

Hume's Enquiries sect. 4 - the text

Section 4: Sceptical doubts about the operations of the understanding

Part 1

The distinction between relations of ideas and matters of fact.

All the objects of human reason or enquiry fall naturally into two kinds, namely relations of ideas and matters of fact. The first kind include geometry, algebra, and arithmetic, and indeed every statement that is either intuitively or demonstratively certain. That the square of the hypotenuse is equal to the squares of the other two sides expresses a relation between those figures. That three times five equals half of thirty expresses a relation between those numbers. Propositions of this kind can be discovered purely by thinking, with no need to attend to anything that actually exists anywhere in the universe. The truths that Euclid demonstrated would still be certain and self-evident even if there never were a circle or triangle in nature.

Matters of fact, which are the second objects of human reason, are not established in the same way; and we cannot have such strong grounds for thinking them true. The contrary of every matter of fact is still possible, because it doesn't imply a contradiction and is conceived by the mind as easily and clearly as if it conformed perfectly to reality. That the sun will not rise tomorrow is just as intelligible as - and no more contradictory than - the proposition that the sun will rise tomorrow. It would therefore be a waste of time to try to demonstrate [= 'prove absolutely rigorously'] its falsehood. If it were demonstratively false, it would imply a contradiction and so could never be clearly conceived by the mind.

So it may be worth our time and trouble to try to answer this: What sorts of grounds do we have for being sure of matters of fact - propositions about what exists and what is the case - that are not attested by our present senses or the records of our memory? It is a notable fact that neither ancient philosophers nor modern ones have attended much to this important question; so in investigating it I shall be marching through difficult terrain with no guides or signposts; and that may help to excuse any errors I commit or doubts that I raise. Those errors and doubts may even be useful: they may make people curious and eager to learn, and may destroy that ungrounded and unexamined confidence that people have in their opinions - a confidence that is the curse of all reasoning and free enquiry. If we find things wrong with commonly accepted philosophical views, that needn't discourage us, but rather can spur us on to try for something more full and

Why it is necessary to study the relation of cause and effect.

All reasonings about matters of fact seem to be based on the relation of cause and effect, which is the only relation that can take us beyond the evidence of our memory and senses. **Example 1.** If you ask someone why he believes some matter of fact which is not now present to him - for instance that his friend is now in France - he will give you a reason; and this reason will be some other fact, such as that he has received a letter from his friend or that his friend had planned to go to France. **Example 2.** Someone who finds a watch or other machine on a desert island will conclude that there have been men on that island. All our reasonings concerning fact are like this. When we reason in this way, we suppose that the present fact is connected with the one that we infer from it. If there were nothing to bind the two facts together, the inference of one from the other would be utterly shaky. **Example 3.** Hearing the sounds of someone talking rationally in the dark assures us of the presence of some person. Why? Because such sounds are the effects of the human constitution, and are closely connected with it. All our other reasonings of this sort, when examined in detail, turn out to be based on the relation of cause and effect. **The causal chain from the evidence to the 'matter of fact' conclusion may be short or long. And it may be that the causal connection between them isn't direct but collateral - as when one sees light and infers heat, not because either causes the other but because the two are collateral effects of a single cause, namely fire.**

So if we want to understand the basis of our confidence about matters of fact, we must find out how we come to know about cause and effect.

The claim Hume is going to defend

I venture to assert, as true without exception, that knowledge about causes is never acquired through a priori reasoning, and always comes from our experience of finding that particular objects are constantly associated with one other. [When Hume is discussing cause and effect, his word 'object' often covers events as well as things.]

Present an object to a man whose skill and intelligence are as great as you like; if the object is of a kind that is entirely new to him, no amount of studying of its perceptible qualities will enable him to discover any of its causes or effects.

Adam—a practical application of the claim.

Adam, even if his reasoning abilities were perfect from the start, could not have inferred from the fluidity and transparency of water that it could drown him, or from the light and warmth of fire that it could burn him. **1st supporting reason** The qualities of an object that appear to the senses never reveal the causes that produced the object or the effects that it will have; nor can our reason, unaided by experience, ever draw any conclusion about real existence and matters of fact.

Three examples of where people would agree with the claim

The proposition that causes and effects are discoverable not by reason but by experience will be freely granted (1) with regard to objects that we remember having once been altogether unknown to us; for in those cases we remember the time when we were quite unable to tell what would arise from those objects. Present two smooth pieces of marble to a man who has no knowledge of physics - he will not be able to work out that they will stick together in such a way that it takes great force to separate them by pulling them directly away from one another, while it will be easy to slide them apart. (2) Events that are not much like the common course of nature are also readily agreed to be known only by experience; and nobody thinks that the explosion of gunpowder, or the attraction of a magnet, could ever be discovered by arguments a priori - that is, by simply thinking about the matter, without bringing in anything known from experience. (3) Similarly, when an effect is thought to depend on an intricate machinery or secret structure of parts we don't hesitate to attribute all our knowledge of it to experience. No-one would assert that he can give the ultimate reason why milk or bread is nourishing for a man but not for a lion or a tiger.

Three examples of where people find the claim difficult to accept

But this same proposition - that causes and effects cannot be discovered by reason - may seem less obvious when it is applied to events of kinds (1) that we have been familiar with all our lives, (2) that are very like the whole course of nature, and (3) that are supposed to depend on the simple perceptible qualities of objects and not on any secret structure of parts. We are apt to imagine that we could discover these effects purely through reason, without experience. We fancy that if we had been suddenly brought into this world, we could have known straight off that when one billiard ball strikes another it will make it move - knowing this for certain, without having to try it out on billiard balls. Custom has such a great influence! At its strongest it not only hides our natural ignorance but even conceals itself: just because custom is so strongly at work, we are not aware of its being at work at all.

The 1st supporting reason expanded—we cannot discover the effect a priori

If you are not yet convinced that absolutely all the laws of nature and operations of bodies can be known only by experience, consider the following. If we are asked to say what the effects will be of some object, without consulting past experience of it, how can the mind go about doing this? It must invent or imagine some event as being the object's effect; and clearly this invention must be entirely arbitrary. **The mind can't possibly find the effect in the supposed cause, however carefully we examine it, for the effect is totally different from the cause and therefore can never be discovered in it.** Motion in the second billiard ball is a distinct event from motion in the first, and nothing in the first ball's motion even hints at motion in the second. A stone raised into the air and left without any support immediately falls; but if we consider this situation a priori we shall find nothing that generates the idea of a downward rather than an upward or some other motion in the stone.

The 1st supporting reason expanded—we cannot discover the necessity of the effect a priori

Just as the first imagining or inventing of a particular effect is arbitrary if it isn't based on experience, the same holds for the supposed tie or connection between cause and effect - the tie that binds them together and makes it impossible for that cause to have any effect but that one. Suppose for example that I see one billiard ball moving in a straight line towards another: even if the contact between them should happen to suggest to me the idea of motion in the second ball, aren't there a hundred different events that I can conceive might follow from that cause? May not both balls remain still? May not the first bounce straight back the way it came, or bounce off in some other direction? All these suppositions are consistent and conceivable. Why then should we prefer just one, which is no more consistent or conceivable than the rest? Our a priori reasonings will never reveal any basis for this preference.

A summary of the position so far

In short, every effect is a distinct event from its cause. So it can't be discovered in the cause, and the first invention or conception of it a priori must be wholly arbitrary. Furthermore, even after it has been suggested, the linking of it with the cause must still appear as arbitrary, because plenty of other possible effects must seem just as consistent and natural from reason's point of view. So there isn't the slightest hope of reaching any conclusions about causes and effects without the help of experience.

An explanation as to why science and applied mathematics is not a successful counter argument to this claim.

That is why no reasonable scientist has ever claimed to know the ultimate cause of any natural process, or to show clearly and in detail what goes into the causing of any single effect in the universe. It is agreed that the most human reason can achieve is to make the principles that govern natural phenomena simpler, bringing many particular effects together under a few general causes by reasoning from analogy, experience and observation. But if we try to discover the causes of these general causes,

we shall be wasting our labour. These ultimate sources and principles are totally hidden from human enquiry. Probably the deepest causes and principles that we shall ever discover in nature are these four: •elasticity, •gravity, •cohesion of parts ·which makes the difference between a pebble and a pile of dust·, and •communication of motion by impact ·as when one billiard ball hits another·. We shall be lucky if by careful work we can explain particular phenomena in terms of these four, or something close to them. The perfect philosophy of the natural kind [= 'the perfect physics'] only staves off our ignorance a little longer; just as, perhaps, the most perfect philosophy of the moral or metaphysical kind [= 'the most perfect philosophy', in the 21st century sense of the word] serves only to show us more of how ignorant we are. So both kinds of philosophy eventually lead us to a view of human blindness and weakness - a view that confronts us at every turn despite our attempts to get away from it.

Although geometry is rightly famous for the accuracy of its reasoning, when it is brought to the aid of physics it can't lead us to knowledge of ultimate causes, thereby curing the ignorance I have been discussing. Every part of applied mathematics works on the assumption that nature operates according to certain established laws; and abstract reasonings are used either to help experience to discover these laws or to work out how the laws apply in particular cases where exactness of measurement is relevant. Here is an example. It is a law of motion, discovered by experience, that the force of any moving body is proportional to its mass and to its velocity; so we can get a small force to overcome the greatest obstacle if we can devise a machine that will increase the velocity of the force so that it overwhelms its antagonist. Geometry helps us to apply this law by showing us how to work out the sizes and shapes of all the parts of the machine that we make for this purpose; but the law itself is something we know purely from experience, and no amount of abstract reasoning could lead us one step towards the knowledge of it. When we reason a priori, considering some object or cause merely as it appears to the mind and independently of any observation of its behaviour, it could never prompt us to think

of any other item, such as its effect. Much less could it show us the unbreakable connection between them. It would take a very clever person to discover by reasoning that heat makes crystals and cold makes ice without having had experience of the effects of heat and cold!

Part 2 (of Section 4)

It is not enough to say our reasonings about matters of fact are based on experience.

But we haven't yet found an acceptable answer to the question that I initially asked. Each solution raises new questions that are as hard to answer as the first one was, and that lead us on to further enquiries. To the question What is the nature of all our reasonings concerning matter of fact? the proper answer seems to be that they are based on the relation of cause and effect. When it is further asked, What is the foundation of all our reasonings about cause and effect? we can answer in one word, experience. But if we persist with questions, and ask, What are inferences from experience based on? this raises a new question that may be harder still.

Philosophers - for all their air of superior wisdom - are given a hard time by people who persist with questions, pushing them from every corner into which they retreat, finally bringing them to some dangerous dilemma [= 'a choice between two alternatives which both seem wrong']. The best way for us to avoid such an embarrassment is not to claim too much in the first place, and even to find the difficulty for ourselves before it is brought against us as an objection. In this way we can make a kind of merit even of our ignorance!

Hume is going to argue that inferences from experience are not based on reasoning.

In this section I shall settle for something easy, offering only a negative answer to the question I have raised about what inferences from experience are based on. It is this: even after we have experience of the operations of cause and effect, the conclusions we draw from that experience are not based on reasoning or on any process of the understanding. I shall try to explain and defend this answer.

It must be granted that nature has kept us at a distance from all its secrets, and has allowed us to know only a few superficial qualities of objects, concealing from us the powers and energies on which the influence of the objects entirely depends. Our senses tell us about the colour, weight and consistency of bread; but neither the senses nor reason can ever tell us about the qualities that enable bread to nourish a human body. Sight or touch gives us an idea of the motion of bodies; but as for the amazing force that keeps a body moving for ever unless it collides with other bodies - we cannot have the remotest conception of that. **(The fact is we do conclude from past experience to future events.)** Despite this ignorance of natural powers* and principles, however, we always assume that the same sensible qualities [= 'qualities that can be seen or felt or heard etc.'] will have the same secret powers, and we expect them to have the same effects that we have found them to have in our past experience. **(The example of bread.)** If we are given some stuff with the colour and consistency of bread that we have eaten in the past, we don't hesitate to repeat the experiment of eating it, confidently expecting it to nourish and support us. That is what we do every morning at the breakfast table: confidently experimenting with bread-like stuff by eating it! I would like to know what the basis is for this process of thought. Everyone agrees that a thing's sensible qualities are not connected with its secret powers in any way that we know about, so that the mind isn't led to a conclusion about their constant and regular conjunction through anything it knows of their nature. All that past experience can tell us, directly and for sure, concerns the behaviour of the particular objects we observed, at the particular time when we observed them. **(An example of coal added by Jonathan Bennett—not part of the original Hume.)** My experience directly and certainly informs me that that fire consumed coal then; but it is silent about the behaviour of the same fire a few minutes later, and about other fires at any time.

*The word 'power' is here used in a loose and popular sense. Using it more accurately would add strength to this argument. See Section 7.

Why should this experience be extended to future times and to other objects, which for all we know may only seem similar? - that is what I want to know. The bread that I formerly ate nourished me; that is, a body with such and such sensible qualities did at that time have such and such secret powers. But does it follow that other bread must also nourish me at other times, and that the same perceptible qualities must always be accompanied by the same secret powers? It does not seem to follow necessarily. **(Once again, the fact is we do conclude from past experience to future events. This is now spelled out in more detail)** Anyway, it must be admitted that in such a case as this the mind draws a conclusion; it takes a certain step, goes through a process of thought or inference, which needs to be explained. These two propositions are far from being the same:

- I have found that such and such an object has always had such and such an effect.
- I foresee that other objects which appear similar will have similar effects.

Moving from the first proposition to the second is not done by reasoning.

The second proposition is always inferred from the first; and if you wish I shall grant that it is rightly inferred. But if you insist that the inference is made by a chain of reasoning, I challenge you to produce the reasoning. **(Firstly,)** The connection between these propositions is not intuitive [that is, the second does not self-evidently and immediately follow from the first]. **(And secondly,)** If the inference is to be conducted through reason alone, it must be with help from some intermediate step. But when I try to think what that intermediate step might be, I am defeated. Those who assert that it really exists and is the origin of all our conclusions about matters of fact owe us an account of what it is.

- They haven't given any account of this, which I take to be evidence that none can be given. If many penetrating and able philosophers try and fail to discover a connecting proposition or intermediate step through which the understanding can perform this inference from past effects to future ones, my negative line of thought about this will eventually be found entirely convincing. But as the question is still new,

the reader may not trust his own abilities enough to conclude that because he can't find a certain argument it doesn't exist. In that case I need to tackle a harder task than I have so far undertaken - namely, going through all the branches of human knowledge one by one, trying to show that none can give us such an argument.

A more detailed account of why it cannot be based on reasoning. Firstly it cannot be a relation of ideas, something that is necessary...

All reasonings fall into two kinds: (1) demonstrative reasoning, or that concerning relations of ideas, and (2) factual reasoning, or that concerning matters of fact and existence. That no demonstrative arguments are involved in (2) seems evident; **since there is no outright contradiction in supposing that the course of nature will change so that an object that seems like ones we have experienced will have different or contrary effects from theirs.** Can't I clearly and distinctly conceive that snowy stuff falling from the clouds might taste salty or feel hot? Is there anything unintelligible about supposing that all the trees will flourish in December and lose their leaves in June? Now, if something is intelligible and can be distinctly conceived, it implies no contradiction and can never be proved false by any demonstrative argument or abstract a priori reasoning.

But, secondly, if it were a matter of fact then our reasoning would be circular...

So if there are arguments to justify us in trusting past experience and making it the standard of our future judgment, these arguments can only be probable; that is, they must be of the kind (2) that concern matters of fact and real existence, to put it in terms of the classification I have given. But probable reasoning, if I have described it accurately, can't provide us with the argument we are looking for. **According to my account, all arguments about existence are based on the relation of cause and effect; our knowledge of that relation is derived entirely from experience; and in drawing conclusions from experience we assume that the future will be like the past.** So if we try to prove this assumption by probable arguments, i.e. arguments regarding existence, we shall obviously be going in a circle, taking for granted the very point that is in question.

From causes that appear similar we expect similar effects— but this isn't based on reason. A restatement of the position.

In reality, all arguments from experience are based on the similarities that we find among natural objects - which lead us to expect that the effects of the objects will also be similar. Although only a fool or a madman would ever challenge the authority of experience or reject it as a guide to human life, still perhaps a philosopher may be allowed to ask what it is about human nature that gives this mighty authority to experience and leads us to profit from the similarities that nature has established among different objects. Our inferences from experience all boil down to this: From causes that appear similar we expect similar effects. If this were based on reason, we could draw the conclusion as well after •a single instance as after •a long course of experience. But that isn't in fact how things stand. Nothing so similar as eggs; yet no-one expects them all to taste the same! When we become sure of what will result from a particular event, it is only because we have experienced many events of that kind, all with the same effects. Now, where is that process of reasoning that infers from one instance a conclusion that was not inferred from a hundred previous instances just like this single one? I ask this •for the sake of information as much as •with the intention of raising difficulties. I can't find - I can't imagine - any such reasoning. But I am willing to learn, if anyone can teach me.

It may be said that from a number of uniform experiences we infer a connection between the sensible qualities and the secret powers; but this seems to raise the same difficulty in different words. We still have to ask what process of argument this inference is based on. Where is the intermediate step, the interposing ideas, which join propositions that are so different from one another? It is agreed that the colour, consistency and other sensible qualities of bread don't appear to be inherently connected with the secret powers of nourishment and life-support. If they were, we could infer these secret powers from a first encounter with those qualities, without the aid of long previous experience; and this contradicts what all philosophers believe and contradicts plain matters of fact. Start by thinking of us in our natural

state of ignorance, in which we know nothing about the powers and influence of anything. How does experience cure this ignorance? All it does is to show us that certain •similar• objects had similar effects; it teaches us that those particular objects had such and such powers and forces at those particular times. When a new object with similar perceptible qualities is produced, we expect similar powers and forces and look for a similar effect. We expect for instance that stuff with the colour and consistency of bread will nourish us. But this surely is a movement of the mind that needs to be explained. When a man says

'I have found in all •past instances such and such sensible qualities conjoined with such and such secret powers',

and then goes on to say

'Similar sensible qualities •will always be combined with similar secret powers',

he isn't guilty of merely repeating himself; these propositions are in no way the same. 'The second proposition is inferred from the first', you may say; but you must admit that the inference isn't intuitive [= 'can't be seen at a glance to be valid'], and it isn't demonstrative either [= 'can't be carried through by a series of steps each of which can be seen at a glance to be valid']. What kind of inference is it, then? To call it 'experiential' is to assume the point that is in question. For all inferences from experience are based on the assumption that the future will resemble the past, and that similar powers will be combined with similar sensible qualities. **As soon as the suspicion is planted that the course of nature may change, so that the past stops being a guide to the future, all experience becomes useless and can't support any inference or conclusion. So no arguments from experience can support this resemblance of the past to the future, because all such arguments are based on the assumption of that resemblance.** However regular the course of things has been, that fact on its own doesn't prove that the future will also be regular. It's no use your claiming to have learned the nature of bodies from your past experience. Their secret nature, and consequently all their effects and influence, may change without any change in their sensible qualities. This happens •sometimes

with regard to •some objects: Why couldn't it happen •always with regard to •all? What logic, what process of argument, secures you against this? You may say that I don't behave as though I had doubts about this; but that would reflect a misunderstanding of why I am raising these questions. When I am considering how to act, I am quite satisfied that the future will be like the past; but as a philosopher with an enquiring - I won't say sceptical - turn of mind, I want to know what this confidence is based on. Nothing I have read, no research I have done, has yet been able to remove my difficulty. Can I do better than to put the difficulty before the public, even though I may not have much hope of being given a solution? In this way we shall at least be aware of our ignorance, even if we don't increase our knowledge.

Hume admits the theoretical possibility that he has simply not spotted the relevant argument...

It would be inexcusably arrogant to conclude that because I haven't discovered a certain argument it doesn't really exist. Even if learned men down the centuries have searched for something without finding it, perhaps it would still be rash to conclude with confidence that the subject must surpass human understanding. Even though we examine all the sources of our knowledge and conclude that they are unfit for a given subject, we may still suspect that the list of sources is not complete or our examination of them not accurate. With regard to our present subject, however, there are reasons to think that my conclusion is certainly right and that I am not arrogant in thinking so.

...but this is unlikely since those with little or no learning also draw conclusions from

experience so if it was going to be a process of reasoning it should be simple and easy to identify.

It is certain that the most ignorant and stupid peasants, even infants, indeed even brute beasts, improve by experience and learn the qualities of natural objects by observing their effects. When a child has felt pain from touching the flame of a candle, he will be careful not to put his hand near any candle, and will expect a similar effect from any cause that is similar in its appearance. If you assert that the child's understanding comes to this conclusion through a process of argument, it is fair for me to demand that you produce that argument, and you have no excuse for refusing to comply. You can't say that the argument has eluded you because it is so difficult and complex, because you have just said that a mere infant finds it easy! So if you hesitate for a moment, or if after reflection you produce any intricate or profound argument, you have in effect given up your side in this dispute: you have as good as admitted that it is not through reasoning that we are led to suppose the future to resemble the past and to expect similar effects from apparently similar causes. This is the proposition that I intended to establish in the present section. If I am right about it, I don't claim it as any great discovery. If I am wrong, then there is an argument -from past to future- which was perfectly familiar to me long before I was out of my cradle, yet now I can't discover it. What a backward scholar I must be!