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## ARTICLE VII.

## OF THE DIVINE AGENCY IN THE PRODUCTION OF MATERIAL PHENOMENA.

By George L. Chace, Prof. of Chemistry and Geology, Brown University.

WHAT is matter? Has it a real existence, or is it merely phenomenal? Does it consist of atoms, endowed each with certain properties, or is it made up of points, around each of which certain powers are constantly manifested? Has it a separate and independent existence and does it act by virtue of its own inherent energies, or are the effects which we commonly refer to matter, in reality due to the Divine power exerted within certain prescribed limits and according to certain prescribed laws? Is the external world through all its parts and in all its relations, what our senses represent it to us, or are we deceived by our senses and led to infer reality or substance where there are only appearances?

On this question, the schools, both in ancient and modern times, have been divided. The Hindoo sages, who three thousand years ago, taught philosophy upon the banks of the Indus and the Ganges, inculcated the belief in simple phenomena. According to their doctrine, matter has no real existence. It is only the sensible manifestation of the Divine essence. The world is a perpetual creation; the universe a vast system of appearances, supported and kept up by the constant presence and power of the Deity. It is in fact, Brahm, their supreme God, acting. When this great being sinks into repose, which according to the Indian mythology has repeatedly happened, then all matter is annihilated, and spirits even "endowed with principles of action, depart from their several acts," and go to be reabsorbed in the Divine substance. When at length, after ages of slumber, he again wakes to action, then the universe once more appears, pervaded in every part by life, order and beauty.

The ancient Egyptian philosophers, less subtle and refined in their speculations, were content to admit the existence of matter on the simple testimony of the senses. They however supposed it to be pervaded everywhere by the Deity, and ascribed to this cause the exhibition of its powers and properties. Indeed, the triads so universally worshipped in the temples on the Nile, were only personified types or emblems of a primary law of nature regulating and controll-

ing the evolution of all its phenomena. Nothing acts by itself. In order that any one element or one portion of matter may exhibit its properties, it must be brought into relation to some other element or other portion of matter. Without this, it remains wholly inert. But when this indispensable condition has been secured, then an immediate action ensues, which though itself incapable of being perceived by the senses, is rendered sufficiently manifest through the effects produced by it. Thus oxygen alone has no power. Hydrogen alone has no power. But when these two gases are brought together at the proper temperature, they react upon one another with irresistible energy, and give rise to the formation of water as the product of their reaction. The revolution of the planets about the sun, is not due simply to the attractive power of that central orb. It is equally dependent upon a corresponding power residing within the planets themselves, without which that of the sun could never have been exerted. This law of dualism belongs essentially to every kind of physical causation; whenever an effect is produced or a phenomenon is exhibited, there must always be at least two separate and distinct agents standing in the common relation of cause to it. The law is universal and constitutes, it is probable, one of the features which distinguish all created from creative power. Three things, therefore, are necessarily included in our idea of physical causation; viz. something acting, something acted upon, and something produced by that action; or to express the relation more exactly, two things acting upon each other (for the action is mutual and proceeds from the two equally), and a *tertium quid* or third thing resulting from their action.

Now this was the essential idea of the Egyptian trinity. Osiris, Isis, and their child Orus were only personal representations of it, clothed with divine attributes in accordance with their habit of looking upon everything in which there was a manifestation of power as immediately pervaded by God. The same is true of their other triads under whatever name or form they were worshipped. Intellect, matter, and the universe; the Nile, Egypt, and its fruits; heat, light and flame, together with numerous other groups of a similar constitution, were regarded by them as so many types of this fundamental law of nature, which lies at the origin and source of all its phenomena. The Egyptians, therefore, instead of refining away the existence of matter, by supposing the external world a mere illusion, kept up by the Divine agency, seem rather to have deified it by elevating its simple properties to the place of divinities and rendering to them acts of adoration and worship.

In the transcendental schools of Germany and France we find at

the present time a revival of the ancient Hindoo doctrine. It is however presented under a somewhat different form and clothed in a more philosophic garb. Matter has a real existence. It is in truth what our senses represent it. But then it exists only as an effect of which God is the immediate cause, as in the Oriental system the world is a perpetual creation. It is kept in being only by the constant presence and agency of the Deity through all its parts. It is however a reality, not an illusion. It is real in itself as well as real to us. It is the constant and necessary effect of the Divine existence. For God, such is his nature or essence, cannot but act, cannot but manifest himself; and that manifestation is the universe. God is not the universe, not the 'anima mundi' or soul of the universe, does not act through the universe; but the universe is evolved from him. God is the absolute, infinite and eternal cause, and the universe is the constant and necessary effect.

These transcendental ideas of the relation of matter to Deity, however plausible they may at first appear, will be seen upon reflection, if we mistake not, to be without any intelligible foundation. They are moreover vague, and we think to most minds incomprehensible. They confound two things in their nature wholly distinct—ordinary physical causation and creation; that agency by which mere changes are produced in matter, and that to which matter itself owes its existence. They aim at the solution of a problem which no facts touch, which no analogies reach, which lies without the range of our faculties. They aim at an explanation of the *mode* of creation.

There is another view of the nature and constitution of matter nearly allied to the ancient Hindoo notion, which has been frequently associated with the doctrines of Christianity, and which we are inclined to believe, is quite generally entertained at the present time, by the teachers of our holy religion. This view allows to matter a real existence. It regards it as actual substance; created indeed by the almighty power of God, but having in itself the attributes of extension, form and solidity, possessing the properties of attraction and repulsion, and being in all other respects what our senses and the investigations of science would lead us to believe it. Having made these important admissions, those who adopt this view, instead of referring the powers which they see exhibited in connection with matter to its own inherent properties, seek for them a higher origin, by deriving them immediately from the great source of all power. They do not look upon the phenomena of the natural world, as spontaneously evolved, growing directly and naturally out of the constitution and arrangement of its several parts, but suppose them to be dependent in

their evolution upon the universal and ceaseless agency of the Divine Being. They adopt this view because they believe it to be both simple and satisfactory. They do not regard it as necessary and forced upon the mind by its own imperious dictates. Neither do they suppose it indicated or even suggested by anything which they perceive in nature. Nor is it in their opinion an article of faith inculcated by the teachings of Christianity. But they imagine it to be easier of comprehension than any other way of accounting for the production of natural phenomena, and also more in harmony with that superintending providence, which we are taught by Christianity God continually exercises over the affairs of our world. On these grounds they are apparently content to adopt the supposition without inquiring very particularly whether there be any real evidence of its truth. And yet a little reflection, it would seem, should be sufficient to satisfy any person, that of all the ideas which have been entertained in relation to matter, the one we are now considering is the least philosophical. Like the Hindoo belief it refers all our perceptions of the external world directly to the power of Deity, while at the same time it retains the cumbrous and unnecessary hypothesis of its real existence. It commits the logical solecism of inferring matter from the impression which it makes upon our senses and then attributing that impression immediately to a power without and above matter. It wants the consistency and the completeness of either the Egyptian or the Indian doctrine.

Turning from these various ideas which have been entertained at different times and by different schools of philosophy in regard to the nature of matter, let us now examine the subject proposed upon its own merits and see whether there be any sufficient ground for an opinion concerning it. The source of evidence to which we should naturally direct our attention first in such an inquiry, is the testimony of the senses. What then is this testimony? How is it to be interpreted, and what is the authority properly belonging to it?

When we look at an object or place our hand upon it, what is the idea immediately awakened in our minds? Is it that of a phenomenon merely? Or is it the idea of a thing, associated with the belief of its actual existence? On this point there can be but one opinion. The language of our perceptions is too plain to admit of misunderstanding or doubt. Even the philosopher who in his search after truth has attempted to push his inquiries behind those intuitions or first principles which lie at the source of all our knowledge, and has thus involved himself in inextricable confusion and uncertainty so that he has at length come to question everything, not excepting his own ex-

instance, is able to retain his skepticism only so long as he remains shut up within his chamber and contemplates the ideas alone of the objects without. The moment he is surrounded by these objects and feels their direct impression, his philosophy yields to the irresistible power of the senses and he is carried away with "the common herd of believers." All men are so constituted that they cannot help believing in the reality of what they see or feel or gain a knowledge of, through any of the senses. They feel as fully assured of it, as of their own existence. They look upon it as certain, as that two and two make four or the whole is greater than any of its parts. This feeling of assurance, this conviction of absolute certainty is naturally and inseparably connected with the exercise of all our perceptive faculties. We cannot resist it, if we would. It is forced upon us by an imperious necessity. It is a part of our nature and we cannot escape it without ceasing to be ourselves.

Now such being our constitution, whatever knowledge we gain through the senses is to be regarded as coming from God, the author of our constitution, as much as if it were imparted by his immediate inspiration. Though acquired by the use of our natural powers and faculties, it is nevertheless as really and as truly given to us by Him, as if the communication had been direct and wholly independent of these instrumentalities. The information derived through the senses, therefore, rests upon the same ground as the truths of revelation, viz. the Divine veracity. This, indeed, is the only foundation which we can claim for any of our knowledge, whether received mediately or immediately. God having made us, we are dependent upon Him for the truthfulness as well as the extent of our faculties. We know nothing absolutely and entirely but only so far and in such relations as it hath pleased Him to give us the power of apprehending it. Not only our knowledge but our capacities of knowledge are thus bound round on all sides by impassable limits. Within these limits whatever comes to us through the proper exercise of either our rational or our perceptive powers, bears upon it the impress of certainty. We cannot doubt it if we would. It brings with it the Divine sanction, and God himself is responsible for its truth. Without those limits, all is speculation and conjecture, wearing in some cases it may be the garb of probability, but always destitute of that character of certainty which alone gives claim to the distinction of knowledge.

The testimony of the senses, therefore, in relation to the existence and attributes of matter must be admitted. Coming from the same source, it has equal authority with the dictates of reason or the voice of inspiration. We cannot question it, without questioning the truth-

fulness of our constitution, nay, the veracity of God himself; without questioning everything through whatever channel derived. Our own existence even is not surer to us than that of matter. Both stand upon the same foundation. Neither of them is an object of distinct apprehension. One is revealed to us through our consciousness, and the other through our perceptions, and any distrust of either of these sources of information would undermine the foundations of all our knowledge, and plunge us at once into universal and hopeless skepticism.

But admitting fully the existence of matter and allowing to it the possession of powers and properties, may we not suppose these latter to be continually maintained and supported by the Deity, and in this way to be in fact only a manifestation of his power? We think not. The idea, as it seems to us, is self-contradictory. It supposes the actual existence of matter and properties essentially belonging to it, and at the same time supposes these properties to be dependent upon a power without matter; two suppositions not only irreconcilable with one another, but also incompatible with our very notion of the relation between property and substance, between power and that in which it resides and from which it is manifested. We cannot, therefore, consistently believe the phenomena of the material world to be dependent upon the immediate power of Deity, unless we suppose the material world itself to be equally dependent upon that power, by which supposition we really do away with its proper and separate existence and must have recourse to some one of the forms of idealism.

As, however, the general question concerning the relation which God holds to matter is not altogether unimportant in its theological bearings, and is, moreover, one upon which men from their different mental habits are inclined to think differently, it may be worth while to inquire, whether besides the testimony of the senses and the suggestion of the reason, there may not be found other evidence having a bearing upon it. Turning away from what may be called the metaphysical view of the question, may we not look at it through the actual phenomena of matter? May we not investigate it as a question of fact? May we not bring to bear upon it our experience, what we have learned of the constitution and arrangement of things in the world around us? And may we not hope from this source to gain additional light concerning it?

In the prosecution of our inquiry thus far, we have seen that the material bodies by which we are surrounded present themselves to the mind, not as phenomena, but as real existences—actual substances, possessing properties and acting by virtue of those properties. God

has so made us, and placed us in such relations to these bodies, that we are naturally and instinctively led to take this view of their constitution. Nay further, such is the structure of our minds, that this view is forced upon us, so that we cannot avoid it without doing the greatest violence to our understandings.

But this is not all. God has made use of the different kinds of matter for the construction of our globe, and for the formation of the innumerable races of organic beings which he has placed upon it. And in doing so, he has everywhere employed the material elements in strict accordance with the idea of their constitution which he has revealed to us through our perceptive and rational natures, and for the truth of which he has pledged the Divine word and veracity. He has employed them in precisely the same manner as (granting us the requisite power and skill) we ourselves would make use of them for like purposes. We might draw our illustrations of this fact, from every department of nature. As so extended a view of the subject, however, is not necessary to our purpose, we shall confine ourselves to a few instances, taken principally from the animal kingdom. We choose these, because with few exceptions, we comprehend fully the ends proposed, in the several parts of the animal structure, and understand perfectly the means employed for their accomplishment.

If we look over the earth's surface, we shall find it divided into districts of greater or less extent, shut in on all sides by seas, mountains and deserts, or by the equally impassable barriers of temperature. Within each of these districts there prevail certain conditions in respect to soil, climate, etc., which fix its geographical character, and also determine the character of the vegetable tribes to be planted upon it. These latter, in connection with a still larger assemblage of physical conditions, determine the mode of life to which the animals occupying it must be adapted. We must therefore suppose the Creator when preparing to furnish the different portions of the earth with inhabitants, to have had a distinct view of the circumstances under which each of the animals about to be formed, would pass its existence, together with precise conceptions of the powers and capabilities required in the several parts of its organization to fit it for living under those circumstances.

Now, in the actual constitution of animals, these powers and capabilities are not created, but developed. They are not brought into existence by the direct exertion of the Divine power, but attained by the proper employment of means fitted in their character to produce them. The material atoms are so combined with one another, and are wrought in such a manner into the fabric of the animal, as to de-



velop by their own inherent endowments in each part, the precise qualities required in it. The skeleton, which is the frame-work of the animal, and which to a great extent determines the character of the other parts, is constructed on strictly mechanical principles. The several bones composing it, are fitted to one another in such a manner, as to render them capable of just those motions, and those only, which are required by the natural habits of the animal. The muscles are so arranged about the skeleton as to impart to it, by their various contractions, the different movements of which the articulations make it susceptible. Thus far, in the animal structure, all proceeds upon purely mechanical principles. It is simple machinery, the several parts of which act upon one another, in the same manner as the springs and wheels of a watch, or the pistons, levers and valves of a steam engine. We understand perfectly their mode of action, and are able to assign the reason for every one of their particular forms and connections. With a full comprehension of the ends proposed, a thorough acquaintance with the means to be employed for attaining them, and the necessary skill in effecting combinations, we ourselves should form just such a structure. We should add nothing to it; nor could we take anything from it. All human genius, though aided by the experience of six thousand years, has not been able to suggest a single improvement in the structure of man or any of the lower animals.

If we proceed to the other parts of the organization, we find them on the one hand, standing equally in the relation of means to ends, they being each fitted by their endowments for some specific office; and on the other hand, having the same dependence in their modes of action upon the properties of the different kinds of matter entering into their composition. The circulation of the blood, through the agency of the heart and arteries, is conducted on mechanical principles, and governed by mechanical laws, as much as the irrigation of a field by means of ponds and canals. The digestion of food in the stomach, is as much a chemical process as the solution of marble in muriatic acid or the production of alcohol from sugar. The eye is constructed as strictly in accordance with the laws of optics, as the telescope or microscope; and in ministering to vision, it acts upon light in the same manner and by virtue of the same properties. The several parts of the ear are equally adapted in their structure and arrangement to the laws of sound, and in transmitting vibrations from without to the auditory nerve, the organ serves merely as an acoustic instrument. The same thing may be affirmed of numberless other parts of the animal system. We understand perfectly their office, and are able to refer

the endowments by which they are fitted for performing it, to the known laws and properties of matter.

There are other phenomena, however, connected with the living animal, which in the present state of the physical sciences, we cannot so well explain. These, to distinguish them from the former class, have been called the vital phenomena, on the supposition that they depend upon an unknown power, residing in the organization but not belonging to it, denominated the vital principle. There can be little doubt, however, that they are in reality, as entirely the result of organization, and grow as immediately out of the properties of matter and its associated agents, as those exhibited by the eye or the ear, the heart or the stomach. What renders this more probable is, that in proportion as our knowledge of the elements and of their various combinations has advanced, and our acquaintance with the changes actually occurring in the living animal, has become more extended and intimate, many processes which were before regarded as vital, have been brought under the dominion of physical laws. The veil of Isis has been gradually withdrawn, and the impenetrable mysteries which it was supposed to conceal, have under the light of science, resolved themselves, one after another, into the simplest and most ordinary phenomena. The domain of life has, in this way, already been reduced to within comparatively narrow limits, and it is, unquestionably, destined to suffer still further reduction. Indeed there is reason to hope that inquiries already entered upon, may at no distant period lead to discoveries, which shall throw a flood of light upon the most hidden parts of the animal economy, which shall enable us to explain the vital phenomena, by resolving life itself, so long regarded as a mysterious, unknown power, presiding over the mere physical properties of matter, into a simple modification of these properties effected through the influence of organization. If our knowledge of the vital functions be ever enlarged in any such manner as this, then shall we be able to form some just appreciation of the power, wisdom and goodness displayed in the organic creation. Then may we have some adequate conception of the innumerable ends to be secured in the constitution of even the simplest animal, some suitable idea of the profound acquaintance with the properties of matter, and the exhaustless skill and power of contrivance necessary for attaining them.

From our hasty glance at the structure of animals we perceive then, that matter is made use of in their formation, in precisely the manner it should be, on the supposition that it is in truth, what our senses represent it to us, namely, actual substance possessing properties and having various powers and modes of action in consequence of these

properties. On this supposition, our world presents the sublime spectacle of a few simple agents, so combined and employed as to produce the most varied and magnificent results which it is possible for the human mind to conceive. On any other supposition, whether we deny altogether the existence of matter, or admitting its existence, refer the phenomena connected with it, immediately to the power of Deity, the exhibition loses much of its grandeur, and is no longer worthy of our conception of the Divine character. It is as though (if without irreverence we may use the comparison) one should construct with much care, a steam-engine, and when he had finished it, should employ his own strength for moving the piston; or as if, at great cost of materials, labor and skill, he should build a spinning factory, and on its completion should turn with his own hand the spindles.

But this is not all. The argument from the structure of animals may be carried still further. In the organization of every species, numerous cases occur, in which the combinations of matter, necessary to develop in some particular organ, the requisite qualities, develop in that organ at the same time other qualities having no part in its functions, but on the contrary tending directly to impede them. In such instances we frequently find these harmful qualities met and their injurious tendencies counteracted by the provision of a distinct and separate apparatus, attached to the organ in which they are manifested. We have a striking and beautiful illustration of this, in the eye together with its appendages of glands, sacs and ducts. This organ, such is the material of its outer coat or envelope, retains its transparency, only so long as it retains its moisture. The opaqueness which gathers upon it so soon after death, is owing simply to the drying of its surface. During life, the same thing would happen, were there no provision against it. To prevent an occurrence which must prove so fatal to vision, a small gland is placed just over the eye, having for its office the secretion of tears. These, constantly oozing out upon the inside of the upper lid, are conveyed by its rapid passes over the organ to all the exposed parts of its surface. Fresh quantities of moisture are in this manner continually pouring into the eye, to supply the place of that which is lost by evaporation. Thus we perceive that volatility of the tears which belongs to them as essentially as their lubricating and clarifying properties, and which were there no provision against it, would soon render the organ useless, is met and counteracted in its tendencies by the introduction of an additional organ, specially assigned to that office.

Now, on the supposition that matter has a real and separate existence and possesses properties inherent to its substance, we see in this

contrivance for preserving vision, only new proof of the Divine wisdom and benevolence, so clearly manifested in every part of the animal world. On any other supposition the case presents to us the surprising fact of the Creator sustaining by the immediate exercise of his power an injurious quality in the lachrymal fluid and then by the further exercise of his power, preventing the evils that would naturally arise from it.

But the provision for securing the eye against the effects of evaporation do not stop here. If all the tears which are continually flowing in upon the organ, were suffered to dry away on its surface, there would soon be an accumulation of residual matter, consisting of various animal and saline substances. This gradually thickening, and becoming further charged with particles of dust, of which the air always contains a greater or less quantity, would presently induce an inflamed state of the organ, terminating only with its destruction. As a protection against this evil, there is provided a large excess of the lachrymal fluid, over and above what is necessary to supply this evaporation; enough, in fact, to wash the eye and preserve it constantly free from every impurity. But then this excess of fluid must be disposed of. If allowed to accumulate in the eye, until it should flow over the lid, besides the inconvenience of a constant trickling down the cheek, it would in time occasion disease in the eye itself, as we know from experience. To meet this new difficulty, a still further contrivance is resorted to. A very delicate tube is inserted just at the inner angle of the eye, terminating at one extremity in the edges of the lids, and at the other, in the passages of the nose. The tears, as fast as they accumulate, are taken up by this tube, and conveyed to the nose, when, spread over a large surface, they quickly evaporate, and pass off with the other exhalations attendant on respiration. So complex is the lachrymal apparatus, appended to the eye for the express purpose of effecting, what, upon any one of the suppositions of idealism, required only a suspension of the Divine agency.

This, however, is not an isolated case. Numerous instances might be referred to, of a similar character. In fact, there is scarcely any part of the system, in which we do not meet with more or less of this sort of provision. The lymphatic vessels, which arise in great numbers, not only from the serous and mucous surfaces, but also from the deep portions of all the organs, serve only to remove those particles of matter, whose properties have become so changed that they are no longer fit for a place in the organization. These vessels, as well as the veins, are provided at short intervals with valves, designed principally to counteract the influence of gravity in the fluids circulating

through them. Indeed, most of the animal functions, depend upon such a constitution and arrangement of the parts contributing to them as enables these latter to limit, modify, or altogether overcome the ordinary forms of matter.

There is yet another feature in the constitution of animals, which I think has a manifest bearing upon our questions. I refer to the liability of every part of their organization not only to receive injury from various external causes, but also to become disarranged in its action so as no longer to perform in a proper manner its office. Muscles are bruised. Ligaments are torn. Bones are broken. Limbs are severed. The teeth decay. The lungs inflame. The heart enlarges or its valves ossify. The stomach is disordered. The secretions of the liver become obstructed. These and ten thousand other accidents and disorders are incident to our constitution and the circumstances under which we are placed. We cannot, however, on this account suppose them to enter in any way into the real purpose intended to be accomplished by our creation. The privation and suffering attendant upon them, considered as ends, are inconsistent with the benevolence of design so apparent in all the Creator's works. Such an idea is, moreover, wholly irreconcilable with the remedial provisions which we find incorporated, to a greater or less extent, in the structure of all animals; provisions for the reparation of injuries, and the reproduction even, of those parts which have been lost by accident or disease. But if we regard matter as real, and allow to it the possession of inherent and unalterable properties, then we may readily account for the origin and continuance of the different forms of physical evil in a manner perfectly consistent with the Divine goodness, and also entirely reconcilable with the provisions made in so many instances for remedying them. They will then be seen to grow immediately out of the constitution of matter, to arise necessarily from the nature of the materials of which organic beings are composed, and from which they derive all their powers. These evils therefore always have existed and always will exist. Matter continuing what it is, the beings formed of it must be liable to injury; and in proportion as their organizations are complex, and the influences acting upon them variable, they must be liable to disorder. This is a fundamental condition of every form of organic existence, and the animal kingdom, as we might naturally expect, is constituted through all its parts, in strict accordance with it. Among the lowest races, we find animals with structures so simple, that they are scarcely more liable to disorder, than the elements of which they are formed. As their faculties are proportionably limited, they have little power of avoiding danger, and

are consequently peculiarly exposed to mutilation and injury. As a compensation for this, they are endowed (the simplicity of their structure admitting it) with the most astonishing powers of recovery; entire limbs, and in some instances the eyes even, being reproduced in a short time after they have been lost. As we rise in the scale of organized being, we meet with animals of a more complex structure, possessing a wider range of faculties, and having greater power of avoiding the dangers by which they are surrounded. These suffer less frequently in the integrity of their parts. Their power of repairing injuries and supplying losses when such occur, is also less remarkable. At the same time, they are more liable to disease, on account of the greater number and delicacy of the relations subsisting between their several parts, and the *vis medicatrix naturae*, it would seem, is also stronger with them, owing, it is probable, to the same cause. We have this type of character most strongly exemplified in man, who stands at the head of the organic creation and who besides combining in his structure a greater number and variety of parts, than any other animal, is also endowed with intellectual and moral faculties, which add still further to the elaborateness of his constitution. His life is also more varied and takes in a far wider range, both of character and of circumstances, than that of any other animal. We accordingly find him more liable to disease, oftener suffering from organic or fundamental derangement. At the same time his system, including within it more numerous checks and balances, possesses greater recuperative powers; so that disorders, though more various and more frequent, do not so generally prove fatal with him, as with the lower animals.

Now all this, we say, is not only perfectly reconcilable with the goodness of Deity, but furnishes a new and beautiful illustration of it, if we suppose the properties of matter to be inherent and unalterable. The liability to suffer from injury and disease, growing immediately out of these properties, belongs necessarily to every form of organic life. Vegetables are no more exempt from it than animals. The evils naturally arising from it may be in various ways checked and limited, but they cannot be altogether prevented even by the wisest and most benevolent provisions. They are incidental to our existence as organized beings and no degree of care or attention on our part can enable us wholly to avoid them. They are however only incidental. We do not find them aimed at and provided for. There is nothing to indicate that they are in any manner objects of the Divine intention.

But if on the contrary we suppose the phenomena connected with matter, to be immediately dependent upon the power of God, we must

then refer these evils directly to his will, and suppose them to be as really and as fully intended by him, as any of the most obvious ends of our creation; an idea not only contradicted by everything which we behold around us, but one from which our whole moral nature revolts; for it makes God responsible for the evil in the world, not as inseparably connected with the means employed for the production of a greater amount of good but as existing by itself and for its own sake.

There is one other point of view from which we would glance at our subject before dismissing it. Simplicity is one of the most striking characteristics of the Creator's works. It is found everywhere and pervades everything; so true is this, that any theory, whether in morals or physics, which fails in this attribute may be presumed from that circumstance alone to be without foundation in nature. Now if we apply this test to the hypothesis we have been considering, there can be no question which of the two should be preferred. One refers the changes continually going on in the natural world, to the action of a few elements; deducing from their various properties all its most complicated phenomena. It supposes results transcending in variety and magnificence our powers of conception, to be brought about by means so simple, that a child may comprehend them. It presents in the different kinds of matter, considered with reference to the purposes for which they were formed, a sublime generalization of constitutions and powers, of which every advance in the physical sciences, gives us only a more exalted conception.

The other hypothesis refers the same phenomena immediately to the power of the Deity. It supposes that power to be exerted every moment about each one of all the innumerable atoms contained in the universe. Nay more. It requires that the power of Deity should everywhere attend these atoms; that it should follow them through all their combinations and changes, varying its manifestation with every new condition under which they are placed. The idea which is thus presented of the Divine agency in the natural world, is intricate and involved, beyond the power of language to express. The mind even is pained and bewildered in its efforts to take it in. It is wholly wanting in that beautiful simplicity which, as we have said, characterizes all the operations of nature. It cannot therefore be true.

The foregoing considerations are, we think, sufficient to justify us in regarding as false every supposition which requires the interposition of Divine power in the production of material phenomena. Matter is a reality. It possesses properties and acts by virtue of those properties. It is in truth what our senses affirm it to be. Their testimony is to be regarded as having equal authority with the voice of

inspiration. It comes from the Author of nature and is strengthened and confirmed by all that we know of His character, and by all that we learn of His works. It is more especially in perfect accordance with the manner in which he has employed matter in framing our globe and in organizing the different tribes of plants and animals placed upon it.

In concluding our remarks upon the relations of matter to Deity, it may be proper to advert very briefly to the question of its origin. Whence is it? Has it always existed, or were the spaces now filled with it, once unoccupied and void? Are we to regard it as eternal and self-existent? Or shall we suppose it to have had a beginning, and to have derived its existence from a power without itself? The question, if we mistake not, is one upon which, aside from revelation, we have no means of forming an opinion. It lies wholly beyond the reach of our faculties. It is one of those questions which the human mind naturally and instinctively asks, but to which she gains no answer either from within or from without. Considered abstractly, the reason does not take hold of it; as a question of fact, there are no analogies bearing upon it. It is true that matter is employed by the Creator as if it already existed, and was, if we may so speak, furnished to His hands. It is taken just as it is. Its properties are made use of, but not modified. Even when the most complex arrangements and combinations are necessary to attain a proposed end in accordance with its laws, these latter are not changed, but the combinations and arrangements are uniformly resorted to. In a word, as we have already seen, matter is employed by God in the same manner as we ourselves should employ it for like purposes. This fact however affords no just ground for the inference that it was not originally created by Him. Having formed it and endowed it with properties, we should naturally expect that He would make use of it in such a manner as to make these properties available to the purposes of its creation. Any alteration of them, the resort in any emergency to new elements or new properties would imply either defect in the constitution of matter or want of skill in employing it. We can therefore gain no indications from this source in regard to its origin.

The vast scale upon which matter exists, the sublime ends to which it ministers, as well as the ceaseless round of changes through which it is constantly passing, without itself undergoing change or diminution naturally impress upon the mind the idea of permanence, and it is not surprising that those who derived their light solely from nature should generally have believed it to be eternal. Such appears to have been the opinion of the ancient Egyptian philosophers. They were



accustomed to trace the world back, through a series of transformations to an original chaos, in which the materials composing it already existed, though enveloped in profound darkness, and without relation, order or end. In this state they believed matter to be coëval with God, and limited the work of creation to educing from its chaotic elements the beauty, arrangement and harmony of the universe. These cosmological ideas, although originating on the banks of the Nile, like many other of the Egyptian doctrines, passed over to Greece and Italy where they were incorporated, with slight alterations, into the prevailing mythological and philosophical systems. The highest conception of Deity which seems to have been formed on either side of the Mediterranean, was that of a Power intimately pervading all matter and continually evolving from it life, motion, order and beauty.

" Coelum, ac terras, camposque liquentes  
 Lucentemque globum Lunae, Titaniaque astra  
 Spiritus intus alit, totamque infusa per artus  
 Mens agitat molem et magno se corpore miscet.  
 Inde hominum pecudumque genus vitaeque volantum,  
 Et quae marmoreo fert monstra sub aequore pontus."

For the sublime idea of a Being, who was able by the simple exertion of His power to give existence to matter, "who spake and it was done, who commanded and it stood fast," who said, "Let there be light and there was light," we are indebted to the Hebrew Scriptures. Dictated originally by inspiration, the idea has come down to us through the channel of these writings, along with other conceptions of the Divine character, as far surpassing in grandeur anything we find in heathen mythologies. No speculations introduce it. No arguments are offered in support of it. But the doctrine is made to rest upon the only foundation capable of sustaining it, the word of God. It is presented to us as a revealed truth, which we have no natural means of ascertaining, which the Author of all things could alone have made known to us.