain it perfectly we must take the matter pretty deep, and account for that identity, which we attribute to plants and animals, there being a great analogy betwixt it and the identity of a self or person.

We have a distinct idea of an object that remains invariable and uninterrupted through a supposed variation of time; and this idea we call that of *identity* or *sameness*. We have also a distinct idea of several different objects existing in succession, and connected together by a close relation; and this to an accurate view affords as perfect a notion of *identity* as if there was no manner of relation among the objects.

through these two ideas of identity, and a succession of related objects, be in themselves perfectly distinct, and even contrary, yet it is certain that, in our common way of thinking, they are generally confounded with each other. That action of the imagination, by which we consider the uninterrupted and invariable object, and that by which we reflect on the succession of related objects, are almost the same to the feeling; nor is there much more effort of thought required in the latter case than in the former. The relation facilitates the transition of the mind from one object to another, and renders its passage as smooth as if it contemplated one continued object. This resemblance is the cause of the confusion and mistake, and makes us substitute the notion of identity, instead of that of related objects. However at one instant we may consider the related succession as variable or interrupted, we are sure the next to ascribe to it a perfect identity, and regard it as invariable and uninterrupted. Our propensity to this mistake is so great from the resemblance above mentioned, that we fall into it before we are aware; and though we incessantly correct ourselves by reflection, and return to a more accurate method of thinking, yet we cannot long sustain our philosophy, or take off this bias from the imagination. Our last resource is to yield to it, and boldly assert that these different related objects are in effect the same, however interrupted and variable. In order to justify to ourselves this absurdity, we often feign some new and unintelligible principle, that connects the objects together, and prevents their interruption or variation. Thus we feign the continued existence of the perceptions of our senses, to remove the interruption; and run into the notion of a soul, and self, and substance, to disguise the variation. But, we may further observe, that where we do not give rise to such a fiction, our propensity to confound identity with relation is so great, that we are apt to imagine something unknown and mysterious, connecting the parts, beside their relation; and this I take to be the case with regard to the identity we ascribe to plants and vegetables. And even when this does not take place, we still feel a propensity to confound these ideas, though we are not able fully to satisfy ourselves in that particular, nor find anything invariable and uninterrupted to justify our notion of identity. . . . It is evident that the identity which we attribute to the human mind, however perfect we may imagine it to be, is not able to run the several different perceptions into one, and make them lose their characters of distinction and difference, which are essential to them. It is still true that every distinct perception which enters into the composition of the mind, is a distinct existence, and is different, and

temporary or successive. But as, notwithstanding this distinction and separability, we suppose the whole train of perceptions to be united by identity, a question naturally arises concerning this relation of identity, whether it be something that really binds our several perceptions together, or only associates their ideas in the imagination; that is, in other words, whether, in pronouncing concerning the identity of a person, we observe some real bond among his perceptions, or only feel one among the ideas we form of them. This question we might easily decide, if we would recollect what has been already proved at large, that the understanding never observes any real connection among objects, and that even the union of cause and effect, when strictly examined, resolves itself into a customary association of ideas. For from thence it evidently follows, that identity is nothing really belonging to these different perceptions, and uniting them together, but is merely a quality which we attribute to them, because of the union of their ideas in the imagination when we reflect upon them.⁵

Berkeley had found in the self or mind an entity that knows the objects of sense (p. 43). Hume denied that there was any entity to be found. Mind and self are a collection of impressions, nothing more. He thus completed the progression of thought on the nature of experience that had started with Locke's blithe assertion that experience arose from sense impression but did not question the existence of the independence of objects. Berkeley, while denying we could know the existence of objects from experience as such, but God, the "permanent perceiver," gave us the assurance of their presence through the soul, which unified our experiences. Hume denied this last step by denying that the mind was more than a collection of impressions from which all else begins.

HARTLEY ON

ASSOCIATIONS OF THE MIND AND VIBRATIONS OF THE BODY

DAVID HARTLEY (1707-1757), English philosopher-physician, developed a Newtonian inspired psychological model, by adding an underlying physiological substratum which Locke deliberately had foregone. He wanted to explain the operation of the human body as well as the mind in mechanical terms. Before him, Descartes had done so for the body, but Hartley would unite a mechanical view of body with a mechanical view of the human mind. He introduced his major work in 1749, *Observations of Man*, with the forthright statement, "Man consists of two parts, body and mind."

The beginning of the first chapter states his purpose and his sources:

My chief design in the following chapter, is, briefly, to explain, establish, and apply the doctrines of vibrations and association. The first of these doctrines is taken from the hints concerning the performance of sensation and motion, which Sir Isaac Newton has given at the end of his *Principia*, and in the questions annexed to his *Optics*; the last, from what Mr. Locke, and other ingenious persons since his time, have delivered concerning the influence of association over our opinions and affections, and its use in explaining those things in an accurate and precise way, which are commonly referred to the power of habit and custom, in a general and indeterminate one.

The doctrine of vibrations may appear at first sight to have no connection with that of association; however, if these doctrines be found in fact to contain the laws of the bodily and mental powers respectively,