

LECTURE VIII.

THE SOURCES OF OUR THINKING.

SYLLABUS.

1. Has man any "Innate Ideas"? See, Locke's Essay, bk. i, ch. 2. Morell, Hist. Mod. Phil., pp. 76 to 95, (Carte's Ed.) Cousin, *Du Vrai*, Leçons 1re et 2me. Dugald Stuart on the Mind, chaps. i, iii, iv.
2. Must all thinking proceed from Intuitive Beliefs? Why? Why are they, if unproved, received as valid? What the answer to the Skeptical Conclusion of Montaigne or Hume?
Morell, pp. 252-254. Jouffroy, Intr. to Ethics, vol. i, Lectures 8-10. Cousin, *Du Vrai*, Leçons 3me et 4eme.
3. What are the tests of Intuitive Beliefs? Show that our belief in our own Consciousness; In our Spiritual Existence; In our Identity; In the reality of the External World; and in Established Axioms, belong to this class.
Cousin, as above. Sensualistic Phil. of 19th Cent., ch. 11. Mills' Logic, bk. ii, ch. 5th.
4. Prove, especially, that our belief in Causation and power is Intuitive.
Same authorities. Mill, bk. ii, cb. 5th, and bk. iii, ch. 5th and 21st. Dr. Thomas Brown, Lect. 7th. Morell, pp. 186, 187, 254, 382, &c. Chalmers' Nat. Theology, bk. I, ch. 4th. Thornwell, vol. i, p. 499, &c.
Show the relation between this doctrine, and Nat. Theology and all science, § 7.

MANY think, with Locke, that the inquiry into the powers of the human mind should precede all other science, because one should know his instrument before he uses it. But what instrument of knowing is man to employ in the examination of his own mind? Only his own mind. Hence, it follows, that the mind's native laws of thinking must be, to some extent at least, taken upon trust, at the outset, no matter where we begin. This is the less to be regretted, because the correct use of the mind's powers depends on nature, and not on our success in analyzing them. Men syllogized before Aristotle, and generalized before Bacon. I have therefore not felt obliged to begin with these inquiries into the sources of our thinking; but have

given you a short sketch of Natural Theology to familiarize your minds to your work.

You may ask: Since every science must employ the mental powers, and yet the teacher of Chemistry, Mathematics, Mechanics, does not find it necessary to preface his instructions with inquiries into the laws and facts of psychology, why should the divine do it? One answer is that thoroughness in theology is much more important. Another is, experience shows that theological speculation is much more intimately concerned with a correct psychology than physical. The great English mathematicians, of the school of Newton, have usually held just views of philosophy; the French of the school of *La Place* have usually been sensualistic *idologues* of the lowest school. In mathematics and astronomy, they have agreed well enough; in theology, they have been as wide apart as Christianity and atheism. This is because theology and ethicks are little concerned with physical observations: much with abstract ideas and judgments. For these reasons it is necessary for the divine to attain correct views of the great facts of mental science; while yet we do not stake the validity of theological truths on the validity of any mere psychological arguments.

My purpose is to give by no means a complete synopsis, even, of mental science; but to settle for you correct opinions concerning those fundamental facts and laws of spirit, upon which theological questions most turn.

Of these I take up first the question: Has the mind any innate ideas? The right answer is, No; but it has innate powers, which *a priori* dictate certain laws of thought and sensibility, whenever we gain ideas by sensitive experience. Locke, famous for exploding the doctrine of innate ideas, goes too far; teaching that we derive all our ideas (he defines an idea, whatever we have in our minds as the object of thought) from sensation. This he holds is a passive process; and all that the processes of reflection (the active ones) can do, is to recall, group, compare, combine, or abstract these materials. Before sensation, the mind is a *tabula rasa*, without impress in itself, passively awaiting whatever may be projected on it from without. To show that no ideas are innate, he takes up two classes, hitherto considered most clearly such, abstract ideas of space, time, identity, and infinity, &c., and axioms; assuming that if these can be explained as derived ideas, and not innate, there are none such. He teaches, then, that we only get the idea of space, by seeing two bodies separated thereby; of time, by deriving it from the succession of mental impressions; of identity, as remembered consciousnesses. Axioms, he holds to be clearly truths of derivation, because untutored minds do not

Why then, before
Theology?

1. Question of innate
ideas.

believe them, as they would were they intuitive, until they see them from concrete, experimental cases, by sensation.

Consider how far this kind of vicious analysis may lead, as in the hands of Condillac, Comte, and Mill, to sensationalism, and last, to materialism and atheism. If no first truth is of higher source than an inference of experience, then none can be safely postulated beyond experience. Hence, the argument for a God, the belief of all the supernatural, is invalid. Witness Hume's evasion, that the world is a "singular effect." How can sensation show us a God? Another equally logical, although a most heterogeneous consequence, is the Pyrrhonism of Bishop Berkeley. And another must be the adoption of some artificial scheme of ethics, resolving the highest law of conscience into a deduction of self-interest, or some such wretched theory. For if there is nothing in the mind, save what comes by sense, (*Nihil in intellectu quod non prius in sensu.*) whence the notions of right and obligation?

The great error of the analysis of Locke was in mistaking the occasional cause, sensation, for the efficient cause of abstract ideas, which is the reason itself. For example: We first develop the idea of space, when we see bodies in space; but the idea of space is implied *a priori*, in the very perception of that which is extended, not learned derivatively from it. True, our most natural conception of time is of that measured in our successive consciousnesses. But the word, "succession" once spoken, time is already conceived. That is to say, the reason, on perceiving a thing extended, intuitively places it in space; and event, in time; the sense furnishing the occasion, the reason furnishing the abstract notion, or form, for the concrete perception. So in the other cases. To the attempt to derive axioms, we answer that the sensitive experience of some instance is the occasion, but the intuition of the reason the efficient, of these primitive and necessary judgments. For since our experiences of their truth are few and partial, how can experience tell us that they are universally true? To the objection, that they do not universally and necessarily command the assent of untutored minds, I fearlessly rejoin that this is only true in cases where the language of their enunciation is not understood. But of this, more anon.

To show the student how shallow is the analysis which traces the whole of our thinking to sense, I ask: When the "reflective" processes of comparison, e. g., have given us perception of a relation between two sensible objects, (as of a ratio between two dimensions,) is not this relation a new idea? Whence is it?

In a word, you may find the simplest, and also the highest

The mind active, and
endued with attributes.

and most general refutation of this sensualistic philosophy in this fact. The mind is an intelligent agent. Has it any attributes? Any cognizable, permanent *essentia*? Surely. Now, then, must not those essential qualities imply powers? And will any one say that they are only passive powers, and yet the mind is an agent? Surely not. Then the mind, although not furnished with innate ideas, must have some innate powers of determining its own acts of intelligence.

It is related that when Locke's Essay on the Human Understanding was first reported to his great cotemporary, Leibnitz, some one remarked that Locke's system of psychology was built on a literal acceptance of the old scholastic maxim, *Nihil in intellectu, quod non prius in sensu*. Leibnitz answered: *Ita; Nisi Intellectus Ipse!* These words contain the key to the whole discussion.

There is a plausible temptation to deny this, and to treat all our notions and beliefs as derived. It

2. All our beliefs
cannot be proved.

arises from the feeling that it is more philosophical to take nothing upon trust: to require proof of everything. But does not a derived truth imply something to derive from? If therefore primitive judgments are treated as derived, the problem is only removed one step backward to this question: Whence the truths of which these are the deductions? Primary or derived? To prove every postulate is therefore impossible; because the first proof implies some premise from which to prove. Unless then, some things are seen to be true intuitively, there can be no reasoning. And these unproved truths are the foundations of all that we prove.

The question then arises, If these primary beliefs are unproved, how can we know that any of our thinking thence is true? I have now introduced you to the very centre of the skeptical objections of the school of Montaigne and Hume, against the certainty of all human knowledge. Let us also view the other, less radical grounds. They argue, then: 1st. That knowledge must be uncertain as long as it is incomplete; because the discovery of the unknown related parts may change our view of those supposed to be known. And that men in all ages have believed differently with equal confidence. 2d. That perception only shows us qualities, and not substances, so that we have only the mind's inference, unproved and undemonstrable, for the existence and essence of the latter. 3d. That our organs of sense, the instruments of all perceptions, are perpetually changing their atomic structure; that they often deceive us; that the significance which we give to sensations depends on habits, knowledge and education; and that as to memory, we must take the correctness of her reproductions wholly upon trust. 4th. That our general and abstract ideas,

Metaphysical Skep-
ticism. Its grounds.

such as those of causation, space, identity, substance, &c., have not even the uncertain evidence of sensation; but are given by the mind's own *a priori* forms of thought; so that we have no proof for them, save that nature teaches us to think so. And last: The sweeping objection is, that man only knows his own subjective states; to the outside of that charmed circle he can never pass, to compare those states with objective reality. But as there is no ground for our assuming the validity of this objective perception, except that it is nature to make it, we have only to suppose a different structure given to our minds, to make all seem false, which now seems true.

Such are the sweeping objections. To the first three of the special ones, there is one general and perfectly valid answer. It is not proved that all the teachings of sensation, memory, reason, are untrustworthy, because they are sometimes misinterpreted, or because men differ about them sometimes. For the mind knows that it is furnished with *criteria* for verifying seeming perceptions, recollections, inferences, which *criteria* give certain results, when applicable, and when faithfully applied. If there are no such, how did the skeptic find out the falsehood of so many of the seeming *dicta* of these faculties? As to the first and radical plea, that primitive judgments must be, from their very nature, unproved, and that man can never know anything besides his own subjective states, I freely grant that a direct logical refutation is out of the question, from the very terms of it. But a valid indirect one lies in these facts: 1st. That the skeptic, just as much and as necessarily, holds these primary beliefs as we do. Being implied in the validity of all other beliefs, they must be accepted as true, or all thinking must cease; we are no longer intelligent beings. But the skeptic will think: his argument against us is thinking, (erroneous.) 2d. We cannot conceive how an intelligent being could be formed at all, against whose primary beliefs the same objections would not lie; and most against God's! 3d. The fact that primitive beliefs are unproved is the very glory of their certainty, and not their weakness. They admit no proof, only because they are so immediate. The perversity of the skeptic is just that of the man who, when in perfect contact with a tree or post, should declare it impossible to ascertain whether it was near or distant, because forsooth he was so near that no measuring rule could be introduced, to measure the distance! 4th. Chiefly we apply the *argumentum ad hominem* of Pascal. If no knowledge can be certain, then the skeptic must not affirm his unbelief; for this, if admitted, would be a true proposition. The very mental processes exhibited in these objections imply many of the primary beliefs, against the validity of which the skeptic objects. If nothing can be proved, what right has he to go about proving that nothing can be

Refutation of skepticism.

proved? Finally: Truth is intrinsic, and not a mere consequence of our mental structure.

The tests of an intuitive or primary truth established by the best writers are three. (1.) They are primary: (what Hamilton calls, ambiguously, incomprehensible, not capable of being comprehended under some more general and primary judgment, and of being explained thereby.) They are primary, because they are not derived or inferred from any other truth, prior in order of proof to them; but are seen to be true without any dependence on a premise. (2.) They are necessary—i. e., the mind not only sees they are true, but must be true; sees that the negation of them would lead to a direct contradiction. (3.) They are universal—i. e., the mind is obliged to believe them as much true in every relevant case, as in the first; and all people that are sane, when the terms of their enunciation are comprehended with entire fairness, and dispassionately considered, are absolutely certain, the world over, to accept them as true. Now, our adversaries, the sensationalists, would freely admit that if the mind has any judgments which would stand these three tests, they are indeed immediate intuitions. The most practical way, therefore, to discuss their validity, will be to do it in application to special classes of supposed intuitions.

Are the propositions called axiomatic truths, immediate intuitions; or are they derived truths? Sensationalists say, the latter; because they are not primary truths; but deductions of our experience; for they say, as we have seen Locke write, no one has them till he learns them by experimental, sensational trial, and observation; and the announcement of them, instead of receiving from the untutored mind that immediate assent we claim, would, in many cases, excite only a vacant stare. We have already shown that the concrete case is only the occasion, not the source, of the axiomatic judgment. And as to the latter objection, the mind hitherto uninformed fails to assent to them, only because he does not understand the terms of, or comprehend the relations connected with, the proposition. Grant that the presenting of a concrete, experimental case is at first necessary to enable this mind to comprehend terms and relations; still we claim (the decisive fact) that once they are comprehended, the acceptance of the proposition is inevitable. How preposterous is this objection, that because the mind did not see, while the medium was obstructed, therefore the object is not visible? One might, with equal justice, say that my child had no faculty of immediate eye-sight, because he would not be willing to affirm which of "two pigs in a poke" was the bigger! I argue again under this head, that several axioms are incapable of being experimentally inferred; because they never can be brought under the purview of the senses; e. g. "Divergent straight

3. Which are primitive judgments?

Axioms are such.

lines will never meet if produced to infinity." No one will ever inspect with his sight or touch an infinite line! But, says Mill, one forms a mental diagram of an infinite pair of lines; and by inspection of them, learns the truth. On this queer subterfuge, we might remark that it is more refreshing to us than consistent for them, that sensationalists should admit that the abstract ideas of the mind can be subjects of experimental reasoning. We had been told all along that true science dealt only with *phenomena*. It is also news to us that sensationalism can grant the mind any power of conceiving infinite lines! What are those, but those naughty things, absolute ideas, with which the mind ought not to have any lawful business, because they are not given to her by sensation? But chiefly, Mill's evasion is worthless in the presence of this question: what guides and compels the mind in the formation of the infinite part of this mental diagram, so as to ensure its correspondence with the sensible part? Not sense, surely; for that is the part of the mental diagram, which no eye can ever see. It is just this *a priori* power of judgment, which Mill denies. My argument stands. Once more I argue on this head, that axioms cannot be experimentally derived; because they are universal truths: but each man's experience is partial. The first time a child ever divides an apple, he at once apprehends that the whole is larger than either of its parts. At this one illustration of it, he as much believes it of all the divided apples of the universe, as though he had spent an age in dividing millions of apples for experiment. How can a universal truth come from a single case? If experience were the source of the belief, the greatest multitude of cases one could try, would never be enough to demonstrate a universal proposition; for the proportion of similar cases possible in the universe, and still untried, would be infinitely preponderant still. Experience of the past can, of itself, never determine the future.

The sensationalist is inconsistent. He says axioms are learned from experience by sense; and there are no primary judgments of the pure reason. Aye! But how does the mind learn that sensation! experience is true? that perceptions have any validity? Only by a primary judgment! Here then is the axiomatic truth that what sense gives us experimentally is true. This, surely, is not derived! Indeed, the attempt to construct a system of cognitions with a denial of primary ideas and judgments, will be found in every case as preposterous as the attempt to hang a chain upon nothing.

When we ask whether axiomatic truths will meet the second test, that of necessity, sensationalists say: "What is a necessary truth? Does one answer, with Whewell, that it is one the negation of which is inconceivable; then this is no test of primary truths, no test of truths at all; because our capacity for con-

For axioms are necessary truths.

ceiving things to be possible or otherwise, depends on our mental habits, associations, and acquirements, notoriously: e. g. The Guinea negro king could not conceive it possible that water could be solidified by cold in the higher latitudes. This will be found to be a mere verbal sophism, deriving its whole plausibility from the unlucky use of a vague term by the friends of the true theory. A truth is not necessary, because we negatively are not able to conceive the actual existence of the opposite thereof; but a truth is necessary when we positively are able to apprehend that the negation thereof includes an inevitable contradiction. It is not that we cannot see how the opposite comes to be true, but it is that we are able to see that that the opposite cannot possibly be true. Let any man consult his consciousness: is not the proposition, "a whole is greater than its parts," seen by the reason in a light of necessity, totally different from this: "The natives of Guinea are generally black, of England generally white?" Yet the latter is as true as the former!

Last, on this head, sensationalists ring many changes on the assertion that axiomatic beliefs are not held by all men alike; that there is debate what are axioms, and the widest differences; and that some things long held to be necessary truths, (e. g. *Ex nihilo nihil fit*; nature abhors a vacuum; a body cannot act without a medium on another with which it is not present,) are now found not only to be not axioms, but not true at all. I reply, all this proves that the human mind is an imperfect instrument, as to its primary judgments; not that it has none. The same mode of objecting would prove, with equal fairness, (or unfairness,) that derived truths have no inferential validity; for the differences about them have been still wider. Man is often incautious in his thinking, unconsciously blinded by hypothesis, habit and prejudice; and thus he has sometimes (not so very often after all) failed to apply the tests of axiomatic truth carefully. Still the fact remains, that there are first truths, absolutely universal in their acceptance, on which every sane mind in the world acts, and always has acted from Adam's day, with unflinching confidence. On that fact I stand.

The remarks made in introducing my discussion of the immateriality of the soul, have already indicated the grounds on which we claim our belief in our own spiritual existence as an intuition. Our own Spiritual Existence Intuitively Seen. In the proposition *Cogito, ergo sum*, Des Cartes meant to indicate what is undoubtedly true, that the very consciousness of thinking implies an intuitive perception of an existing substance that thinks. But what better definition of spirit, as a something instinctively contrasted with matter, than that it is substance which thinks?

Locke made our very belief of our own identity, a derived

Identity Intuitively Seen. notion, the simple result of our remembered consciousnesses. It may be very true that a second consciousness succeeding a first, may be the occasion of the rise of our notion of identity. But it cannot be the cause, for the identity of the thinking being who has the two consciousnesses is implied *a priori* in those states. The word self cannot be comprehended by our thought without comprehending in it the notion of identity. And it has been well remarked that our belief in our identity cannot be a deduction, because it must be implied beforehand, in our very capacity to perceive any relation between premises and conclusion. If the comprehension of the former is not felt to be the act of the same thinking subject who comprehends the latter, then of course there is no possibility of a logical dependence being perceived between them.

Once more, we assert against Berkeley, and all other idealists, that our reference of our sensations to an external world as their cause, and that a world of substances to which the mind refers the qualities which alone sensation perceives, is a valid intuition. It is primary; witness the notable failures of all the attempts to analyse it into something more primary, from Aristotle to Reid. It is necessary; for the pure idealist can no more rid himself of the practical belief that this was an objective reality, and not a mere subjective notion of a pain, which caused him to feel that he had butted his head against a post. And it is universal. All minds learn it. And if we analyse the mental part of our sensation, we shall find that perception is, in its very nature, a perception of a relation between sensitive mind and outward matter. Grant to the idealist even the assertion that the mind immediately knows only its own subjective states; yet, when it is conscious of the subjective part of what we call a perception, it still knows by its consciousness, that there was an effect which it did not induce upon itself. Surely this subjectivity must include a consciousness of its own volitions. So, of the absence of a volition of its own. Then, as the mind intuitively and necessarily knows that no effect can be without a cause, it must refer this phenomenon, the subjective act of perception, consciously uncaused from within, to some real thing without.

But the intuition which has been most debated, and is of most fundamental importance to theologians, is our notion of causation. The doctrine of common sense here is, that when the mind sees an effect, it intuitively refers it to some cause, as producing its occurrence. Moreover, the antecedent something which made it to be, is intuitively apprehended as having a *power* to produce its occurrence; otherwise it would not have occurred. For the mind is impelled by its own nature to think, that if there had not been a something adequate to make the occur-

4. Cause for every Effect Intuitively Believed.

rence to be, it would not have been. Nothing can only result in nothing: and a thing cannot produce its own occurrence; for then it must act before it is. Hence, also, this immediate deduction that this power will always produce the same result, when applied under the same circumstances. The *occasion* of the rise of this notion of power is, no doubt, as Morell has said, with many authors, our consciousness of our own volitions. Now, the sensational psychologists, at the head of whom stands Hume in this particular, deny all this; and say that our belief that similar causes will produce like effects, is only a probable induction of our experience; (so Mill, adding that this probability rises to a practical certainty, as one induction *concur*s with another,) that the mind merely *presumes* the sequence will be repeated again, because it has been presented so often; that since the mind is entitled to no idea, save what perception gives her, and the senses perceive only the two terms of the sequence, without tie of *power* between them, the notion of this tie is baseless; and *power* in causation is naught. Dr. Thomas Brown, while he asserts the intuitive origin of our expectation, that like will produce like, and even argues it with great acuteness, still falls into the latter error, denying that the mind has any ground for a notion of *power* other than "immediate, invariable antecedence;" for this is all perception gives us.

Now, our first remark, in defending the correct doctrine, is, that this argument is of no force to any except pure sensationalists. When perception furnishes the occasion, a sequence, the reason, by its innate power, furnishes the notion of cause in it. Perception does not show us souls, not even our own; but reason compels us to supply the notion of soul as the subject of perceptions and all other states. Perception does not show us substance in matter, but only a bundle of properties; reason compels us to supply the notion of substance. And such an argument is peculiarly inconsistent in the mouth of Brown, who asserts that our belief in the recurrence of causative sequences is intuitive; for it is impossible for the reason to evade the question: What except power in the antecedent can make the sequence immediate and invariable? The something that makes it so, is just our notion of the power.

Having thus rebutted objections to the true view, we return to show that the opposite one is unreasonable and absurd. The heterodox metaphysicians deny that we intuitively apprehend the fact, that every effect must have its proper cause, and *vice versa*: and the most plausible ground of denial is to say that this presumption grows in our minds by the operation of the associating faculty. It is a law of our minds that they are apt to repeat those sequences of thought, which they have had before in the same juxtaposition; and hence the habit grows up, of thinking of the

Of no Force to say:
Power not Perceived.

The Belief not Derived
from Association.

same consequent when we see the same antecedent; and we naturally learn to expect to see it. But I will show that the belief in cause is not the consequence, but the ground and origin of the association. For instance; man knows perfectly well that certain sequences which recur before him perpetually and regularly, as of light on darkness are not causative; while he believes that certain others, as of light on the sun's rising, are causative. Now if the associative habit had produced the notion of causation, it would have done it alike in both cases; for both sequences recurred with exactly the same uniformity.

I remark, farther, that no experiences of the fact that a given antecedent had produced a given consequent so far as observed, could logically produce the conviction that it would, and must do so everywhere, and in all the future, if it were not sustained by an intuitive recognition of cause and effect in the sequence. The experience of the past only proves the past; there is no logical tie which entitles us to project it on the future, if we deny the intuitive one. How many experiences of a regular sequence entitle us to carry our expectations into the future? one hundred? 500? What then is the difference between case 499th and case 500th, that the latter alone, when added to the previous past experiences, authorizes us to say that now case 501st, still in the future, must eventuate so and so? There is no reasonable answer. In truth, experience of a mere sequence, by itself, generates no confidence whatever in its future recurrence with causative certainty. You may ask, does not a mere empirical induction (*inductio simplicis enumerationis*, Bacon,) the mere recurrence of an observed sequence, beget in our minds even a probable expectation of its recurrence in the future? I answer, yes, in certain sorts of cases; but this probable expectation proceeds from this: We know intuitively that the consequent in this sequence must have some producing cause: whether we have rightly detected it among the seeming antecedents, is not yet proved; and hence two facts are inferred: this seeming, visible antecedent may be the cause, seeing it has so frequently preceded; and if it be indeed the cause, then we are certain it will always be followed by the effect. But we have not yet convinced ourselves that some unseen antecedent may not intervene in each case observed; and, therefore, our expectation that the seeming antecedent will continue to be followed by the effect, is only probable. It is, therefore, not the number of instances experienced, in which the sequence occurred, which begets our expectation that the sequence must recur in the future; but it is the probability the mind sees, that the seeming antecedent may be the true one, which begets that expectation. And if that probability rises to a certainty in one or two cases of the observed sequence, it may be as strong as after ten thousand cases.

This was ingeniously (perhaps unintentionally) illustrated by some of the performances of the calculating machine constructed by the famous Babbage. The machinery could be so adjusted that it would exhibit a series of numbers in an aperture of the dial plate, having a given *ratio*, up to millions. And then without any new adjustment by the maker, it would change the *ratio* and begin a new series, which it would again continue with perfect regularity until the spectators were weary of watching. Now, if a regular empirical induction, however long continued, could demonstrate anything, it would have done it here. But just when the observer had convinced himself that the first *ratio* expressed the necessary law of the machine, *Presto!* a change; and a different one supersedes it, without visible cause.

This introduces the argument, that it is not a habit of experience which begets the belief in the regular connection of cause and effect, because, in many cases, it arises in full strength after one trial. The child thrusts his finger in flame; the result is acute pain. He is just as certain from that moment that the same act will produce the same feeling, as after ten thousand trials. It is because his mind compels him to think the primitive judgment, "effect follows cause;" and the singleness of the antecedent enables him to decide that this antecedent is the cause. Take another case: A school boy, utterly ignorant of the explosive qualities of gunpowder, shuts himself in a room with a portion for his boyish experiments. After finding it passive under many experiments, he at length applies fire, and there is an immediate explosion. But at the moment the tongs also fell on it; and hence it may not be yet patent which of the two antecedents (simultaneous) was cause. He resolves to clear up this doubt by another trial, in which the tongs shall not fall. He applies fire, excluding this time all other antecedent changes, and the explosion follows again. And now, this boy is just as certain that fire will inevitably explode any gunpowder, that is precisely like this, provided the conditions be precisely similar, as a million of experiments could make him. He has ascertained the tie of cause.

In truth, as Dr. Chalmers well says, experience is so far from begetting this belief in the regular efficacy of causation, that its effect is, on the contrary, to limit and correct that belief. A little child strikes his spoon on the table; the effect is noise. At first he expects to be able to produce the same effect by striking it on the bed or carpet, and is vexed at the failure. Experience corrects his expectation; not by adding anything to his intuitive judgment of like cause, like effect; but by teaching him that in this case, the cause of noise was complex, not single, as he had before supposed, being the impact of the spoon and the elasticity of the thing struck.

Illustration of the
Above.

One Instance Cannot
form a habit of Asso-
ciation.

The subtle and yet simple reasoning, by which Kant (Critick of Pure Reason. Bk. ii, Ch. 2, § 3,) shows the absurdity of resolving cause and effect into mere sequence, is worthy of your attention here. He suggests two instances: In one I look successively at the different parts of a large house over the way. I perceive first, for instance, its front, and then its end. But do I ever think for a moment that the being of the end is successive upon the being of the front? Never. I know they are simultaneous. In another case, I see a vessel in the river just opposite to me; and next, I see it below me. The perceptions are no more successive than those of the front and end of the house. But now, can I ever think that the being of the vessel in the two positions is co-taneous? It is impossible. Why? The only answer is, that the law of the reason has, by intuition, seen effect and dependency, in the last pair of successive perceptions, which were not in the first pair. The same vessel has moved; motion is an effect; its cause must precede it. And this suggests the other member of his argument; In a causative sequence, the interval of time is wholly inappreciable to the senses; the cause A and the effect B seem to come together. Now, why is it that the mind always refuses to conceive the matter so as to think B leads A, and will only think that A leads B? Why do you not think that the loud sound of the blow caused the impact of the hammer, just as often as you do the impact caused the sound? Surely there is a law of the reason regulating this! Now that something which determines the order of the sequence, is power.

Last, it is only because our judgment of cause is *a priori* and intuitive, that any process of induction, practical or scientific, can be valid or demonstrative. Bacon shows, what even J. S. Mill admits, that a merely empirical induction can never give certain expectation of future recurrence. To reach this, some canon of induction must be applied which will discriminate the *post hoc* from the *propter hoc*. Does not Mill himself teach the necessity of such canons? Inspect any instance of their application to observed sequences, and you will find that each step proceeds upon the intuitive law of cause, as its postulate. Each step is a syllogism, in which the intuitive truth gives the major premise.

Let us take a simple case falling under what Mill calls his Method by Agreement. (The student will find my assertion true of either of the others.) The school boy with his parcel of gunpowder, e. g., is searching among the antecedents for the true cause of the phenomenon of explosion, which we will call D. That cause is not detected at first, because he cannot be certain that he procures its occurrence with only a single antecedent. First he constructs an experiment, in which he contrives to exclude all antecedents save two,

Kant's Argument.

The Intuitive Belief of Cause, Necessary prior premise of all Experimental Induction.

Example.

A and B. The result D follows; but it is not determined whether A or B, or the two jointly, caused it. He contrives a second experiment, in which B is excluded; but another antecedent event C happens along with A, and again D follows. Now we can get the truth. We reason thus: "In the first experiment the cause of D must have been either A or B, or the two combined." But why? Because the effect D must have had some immediate, present cause. [But we know that no other immediate antecedent effects were present, save A and B.] This is our *a priori* intuition. Well, in the second experiment, either A or C, or the two combined, must have caused D. Why? The same intuition gives the only answer. But we proved, in the first experiment, C had nothing to do with producing D; and in the second, B, had nothing to do with producing D; because C was absent in the first, and B in the second. Then A was the true cause all the time. Why? Why may not B have been the cause, that time when it was present? Because every effect has its own cause, which is regular, every time it is produced. The premise is still the intuition: "Like causes produce like effects."

It is thus appears, that this intuitive belief is essential beforehand, to enable us to convert an experimental induction into a demonstrated general law. Could anything more clearly prove that the original intuition itself cannot have been an experimental induction? It passes human wit to see how a logical process can prove its own premise, when the premise is what proves the process. Yet this absurdity Mill gravely attempts to explain. His solution is, that we may trust the law of cause as a general premise, because it is "an empirical law, co-extensive with all human experience." May we conclude, then, that a man is entitled to argue from the law of cause as a valid general premise, only after he has acquired "all human experience?" This simple question dissolves the sophism into thin air. It is experimentally certain that this is not the way in which the mind comes by the belief of the law; because no man, to the day of his death, acquires all human experience, but only a part, which, relatively to the whole, is exceedingly minute; and because every man believes the law of cause to be universal, when he begins to acquire experience. The just doctrine, therefore, is that experimental instances are only the occasions upon which the mind's own intuitive power furnishes the self-evident law.

This argument, young gentlemen, has, I think, also given you an illustration of the justice of Archbishop Whateley's logical doctrine, that inductive argument is, after all, but a branch of the syllogistic. The answers made to the questions, What is inductive argument? are, as you know, confused and contra-

What is inductive proof?

dictory. Some logicians and many physicists seem to think that the colligation of similar cases of sequences in considerable numbers, is inductive demonstration. Whereas, I have cited to you Lord Bacon, declaring that if the induction proceed no farther than this, it is wholly short of a demonstration, and can but raise a presumption of the existence of a *law* of sequence, which is liable to be overthrown by contrary instances. It is this mistake, which accounts for the present loose condition of much that claims to be physical science; where an almost limitless license of framing hypotheses which have probability, prevails, claiming the precious name of "science," for what are, by Bacon's just rule, but guesses. Many other logicians, seeing the obvious defect of such a definition of inductive demonstration, and yet supposing that they are obliged to find an essential difference between inductive and syllogistic logic, invent I know not what untenable definitions of the former. It is, in fact, only that branch of syllogistic reasoning, which has the intuition, "Like causes, like effects," as its major premise, and which seeks as its conclusion the discrimination of the *post hoc* from the *propter hoc*, in seeking the true causative laws of events in nature. You may, if you please, use the word "*Inductio*," to express the colligation of similar instances of sequence. But *inductive demonstration* is another matter; a far higher matter, which must come after. It is the logical application of some established *canon*, which will infallibly detect the immediate causative antecedent of an effect, amidst the apparent antecedents. Its value is in this: that when once that discovery is clearly made, even in one instance of sequence, we have a particular *law of nature*, a principle, which is a constant and permanent guide of our knowledge and practice. But why does that discovery become the detection of a law of nature? Because we know that the great truth reigns in nature: "Like causes, like effects"—in other words, because the reason has evolved to itself the intuitive idea of *efficient power* in causes. I have shown you, that the valid application of those *canons* is, *in each step a syllogism*; a syllogism, of which the great primary law of causation is first premise.

This exposition shows you that this great law is the very key of nature. It is, to change the metaphor, the corner-stone of all the sciences of nature, material and physical. Hence, if its primary and intuitive character is essential to its validity, as I have argued, in vindicating this thesis we have been defending the very being of all the natural sciences, as well as the citadel of natural theology. Hence it follows that the sensualistic school of metaphysics is as blighting to the interests of true physical science, as of the divine science. The inductive method, in the hands of physicists who grounded it substantially in the metaphysics of common sense, the metaphysics of Turret-

Law of cause is key
of nature.

tin, of Dr. Clarke or of Reid, gave us the splendid results of the Newtonian era. That method, in the hands of Auguste Comte, J. Stuart Mill, and other sensationalists, is giving us the modern corruptions and license of Darwinism and Materialism. The unhallowed touch of this school poisons, not only theology, which they would fain poison, but the sciences of matter, which they claim as their special care.

Few words are needed to show the intimate relations between the true doctrine of causation and theology. It is on his heresy about causation, that Hume grounds his famous argument against miracles. It is on the same error he grounds his objection to the teleological argument for God's existence, that the world is a "singular effect." You saw that the argument just named for God's existence is founded expressly on this great law of cause.

I think we are now prepared to appreciate justly the clamour of the sensationalists against our postulating final causes. I assert that *it is only by postulating them, that we can have any foundation whatever for any inductive science.* We have seen, that the sole problem of all inductive demonstration is, to discover, among the apparent antecedents in any given sequences of changes, that one, which is efficient cause.

For that being infallibly ascertained, we have a Law of Nature. But how so? How is it that a relation ascertained in one, or a few cases, may be assumed as a natural law? Because our reasons tell us that we are authorized to expect that antecedent which is the true efficient in a given sequence of changes, will be, and must be efficient to produce the same sequent, every time that sequence recurs under precisely the same conditions, throughout the realm of nature, in all ages and places. [And that belief is *a priori* and intuitive; else, as we saw, experience could never make it valid; and the demonstrations of regular law in nature would be impossible—i. e., science would be impossible.] But on what condition can that belief be valid to the mind? If there is nothing truly answering to the *a priori* idea of power in the antecedent; if all the mind is entitled to postulate is mere, invariable sequence; and if that efficient Power is to be excluded, because not given by sense perception; is that belief valid? Obviously not. Again: If Cause is only material necessity, only a relation in blind, senseless, unknowing, involuntary matter, in matter infinitely variable and mutable, is there any possible foundation for their universal and invariable relations in given sequences? Is any intellect authorized *a priori*, to expect it. Obviously not. It is only when we assume that there is a Creator to the created, that there is an intellect and will; and that, an immutable one, establishing and govern-

ing these sequences of physical change; that the mind can find any valid basis for an expectation of law in them. And that is to say: There is a basis of law in them because, and only because, this ruling intelligence and will has some end in view. We may not know which end; but we know there is some end, or there would be no Law, his constancy to which is the ground, and the explanation, of the invariability. But that is the doctrine of Final Cause! Take it away; and the inductive logic has no basis under it. You will remember the line

“The undevout Astronomer is mad”—

In the same sense we may assert, that the logic of the atheistic physicist is mad. Do we not find, in the prevalence of Positivist and Sensualistic philosophy, in our day, the natural explanation of the deplorable license which now corrupts and deforms so much of those Natural Sciences, which, in the hands of sound, theistic physicists like Newton, Davy, Brewster, have run so splendid and beneficent a course?
