have already made, and I am happy to say I have enlisted my friend Dr. W. H. Dickinson, of St. George's Hospital, to assist me in prosecuting an inquiry into this part of the subject.

Chance. By J. Stevenson Bushnan, M.D. Heidelb., Fellow of the Royal College of Physicians, Edin., Resident Proprietor of Laverstock House, Salisbury.

"There is no such thing as chance," cries the would-be philosopher. How, then, should there be such a word representing, as it surely does, a distinct idea? Our confident friend will hardly deny that equivalent to chance there is in every language not merely one but many words, each conveying the same definite thought from one mind to another, from boy to boy, from girl to girl, from woman to woman, from man to man. Does Tom speak unintelligibly to his fellows when, seeing Jack throw a stone and hit a bird, he shouts out, "Ah! by chance. Jack is no marksman"? When Jane threads her needle more cleverly than her more expert sister Mary, is she reproved for obscurity if she confesses to her superior readiness that time having been by chance? When Miss Emma writes to her dearest friend how she begins to suspect it can hardly be by chance that Mr. Edward meets her so very often in her walks, does her dearest friend fail perfectly to understand her meaning? When B. says that C. and his partner were winners at whist last night by the mere chance of good cards, is there any one so dull as to misapprehend the observation? When the traveller views Stonehenge, he pronounces it at once a work of design. When he gazes on Staffa or on the Giant's Causeway, in spite of the perpetual intrusion of the idea of these being works of art, he satisfies himself at every moment, by a slight reflection, of their being the effects of chance; and so, likewise, of the Grotto of Pausilippo, and many other natural appearances over the world.

What, then, is the idea which passes thus currently from mouth to mouth and from mind to mind, wrapt up in that word which our small philosopher is so desirous to blot out?

Chance is a negative term. It refers to something void of design. Chance is the negative of intention. Chance events are events which come to pass without any intelligent agent having put things in train for their occurrence. If the term negative offend our opponent, we will describe chance as the complement of design. Whatever does not happen by chance, must happen by design; and,

conversely, whatever does not happen by design, must happen by chance. Chance and design divide all events between them. Yet the proof is not always unequivocal of an event being by chance and not by design, or of an event being by design and not by chance.

Does our philosophic friend, then, by saying there is no such thing as chance, proclaim his belief that nothing occurs except by intention or design? His words bear this interpretation. But what is he muttering? A complaint of being wholly misapprehended. That there is no such thing as chance signifies, he says, that nothing comes to pass except in obedience to the properties of matter and the laws of nature. His belief, then, is that in the properties of matter and the laws of nature was shut up at the beginning all the future of the universe; that all events whatever are the result of the original properties of matter and the original laws of nature—as well those which to the unsophisticated mind of man represent themselves as the effects of chance, as those which represent themselves as the effects of design.

Our friend, to do him justice, does not question the fact of men by nature distinguishing, in the clearest manner, all events into chance events and designed events. But this distinction he describes as a distinction without a difference, representing the foundations of it, broadly defined as it is in the mind of man, woman, and child, as an inherent fallacy of belief, which cannot be too soon eradicated. It is of importance to remark that he does not controvert the existence in the human mind of an intelligible distinction between chance events and designed events. He admits the breadth of the distinction, but denies its reality. In short, he will not dispute its vividness, allowing it to be equal to the vividness of the distinction which, apart from its reality, the rational follower of Pyrrho admits to exist between self and an external peopled world. Here, then, on behalf of the reality of the distinction between chance and design, we are not refused leave to put in a claim resting on the common sense of mankind.

But let us proceed to compare more narrowly our philosophic friend's description of events in general with our description of chance events. His description of events in general is that they are the result of the properties of matter and the laws of nature. Our description of chance events runs in the same terms, with the single addition of the phrase "without direction." Between these two descriptions there is no difference, and for this reason, that it will presently appear that our sciolist friend attaches to the expression "without direction" no signification whatever. If, then, the distinct and intelligible signification attached by mankind at large to chance events be identical with the idea entertained by our sciolist friend of events in general, his legitimate conclusion is not—

there is no such thing as chance, but what you call chance expresses my idea of the manner in which all events whatever take place. He cannot deny this coincidence. What we call chance he calls the course of nature. We say chance operates when things happen in mere obedience to the properties of matter and the laws of nature, as often as these properties and these laws exhibit no evidence of being endowments expressly conferred with a view to a particular design. He says on the properties of matter and the laws affecting it the course of nature is exclusively dependent, and in the course of nature he includes, not only the operations of the physical world and the acts of inferior organisms, but the thoughts, works, and transactions of men.

Here we begin to understand in what sense our sciolist friend declares there is no such thing as chance, namely, in the same sense in which, had there never been light, it might have been said there is no such thing as darkness—if there be no design, neither can there be any such thing as chance. When, then, he says there is no such thing as chance, it is nothing short of an announcement of there being no design in the works of nature, no design in the entire phenomena of the universe.

The changes which men have wrought on the surface of the earth strongly contrast, in the mode of their production, with the mode of production, on that surface, of the original distribution of land and water, plain and mountain. Both these kinds of changes are the immediate results of the properties of matter and the laws of nature; but in the former case these properties and these laws, within prescribed limits, are made to operate in subjection to man's designing will; in the latter case there is no direction, no control, no isolation—the results are ruled by chance.

If we attend to the common course of building a house, we may remark how man brings the properties of matter and the laws of nature to bear on his purpose. The labourers dig the foundation by the help of certain tools, such as spades, pickaxes, wheelbarrows, all of which become fit for their several uses by the properties of the materials of which they are constructed; and, for one example of the application of a law of nature to use, we may take the case of turning over a wheelbarrow to empty it of its contents, with which particular instance of the great law of gravitation the labourer is perfectly familiar. The stones are taken from the quarry by the action of gunpowder: here man wields the force on which earthquakes depend — the sudden conversion of what is dense into volatile products of many times greater volume. By the power of steam, the stones are brought to the place where the building is going on: man has learnt to make the pent-up vapour of boiling water strike a piston within a hollow cylinder alternately on one side and on the other, so as to drive it hither and thither; and this

is his masterpiece in the application of the properties of matter and the laws of nature to accomplish his purpose. The stones being hewn, are next to be cemented together: here a chemical principle is pressed into man's service, one of those by which in nature loose mineral dust becomes concreted into rocks.

But it were needless to dwell at greater length on the lessons taught by the mode of building a house. All man's works exhibit a like character. In the infancy of his progress he imitates the natural operations which he sees going on at the earth's surface, with but little effort to reach a principle or law. Yet his mind is full of activity; he is unceasingly laying up the results of chance as materials for future design. If he is less prone to detect laws of nature than at a later period in his progress, he has greater acuteness in the observation of the properties of bodies. Nevertheless, philosophers do our unlettered predecessors wrong when they deny to them altogether a capacity for inductive conclusions. This kind of research, within somewhat narrow limits, is obviously coeval with man's earliest endeavours to obtain a mastery over nature. This will hardly be called in question if it be considered how many and how diversified are the kinds of wood, what the number and the variety of the kinds of stone, to which, in the infancy of knowledge, man's attention is directed, and how unreasonable it would be to deny the name of induction to the mental process by which are brought out the two propositions, "wood floats," "stones sink." As a test of the existence of these two propositions as laws of nature in the minds of men at a very rude stage of advancement, let it be considered with what surprise one of these supposed embryo philosophers would see for the first time a billet of lignum vitæ sink or a pumice-stone float. The more profound laws of nature plainly cannot be reached till, by division of labour, science has become a separate occupation.

Hitherto reference has been made only to physical nature; but even in physiological nature things occur not unaptly described as happening by chance. Physiological laws, or the laws of organic nature, are among those which, as we think, contain within themselves the evidence of design; nevertheless, all the peculiarities of culinary vegetables, flowers, and fruits, arise at first by chance, that is, by accidental external circumstances, modifying the ordinary laws of vegetation in a particular species. Seizing upon the plant which has thus by accident acquired some valuable peculiarity, or upon its seed, the horticulturalist accommodates its culture to its character, and makes it the parent of a new variety of vegetable nature. And to accidents of a like kind, under man's direction, must be referred the numerous varieties among dogs, horses, cattle, sheep, and other domesticated animals.

Thus, by whatever light we view man's operations upon earth, we

find him continually observing what occurs throughout the three kingdoms of nature, in obedience to the properties of bodies and the laws of nature; and by combining, modifying, and isolating these, ready to continue new designs accommodated to the purpose which at the moment he had in hand.

The great boast of our sciolist friend is that he assumes nothing; that he observes things as they are, without seeking after the origins of things; that by confining himself to this course, he follows up in the strictest manner the precepts of the Baconian philosophy; that he knows nothing of purpose, final cause, or design; that he inquires into nothing but law in nature, and that the term cause, in the sense of efficient cause, has no place in his vocabulary.

This boast, however, is more easily made than realised. Our sciolist is often to be caught falling into day dreams in the forbidden field of assumption. According to the rule by which he professes to walk, he is not to assume the existence of any properties of bodies or laws of nature which have not been determined by observation, and he is not to omit in these respects any particulars bearing on the subject in hand which observation has disclosed. Nevertheless, we continually hear him discoursing of a law of nature developed at a particular epoch, by which so many mineral substances, water, air, and some saline matters, passed into the vegetable organism; and of another law by which that vegetable organism laid the foundation of the animal organism; and of a third law, or series of laws, by which the first simple vegetable and animal structures underwent transitions into more and more complex structures, until all the varieties of species, such as now exist upon the earth, were produced. Again, forgetting his first principles as to the observation of particulars being the foundation of all general laws, and as to the omission of no kind of particulars from an induction, he is often found setting aside the notions which arise in every human breast under the exercise of the sentient, the perceptive, and intellectual faculties, as results of no value. Here he stands on much the same footing on which one might say—it is a fact worth observing that certain bodies, in passing from the state of fusion or the state of solution into the solid state, assume regular forms, or crystallize; but to study the laws of crystallization, or to draw inferences from the observation and comparison of the numerous regular forms assumed by such bodies, is wholly unphilosophical. This is to omit a whole science because it suggests conclusions adverse to one's humour at the moment. But to what use in philosophising has the knowledge of crystallization been applied? Surely to none more frequently, however ineffectually, than to second the conclusions of materialism. But is it the simple observation that bodies assume regular forms in passing from the state

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of liquefaction to the solid state which is brought forward to countenance these materialist conclusions? How feebly would this simple fact bear on the views sought to be impressed? Is it not by the number and variety of the crystallized forms of bodies, and their intimate relations to each other, that an impression is sought to be made favorable to the idea that, by the exercise of the more natural properties of bodies, apart from all design, effects almost unlimited in their extent, and striking by their appearance of arrangement, regularity, and symmetry, are produced? But the analogy which it has been tried to establish between the symmetry of crystals and that of organic living bodies has wholly failed. Yet would it have been fair to pronounce that such a failure had occurred, without taking into account, not only the mere fact of bodies passing into regular forms from the state of liquefaction, but also all the whole varied extent of the forms which they assume, and the relations which these numerous forms bear to each other? So it is unfair, in framing a general system of the universe, to draw nothing more from the history of man than the simple fact that he is variously susceptible of consciousness, instead of incorporating with such a system the essential character of those thoughts which become known to the race by that consciousness with which it is endowed. Our sciolist friend ignores the results of mind in his system of the universe, classing these, as the mere indications of consciousness, with the general phenomena of vegetable and animal existence.

Nevertheless, these results of mind, which he so contemptuously ignores, suggest a totally different philosophy from his, namely, that there are certain rules of belief under which, by the constitution of his mind, man, when left to his natural suggestions, must perceive nature, while the doctrine of mere law, as applied to the phenomena of the universe, is very far from satisfying these rules; in short, that these rules add by compulsion a feeling of the exercise of power to every case in which there is the observation of the operation of a law of nature.

But our would-be philosopher not merely refuses to make the peculiar character of man's thoughts an element in his reasonings as to the system of nature, but he pronounces all man's thoughts, words, and deeds, to be the result of a necessity of his nature; and here, beyond doubt, he makes a new assumption. No such notion exists naturally in the mind of man. Every man acts daily, and at every moment, on the firm persuasion of being a free agent—of being responsible for every act; on the eve of every word and act, of having it in his option to give or withhold utterance, to nullify or realise performance. Our sciolist friend says it is a deception. Is not this an assumption? It is not, indeed, impossible to conceive all human actions to be the result of necessity, for of other animals subjected to instinct all the acts are believed to be of necessity. The

difficulty is to reconcile man's irresistible persuasion of the freedom of his acts with the assumption of their necessity. Shall we admit it to be possible for man, by the constitution of his nature, to be subjected to this deception? Were such an admission made, where is the line to be drawn? What assurance would remain of there not being a like source of fallacy in every one of the received criteria of truth? But let us rather say, man's persuasion of the reality of his freedom is a sufficient proof of its reality, according to the standard of common sense. For to assume his acts to be of necessity, involves the same disregard of the suggestions of his mental constitution, as if it were assumed, that for any proof existing to the contrary, two and two might make something else than four. A difficulty remains of another kind, not to be confounded with that just discussed, namely, how to reconcile the freedom of man's will with a predetermined course of human affairs. This is one of the questions, like those relating to infinity of time and to infinity of space, which must be set aside as transcending the faculties of the human mind.

But the case in which our sciolist friend offends most grievously against his own principles by numerous assumptions, is when, forgetting how fundamental in his system is the repudiation of the origins of things, he enters upon speculations as to the primordial state of the natural universe, and the use of organic species. All that is consistent in his system is drawn from materialism. Materialism proceeds on the idea of the eternity of matter, the eternity of its present properties, the eternity of its present laws. It recognises no design; it treats man's pretensions to power, will, and purpose, as chimeras. If matter, characterised by a uniformity of properties and laws, be coeval with eternity, nothing in the universe can be in a first state of origin, development, or progress. The events contemporary with us must be either the repetitions or the analogies of events, which must have come to pass not merely many times, but an infinite number of times before. If our solar system arose by the gradual concretion of particles originally existing in an aeriform state, diffused through space; and if the planets are approaching, however imperceptibly to us, nearer and nearer towards the sun, into which they are finally to be precipitated, these transitions must be merely repetitions of changes which, in an infinity of time, must have happened infinitely often before. To offer an explanation of the origin of a solar system from a diffused atmosphere of matter, is to leave half the phenomena unexplained, unless it be shown how the sun, after having swallowed up the planets, becomes again resolved into aeriform matter, so that the round of changes by which eternity should be filled up may, time upon time, be renewed.

The assumptions required to proceed on this plan are so numerous

as to be wholly at variance with the kind of principle on which materialism sets out. But to form hypotheses explanatory of the successive construction and disintegration of worlds, clearly lies within the compass of that philosophy which acknowledges, in the arrangements of the universe, the existence of proofs of the continual exercise of power.

This persuasion of the exercise of power in the succession of phenomena is one of the lessons gathered from the workings of the human mind itself—a lesson teaching irresistibly—with the force of instinct—on the same authority on which the whole being greater than its part, is received; that every event has a cause—that is, that every event takes place through the intervention, more or less immediate, of an intelligent agency, or that the power which is felt to operate in the production of any physical phenomenon, however decidedly that may be a particular instance of a general law, is more or less remotely the will of God.

The assumption of the materialist that without the interposition of a designing intelligent power, the mere laws and properties of matter could produce all the works of nature, inanimate and animate, rests on no grounds of science. It has arisen out of the rash and unsupported inference of the existence of many universal laws operating, like the law of gravitation, on every particle of matter, whether embodied in inorganic masses, or in living organic bodies. But besides the assumption being gratuitous of the existence of such laws, how would their perpetual clashing with each other be obviated, so as to afford anything like symmetry or regularity in their results? Let it not be forgotten how remarkably an inextricable confusion is the result of the simultaneous operation of numerous natural laws. Thus, for example, what but intelligent direction more or less remote, can satisfactorily explain to the human mind the concurrence of numerous particles of the common mineral matter of the universe into a most complex system of the utmost regularity of character, such as an organic body represents? and how are such results compatible with the perpetual interference of numerous general laws thus necessarily affecting the particles of matter composing a living organization? How many laws must be assumed to explain the isolation of organic phenomena from the general phenomena of the universe? that is, the isolation of laws which exhibit themselves in the conversion of certain elementary particles of mineral matter into organic structures, destined, under an unceasing change of their elements, to attain a certain magnitude, and to assume a definite form, and to perform certain functions; and then, rebelling against the laws to which they had remained subject for a time, to restore their present constituent particles, together with the laws which they had obeyed, to the inert mineral state from which their original constituent particles had arisen.

The law of gravitation does indeed account for many phenomena, at once of great complexity and of singular regularity of character. But it is easy to see how completely the very universality of this law, that is as subjecting every particle of matter in the universe to its operation under the simplest rule of variation, renders it *sui generis*, and how by forgetting this peculiarity, and taking it for a type of the laws of nature in general, as far as disclosed by the inductive sciences, we are momentarily deceived into the belief of there being no need of design in the production of the phenomena of the universe.

As respects cosmogony, the philosophy which denies the evidence of the operation of power in the universe, stands on a very different footing from that which recognises its operation in every phenomenon of nature. In the former, when properly understood, cosmogony holds no place; and yet how often is this overlooked by those who profess to have adopted this philosophy! We have continually to remind them that their laws can have no existence except in an existent universe; and that they can make use of no hypothetical laws, drawn from ideas of the human mind, as to the fitness of means to ends; their laws have no existence till established by induction—they never were conceptions of the divine mind about to be realised in the course of nature. On the contrary, to him who, professing an opposite kind of philosophy, infers in obedience to the constitution of the human mind, that power operates more or less remotely in every event of the universe, it is permitted to conjecture that the Great First Cause has, at certain epochs, communicated by his word properties to matter of which it was not before possessed, so as to give new determinations to the course of nature.

The philosopher who acknowledges the evidence of power as displayed in the universe, commits no solecism when he assumes that the atoms which at present compose the heavenly bodies, may, at one time, have existed diffused throughout that part of space now dotted with nebulæ, like that which our solar system and our constellations constitute.

There are certain properties which do not seem to be essential to the mere existence of matter, namely, the several kinds of attraction, gravitation, cohesion, and affinity. It is conceivable that, at a certain epoch, matter existed destitute of these properties, and that notwithstanding the low temperature which would then prevail in the regions of space now occupied by the siderial bodies, it would exist in the aerial state, each particle repelling instead of attracting, as in the atmosphere at present, every other particle. So long as no kind of attraction existed among the constituent atoms of matter, each substance would be of uniform density, from the centre of the mass to its circumference; and each substance would have a definite circumference, determined by the greater or less exhaustion of the

repulsive property between the atoms of one kind, in accordance with the views taught by the doctrine of the finiteness of the earth's atmosphere. Thus it is not necessary to suppose that matter in this state of diffusion should be of infinite extent. It is correct to suppose it filling enormous portions of space in detached masses, so as yet to leave indefinite portions of space unoccupied. Each mass would be a huge atmosphere containing all the various kinds of substances, reciprocally penetrating each other, like the gaseous constituents of the earth's atmosphere. While it seems correct to represent each kind of matter as forming one continuous extension of uniform density in the mass to which it belongs, yet it cannot be pronounced that every kind of matter must have the same density with every other, since gaseous bodies under the same temperature and similarly situated as to the centre of gravitation, are very different in density. Hence, in accordance with this idea, each great mass would not be of uniform density throughout, but denser towards the centre where every kind of matter, whether in large or small proportion, would necessarily exist; and this would happen even if it should be determined, by assuming the difference in the density of gaseous bodies to be dependent on gravitation, that all kinds of matter in the case supposed would have the same density; for even on this supposition the mass could not be of uniform density throughout, unless each kind of matter were present in exactly the same quantity. On the atoms composing the enormous detached masses which represent, we shall suppose, those nebulæ of the heavens of which our solar system and the constellations of our firmament form one among many, let the three kinds of attraction, gravitation, cohesion, and affinity, be all at once conferred. Since cohesion does not operate in the aeriform state, and affinity is not exerted between simple bodies in general without heat, the effects of gravitation would be first developed in a higher degree than those of the other two kinds of attraction. The first effect would be a sudden condensation towards the centre of each aerial mass, accompanied with an enormous development of temperature, by which the two other attractions could not but be brought into activity. And as soon as under the influence of these attractions, and the enormous pressure exerted near the centre of each nebular mass, liquid and solid bodies, whether simple or compound, begin to form, a still greater development of temperature will take place. Under this high temperature the whole hydrogen will burn with oxygen into water, the carbon into carbonic acid gas; and as often as hydrogen is slowly set free from water by decomposition in contact with nitrogen, ammonia will be formed, thus being produced the three chief supports of organic nature. Potash and soda, even without a high temperature, would form as soon as their atoms, somewhat condensed, came into contact with oxygen; and these, again, would

speedily unite with carbonic acid. In like manner would the lime and magnesia, the silica and alumina, originate, which constitute the substance of the crust of the earth. Then would phosphoric and sulphuric acids originate quickly to unite with potassa, soda, lime, and magnesia. The atoms of silicum, aluminum, and oxygen, the most abundant substances in the crust of our earth, being most probably in great abundance throughout the whole of each sidereal mass, and disposed to unite together independently of a very high temperature, would concrete into nuclei, which, attracting to themselves the adjacent minor masses, would form the rudiments of future worlds. If we assume the amount of caloric to be the same as at present, it would be largely developed in those condensations, and by this development of temperature the union by combustion of the various simple combustible substances with the several simple supporters of combustion would be strongly determined; so that the universe, before in darkness, would be illuminated by thousands of glowing masses. Numerous causes would concur to throw the solidified masses into motion, and by degrees would be established such regular motions of the minor masses around the greater, and of the nebular systems among each other, as now form so large a subject of investigation in physical astronomy.

Let us next suppose that in process of time all the planets and secondaries of our solar system, and of every similar system, have fallen into the central sun,—and even that the several nebulæ of stars, like that formed by our sun and the neighbouring constellations, have coalesced, what more is required to restore the universe to that state from which we have attempted to trace its progress, but an Almighty fiat depriving matter of these three kinds of attraction of which we have been speaking. Let gravitation, cohesion, and affinity again cease, and matter would again diffuse itself through the same tracts of space from which it had been collected, and this diffusion being accompanied with a corresponding absorption of caloric, the universe would again return to its pristine darkness.

But the physical universe may be given over to the materialist, without compromising the evidence of the existence of design in the works of nature. It may be that the several kinds of attraction are essential to the very existence of matter, and that these properties must come into operation at a period coeval with its first origin. Here for a moment we abandon the idea of a creation, and leave the materialist in possession of the field, to triumph in the thought that matter is eternal. But his triumph will be short-lived. There was a time when our earth was plainly incapable of maintaining any green or living thing on its surface. Whence then, let him say, did its green and living things originate? Let him show by what process a law, which he says is eternal, came into operation at a certain epoch. Let him state the facts which prove that the

mineral elements can, under any conceivable circumstances connected with the history of the earth's surface, pass into organic existences.

Here our sciolist friend snatches the case out of the materialist's hands, and cries,—we admit the power at the very commencement of things, but deny its exercise in the progress of time. But on what does our sciolist rest the evidence of the power which he admits? If he reject the conviction impressed on the mind of man by its inherent constitution that every change, phenomenon, or event in nature has a cause, which cause is found to imply the more or less remote exercise of a power, that is, of an intelligent power, he has thrown away the only natural source of our knowledge of that power, and therefore he has delivered himself up helpless into the hands of the atheist. If, on the other hand, he freely admit his notion of power to be derived from the inherent convictions of the human mind, why should he make gratuitous assumptions as to the epoch of its exercise, reasoning so that, while he is unsupported by any warrant from the rules of philosophy, he is exposing himself to attack on opposite sides at once from the theist and the atheist.

Having, however, once distinctly admitted his conviction of the real exercise of power, more or less remote, in the production of the phenomena of the universe, as afforded by the natural working of the human mind, he is then entitled in the way of hypothesis to exercise his ingenuity in considering whether any light can be thrown on the construction of the universe by the exercise of power developed at particular epochs, as in the specimen afforded above in reference to the hypothesis of the endowment of matter with the several kinds of attraction. Then our sciolist will say, Are we not at one? You contend there is an exercise of power implied in the contemplation of every event in nature, but you leave it undetermined at what epoch that power was really exerted. Why not say with me, all changes in the universe are the result of the properties of bodies and the laws of nature, which properties and which laws have been established from the first by an omnipotent power. To which we must answer. The difference between us is in appearance very slight, but really great, because you make that omnipotence a mere assumption without proof, whereas we contend that the individual proofs of the existence of that omnipotent power are offered in every thought which man directs towards the phenomena of the natural world, while we refuse to limit the operations of omnipotence to any epoch in time or in eternity.

Our argument hardly needs recapitulation. It is itself but a summary of well established views.

We would, however, press on the attention of those who are apt to be led away by the apparent simplicity and grandeur of the idea that everything takes place by law, that they should be on their

guard against admitting for a moment that there is no distinction between chance and design, notwithstanding that both are correctly described as the result of laws of nature.

The just view is, that the notion of power and design is a necessary and indispensable element in that operation of the human mind by which it contemplates the phenomena of the universe; hence, that while it recognises the laws or conditions under which such phenomena take place, it is naturally, or instinctively, impressed with the conviction that power and design are concerned in the determination of these laws.

Our argument is directed, in the first place, against the growing opinion that all the operations of nature may be referred exclusively to law without detriment to the belief that all laws, and all series of laws, can be ascribed on grounds of science, to the original fiat of an omnipotent intelligent cause. Our counterstatement is, that if we accustom ourselves to regard all the operations of nature as simply the effect of law, we teach ourselves to omit from our views of nature an instinctive feeling of our minds in the contemplation of her operations, suggestive of the exercise of power in the original establishment and continuation of such laws. In other words, that the limitation of the attention to law destroys the natural idea of the continual exercise of power in the phenomena of the universe, and that after having thus trained the mind to a limited aspect of things, the evidence on which rests the belief in the existence of an omnipotent intelligent cause, is also thrown aside, and when sought for in other lines of research, is nowhere to be found. Hence, then, to refer everything in nature to mere law, and to neglect the evidence of design everywhere discoverable, comes finally to the same as the profession, that there is no creative intelligence.

Our argument points out that the human mind uniformly recognises the distinction between things happening by chance and things happening by design; and yet, that everything which takes place, whether by chance or by design, occurs in strict obedience to laws of nature, while in design the laws that operate are held in definite control by an overruling influence.

But to sum up: since it is manifest that the human mind cannot comprehend infinity, all the laws of nature known to man are merely results of his own reflections on the universe; but if he confines himself to a one-sided reflection, without taking in all the suggestions which the contemplation of natural phenomena supplies, his final judgment cannot but be erroneous, one-sided, and wholly illogical.