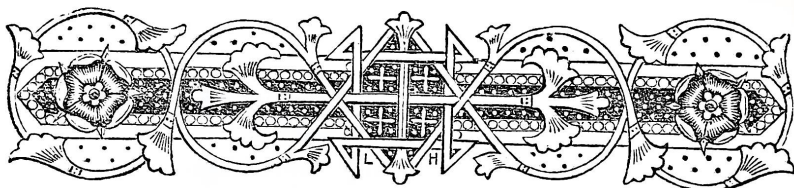


GS407



IS THERE ANY "AXIOM OF CAUSALITY" ?

"Ἄλλο μὲν τί ἐστι τὸ αἴτιον τῶ ὄντι, ἄλλο δ' ἐκεῖνο, ἄνευ οὗ τὸ αἴτιον οὐκ ἂν ποτ' εἴη αἴτιον.—PLAT. *Phædo*, 99 B.

Rev. J. Martineau

THE cultivation of the Natural Sciences has advantageously contracted the meaning of the word "*Cause*," which formerly was identified (as its derivative "*Because*" still is) with every answer to the question "*Why?*" and was said to lurk in the conditional clause of every hypothetical proposition. But now, we withdraw the word both from the *logical ground* of a belief (*causa cognoscendi*), and from the *interdependence* of mathematical magnitudes (*causa essendi*). We do not, with Aristotle, call the *premisses* of a syllogism the *causes* of the conclusion (*An. Post. I. ii. 22*), and, with Spinoza, the *essence* or *definition* of Substance, the *Cause* of its existence. And though we say "*If* two circles touch each other internally, their centres and point of contact will be in the same straight line," we do not speak of the internal contact as the *cause* of straightness in the uniting line. The order of consecutive *thought* is expressed by the word "*Reason*." The relations with which mathematical truth is concerned have no origin or consecution *inter se*; but exist in *reciprocal* interdependence, which may be traversed in various orders. Were there only an unchanging universe, there would be, in the modern sense, no Cause and Effect. Between "*Things*," as such, this relation cannot exist; it requires *Phenomena*. It is only with

the *causa nascendi* that we have now to do. We speak, no doubt, of objects,—a glacier, a coal-bed, an asteroid,—being caused by this or that; but only as having assumed their present form in time.

Change alone, however, does not suffice to give entrance to causality. A body existing in a state of uniform rectilinear motion would be always under change, but the change would not be an effect; nor for the body's movement through one segment of its course should we assign as cause its movement through the previous segment. Successive stages of continuous and unvaried change do not constitute the relation: the two terms must be *heterogeneous*. There are thus two marks of an *effect*: it must be a *phenomenon*, and not *homogeneous* with the Cause. Whatever carries these marks obliges us to look beyond itself; for what? for its origin in something different. This difference might be satisfied either by simply *another phenomenon*, or by what is *other than phenomenon*.

I. Suppose the Cause to be *another phenomenon*; in what does the relation between the two consist?

1. Is it in Time-succession? Is habitual antecedence tantamount to Causality? This hypothesis is already excluded by the rule of *heterogeneity* already given, for habitual antecedence, belonging equally to successions of the like and of the unlike, makes no provision for satisfying this rule. After using up the resources of habitual succession, we should therefore still have to set up a supplementary law of Thought, that every change must be referred to something other than its own prior stage.

2. Is it in *Sequence + Heterogeneity*; so that where two different phenomena are invariably successive in the same order, the prior is cause of the posterior? Not so, unless the blossoms of the almond are the cause of its leaves; and low water the cause of high; and the off fore leg of a horse moves his hind near one; and the fall of the leaf is the cause of winter; and (to recur to an old example not yet tortured to death) night the cause of day. Successions of this kind, constant yet independent of each other, we can conceive multiplied to any extent. Suppose them to be universal, so as to occupy the whole field of observation. There would still be laws of invariable order; definite rules of co-existence and succession, securing the means of prediction; but no causality. Premonitory signs are still something short of causes.

3. Is the shortcoming remedied by stipulating that the sequence shall be "*unconditional*"? By decorating his "invariable antecedent" with this new mark, Mr. Mill completes its promotion to the rank of Cause. First, let us see whether we have got here a *new* mark at all. When does an antecedent become invested with this "unconditionality" of relation? When upon its presence, whatever

else may be or not be, the second phenomenon regularly happens. Whether it has this character or not can be learned only by letting all other conditions absent themselves by turns, and so reveal their indifference to the result; and finding the residuary element to be the sole constant. What we discover thus, however, is nothing but our old acquaintance "invariableness," cleared by comparison with its inconstant companions. Or, in order to make "unconditionality" mean more than "invariableness," shall we insist that the antecedent is to be the sole condition "requisite," on the occurrence of which the second phenomenon is "*sure to happen*," and "*will follow in any case*"? How, then, am I to know such an antecedent when I see it? What test do you give me of this exclusive requisiteness, —this sureness to happen? If it be anything else than the old invariableness, it cannot be got out of your time-succession; but assumes a cognition of *necessity*, other than that of habitual sequence, a certainty of the future other than lies in the juxtaposition of prior and posterior. In short, it is not from foreseeing its sequel in the future that we recognise anything as Cause; but from knowing it as Cause that we are sure of its sequel. Either, therefore, the mark "unconditional" is simply "invariable" over again; or else the rule given to us is, "Take an antecedent: see that it is invariable: mind that nothing else is requisite: and you have the Cause" — a prescription more prudent than instructive.

It is a vain attempt, then, as Sir John Herschel remarks, "to reason away the connection of cause and effect, and fritter it down into the unsatisfactory relation of habitual sequence." (Treatise on Ast., ch. vii.)

Yet between phenomenon and phenomenon, as occurring in time, no other relation is observable. Three things only can we notice about them; their resemblance or difference; their order in space; their order in time; and scrutinise them as we may under this last aspect, we can never (as Hume and Brown have adequately shown) make out anything more about them than which comes first and which next. Higher magnifying powers, new refinements of discovery, may detect unsuspected intermediaries; and bisect and re-bisect the intervals, till a pair of seeming proximates is pulverized into a long series; as the light of Sirius, once regarded as a simple transaction between the star and the eye, cannot now be scientifically described without many a chapter on undulations, and refraction, and physiological optics, and the mental interpretation of the visual field. But the process only introduces more terms into the consecution, and reveals nothing other than consecution. Perceptive experience and observation, then, can never, it is plain, carry us beyond premonitory signs, laws of co-existence and succession; and

if, as we have maintained, these fall short of Causality, Comte is so far right in expunging the quest of causes from the duties of Inductive Science, and confining it to the work of generalization, measurement, and deductive prediction. In this he seems to me to be more correct than Brown and the Mills, who continue to use the language of Causation, after it has been atrophied by reducing it to live on "habitual sequence."

And if premonitory signs are all that Science can *find*, so are they all that Science *wants*. It culminates in prevision and its counterpart, retrospection; and in order to read truly the past and future of the world, it is needful and it is sufficient to know the groups of concomitant and the order of successive phenomena. Were they all loose from each other as sand-grains, or as soldiers filing out of a barrack-gate, still, so long as they were regularly disposed and regimented, we should know what to look for behind, before, and around, and this would satisfy our scientific curiosity. But that there is something else which it does not satisfy is plain, from our not being content with the language of succession and premonition, but trespassing into terms of causation. We compel the antecedents to profess more than antecedence. We look on the perceptible conditions as *standing for* an imperceptible Causality, hiding within them or behind them. That they only *represent* it to our mind, and are not identical with it, is evident from the way in which the word "Cause" may be shifted about amongst them, settling now on this condition, now on that, and again upon the aggregate of them all; never absent, but always movable. For instance, the clock strikes twelve: required the Cause. The answer may be,—the hands have reached that point; or, there is a bell for the hammer to hit; or, there is a hammer to hit the bell; or, the beats of the pendulum keep the time; or, the iron weight gives motion to the works; or, the earth's attraction operates on pendulum and weight. The principle on which we select among the conditions that which we designate as Cause has been variously stated. It has been often said that we pitch upon the most *active* element, and single it out in disregard of the passive conditions; but it would be a good account of a robbery to say that the safe was *not locked*. Mr. Mill thinks that we elect as cause "the proximate antecedent *event*," rather than any antecedent *state*. And it is, he says, in order to indulge this tendency, and escape the necessity of admitting permanent things, like the earth, into the list of causes, that we have set up the "logical fictions" of "*Force*" and "*Attraction*," and stowed them away into the earth, to execute for us any jerks and pulls that we may require; for so I understand the statement, that we represent to ourselves the "*attraction*" of the earth "as exhausted by each effort, and therefore constituting at each successive instant a fresh

fact, simultaneous with, or only immediately preceding, the effect." (Log., B. III., ch. v., s. 3.) This bold attempt to reclaim the province of dynamical language for the successional theory of causation seems to me to belong to the class of "heroic remedies," getting over a difficulty by adopting it, and formulating it as an advantage. Surely the earth's "attraction" is held to be no less "permanent" than the earth itself; and the spasmodic conception of it, as put forth *per saltum* wherever it has some new thing to do, is a peculiarity of Mr. Mill's imagination. To the idea of "*Force*" we resort, not to break down but to gain persistency, and fill the measure of power fully up to the durability of matter; so that, instead of being an escape into the phenomenal theory of Causality, it is precisely our method of deliverance from it.

To avoid the difficulty of singling out a cause from among the conditions, it is now usual to take them all in the aggregate, and to deny causality to anything short of the whole. This conception, in which Mr. Mill rests, is due to Hobbes, who says:—"When we seek after the Cause of any propounded effect, we must in the first place get into our mind an exact notion or idea of that which we call Cause, viz., that a cause is the sum or aggregate of all such accidents, both in the agent and the patient, as concur to the producing of the effect propounded; all which existing together, it cannot be understood but that the effect existed with them; or that it can possibly exist, if any one of them be absent." (Elem. Phil., P. I., ch. vi., s. 10.) However well this definition may work for the purposes of natural science, it does not satisfy the psychological condition of saying what *we mean* by "Cause," and why we habitually distinguish between *αἴτια* and *συναιτία*, and refuse to put the members of the "aggregate" upon a level. Is it not thus? In asking for a Cause, we ask always an *alternative* question—why *this* phenomenon rather than *that*—why *some* phenomenon rather than *none*: and whatever it be that upsets the equilibrium of conditions and turns the scale of this alternative is selected by us as the Cause. As the two members are not explicitly stated, the positive phenomenon inquired about may, in different hearers, undergo comparison with a different suppressed term; and hence they will not all alight upon the same condition as the cause. Why does the clock strike twelve (rather than eleven)? because the hands have just reached that point: (rather than not strike)? because of the hammer and bell: (rather than not go at all)? because of the pendulum and weight. I believe that this principle gives an adequate account of the apparently random selection of a cause from among a host of indispensable conditions.

No phenomena, however, whether thus divided or left in the group, can pass beyond the rank of premonitory signs, or give us more than

the *nidus* of Causality, inasmuch as they disclose nothing but their order; and by causality we mean more than order.

II. The required heterogeneity, then, of Effect and Cause must be sought on the remaining side of the alternative; the Cause, not being another phenomenon, must be *other than phenomenon*, i.e., "*Noumenon*," or entity given by the very make of the intellect itself. The axiom, "Every phenomenon has a cause," instead of meaning, "Every phenomenon invariably succeeds another phenomenon," really means, "Every phenomenon springs from something other than phenomenon." That this is a true account of the law of thought appears:—

1. From its *à priori* character. This character it plainly has. For how can the causal law be inductively gathered by experience, when it is the *incunabula* of experience itself, the condition of the very scene in which we gain it? The external world springs up for us simply in answer to our intellectual demand for a Cause of our sensations; which, apart from that demand, could never present themselves to us as *effects*, with counterparts elsewhere in space. Why, but for this primary law, should we want any exit from our own immediate states? Why not take them as they come, stop with them where they are, and let them weave their tissue upon the inner walls? Moreover, as Helmholtz has observed, there is a clear indication of the logical character of the causal law in this—that no experience is of the least avail to refute it. We often have occasion to discharge our long-established explanations of phenomena; but however often baffled, we can never raise the question whether perhaps they are without cause. In this persistency of search, however, there are, I think, two distinct beliefs involved—one, in the uniformity of nature; the other, in the derivative origin of phenomena. These, I think, are not on the same footing. Of the former, Mr. Mill's inductive explanation seems to be sufficient; and it might perhaps be unlearned in such a world as he supposes, where all uniformity should be broken up. But the second belief would, I conceive, survive such experience; nor is there any tendency in the apparent lawlessness of phenomena to make us think that they issue from no power. Of these two beliefs—often confounded together—it is the second alone which I designate as the principle of Causality, and claim as an axiom *à priori*. It has nothing to do with the consecution of phenomena. Amid order or disorder, we equally regard them as the outcome of power. The other belief—not in causation, but in premonitions—can only be copied from the successions which it attests, and it would be absurd to suppose that if their uniformity were broken up, the mind would be driven by intuitive necessity to rely upon it when it was gone.

If the principle of Causality is an *à priori* intellectual law, the

"Cause" which it obliges us to think will naturally be, not phenomenon, but noumenon.

2. From the indispensableness of *Dynamical* language for the proper expression of causal relations, and the confessed impossibility of translating the literature of science into terms of mere co-existence and succession among phenomena. The very writers who most rigorously limit us to laws of uniformity—Comte and Mill—are obliged, no less than others, to speak the dialect of "*Force*;" and in a single page I find the latter recognising "the action of forces," "the propagation of influences," "instantaneous" and "continuous forces," "centres of force" (*Log.*, B. III., ch. v., s. 1); while the former, falling in with the phraseology of physical astronomy, tells how the equilibrium of the solar system is the "necessary consequence of gravitation;" and, in his anthropological exposition, assures us that, in *force and intensity*, each lower principle has the advantage over the higher. What is this idea of "*Force*" still clinging to those who insist that "all we know is phenomena"? Hume, admitting that we have it, treated it as a figment of customary association,—a subjective nexus of ideas turned into an illusory objective bond. The more recent representatives of his doctrine deny that such phrases are more than a shorthand compend for invariable succession, or carry any other meaning to the mind. This construction of the phrases is assisted by the fact that *Force* is inconceivable without gradations, while *Succession* is inconceivable with them: and the difference between the more and the less, the difficult and the easy, the intense and the remiss, which intelligibly enters into dynamical facts, brings only nonsense to the relation of Prior and Posterior. Another device for recalling "*Force*" into the Time-field is to define it as "*Tendency to Motion*." *Motion* I know as a phenomenon; but what sort of phenomenon is the "*Tendency*"? If it is outwardly there at all, is it anything else than just the dynamical element which it tries to expel? The only way of construing it in harmony with the theory is to treat it as *not* outwardly there, but as intimating *our belief* that, under certain supposed conditions, there *would be* motion. This subjective interpretation puts into the language a meaning which will work; only it is not *our meaning*; for we intend to assert something, not about our hypothetical beliefs, but about the bodies outside us. And it is incumbent on one who accepts the construction to explain the objective character of the language, and why it is that, without mistake of phrase, we mean one thing, and ought to mean another? On the whole, the language of *Agency*, with its measures of intensity, could never have sprung from an experience limited to successions. Laws of order are not yet causes; and if we know anything of causes, we know more than Laws.

The axiom, then, stands, that "Every phenomenon springs from something other than phenomenon;" and this *Noumenon* is *Power*.

III. It remains to find the form in which it is given to us.

1. The cognition of an external world is the most conspicuous primary application of the Causal law. In virtue of this law the understanding sets up in space before it the Cause of what is felt in the organs of Sense, and effects the transition from Sensation to Perception. In sensation itself there is nothing objective; and that we ever escape beyond our skin is due to the intellectual intuitions of Space, Time, and Causality. Physiologically, not less than psychologically, it seems, the distinction is marked between mere sense and perception. Flourens attests that the removal of a tubercle will destroy visual *sensation*; the retina becomes insensible, the iris immovable. The removal of a cerebral lobe leaves undisturbed the visual sensation, the sensibility of the retina, the contractibility of the iris; but it destroys *perception*. (*De la Vie et de l'Intelligence*, 2^{me} Edit., p. 49.) *Objectivity*, then, is given to us by the Causal law, and is not itself a phenomenon, but the construction which the Understanding puts upon phenomena.

2. Mere objectivity, however, or external existence, would still not appear in the form of Power, were it not introduced to us as the antithetic term (the non-Ego) to our own personality (the Ego). Two functions, fundamentally contrary, co-exist in our nature;—a sensitive receptivity, in virtue of which we are the theatre of feelings;—and a spontaneous activity, in virtue of which we expend energy and effect movements. These are contraries, as taking opposite lines of direction; to the centre and from the centre; the initiative abroad, and the initiative at home; sensation arriving without notice, and sensation earned by executive act signalled from within. In the crossing lines of these functions do we first find ourselves, and, as distinguished from ourselves, the objective world. Had we only the passive receptivity, we should not *have* sensations, but *be* sensations; we should feel, without knowing that we feel. But with the exercise of living force or will, the self-consciousness arises; balanced, in the encounter with limitation and impediment, by the recognition of something other than self. This pair of existences becomes known to us merely in relation and antithesis: in whatever capacity we apprehend the one, in the same must we oppose to it the other. Now, in putting forth our Will (using the word for the whole activity which may become voluntary), we certainly know the Self as *Force*; we get behind the phenomena which we produce, and are let into the secret of their origin in a way which we should miss if we only looked upon them. In other words, we know ourselves as *Cause* of them. In this same capacity, then *i.e.*, dynamically, is the other than Self, known as our own opposite

and the universe falls into Causal polarity, in which the outer sphere is but the complement of our own Power. Concurrent with this dynamical antithesis is the geometrical or local antithesis by which the Ego is known as *here*, and the non-Ego as *there*, and whatever is *foreign* to ourselves is planted out as *external* to ourselves. In virtue of the inseparable union of these two antitheses, as factors of Perception, Objectivity and Causality necessarily blend in our outer world; and we cannot separate Matter from Force, or Force from Matter.

The use frequently made of the "Muscular Sense" to explain our introduction to the outer world is unsatisfactory, because the muscular feelings occur *during the delivery* of the act, and happen to us just like the passive feelings of any other sense: whilst the Causal nisus *issues* the act, and may perform it, though, through sensory paralysis, the muscles do not feel at all.

Mr. Mill denies our self-knowledge of Causality, on the ground that, prior to experience, we have no foresight of what we can do. The question is not whether we can *foresee*, but whether we can *try*; and whether the putting forth of force, with or without success, is an experience *sui generis*. Frustration, from want of foresight, is indeed an important part of the lesson by which we learn the meaning of *Can* and *Cannot*.

It is, then, under the form of *Will* that we are introduced to Causality; and the axiom resolves itself into the proposition, "Every phenomenon springs from a Will." The universe, it is admitted, appears to men in simple times, to young eyes still, to poets in all times, as Living Objective Will. But it is supposed that, with the aids of Science, we learn something better. And certainly we do learn to discharge the host of invisible powers once distributed through the world, and, as Law flings its arms more wide, to fuse the multiform life of nature into One. But no fresh way of access to the cognition of Power is opened to us. We have to reach it through the same representative type: and to this hour it has no meaning to us except what we take from Will. The scientific idea of Force is nothing but Will *cut down*, by dropping from it some characters which are irrelevant for the purposes of classification and prediction. The idea of Will is not arrived at by the addition of Force + Purpose; but that of Force is arrived at by the subtraction of Will - Purpose. Such artificial abstractions supply a notation highly serviceable for the prosecution of phenomenal knowledge, but they can gain no authority against the original intuition on which they work, and to which they owe their own validity. The necessity may be disguised, but can never be escaped, of interpreting the universe by man.

JAMES MARTINEAU.