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and candlestick and table and shewbread and veil and golden censer and ark and tables of the covenant and the cherubim of glory overshadowing the mercy-seat, such as the Epistle to the Hebrews ascribes to Moses' historic dispensation, and such as Jesus the mediator of the new covenant with his own precious blood fulfils? (Heb. ix. 2-5.)¹

ARTICLE VI.

NECESSITY AND INFINITY.

BY REV. THOMAS HILL, D.D., LL.D., FORMERLY PRESIDENT OF HARVARD COLLEGE.

A BRIEF, but admirable Article by William T. Harris defines three species to which all the varieties of necessity may be reduced. The first is *causal* necessity; by which something is determined to be, or compelled to appear, by something else external to it. This necessity is assumed by many modern evolutionists to be universal. The second species is *logical* necessity; the connection between the various aspects of a single truth, or between the various parts of a complex truth. This kind of necessity may be defined as that, the opposite of which is inconceivable. And thirdly, there is a *moral* necessity, the necessity of obligation. Each of these three species of necessity includes a great variety of distinctions, to each of which a special name has been given. The idea of necessity governs and controls all processes of reasoning. There is a unity in the universe making each thing dependent on all others. In the attempt to trace this unity we continually meet unavoidably with apparent or real contradictions; which it is the province of philosophy to solve. "By the evolution and solution of these contradictions," says Dr. Harris, "the subsidiary character of physical necessity may be shown."

¹ On this head and throughout, see Newer Criticism, by Prof. Robert Watts, an acute and elaborate refutation of Prof. Smith of special value on the theological points at issue. (Edinburgh: T. and T. Clark.) Also Prof. Green.

In Comte's famous division of the three stages of human thought, he declares that the human mind at first assumes the existence of free will in the changes of external nature; that it then passes to a belief in physical necessity, after which it arrives at an elimination of all consideration of cause, and even of logical connection; contenting itself with the simple grouping of observed facts. But a correct history of the growth of mind presents us with a very different spectacle. Upon first grasping fully the conception of physical cause, the intellect may generalize that conception into a universal physical necessity. Thus, for example, Strauss declares that the universe is infinite, its cause therefore infinite, and therefore of necessity incapable of acting at a special time, or in a particular place; it must act by universal and invariable law. But in this argument Strauss implicitly introduces a logical necessity superior to the physical. By this logical necessity his statement would forbid every change in the universe as clearly as he thinks it forbids miracle. Things *do* change, all is in perpetual flow. If causal necessity be universal, the new state of things at any moment is necessitated by the total condition of the universe, just as the old state was. Now if it were the same totality of condition in the universe which necessitated both states, it would follow that it was adapted to both, and hence indifferent to both; it could not be the cause of one passing into the other. Whatever change, therefore, takes place in the universe, the totality of condition of the universe must change. The cause of that change must lie either outside the whole universe, or else must inhere in the totality of the universe itself. In either case, you are lifted above every form of physical or causal necessity. Either the universe changes its condition without external cause, and thus itself in its totality manifests freedom; or else its change is due not to anything in itself, but to an utterly unknown cause, that is, unknown to physical science. Whatever view may be taken of the human will, this self-determined, unnecessitated change in the

totality of the universe, leading to perfect order and harmony in all the finite and temporal changes, can be approximately conceived only as a Will, of absolute freedom and unlimited power.

The first distinctly intellectual conception in the child is probably composed of three simultaneous elements, inextricably fused in the single act of thought. These are, the consciousness of self, the consciousness of motion, and the consciousness of resistance to motion. But, inasmuch as motion involves space and time, it may be said that this first intellectual act of the human being involves the perception of three existences,—the existence of self, of space, and of time. We know by observation that the intellectual activity of a child is occupied with geometrical figures and finite motions far more than with any other objects of thought. In a few weeks after birth, it has learned to distinguish human beings; in a few months, recognizes individuals; at five years old it sees the likeness in engravings and photographs to every kind of material object. I admit that he has learned ten thousand other things; nevertheless, of the vast amount of knowledge and of intellectual skill required in the first five years of life, by far the greater part is occupied with geometrical and mechanical motion. Modern science, in its patient search after the unity of law, has arrived at the grand result that probably all physical phenomena are merely modes of motion. The senses by which we take cognizance of the existence and attributes of matter are capable of perceiving nothing else than movements in the nerves. Touch recognizes masses of a finite size moving or resisting motion; also temperature, which Bacon from a false induction, Huyghens and Rumford by sound reasoning, showed to be merely a mode of undulation. Touch also distinguishes between rigidity, fluidity, plasticity, and the gaseous condition; and these have been reduced by modern science to the difference of the movements in the atomic constituents of matter. Hearing is but the recognition of a tremor or vibration in the nerves of the ear; sight, the recognition of tremors or

vibrations in the optic nerve. Taste and smell apparently lay hold of chemical difference and identity ; but chemical properties are always referable to other standards than those of taste and smell ; they are always capable by proper manipulation of being made manifest to sight and touch. Chemical forces can be even weighed against the weight of the materials ; they are thus shown to be merely new manifestations of mechanical force. Thus the magnetic and chemical phenomena, since they result from forces which can be weighed against gravity and measured by motion, are themselves to be considered simply modes of motion.

Motion is simply the passage of matter through time and space. And if it be asked, What is matter ? we can only answer, It is that which is capable of motion. Push and drive your analysis as you may, you come at length to sensible properties which modern science shows are probably modes of motion in the molecule or in the atom. If we attempt to define an atom, all that we can say is, that at a certain point in space there is a series of manifestations of power repelling or attracting other points. Make it a vortex ring in a homogeneous, frictionless fluid, and you have only driven the mystery farther back ; you have created a finer kind of matter, which must be defined in a similar manner. What the atom itself is eludes our grasp ; we only get its action, which is simply motion communicating motion.

All the universe has therefore this physical unity, that it gives or could give to some part of our nervous system a movement which would modify our consciousness. The nervous system transmits certain modes of motion to the brain, and we become conscious of perceiving an outward phenomenon. But unless the movement in our nerves be finite,— passing, for example from one portion of the retina to another, or changing perceptibly in its intensity within a finite time,— we do not recognize it as motion. If, on the one hand, the movement be infinite to us — that is, move all parts of our system uniformly — it is not recognized by us at all. But if, on the other hand, the motions be infini-

tesimal to us, yet repeated with what is to us infinite frequency, we do not recognize them as motion, but as sound, warmth, color, flavor. The manner in which these motions of the nervous system produce changes in our consciousness we neither know nor are able in any way to imagine. We are shut up to these conclusions: That we know the external universe, including our own bodies, primarily and directly, only through sensations; and that sensations are produced only through peculiar motions of the nervous system, communicated from motions of the outward world. But the movement of the outward world, so far as our knowledge can at present extend, is a phenomenon of time and space only. All that is given to us in the simple act of sense perception is the conscious self and something not self and equally inscrutable, illustrating for us by motion the laws and relations of space and time. To go any higher the conscious self must be aroused to a new and higher action than simple sense perception. It is aroused first of all to perceive that the phenomenon of motion involves space and time. The first act of this higher internal perception is to perceive the eternal and logically necessary existence of space. We attempt to run out beyond the limits of vision, but see by internal vision that space must extend not only beyond the visible, but beyond the imaginable. Or we try to imagine the removal of matter out of a certain space, and see by internal vision that the space itself cannot be removed. The second of super-sensible things immediately perceived by the mind is the necessary and eternal flow of time. The two ideas of space and time are fundamentally distinct; yet one cannot be conceived without the other. Space must endure throughout all time, and there is no consciousness of time unaccompanied with the imagination, at least, of space. Moreover, the passage of time must be conceived as simultaneous throughout all space. Motion logically implies the existence of space and time, and they are logically necessary antecedent conditions of motion.

But thirdly, when we look at motion in any form, finite

or infinitesimal, we perceive that it implies the existence of cause, efficiency, or power. This is a direct vision of that which escapes the senses. There is a logical necessity for admitting a causal necessity for motion. If under stress of this logical necessity we rise to the perception that the totality of the universe is free from physical necessity, yet the last link which joins the physical causation to the uncaused Cause is itself a causal link. Logical necessity drives us to the perception of an ultimate Cause of the universe, which is uncaused, but which must still be a cause. Harris's reduction of necessity to three species does not seem therefore to be complete unless we extend one of his species, the physical or causal necessity, to include the necessity resulting from the self-determination of the divine wisdom and power.

Motion is conceivable to us only as the passage of something capable of motion under pressure of a force capable of producing motion. Yet when the physicist hunts down his conception of an atom to a last analysis he cannot distinguish it from a mere point in space whence certain forces flow. Even molar motions, therefore, may be said to be merely the transfer of the emanation of force from point to point in space. Matter is known to us only as portions of space in which forces are manifested; and all forces are supposed to be one and the same force producing various modes of motion, that is, of changes in position of the centres of emanation. The two modes of motion most widely diffused are elasticity and gravity. I strike a telegraph wire, and by the elasticity of the iron the jar courses along at the rate of three miles a second. I make or break electric connection upon it, and the movement flies hundreds of miles in a second. I fire a cannon; the sound flies a mile in five seconds; but the light of the flash flies nearly a million times as fast. These facts show that the elasticity of the wire in proportion to the weight of its molecules is more than two hundred times as great as that of air; while the elasticity of the ether through which the wave of light flies is nearly a million million times as great as that of air. The immense tension of

this elastic fluid goes beyond the reach of our imagination. The impulse given to it by the flash of the powder flies out at the rate of one hundred and eighty-six thousand miles a second. And this force, this compression, is omnipresent. The most distant star visible through the most powerful telescope announces by the very fact of its visibility that the source and the effects of this mighty grasp extend far beyond telescopic reach.

But if the force of gravity be communicated through undulations, then, according to the calculations of Laplace, those undulations must move ten million times as fast as light. But this would require the universal presence of a fluid at least one hundred million million times as elastic as the ether. If we stagger under the conception of the luminiferous ether, then when we are presented with a substance a hundred million million times as elastic we throw off the burden ; neither reason nor imagination can bear it ; and we prefer to conceive of gravity as a force acting without intermediate agencies, immediately at finite distances. But the phenomenon of elasticity also, by a logical necessity, forces us to admit that, whether we conceive of atoms in Newton's fashion as perfectly hard little masses, or in Boscovich's as mere centres of force, they exert force without direct contact. And this conclusion will not be affected by any consideration of Leibnitz's theories and axioms. It is forced upon us with a logical necessity by the experimental facts of elasticity.

What Leibnitz meant by saying the amount of force in the universe is constant, I do not know ; I have not had the opportunity to examine. There are several senses in which it is unquestionably true ; but there are others, in which it is asserted at the present day, in which it certainly cannot be maintained. The elasticity of the ether and its compression are the same in all known parts of the universe, and we may presume have been the same for countless ages. When a disturbance is produced in this ether, say by the flash of gunpowder, the wave spreads in every direction, and if there be no opaque obstacle it forms the surface of a constantly

enlarging sphere. Since the surface of the sphere is increasing, the amount of motion is spread thinner and thinner. But if the elasticity of the ether is perfect, the total amount of motion remains the same ; if not perfect, a part is retained in some other form within the sphere. Thus, as the elasticity of the air is not perfect, a wave of sound not only spreads itself thinner and fainter as it goes, but part of it is lost ; that is, it is left behind in the form of heat and electrical excitement. But there is no evidence that the wave of light or heat which passes out beyond the boundaries of telescopic vision will ever be returned again to us ; and it has even been said by some mathematicians that there is a mathematical incredibility in the assertion, a logical necessity of its falsehood.

The sum of the gravitating power of the cosmic bodies remains constant. Meteors and comets fall into the sun or upon the earth, and slightly increase their gravitational force ; but the increased power is simply the sum of the old forces. Moreover, there is a sense in which the attracting power of a sun or a planet is omnipresent, and equal at all distances. The moon is sixty times as far from the earth's centre as we are, and falls toward the earth, in a single second, only the thirty-sixth hundredth part of the distance which a stone here at the surface falls. If light were emanating from the centre of the earth, it would be thirty-six hundred times as brilliant at the surface of the earth as at the distance of the moon ; yet the total amount of light on the surface of that larger sphere would be as great as that upon the surface of the earth. The potential force of gravity is distributed in the same ratio as this actual movement of light ; the earth actually holds only one moon in her orbit, but is potentially able to hold an unlimited number, if they were but properly arranged in their movements. According to the accepted theory of gravitation, this potential power of the earth's gravitation could never be exhausted by increasing its actual exercise. Let moon upon moon be gently bowled alongside our earth until she were lost among them like one gnat in

the midst of an innumerable swarm ; and still, if they were so brought in as to be evenly distributed about her, and balance each other's action, she would hold her present moon with precisely as firm a grasp as ever, and attract each of them also in exact proportion to their mass and distance.

Here, then, are three omnipresent forces revealed to us, each equal to itself in every part of the universe—the elasticity and compression of the ether, and the attraction of gravitation. All the phenomena of external nature, which at first sight seemed to be the solid realities of the universe, fade thus, under the searching glance of reason guided by science, into that which religion had long declared them to be—the inscrutable clothing of inscrutable power. That which can move matter without the intervention of material agency is considered magical or spiritual ; and since the force of gravity thus acts, the universe must be considered the manifestation of an omnipresent spiritual Power.

We arrive at the same conclusion if, instead of considering gravity, we consider elasticity. Matter is shown to be a congeries of points without dimensions, acting upon each other without contact, manifesting the presence of almost illimitable powers, potential forces slumbering in those mysterious centres. Thus our first act of consciousness, aroused by sense perception, is shown on cross examination to involve the existence of time, space, and force,—that is, power producing motion. But it does not involve a knowledge of the thing moved ; that seems to elude analysis ; it vanishes in the self-contradiction of a moving point, or in the equally difficult conception of forces acting from a centre without dimensions, driven from point to point in space, and driving other inconceivable centres. We turn to the other side of the act of consciousness. What is it that is conscious of sense perception ? Am I, is the *me*, which perceives, also a mere mode of motion ? Certainly, consciousness itself does not directly recognize its own relation to motion, space, or time. I see these outside myself. I may trace the external motion into my body, into my nervous system, even up to my

brain ; but I do so by the use of my senses, and by reasoning guided by logical necessity, not through self-consciousness. When in the analysis of sense perception we turn to the contemplation of the conscious self, we step across a very wide gulf, the sides of which are separated, in Hamilton's phrase, by the whole diameter of being. I am related to, or connected with a body, in space and time, subject to force, receiving motion, and thereby leading to sensation. But sensation itself is no mode of motion, nor apprehended by sensation as motion is ; but apprehended by direct intuition, as space and time and force are apprehended. In sense perception we think we see matter, and undoubtedly the senses give us proof of the existence of something leading to the perception. But the perception through sense is the perception of effects, not of causes ; causes are seen by intuition, not by sensation. All, therefore, that is really given by the act of sense perception is the existence of the conscious self, floating in boundless space and boundless time, surrounded and sustained by boundless power. The material world, which we at first think the great reality, is only the shadow of *real* being, which is immaterial. Space is indestructible, even in imagination ; so is time ; the existence of force, the cause of the appearance of matter, is as certain as that of the conscious self. A logical necessity drives us to admit the existence of four independent entities — space, time, mind or conscious self, and force.

The greatest thinkers of the race have agreed in saying that real being is to be predicated only of that which is uncaused, or, if you choose so to express it, self-caused. Self-determined being, containing in itself the cause of its own changes, is conceived by us only as conscious mind or will, that is, as a person. Logical necessity drives us, therefore, not only to declare, with Herbert Spencer, the existence of an ultimate cause of the universe, but, by the argument already given, to attribute to that cause an infinite personality. Thus logical necessity justifies us in illustrating the wisdom and goodness of God by the intelligible and beneficent order

of the universe. Induction could never from the finite part of the universe accessible to man demonstrate infinite wisdom and absolute goodness; but logical necessity compels us to carry the attributes of God to infinity, since there is nothing external to him or greater than he which can limit him, nor can any reason be assigned in his own nature for limiting our conceptions of his power and wisdom. The external world gives us an indefinitely great confirmation to religious faith; but it is by internal vision, by logical necessity, that we see no rest for the inquiring spirit except in assuming that God is infinitely and unerringly wise and good. It may be called a moral necessity in our nature which pushes through and beyond the indefinitely great, leaps to and clings to the infinite. And thus when we turn to the consideration of power, the actual forces known to us are indefinitely great; but they imply still greater potentialities; and reason is not satisfied except in the conviction that in God is an abyss of infinite depth and capacity.

It is a dogma of theism, from which mathematics and physics have obtained rich results, that an infinitely wise God will waste no force. But as it was from theology that they received this valuable truth, so it is to theology that they must look for limiting guides, to prevent their wresting it to their own destruction. In the present day, when so many brilliant experiments have widely extended the domain of physical force, and so firmly established the induction that all manifestations of force are merely modes of motion, that consequently all forces of motion apparently diverse are really forms of one force, it is hastily assumed that the doctrine of the conservation of force has been equally established as a universal truth. It is sometimes put into the form that as the sum total of matter in the universe is constant,—nothing being created and nothing annihilated,—in like manner the sum total of energy is constant, none being added, none destroyed; it is either manifested as force, or becomes potential as power. If this doctrine be true, the universe has been in motion from eternity, and will to eternity remain in motion.

Now for this form of the doctrine, I repeat it, there is no scientific evidence, and high authority has stated it to be mathematically incredible. All matter not under the guidance of organic life appears to be moving toward a position of stable equilibrium, either statical or dynamical. By the latter phrase I refer to such movements as those of the planets in the solar system. But a grave suspicion has been entertained that the ether, or some grosser interplanetary gas, is slowly retarding the motions of the planets; so that these examples of apparently stable dynamic equilibrium fail to give assurance of absolute perpetuity to the cosmos. Everywhere the movement is toward a final state of stable statical equilibrium, and that final state is not distinguishable by our imagination from annihilation. It implies an absolute quiescence of all motion — a return of all force to the abyss of potentiality. This end is threatened by the universal phenomenon of cooling. The sun is pouring out his floods of light and heat, which may last ten or fifteen million years; but they are not inexhaustible. They may be reinforced by showers of meteors falling into it; but the supply of meteors and comets cannot be absolutely infinite. For all that physical science can see, the sun must finally become cold and dead as the moon; and should two dead suns come into collision it would produce only a temporary and partial return of the heat. For the force of movement in the two cold suns is all that can be converted into new heat; but before their cooling they have all that translating force and the heat beside. That heat is sending out energy beyond the limits of the universe, as known to us, with constant flow; and science knows no way by which it can be restored. If, therefore, science believes in an eternal physical universe she must have gone outside her own domain, and poached upon that of theology, to find any basis for her belief. Science herself can lead backward only to a wonderful fire-mist filling all space; forward only to absolute zero, — 460° below zero Fahrenheit, — pitch dark at that. For any origin for that inconceivable pristine fire, for any recovery from that total

stagnation of utterly unimaginable cold and darkness wherein no physical forces could be manifest, she can only turn to the theological conception of God who created light and formed darkness.

Pliny Earle Chase has been publishing a series of about one hundred and fifty papers, illustrating and confirming the proposition that all cosmical and molecular phenomena are manifestations of one omnipresent Power acting in rhythmic and harmonic undulations; yet he does not claim to have shown how gravity can be produced by undulation. He simply shows an intellectual connection between the force of gravity and the velocity of light, precisely as we show an intellectual connection between gravity and the undulation of a tense wire. The wave runs up and down the vibrating string of the harp with a velocity which a body would acquire by falling, in *vacuo*, from a height measured by a length, of the same kind of string, sufficient to have its weight equal to the tension of the string in the harp. These facts show an intellectual connection between the power of gravity, the elasticity of the ether, and that of solid substances. All researches in nature show, in a similar manner, a unity of thought, even in places where we discover no unity of cause. They thus confirm the saying, quoted from the Talmud, that "Thought is the cause of all that exists."

In every attempt to rise to infinity the imagination becomes powerless; and reason is either but feebly conscious of the pressure of logical necessity, or even mistakes the direction in which that necessity urges it. For example, we endeavor to make clear to ourselves the conception of infinite power. In order that the power may be truly infinite, we must refuse to be confined to the consideration of that which may be manifested in physical energy, but rise by reason to a higher conception, where imagination is still more powerless,—a conception of a power which may be manifested in the creation of a world or of a soul. Are there any limits to the manifestation of such an almighty power? Of course, there are no limits in the quantitative sense, else the power would

not be all mighty. But are there not qualitative limits? For example, in the field of space we cannot conceive even by reason, much less in imagination, that power has any control over the attributes of space. If space be dependent in any way upon the Infinite Absolute Being, it would seem to be simply this, that the divine omnipresence constitutes space. Even then, logical necessity will not allow us to admit that space could be withdrawn into potentiality by even infinite power. The reason cannot admit, any more than the imagination can conceive, the relations of space to be subject to power—that even infinite power could make commensurate the diagonal and side of a square, or the diameter and circumference of a circle. In like manner, the existence and relation of time are presented by reason as independent of power. If time be at all dependent upon God, it would seem to be dependent on his being, not upon his will. In other words, it may be determined by his eternity, but not by his fiat. Even in our most reverent frames, reason can no more admit, than imagination can see, that God could create a real period of time, no portion of which should be either before or after a given instant. To such conclusions we seem to be compelled by logical necessity.

But since time and space are thus independent of almighty power, does it not follow that there must be things in the physical universe also out of the control of power? Power resides in the will of God, and may be manifested, or withheld in potentiality, in free obedience to his wisdom and love. But inasmuch as physical forces are manifested by motion, subject to space and time relations, physical forces must conform to those relations which are independent of power. There are, then, physical impossibilities; our finite reason cannot always detect them; but the infinite wisdom recognizes them. Some of them are even manifest to men. The vulgar saying is, that not even almighty power can set two separate mountains together without creating a valley between them. And in the molecular motions recognizable by us only as qualities there must be movements absolutely contra-

dictory—qualities which could not be manifested in the same substance at the same time.

Even when we enter the realm of spirit, however reverent may be our mood, reason recognizes that there must be contradictions in spiritual things—contradictions not only in our finite sight, but absolute contradictions, which not even infinite power or infinite wisdom could reconcile. It requires sharper insight and more patient thought to see the higher realities of spirit than are required for the realities of mathematics and physical science; and we may not be able to point out instances so unmistakable as the incommensurability of surds. Yet we certainly may say that a being cannot be strictly conscious and unconscious of the same thing at the same moment; cannot hate and love the same thing at the same instant; and cannot be morally free yet controlled to choice by external necessity. In theological speculations, therefore, concerning the attributes of the Infinite Being, we are not hastily to assume that because the Infinite One is almighty he can do what is impossible. With God all things are possible; but that is a truth which has self-evident limitations. It is not possible for him to err, to be ignorant, or to be unjust; it is not possible for his power to effect that which lies out of the sphere of power. And he alone knows in all cases what is within the sphere of power. He alone also knows what things within the range of power are best. The inductions which show his wisdom confirm the decision of the higher reason, which runs beyond the conclusions of induction, and declares, from logical necessity, that the knowledge and wisdom of the uncreated and eternal First Cause must be infinite. A great deal of labor has been given by religious writers to the task of reconciling the goodness of God with the existence of so much apparent evil. A great deal might have been given to the equally difficult task of reconciling his holiness with the existence of so much pleasure. But in writing upon these topics men have too frequently failed to recognize the narrow limits of human knowledge; failed to remember that man does not know the limits of the possible

and of the impossible, that man does not know what is best, nor thoroughly know even what is expedient. Those who have been bold enough to say that the evil in the world is real, and within the power of infinite wisdom to have prevented, have usually been those who either deny, or at least overlook, the spiritual and immortal interests of man—those who think that man perishes utterly with the death of the body.

God alone, I repeat it, knows what is within the limits of possibility, and he alone knows what is best. A logical necessity seems to drive us to the conclusion that God saw from the beginning virtue to be the highest good, a good including the highest happiness, arising from a free co-operation of our will with his. The moral freedom of man gives him his type and idea of self-determined, independent being, free from the control of physical necessity. The co-existence of moral freedom in man, even in the most limited degree, with the absolute sovereignty of God is a contradiction; but since one of the terms is infinite, and both inscrutable, we are not under the logical necessity of admitting the contradiction to be real, while we are under a logical necessity of admitting both terms to be true. Nor is it within the power of imagination nor of reason to conceive a higher happiness than that of a free, voluntary submission to the law of reason and of right, supplemented, when the light of finite reason fails, by a reference to the will of the infinitely wise and infinitely good; this is the happiness of being a co-worker with God. But this happiness is not possible without freedom; freedom in a finite being involves the necessity of sin; and redemption from sin can evidently be accomplished only by a co-operation of the Spirit of God with the spirit weakened by sin. Thus the fundamental postulates of reason, confirmed by inductions from every part of nature, involve the necessity for permitting sin, and for providing redemption through a higher source than nature. The will enjoying moral freedom, and thus independent of the nexus of physical causes, cannot be reached by anything in the course of nature. but when

it has voluntarily gone astray must voluntarily return, else be brought back by the infinite power which created it. But if it attempts a voluntary return, it finds itself weakened by its transgression; it is no longer in its state of perfect freedom, in which it could choose between motives; it has put a yoke upon its neck which it cannot shake off without a new accession of strength from its Maker.

Again, as the highest happiness is attainable only through freedom, and as communication of finite spirits with each other is, so far as we can see, only attainable by the guidance of forces producing motion, this material, external nature must contain unstable equilibriums which our free choice can turn in any direction. In other words, the human body must be of a texture which may allow it to be governed by spirit; and this involves a whole scheme of organic nature. Who will decide what possibilities and what impossibilities are involved in this scheme? A recent French writer maintains that the peculiar chemical nature of nitrogen produces, by logical necessity, every conceivable form of chemical instability, and that among these those fitted to survive—that is, the organic forms of actual nature—must of necessity occur. I quote these absurd conclusions only to show how universally conceded are the facts upon which Josiah P. Cooke founds the sounder induction that the plan of the organic kingdoms involved the antecedent necessity of the chemical peculiarities of nitrogen, just as the plan of giving free finite spirits a body in which to receive their primary education involves the antecedent necessity for an organic kingdom.

And our limited means of knowledge will not at present permit us to deny that in the best adaptation of the globe for the use of organized beings there was involved a necessity for earthquakes, conflagrations, pestilences, and the like; just as in the plan of giving these free spirits liberty and an education suited to free-born children there is involved the necessity of allowing them to sin, and sometimes to sin grievously. We would not rashly limit the powers of the

Almighty. He is all mighty and all wise and all holy ; it is impossible for him to err or to be unjust. Many in writing concerning him have said, He cannot do this or that because he is infinite. Such negations of his power are not reasonable ; they are not demanded, but are rather forbidden, by logical necessity. Infinity forbids no action that is possible. Holiness and wisdom make error and sin impossible to God ; finite and special actions which are wise and holy are not made impossible by infinity. On the contrary, infinity is no longer infinity if it do not include all that is finite. It has been said that the infinite God can act only throughout all space, and throughout all past and all coming eternity, at once. Hence it has been argued that miracle is impossible, as a miracle would be a given act of God at a given point. The fallacy of this argument is twofold. In the first place, even if sound it would hold only against a particular theory of miracles, not against their occurrence ; for it would as readily disprove the occurrence of change, or events. In the second place, it is fallacious from its handling of infinite premises. The infinite being is not infinite, if it does not embrace and control all finitude. God is not infinite in power, unless he can act at each point of space, at each instant of time, as readily as through all space and all eternity. To argue from infinity that it prevents him from acting is simply imposing upon him the feeble limitations of our own thought.

We may not be able to say that it was a physical impossibility (arising out of the necessary character of space and time relations) to avoid the various forms of suffering and death, nor that there was a spiritual impossibility of giving man the highest education, of leading him most surely to virtue, to the most profound and abiding joy, without the misery and sin of this world ; but we must confess that human knowledge will not at present enable us to say the contrary. For aught we know, this impossibility will lie in a logical necessity, seen in the nature of things by the Absolute and Eternal Reason before the creation of man. I believe with all my heart, as Leibnitz did, that the infinite

knowledge of God, seeing from the beginning all possible and all impossible forms of creation, chose the best, because he saw and knew it to be the best ; and we know that it was the best, because he chose it.

It has been asserted by some that nature is as cruel to our race as she can be without destroying it. Yet if we look at the white races we find that in those countries where nature is most cruel man is the happiest. What the logical necessities of a spiritual nature may be, man is not competent to decide ; but we are able to say what are the facts of human nature. We know that we are not happy unless we labor, and we know that few men will labor except upon compulsion. These truths of observation hold in every department of our being,— physical, intellectual, and even moral. But it has sometimes been objected that if it were not in the power of omnipotence to prevent sin, it would have befitted the divine omnipotence and beneficence to have refrained from creation.

The objection is too bold ; it reaches beyond the sphere of human knowledge and human judgment ; it brings one under the apostle's rebuke : " Shall the thing formed say to Him that formed it, Why didst thou make me thus ? " Yet no greater proof can be given of the intrinsic dignity of our nature than its readiness thus to grapple with problems which it knows to be beyond its power of perfect solution. The objection is too bold ; and in attempting to answer it we are in imminent danger of the like error, of being wise above what is written — above what is written in either of the great books : nature, the soul, or the gospel.

The objection implies that the happiness of a sinner is of more importance than the blessedness of a saint, or, at least, implies that the suffering of the wicked outweighs the happiness of the good. If goodness, virtue, holiness — even when they are the fruits of the Spirit of God and of Christ — imply human freedom and co-operation, they also imply sin, and the possibility of wilful sin. To make this an objection to the goodness of God, we must make the total amount of

suffering for sin outweigh the blessedness of the redeemed ; and to do this we must reckon the suffering of the wicked not only endless in duration, but infinite in amount at each instant. Whether that view is properly implied in the language of the New Testament is a question upon which even believers have differed. The light of nature seems to point very clearly to eternity of punishment for the unrepentant, but scarcely to an infinite torture at each instant. Yet nature declares that the chastisement for sin is the heaviest of all evil.

Sin is something more than ignorance, intellectual error, corrupted affections and sentiments, or even erroneous volitions. All these are evils ; but they are not sin. The essential sign of sin is a misdirection of the will ; it is a wrong choice. It lies behind the actual volition, at the very centre of our being. It cannot therefore, as we have already said, be reached by intellectual light, nor by moral influences, nor by the pressure of circumstances. A man may be protected from all external assaults ; he may have set before him in the clearest possible manner the precepts of the moral law, the reality of moral obligation, the penalties of transgression ; and nevertheless the man may, in spite of all, choose to do evil. Limited as the freedom of man may be, it is real as far as it goes. There may be few occasions wherein an ordinary man exercises, consciously or unconsciously, much choice ; he may, as Cecil somewhere observes, drift on for weeks and months, floating in the right course of action, yet without a clear, individual, self-conscious determination to keep in that direction. Opportunities, however, occasionally occur when there is a free choice made ; and it is a notorious fact of our nature that this choice is sometimes wrong, against unmistakable light, against good impulses, against warning and entreaty. It is a deliberate sin ; it is a deliberate choice of evil.

All the experience of human life shows that this wrong choice may be persisted in indefinitely. How can we be sure — this is the problem — that the man who thus persistently

chooses wrong will not persist in his wrong choice forever, will not in sheer obstinacy draw everlasting suffering upon himself? In that case, the awful words of Jesus would be literally true: "It would have been better for that man that he had never been born." Some writers have said that, in the infinite resources of divine power, means will be found to conquer the obstinate folly of the most rebellious spirit. The difficulty of accepting this doctrine as the teaching of nature arises from the very conception of moral freedom. How can even infinite power coerce a free spirit? There seems a logical necessity for rejecting the proposition. Even infinite power, it would seem, cannot compel the choice of a free moral agent; because such compulsion would destroy his freedom, alter his very nature, render him incapable of the high happiness of the blessed. It is not clear to the eye of reason alone that even almighty grace can be irresistible to a soul which nevertheless retains its liberty — liberty the essential condition in which righteousness and sin are possible.

I understand Swedenborg to say that the man obstinately refusing the glorious inheritance of the sons of God is allowed to enjoy the pleasures of the beast. According to this view, a persistent choice of evil entirely sears the conscience; so that the man who has shut himself out of heaven enjoys, in his own low way, the hell in which he has confined himself. But this view is surely not consistent with our best conceptions of the holiness and justice of God. Logical necessity scarcely permits us to accept as adequate so feeble a response to the awful sense of responsibility, of moral necessity.

Finally, the light of nature alone has led some to suppose a provision in the spiritual man similar to that in the organic kingdoms by which irreparable injury mercifully ends in death. The abuse of the body ends in the destruction of the body. Why, it is asked, may not the persistent wronging of the soul end in the death of the soul? This, it is urged, would be in conformity with a literal interpretation of Paul's words: "He that soweth to the flesh shall of the flesh reap destruction."

The merciful provision of nature that excess of pain or of mutilation should bring death would thus be extended into the spiritual, as well as animal organism. But against this view may justly be urged the force of all those arguments from nature and from revelation which tend to prove that man was created in the image of God's eternity.

The conclusions which I have been endeavoring to elucidate may be briefly set forth as follows :

The assumption of physical cause, producing physical necessity, is based on the subsumption of a logical necessity, overriding and dominating every sound process of thought.

By this logical necessity we are driven to the conclusion that physical necessity is limited, and that in the movement of the total universe there is a self-determining freedom ; in other words, that the government of all the universe is in an infinite consciousness, a morally free personality.

In reasoning upon subjects in which the infinite is involved • it requires peculiar care to see in which direction logical necessity leads ; but that necessity certainly cannot compel us to deny the conclusions to which it has certainly led us. We may therefore safely follow Lessing in rejecting theological conclusions which contradict the first and most certain conclusions of reason, to wit, that the human soul is morally free, and that God is morally free ; in other words, that human personality is an image of God's.

In reference to sin and redemption, logical necessity leads us, from data independent of the Christian Scriptures, to admit the reasonableness of the prominent doctrines of those writings. Logical necessity, compelling us to admit that the free will of God overrides all physical necessity, compels us also to admit that his wisdom and power, although infinite, — nay, because infinite, — are under logical and moral necessity ; in other words, that he cannot err nor be unjust. It compels us to admit human guilt and human weakness — the inability of man to deliver himself from the meshes in which he has entangled himself. It compels us to acknowledge the validity of that natural argument for individual

immortality which was first suggested by the conversation with the Sadducees recorded in the Gospels—an argument founded on the moral nature of God, and upon the moral relation of man to God. Thus confirming the doctrine of a future life, it puts us under the moral necessity of admitting future rewards and punishments; using reward in the loose sense, and not denying the doctrine of the Lord Jesus, that man cannot really merit or earn anything from God, since he can at most do only his duty.

But no logical necessity leads us from simple natural data to determine the final destiny of a wilfully wicked man. Logical and moral necessity compel us to admit the reality of the moral law, and the infinite weight of its sanction; but they do not force us, from any merely natural data, to determine the final result of that crushing weight upon any individual soul. For salvation, either from guilt or from sin, we must look higher than to anything contained in nature or in the natural man. Sound philosophy, interpreting the natural law, is still *παιδαγωγὸς ἡμῶν εἰς Χριστὸν, ἵνα ἐκ πίστεως δικαιωθῶμεν.*