THE UNCAUSED BEING
AND THE
CRITERION OF TRUTH

E. Z. DERR

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TO WHICH IS APPENDED AN EXAMINATION OF THE VIEWS OF SIR OLIVER LODGE CONCERNING THE ETHER OF SPACE

BY

E. Z. DERR, M.D.

Author of "Evolution versus Involution"

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FOREWORD

This work was completed before the death of William James, professor of philosophy in Harvard University, and the criticisms of his *Pluralistic* philosophy stand exactly as then written, without additions or alterations of any kind. As a man, Prof. James was beloved by all who knew him, and his benevolent nature and open mindedness endeared him to many whose philosophical views differed radically from his own.

But esteem for the man should not disarm criticism of the writings he has laid before the world. In his last work, "*A Pluralistic Universe*," Prof. James, in declaring for a *finite* God, strikes at the very foundation of Monotheism. Polytheism, with all of its absurdities, is the logical outcome of such a philosophy. Prof. James seems to have been so weighed down by the presence of so much suffering in the world that he could not reconcile it with the existence of an Omnipotent Deity. He therefore declares in his "*Pluralistic Universe*":—"I believe that the only God worthy of the name must be *finite*. . . . If the Absolute exist in addition, and the hypothesis must, in spite of its irrational features, still be left open, then the absolute is only the wider Cosmic whole of which

our God is but the most ideal portion, and which in the more usual human sense is hardly to be termed a religious hypothesis at all. Cosmic emotion is the better name for the reaction it may awaken. Observe that all the irrationality and puzzles which the Absolute gives rise to, and from which the finite God remains free, are due to the fact that the Absolute has nothing, absolutely nothing, outside itself. The finite God whom I contrast with it may conceivably have almost nothing outside of himself; He may have triumphed over and absorbed all but the minutest fraction of the Universe, but that fraction, however small, reduces him to the status of a relative being, and in principle the Universe is saved from all the irrationalism incidental to absolutism. . . . Because God is not the Absolute, but is himself a part when the system is conceived pluralistically, his functions can be taken as not wholly dissimilar to those of the other smaller parts, as similar to our functions, consequently. Having an environment, being in time, and working out a history just like ourselves, he escapes from the foreignness of all that is human."

The *finite* Being here depicted is shorn of the chief attributes of Deity—creative power and Omnipotence—and there is no good reason why there should not be a multitude of such limited beings.

But this is not the place to enter upon a criticism of Prof. James's philosophy; this is done under the head of Polytheism.

CHAPTER I

INTRODUCTORY

It is doubtful if arguments concerning the existence of a Creator can be advanced which will be satisfactory to all minds.

To one the dictum of Descartes, "*J'ai tiré la preuve de l'existence de Dieu de l'idée que je trouve en moi d'un être souverainement parfait,*" is all sufficing. Another looks abroad on nature and sees in the starry heavens and the broad expanse of ocean unanswerable arguments for the existence of a Deity. The beautiful adaptation of means to ends observable in all of nature's ways appeals to many with irresistible eloquence. The great Galen spoke of his anatomical writings as a hymn of praise to the Deity, and Sir Charles Bell regarded the mechanism of the human hand as a strong argument for the existence of a designing power overruling Nature.

The arguments drawn from these sources are hallowed by time, and will never lose weight with the mass of thinking minds. But there are those who demand more convincing proofs than these arguments can supply. To the assertion of the Pantheist that "The Universe as a whole is to be regarded as the Deity," the arguments

drawn from the evidence of design in nature afford no satisfactory reply. The moral chaos resulting from such doctrines, so strenuously urged by some, is not so apparent to others; and at the present day there are journals which enjoy a high reputation for the learning and ability with which they are edited that are devoted to the propagation of Pantheistic ideas. The men so engaged are earnest seekers after truth and it is unjust to accuse them of knowingly spreading false doctrines. It is obvious that the arguments against Pantheism, drawn from the moral evil which it is supposed to entail, have not the slightest weight with such thinkers.

The present age is a veritable Babel of philosophical and scientific speculation. The Pantheist or Materialistic Monist declares that the Universe is sufficient unto itself; and the Pluralist, on the other hand, affirms that there may be an indefinite multitude of independent beings, and that the greatest of them we may dignify by the title of God, though He, like the rest, is *finite*, with antecedents and a "history."

By one we are told that the ultimate atoms of matter are possessed of a certain kind of volition and self-consciousness (Voght's pyknotic theory, adopted by Haeckel in his "Riddle of the Universe") which enable them to select suitable partners for themselves, which unions re-

sult in the various combinations which matter assumes.[1]

We are treated to learned and sympathetic criticism on the vagaries of a Nietzsche, a Fechner and a Bergson, and their writings enlist a host of ardent admirers.

We are told by Prof. William James that if there be a God he must be "*finite*" with a "*history*"; that the existence of what we call evil in the world is incompatible with an Omnipotent Beneficence. Thus the door is thrown wide open to Polytheism, for if there is *one finite* Deity there is no good reason why there should not be a multitude. This is nothing less than an invitation to all the Olympians, from Jupiter down, to take possession of their old abodes whence they were ejected, bag and baggage, some two thousand years ago.

By some we are informed that the Ether is a *continuum* (that is, without vacuities) and absolutely infinite in extension. Void space is therefore everywhere abolished, and we are invited to contemplate an absolutely infinite material corporeality—an absolutely solid mass of matter (a solid of such a nature as "old-time"

1 This theory was evidently suggested by the *Monads* of Leibnitz, but the difference between the *Pyknatom* and the *Monad* is the difference between Materialism and Theism. The one is conceived of as self-existent, but Leibnitz made his Monads the creation of Deity.

science conceived the atom to be, for in a *continuum* there can be no vacuities) extending in all directions without limit.

The examination of this theory, both on its scientific and philosophic sides, furnished the excuse for the appendix to this volume. One of its chief exponents, Sir Oliver Lodge, is confessedly a Theist, but his views lead logically to materialistic Pantheism.

If the Ether is an absolutely infinite *continuum* (space being thereby abolished) then it might be regarded, with some show of reason, as the One Great Being, and the position of the Pantheist or Materialist would be more strongly entrenched.

We have but to endow the Ether with thought, and the Pantheism of Spinoza stands revealed. There is but one substance, says Spinoza, and that substance possesses thought and extension, and is God.

That Spinoza identified God and Nature as *One* there can be no reasonable doubt, in view of the following quotations from the "Ethica," translated by White:—

Prop. XIV. (First part). Besides God, no substance can be nor can be conceived.

Corollary. 1st. Hence it follows with the greatest clearness that God is one, that is to say, in Nature there is but one substance.

Corollary. 2nd. It follows second, that the *Thing Extended* (*rem extensum*), and the *Thing Thinking* (*rem cogitantem*), are either the attributes of God or affections of the attributes of God.

Prop. I. (Second part). Thought is an attribute of God. Individual thoughts, or this and that thought, are modes which express the nature of God in a certain and determinate manner. God therefore possesses an attribute, the conception of which is involved in all individual thoughts, and through which they are conceived. Thought, therefore, is one of the infinite attributes of God which expresses the eternal and infinite essence of God or, in other words, God is a thinking Thing.

Prop. II. Extension is an attribute of God, or God is an *Extended Thing*. The demonstration of this proposition is of the same character as the last.

Prop. XI. The first thing which forms the actual being of the human mind is nothing else than the idea of an individual thing actually existing.

Corollary. Hence it follows that the human mind is a part of the infinite intellect of God, and therefore, when we say that the human mind perceives this or that thing, we say nothing else than that God has this or that idea.

In the preface to part four of the "Ethica" we have:—

> "We have shown in the appendix to the first part of this work that Nature does nothing for the sake of an end, for that eternal and infinite Being whom we call God *or Nature* acts by the same necessity by which He exists. . . . Since, therefore, He exists for no end; and since He has no principles or end of existence, He has no principles or end of action."

As a piece of consecutive reasoning the "Ethica" of Spinoza stands without a rival in the history of philosophy. Attempting as much as he did it is not surprising that he should have become entangled in the mazes of his own thought, and that his conclusions are often erroneous. If, however, we substitute for the word, God, the word, Nature, much of the ambiguity in his system is cleared up.

Pantheism and Atheism are philosophically identical. Both regard the universe as uncaused and eternal—the supreme existence, and the idea of *creation* has no place in this scheme of things. The word Atheism has been discarded in a great measure by philosophers, and this is largely due to its vicious associations, and its abandonment, therefore, is nothing more than a concession to popular opinion. The words *Pan-*

theism, Monism, Materialism, Naturalism are adopted in its stead. The "*Cosmic emotion*" which stirs within us as we look abroad on the face of nature and behold the beautiful adaptation of means to the accomplishment of ends, or contemplate the wonders of the heavens, is regarded by these philosophers as a fair substitute for the religious emotion experienced by those who believe in the existence of a beneficent Creator. While we must accord all sympathy to those who are deprived by their philosophical tenets of an object of worship other than the wonders of nature, we must yet demur at the inconsistency and short-sightedness of elevating the material world into an object of religious adoration. Sound judgment compels us to look upon man and his intellectual achievements as the crown of terrestrial things. Great indeed are the wonders of the phenomenal universe, but the mind of man is greater still. The stars which "sparkle on the robe of night" are, after all, nothing more than immense masses of matter, akin to the dirt we tread upon, in an incandescent state, and our world is the offspring of a star of similar nature. It must be confessed, therefore, that, from the materialistic point of view, the religion of the Positivists, founded by a celebrated Frenchman, has some ground for justification. The extremists of the French Revolution elevated on the altar of Notre Dame

a beautiful woman, symbolic of human reason. With what measure of religious adoration they viewed this nude goddess we are allowed to conjecture, but surely her worship was not attended by any marked improvement in the morals of her devotees.

A distinguished American writer, Prof. James, has divided mankind into the *tough* minded and the *tender* minded. As the *tough* minded require but little in the way of religion for their peace of mind, the cult established by Comte may be all-sufficient for their needs, but the *tender* minded require something more inspiring than the worship of human nature. Even the most illustrious of the race have their faults, and their imperfections often assume alarming proportions in the glare of publicity.

To Comte's immortal honor, be it said, no crafty statesmen or bloody warriors were given place in his Calendar of the Saints. In the Pantheon which he suggested, niches were reserved only for those truly great men whose achievements in the world of mind have shed glory over the age in which they lived, or whose efforts in ameliorating suffering and want have endeared them to the whole of mankind. Thus we find such names as Homer, Socrates, Plato, Aristotle, Hippocrates, Galen, Galileo, Harvey, Newton and Howard, but there are no Hannibals, Cæsars nor Napoleons.

The celebrated German philosopher, Kant, while maintaining that the various arguments for the existence of a Creator fall short of absolute demonstrative proof was nevertheless so firmly persuaded that man's moral nature required belief in such a Being, that he declared in his "Critique of Pure Reason":—

"If there does not exist a Supreme Being distinct from the universe—if the universe is without a beginning, consequently without a Creator—if our wills are not free, and the soul is divisible and subject to corruption just like matter—the ideas and principles of morality lose all validity, and fall with the transcendental ideas which constituted their theoretical support. . . . For in this sphere action is absolutely necessary, that is, I must act in obedience to the moral law in all points. The end is here incontrovertibly established and there is only one condition possible, according to the best of my perception, under which this end can harmonize with all other ends and so have practical validity—namely, the existence of a God and of a future world. I know also, to a certainty, that no one can be acquainted with any other conditions which conduct to the same unity of ends under the moral law. But since the moral precept is at the same time my maxim (as reason requires that it should be) I am irresistibly constrained to believe in the existence of God and in a future life; I am sure that nothing can make me waver in this belief, since I should thereby over-

throw my moral maxims, the renunciation of which would render me hateful in my own eyes."

The distinguished English biologist, George Romanes, the close friend and disciple of Darwin, was led by like considerations, to renounce an avowedly atheistical attitude, and to recognize the existence of a Creator.[1]

The power of the reasoning faculty to demonstrate the existence of a God has often been denied, yet the writer is firmly persuaded that this, the greatest of our endowments, has not been so slighted by its Creator as to have withheld from it the power of proving that Creator's existence. Twenty-five years ago the writer published a work entitled "Evolution versus Involution" in which he endeavored to show that the theory of Evolution, when properly interpreted, necessitates belief in such a Being. The

[1] This distinguished scientist declared in his last work, published after his death, "When I wrote the preceding treatise (The Candid Examination) I did not sufficiently appreciate the immense importance of human nature, as distinguished from physical nature, in my inquiry touching Theism. But since then I have seriously studied anthropology (including the science of comparative religions), psychology and metaphysics, with the result of clearly seeing that human nature is the most important part of nature as a whole whereby to investigate the theory of Theism. This I ought to have anticipated on merely *a priori* grounds, and no doubt should have perceived, had I not been too much immersed in merely physical research."

word "Evolution," means (using the language of Dr. Martineau) "to unfold from within, and it is taken from the history of the seed or embryo of living natures. And what is the seed but a casket of prearranged futurities with its whole contents prospective, settled to be what they are by reference to ends still in the distance?" This was written by Dr. Martineau in criticism of Mr. Spencer's general philosophical attitude, and his definition of evolution in particular. Spencer formulates several definitions of evolution. On page 360 "First Principles" he says:—"*Evolution is definable as a change from incoherent homogeneity to a coherent heterogeneity, accompanying the dissipation of motion and integration of matter.*" On page 369 of the same work he tells us:—"*Evolution is an integration of matter and concomitant dissipation of motion, during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity; and during which the retained motion undergoes a parallel transformation.*" He elsewhere formulates it thus:—"*Evolution is a change from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity, through continuous differentiations and integrations.*" In another place we are told:—"*At the same time that evolution is a change from the homogeneous to the heterogeneous, it is a change from the indefinite.*

Along with an advance from simplicity to complexity, there is an advance from confusion to order, from undetermined arrangement to determined arrangement." The keynote of these various definitions is that evolution is a change from the homogeneous to the heterogeneous. Mr. Spencer borrowed the idea from the celebrated Von Baer who used it merely as a morphological generalization, and had no notion of making it the foundation of an all-embracing philosophy. But in Mr. Spencer's hands it became the basis for a cosmogony. Therein he made a fundamental error which it is impossible to understand how he could have made, in view of the fact that every egg and seed in nature declare that they are not "*confused*" masses of "*undetermined arrangements,*" as is clearly shown when the egg is hatched and the seed sprouts into the plant. Mr. Spencer's definition ignores the potencies, which make the egg what it is, and is therefore utterly inadequate and misleading. In replying to Dr. Martineau's criticism Mr. Spencer made the following remarkable answer (First Principles, pp. 285-6) "Now, this criticism would have been very much to the point did the word evolution truly express the process it names. If this process, as scientifically defined, really involved that conception which the word evolution was originally designed to convey, the implications

would be those Mr. Martineau alleges. But the word having been in possession of the field before the process was understood, has been adopted merely because displacing it by another word seemed impracticable. And this adoption of it has been joined with a caution against misunderstandings arising from its unfitness. Here is a part of the caution:—'Evolution has other meanings, some of which are incongruous with, and some even directly opposed to, the meaning here given it. As ordinarily understood, to evolve is to unfold, to open and expand, to throw out, to emit; whereas, as we understand it, the act of evolving, though it implies increase of a concrete aggregate, and in so far an expansion of it, implies that its component matter has passed from a more diffused to a more concentrated state—has contracted. The antithetical word "*involution,*" would much more truly express the nature of the process, and would indeed describe better the secondary characters of the process which we shall have to deal with presently.' So that the meanings which the word (evolution) involves, and which Mr. Martineau regards as fatal to the hypothesis, are already repudiated as not belonging to the hypothesis."

Mr. Spencer in repudiating the true meaning of the word *evolution,* revealed by every seed and egg in nature, still clung to it to name his sys-

tem, offering as an excuse that being already in possession of the field, it seemed impracticable to replace it by the word *involution*, which he says is much better fitted to express his views. Was ever a lamer excuse offered by a philosopher in naming a system of thought? By the light with which this word *involution* floods his philosophy, its inconsistencies and shortcomings are revealed. In the writer's work "Evolution versus Involution," the attempt is made to expose the errors of his system. A distinguished English writer has characterized Mr. Spencer's philosophy as "possessing the incurable defect of fundamental incoherence," and the criticism is a just one.

It was an apt saying of Berkeley that nature speaks to us in a "visual language." This was not a mere figure of speech with Berkeley, but a truth of profound significance. The lesson taught us by the germs of nature speaks to our understanding and enables us to interpret the hidden meaning of things.

It is undeniably true that the fertilized seed of the plant and the fertilized ovum of the animal embrace within their compass the *potencies* of the fully developed plant and animal. The significance of Dr. Martineau's definition of evolution is at once apparent—*what is not involved cannot be evolved.* Evolution is an unfolding of that which previously existed, and this existence may

be potential or it may be *material,* or it may be both. No doubt we would find a great difference in the molecular structure of the essential part (the germinal spot) of a chicken's egg and that of a duck if the powers of the microscope could be increased sufficiently, but as it is they are absolutely indistinguishable by the best instruments at our command.

Nevertheless, every point of difference between the developed chicken and the developed duck must have existed *potentially* or in *material* form in their respective eggs.

We cannot call on environment to explain the wide difference of structure, for the difference exists when they issue from the shell. What is true of the seed of a plant or the egg of an animal, is true of the globe on which we dwell. All things which the earth has brought forth must have existed *potentially* or in *material* form in the molten mass as thrown from its parent, the Sun. The Sun, in its turn must have possessed in *potency* or in *material* peculiarities, the various forms which the earth presents, and must have inherited these from the nebulous mass to which it owes its origin. From this conclusion there is no escape—*What is not involved cannot be evolved.* Now, Pantheism asserts that the Material Universe has existed from eternity, and we are therefore compelled to regard it as the Uncaused Being, the ultimate source of all

things. In the process known as evolution, Pantheism asks us to contemplate this Being in the act of *unfolding itself*. But man is himself *a part* of this Being, and we are thus called upon to accept the astounding proposition that the Uncaused can be circumscribed and subjected to analysis by that which is dependent upon it for existence, and to ignore the self-evident truth that "The whole is greater than any of its *parts*."

Man, being but a part, *cannot in reason predicate growth or development of the whole.* As well might a blood corpuscle circulating in the vessels speculate on the nature and doings of the whole man. In other words, if the Material Universe is itself the Uncaused Being, the theory of Evolution, as explaining the Cosmos, becomes a glaring absurdity, inasmuch as it implies that man has circumscribed and subjected to analysis the Ultimate Source of his being. But if we regard the Universe as a *dependent* being, a caused thing like ourselves, we can justly maintain that the process known as evolution is but the unfolding of the Will of the Uncaused Being to whom it owes its existence. The process becomes possible only when there are involved laws to be made manifest.

Evolution, therefore, as applied to the Cosmos necessarily implies the existence of a Being in whom the *idea* of the Cosmos must have been

present before it assumed material form, and in the phenomena we are to recognize the *Will* of this Being in process of being unfolded.

But we must be careful not to confound this Being with the *will* power which He manifests, for by so doing we place ourselves in the exact position now held by the Materialist.

As the doctrine of Evolution, considered as a Cosmic process, may be questioned by some, we must advance other arguments for the existence of a Creator, and the following pages are devoted to this object.

Now if anything exists an Uncaused Being exists, and, on *a priori* grounds, we are compelled to maintain that this Being is *absolutely infinite*. If it can be shown that we are not justified in regarding the matter of which the Universe consists as a *Continuum* and universal space a *plenum*, then we are justified in maintaining that matter is not *absolutely infinite*, however extended it may be throughout the Celestial Sphere.

Matter is that *something* which impresses us as occupying Space, or, to put it in another way, matter is the absence of space, and if it be absolutely continuous (a *Continuum*), without vacuities or voids, it is obvious that all space is abolished.

On this view Matter would be *absolutely infinite*, and we would be obliged to accord to it an absolutely *infinite magnitude*, thus satisfying our

a priori conception of the Uncaused. But we maintain that Matter is not a *Continuum*, that space (*void*) really does exist, and that Matter is, therefore, *not of such a magnitude that we cannot conceive a greater, for in imagination we can fill up these voids.*

Matter and Space (*void*) mutually limit one another: if all matter were abolished then Space would be *absolutely infinite*, if all Space were abolished then Matter would be *absolutely infinite.* Sir Oliver Lodge in maintaining that Matter is a *Continuum* has abolished Space, and from his standpoint the Universe is a solid mass of Matter, a solid of such a nature as "old-time" science regarded the atom to be.[1]

In other words the Universe becomes *One Great Atom*, without parts, indivisible and incompressible. Now, indeed, Materialism would be triumphant if this were true. But *sense perception* and the verdict of reason declare that this view of things is not tenable. Weight of authority should always be respected, particularly in matters pertaining to science, but when

[1] The *atom*, whatever its ultimate nature, is properly defined as the smallest particle of matter which is without parts, indivisible and incompressible. The elements known to chemistry, such as gold, iron, etc., are now regarded as molecules, composed of still smaller particles, perhaps *etheric.* The word "Electron" is now much in vogue to designate these smallest particles.

we are asked to accept the irrational we are justified in hewing a path for ourselves. We therefore maintain that *motion* in a material *Continuum* is impossible, is contradictory, and that the acceptance of the one is a denial of the other. The ability to pen these lines is a refutation of the theory of a *Continuum.*

The idea has been advanced that, after all, the atoms may be nothing more than *centers of force.* This attempt to reduce matter itself to a form of force, as suggested by Bischoff and others, is leaving the domain of *physics* and entering upon that of *metaphysics.* Science, purely as such, knows nothing of a *force* which is not initiated by matter in motion. In other words, the force known to science is not an entity in itself, but is imparted or transmitted motion—motion imparted by a moving mass or atom of matter to another mass or atom. This becomes very clear if we assume, as Materialism does, that matter is *uncaused* and has always been in motion. On the assumption that matter has been *created,* then, it is equally clear, that the Power that set it in motion can be defined only as a Spontaneous Will, or to use the language of theology, a Divine decree.

The great Bishop Berkeley, in abolishing the atoms, which he regarded as the stronghold of Atheism, replaced them by the direct impres-

sion made upon our consciousness by Divine Power.[1]

It is needless to state that this is not the interpretation to be placed on the views of the modern scientist who talks about reducing matter to *centers of force.* What is gained, from the standpoint of science, by calling *that* which impresses us as occupying space, *Force,* instead of using the word *Matter?* It would be merely a change of name without advancing our knowledge. Instead of elucidating, it would cause confusion by designating by the same word, *force,* the mass, say of the sun, and the *force* (gravitation) *induced* by this mass.

To those who interpret *matter* in the terms of Berkeley we have nothing to say; for *matter,* in last analysis, can be defined only as the expression of the will of Deity. To the mere physicist we reply, "You are merely changing the names of things, and are calling black, white. Science, then, requires us to look upon matter as composed of ultimate particles of *something* which occupies Space. These particles, whatever their nature may be, "Etheric" or "Electronic," or by whatever name we choose to designate them, are the true *atoms* of nature, without parts, indivisible and incompressible. They

[1] Amid the obscurity of Hegel illuminating flashes occasionally greet us, as when he tells us, that *"the truth of Matter is Spirit."*

move freely among one another and are separated by Space (*void*) and the motion they impart to one another constitutes the various forces which we see manifested in the Material Universe.

Now, these atoms are either Uncaused, i. e. self existent, or they are caused, that is, created.

If Uncaused, we have Materialism, and, in addition, Pluralism with a vengeance, for each atom being self existent, is independent of all others, and becomes a little God in itself.

In the appendix to "Evolution versus Involution," the writer expressed himself on this point as follows:

"An Uncaused thing can have no compulsory relation to any other Uncaused thing—*must be unconditioned.* Any relation which it might have to another Uncaused thing must spring from within itself uninfluenced by anything outside of it—must be the result of *free volition.* On the supposition, then, that there are such things as atoms, and that they are Uncaused, and therefore unconditioned, it is obvious that the mutual reaction existing among them cannot be the result of *necessity* or *compulsion,* but of *spontaneous conscious* activity; for were such interaction induced by compulsion, then the premise with which we started as a necessary postulate of an *Uncaused* thing would be violated.

"The Materialist, therefore, who regards the atoms as Uncaused (and to be a Materialist he must so regard them) and still denies self-consciousness and freedom to each, is guilty of a contradiction, for he takes away from the atom, by this very denial, its Unconditioned and Uncaused nature. If, setting at defiance all reason, he maintains that the atoms do possess self-consciousness and freedom, then he multiplies the mystery of the Universe in the same measure that indefinite multitude is greater than unity—instead of one God he would have an indefinite multitude of Gods.

"The Materialist, then, is reduced to the necessity of denying the existence of atoms, and to look upon the Universe as a continuous unbroken mass of matter (a *Continuum*). But this necessarily involves the denial of the existence of Space. And here the Materialist is met by the incontrovertible facts of universal experience. He cannot shut his eyes to the truth that what he calls matter *is denser in some places than in others;* that, for instance, a cubic inch of iron contains more matter than a cubic inch of air. But if he acknowledges this, and acknowledge it he must, then, perforce, he must likewise acknowledge that Space (which may be defined as the absence of what we call Matter) does exist. But if Space exists, the Universe cannot be continuous Matter, and what we call Matter must, therefore, be conceived of as consisting of infinitesimal particles (atoms) separated from one another by Space; and to such particles, as already shown, an *unconditioned nature* cannot be assigned.

"An *Uncaused, Unconditioned, limited* thing is a contradiction. The atoms, therefore, cannot be Uncaused, and Materialism is an absurdity."

In the following pages the writer has attempted to show that the matter of which the Universe consists is not a *Continuum*, and is not, therefore, of such a magnitude, however extended it may be, as to satisfy our conception of Uncaused Being. The demonstration it supplies in proof of the existence of a Creator is, therefore, *a posteriori*.

Several different words are in use to express that system of belief which looks upon the Universe as a self-subsistent thing, but all of them, *Agnosticism*, *Pantheism*, *Monism*, *Materialism*, *Naturalism* and *Rationalism*, in last analysis, may be expressed by the word *Atheism* (*a*, without, and *Theos*, God) for they recognize no Being distinct from the Universe who called it into existence.

All efforts to reconcile man's moral nature with this system of thought have signally failed. From a moral point of view the question is one of transcendent practical importance, to say nothing of its profound philosophical significance. The views of individual philosophers filter though to the masses, influencing their conduct in all the relations of life, and it is not too much to say that Atheism engrafted on illiteracy

forms a combination which is a standing menace to civilization.

It is curious as well as instructive to note with what regularity these tidal waves of Atheistical belief have swept over the civilized world, and their appearance, with almost cyclical regularity, might justify us in believing that there is some law governing their recurrence.

The terrible catastrophy which overtook France in the latter part of the 18th century, while directly the result of bad government and oppression, was fostered by the Atheistical spirit so widespread among the people; and the Nihilistic movement of more recent times was largely due to the same causes. Atheistical philosophers have much to answer for in letting loose the fiends of unbelief upon the world. The holy spirit of freedom, which teaches man to assert his native dignity and to rise against oppression, they might have guided to the compassing of noble ends: but they have chosen to sow the seeds of Atheism, thereby diverting this grand spirit from its legitimate channels, thus encouraging anarchy and crime.

Anarchy and Atheism, with the illiterate, go hand in hand and are inseparable. And what, indeed, is Atheism but moral Anarchy, where the very foundations of right and wrong are swept away, leaving the conduct of life based upon nothing but the shifting sands of expediency?

"Has matter innate motion? Then each atom,
Asserting its indisputable right
To dance, would form an universe of dust.
Has Matter none? Then whence these glorious
forms
And boundless flights, from shapeless and re-
posed?
Has matter more than motion? Has it thought,
Judgment and genius? Is it deeply learn'd
In mathematics? Has it framed such laws,
Which, but to guess, a Newton made immortal?
If so, how each sage atom laughs at me,
Who think a clod inferior to a man!
If art, to form; and counsel to conduct:
And that with greater far, than human skill,
Resides not in each block:—a Godhead reigns,—
Grant, then, invisible, eternal mind;
That granted, all is solved."

YOUNG—*"Night Thoughts."*

CHAPTER II

GENERAL CONDITIONS AND THE CRITERION OF TRUTH

All of our ideas concerning the ultimate nature of things may be classed under one or the other of the following headings:—*Monotheism, Pantheism, Polytheism* and *Solipsism* [1] or, if we may coin a word for the sake of uniformity, *Egotheism.*

1. *Monotheism*, usually called Theism for brevity, looks upon the Universe, ourselves included, as *phenomenal,* and the work of a Being distinct from it in essence, who stands in relation to it as Cause, Author or Creator. The Reality possessed by the Universe, so conceived of, is called a *dependent, contingent,* or *caused* reality to distinguish it from the *uncaused reality* of the Being to whom it owes its existence.
2. *Pantheism* looks upon the Universe, ourselves included, as *Noumenal,* all sufficient unto itself, uncreated and eternal, without be-

[1] The word, *Solipsism,* signifies that the individual thinker is the sole existence. The word, Egotheism, expresses the same idea. This notion has been, and is still held by some philosophers, though veiled.

ginning and without end. The *reality* it possesses is therefore *uncaused* or *independent*, for beside it there is naught else.

This view of the nature of things is also designated *Atheism*, *Materialism*, *Monism* and *Naturalism*. In their philosophical significance they are all identical with Pantheism, for all regard the Universe as the sole existence, uncaused and eternal.

3. *Polytheism.* When the Olympians were obliged to flee from their mountain height before the advancing footsteps of calm-eyed Truth, all arrayed in flowing garments of purest white; when, at the approach of the same bright vision, the Scandinavian hordes, headed by Woden himself, sought refuge in the bottomless fiords or retreated to the icy and inaccessible caverns of their glacial-capped land, it was thought that Polytheism had disappeared forever from the haunts of civilized man.

But history will sometimes repeat itself, and under the guise of *Pluralism*, Polytheism again rears its head, championed by some of the most brilliant writers of the day.

It is hard to believe in this age of ma-

terial and intellectual progress, when "Space is mocked and time outrun," that such ideas should be revived in the minds of men.

The battle of the "Many" with the "One" is on once more. Under the leadership of Prof. James, not to mention lesser lights, the great host, with confidence in their redoubtable chief, are advancing to the contest. Despairing of a direct frontal attack on the Absolute or Omnipotent One, they have resorted to a flank movement, and think they have discovered in the problem of *Good and Evil* the weak point of their adversary's position. As the General-in-Chief of the assaulting columns we will give room for Prof. James to marshal his forces.

In his "Pluralistic Universe" he says:—

"I must ask you to distinguish the notion of the Absolute (By which he means Omnipotence), from that of another object with which it is liable to become entangled. That other object is the 'God' of common people in their religion, and the Creator God of orthodox Christian religion. . . . He and we stand outside of each other, just as the devil, the saints and the angels stand outside of both of us. I can hardly conceive of anything more different from the Absolute than the God, say, of David or of Isaiah. That God is an essentially *finite* Being in the Cosmos. . . . If it should prove probable that the Absolute does not exist, it will not follow in the slightest degree that

a God like that of David, Isaiah or Jesus may not exist, or may not be the most important existence in the Universe for us to acknowledge. . . . I hold to the *finite* God, for reasons which I shall touch on in the seventh of these lectures. But I hold that his rival and competitor—the Absolute, is not only not forced on us by logic, but that it is an improbable hypothesis. . . . Although the hypothesis of the Absolute, in yielding a certain kind of religious peace, performs a most important rationalizing function, it nevertheless, from the intellectual point of view, remains decidedly irrational. The *ideally perfect* whole is certainly that whole of which the *parts also are perfect.* If we can depend on logic for anything, we can depend on it for that definition.

"The Absolute is defined as the ideally perfect whole, yet most of its parts, if not all, are admittedly imperfect. Evidently the conception lacks internal consistency, and yields us a problem rather than a solution. It creates a speculative puzzle, the so-called mystery of evil and error, from which pluralistic metaphysic is entirely free. . . . I believe that the only God worthy of the name must be *finite* . . . if the Absolute exist in addition, and the hypothesis must, in spite of its irrational features, still be left open—then the *Absolute is only the wider Cosmic whole* of which our God is but the most ideal portion, and which in the more usual human sense is hardly to be termed a religious hypothesis at all. 'Cosmic emotion' is the better name for the reaction it may awaken. Observe that all the irrationality and puzzles

which the Absolute gives rise to, and from which the *finite God* remains free, are due to the fact that the Absolute has nothing, absolutely nothing, outside of itself.

"The finite God whom I contrast with it may conceivably have almost nothing outside of himself; he may already have triumphed over and absorbed all but the minutest fraction of the Universe, but that fraction, however small, reduces him to the status of a relative being, and in principle the Universe is saved from all the irrationalism incidental to Absolutism. The irrationality left would be the irrationality of which Pluralism as such is accused. . . . Reality may exist in distributive form, in the shape not of an All but of a Set of Eaches, just as it seems to—this is the Anti-Absolutist hypothesis. . . . Because God is not the Absolute, but is himself a part when the system (universe) is conceived pluralistically, his functions can be taken as not wholly dissimilar to those of the other smaller parts,—as similar to our functions, consequently—having an environment, being in time and working out a history just like ourselves, he escapes from the foreignness of all that is human."

And thus, in the view of Prof. James, the Omnipotent One is hurled from his throne as the ruler and Creator of the Universe, and "Chaos and Old Night" enthroned in His place; for his *finite* God is a creature like the rest of us, and still engaged in "overcoming" what is left

of Chaos (or the Cosmos?). But the weapons wielded by Prof. James, though of a different character, are no less ineffective than those of that great Archangel we read about. "High was his degree," and "his countenance like the morning star," as he sallied forth at the head of his brilliant squadrons of deluded followers all panoplied in "gold and adamant." The result, we are told was dire!

But now to the picture Prof. James has drawn for us. First, we must enter our earnest protest against the assertion that the Christian's God is regarded by the average Christian as a *finite* Being. While there are many earnest Christians who would be puzzled sorely to define the difference between *finite* and *infinite*—in fact would not know what you were talking about—yet, however low the general intelligence, they have an idea of boundless or unlimited power. The common word, *Almighty*, on the lips of the street urchin, shows that even he has some notion of the unlimited. That "God can do anything" is a very common expression among the commonest kind of people, and the greatest philosopher can say no more. As to the God of David and Isaiah being *finite*, we can only say that both the Old and the New Testaments abound in passages which express the limitless power of the Deity. "The Heavens declare the glory of God and the firmament showeth his handiwork" is one only of

the numerous passages which might be cited. The Bible not being a work on philosophy the words *finite* and *infinite* are not often met with. Being a book which deals with religious feelings and observances, the personal and paternal character of God are emphasized, and hence he is described as walking and conversing with men. We feel quite sure that if David and Isaiah were to come to life again they would set at rest all doubts on the subject.

The existence of evil or imperfection in the world is an insuperable difficulty with Prof. James, and one which compels him to decide for a *finite* God. The reason assigned does credit to his heart, but it obliges him to sacrifice fundamental philosophic as well as religious conceptions, and after the sacrifice has been made the "puzzle" remains a puzzle still. His *finite* God is indeed relieved of all responsibility in the matter, being but a creature like ourselves—a creature of the universal whole, and in this universal whole we must look for the radical vice which he thinks is inherent in the constitutions of things.

The problem of *Good* and *Evil* has been touched on by the author of this book in a former work entitled "Evolution versus Involution," so a few quotations from it will not be out of place:—

"Two kinds of *good* and *evil* are recognized among men—*physical* good and *physical* evil; *moral* good and *moral evil.* Though often confounded in thought and speech they are as widely sundered as the poles, and have no affinity with one another. The definition of *physical* good is *that which is beneficial to the material well-being of the individual and of the race; physical evil is anything which militates against this.* Famine, pestilence, suffering and death are all denominated *physical* evils. *Moral* good and *moral* evil, on the other hand, depend for their existence upon the consciousness of *right* and *wrong,* as measured by some recognized and accepted standard of conduct. *Moral good* consists in obedience to this standard, while *wilful* violation of it constitutes *moral evil* or *sin.* The essential nature of physical good and evil, therefore, lies in the *act,* whilst the essential nature of moral good and evil lies in the *motive.*

"St. Paul tells us, 'the strength of sin (moral evil) is the Law,' thereby revealing its true nature, and reiterating a similar statement in 4th Romans, 'for where no Law is, there is no transgression.' . . . What are known as physical evils occur in the established order of nature. . . . We cannot understand why pain and death should enter into the plan of the Universe, but *their existence carries with it the warrant of their justification.* The Atheist as well as the believer in a Beneficent Creator must alike regard the Universe as the best that is possible.

Inexorable logic compels the Atheist so to re-

gard it, and firm reliance on Infinite wisdom leads the Theist to believe it." [1]

A *radical vice* in the constitution of things is irrational and therefore inadmissible.

Reason herself teaches us her own limitations when we stand before this great problem, for be it remembered that we have been brought forth by a Being superior to ourselves, whether that Being be an Omnipotent Power, (in the Monotheistic sense) or the Material Universe.

In the first case can the creature in reason question the wisdom of its Creator? In the second case can a *part* array itself against the *whole?* The axiom "*The whole is greater than any of its parts*" teaches Reason that she cannot hope to comprehend that whole. In either case the mind must bow before the limitations of its being. In the first case, there is a possibility that we may sometime understand in a future life what is now inexplicable; in the last, it must always remain an insoluble problem, for a *caused* thing can never hope to compass or compre-

[1] Some Pantheists refuse to acknowledge it. Schopenhauer affirms in his "World as Will and Idea" that this *"is the worst possible world,"* and his follower, Von Hartmann, declares in his "Metaphysic of the Unconscious," that "it is the best possible world, but *worse* than none at all." These two thinkers have exercised an immence influence, and are among the founders of the modern school of Pantheistic or Atheistic doctrine.

hend the *uncaused,* i. e., "The whole is greater than any of its parts."

Man cannot, therefore, in reason arraign the Omnipotent One, whether it be the God of Theism or the Cosmos of the Atheist, for the constitution of the world, or make its *apparent imperfections* an excuse for calling in question the *rightness* or *wrongness* of the whole.

The logic of Prof. James, therefore, loses all of its force, and his method of explaining the apparent imperfections which so trouble him, instead of explaining, makes the confusion still worse confounded.

We are invited to contemplate a *finite* God and the philosophy of "Eaches" as a way out of the difficulty.

The *finite* God, being "*a part of the system*" (Universe); "*with functions similar to our own*"; "*having an environment*"; "*being in time, and working out a history just like ourselves,*" must be either embodied, (a union of matter and spirit, just as we are) or he must be pure spirit without a material body. In the first case he must occupy space and have a local habitation. In either case he must owe his existence to the system (Universe) which antedated him. In other words he "being in time," is a creature of the Universe which has existed from eternity.

He is pictured to us as engaged in conquering the Universe, which, "*He may already*

have triumphed over and absorbed all but the minutest fraction, but that fraction, however small, reduces him to the status of a relative being."

In contemplating this picture we are contemplating a most astounding feat—that of a part trying to swallow the whole!

If, however, there is no such a thing as a *whole* or system of the Universe; that is to say if "*Reality*" (ultimate or uncaused reality, not contingent or caused reality, is here meant by Prof. James) *exist in distributive form, in the shape not of an All but of a set of "Eaches,"* which Prof. James assures us is the anti-absolutist hypothesis, then we are asked to contemplate a picture only a little less surprising and far more terrifying in composition.

We see before us myriads of independent Beings, (the self-existent "Eaches") taking their various ways along the line of endless duration. Now they jostle and repel one another in angry conflict, and now attract and blend in a mutual embrace. But no one can annihilate the other, for the stamp of primitive equality is on all. Even the chief among them (the *finite* God of Prof. James) is but *primus inter pares,* in this vast concourse of self-subsistent Beings.

"Who can in reason, then, or right assume
Monarchy over such as live by right

His equals—if in power and splendor less,
In freedom equal? or can introduce
Law and edict on us." [1]

So spake Great Lucifer and "on his crest sat horror plumed."

The Polytheistic implications of *Pluralism* are not denied by Prof. James, nor can he consistently do so for the premise is itself an assertion of the fact.

Now the various "*Eaches*" must be composed of *matter* or *spirit*, but not of both, for an "*Each*" is an *ultimate reality*, and, therefore, cannot be a compound or union of two different things, in other words, cannot have a cause at all.

We have had fathers and mothers, and they have had fathers and mothers, and so on up to Adam. Some of us are disposed to stop there, but others continue on. As compound beings we are not self-existent and therefore not "Eaches," but we may be such when discarnated. We may suppose that our spiritual "*Eaches*," that is our proper selves, entered into an agreement with certain other "*Eaches*," called atoms, to form a union to endure for a stated time and then dissolve partnership, each "*Each*" going its own way to form other unions. Every compound body is necessarily ephemeral, disappearing ab-

[1] Milton: "Paradise Lost."

solutely when the union of its component parts is dissolved, and this holds whether the partnership is a commercial firm composed of Tom, Dick and Harry; or whether it is the spirit of man and his body; or whether it is the human body itself composed of its various tissues; or whether it is the organic and inorganic compounds which go to make them. When these various partnerships are dissolved the things themselves disappear from being, but the individuals whose partnerships made them, remain undisturbed amid all the turmoil. At death the spirit of man (which we will suppose to be an "*Each*") continues on its own self-centered self-sufficiency; the atoms of oxygen, hydrogen, nitrogen, etc., composing the various tissues of his body, wend their several ways, seeking new unions, and perhaps forming new bodies for other spiritual "*Eaches*" to enter into partnership with. We have referred to the oxygen, hydrogen, nitrogen, etc., entering into the constitution of our bodies as if they were "*Eaches*," but if, as we have good reason for thinking, they are but compounds of still smaller particles, say of *etheric* atoms, then we must revise the statement that they are in themselves "*Eaches*," and confer this dignity on the *etheric atoms:* and if it should come to pass that the *etheric atom* is itself a compound, we will be compelled to go still further back; and should it be discovered at some future time that,

after all, the *ultimate form* of what we call *matter* is merely a *center of force* (a spiritual something) as is even now held by some, then the material "*Eaches*" would *disappear* from being and all the "*Eaches*" being spiritual, the material Universe would cease to be—not destroyed, but merely *extinguished* by the dissolution of the various co-partnerships of spiritual "*Eaches*" which constitute it.

The religious implications of Pluralism are obvious. All the various "*Eaches*" are co-eternal and therefore co-equal, and enter into unions or combinations with one another of their own free will. Nothing can be compulsory amid this vast democracy of *uncaused beings*, for they are all independent of one another, and exist by the necessity of their own nature. They are all *finite* in power, for the sphere of activity of each is limited by each, hence a multitude of *infinite* beings is impossible. Nor can we, with any show of reason, assume that any one of these equal beings can lift itself so high above the rest as to assert sovereignty over them. All the *Eaches* being Gods in their own right, there is no such a being as *A* God; the word, indeed, loses all its significance. And thus *Pluralism* or modern Polytheism ends in absolute Nihilism, and the religious sentiment must necessarily go by default.

The Polytheism of Greece and Rome gave full

play to the poetic imagination, and much of the finest poetry that the world has produced gathers around the doings of their ancient Gods, but the "*Eaches*" of Pluralistic philosophy appeal neither to the poetic sentiment nor to the reason of men.

4. *Ego-theism* or Solipsism, (as it is usually called) regards *self* as the *absolute* reality upon which all else is contingent. It holds that each individual human being is to regard himself or herself as the *only real existence*, and that the surrounding Universe is the result of the unconscious working of the Ego to realize itself to itself. Like the larva it spins from within itself its own environment.

In the history of philosophy, Ego-theism serves to illustrate the wild vagaries to which the human mind is sometimes subject—vagaries which if carried to the same degree in practical affairs would afford sufficient ground for a commission in lunacy. He who can regard the phenomena which the Universe presents as forms or modifications of his own being, who can look upon himself as the center from which all things radiate, has placed himself on a height from which all the arrows ever forged in the armory of pure reason will never dislodge him. Safe in his cloud-capped retreat let him remain. To

attempt to reason with him were to reason with a mad man.

THE UNIVERSE, TAKEN IN ITS TOTALITY, IS EITHER AN UNCAUSED BEING, OR IT IS THE EXPRESSION OF THE WILL OF SUCH A BEING.[1]

The implications involved in the first statement are Pantheistic, in the second Theistic.

The determination of the problem presented falls within the scope of legitimate philosophical inquiry, and furnishes the theme for the present essay.

The domain of human knowledge has been acquired through the agency of *sense perception* and certain *a priori* conceptions of the understanding. The first, sifted and interpreted by the reasoning faculty, constitutes objective knowledge. On the other hand, any proposition which contains the idea of necessity in its very

[1] Creation can be defined only as the expression of the will of Deity.

The mind derives its notion of Creation from its own workings. The *form* of the chair on which I sit is the Creation of the human mind, but the wood of which it is composed is not. Knock the chair to pieces and the chair ceases to exist, but the material which composed it remains. Human art, then, does *create forms,* but forms alone; Divine art creates not only the forms of things, but the material of which they are composed. Hence the genesis of the idea of Creation in the human mind.

Evolution and Creation are in accord, for the theory of Evolution recognizes that the act of Creation is the *unfolding* of the *Will* of Deity.

conception is a judgment *a priori*. Together they constitute the armamentarium of the mind in its search after truth. One in ultimate origin, they are one in their aims, and antagonism cannot exist between them. Any seeming contradiction will be found, on investigation, to arise from individual defects or idiosyncrasies.

"Things that are equal to the same thing are equal to each other" is an *a priori* conception or *necessary truth*, yet it is conceivable that in verifying this an error might be made in the measurement, or the individual, from being imperfect in *sense perception*, might be wholly unable to undertake the verification. On the other hand, from mental imperfections he might not be able to grasp an axiomatic or *a priori* conception. A statement, however axiomatic, would have no weight with a lunatic. It is obvious that a coterie composed of such imperfect individuals could by no means arrive at a true conception of nature. But the mass of mankind are comparatively free from such defects, and in them the trustworthy character of the senses has been sufficiently tested to render it in the highest degree probable that their sense perception of the external world is correct.

The diseased mind might not be able to grasp the idea that "the whole is greater than any of its parts," yet the normal mind will at once recognize this statement to be a necessary truth.

Relying upon the validity of sense perception and *a priori* conceptions of the understanding, man has established a vast body of knowledge which he has systematized. Making all due allowance for rash observation and fallacious deduction, we must all agree that much of modern science reflects a fair image of what actually exists in nature.

If in all this body of accepted knowledge anything could be pointed out which conflicted with an *a priori* conception, it would be branded as false, and prompt to a more searching scrutiny of the facts.

We may therefore formulate our criterion of Truth, as:—

THE CONCORDANCE BETWEEN *pure* OR *a priori* CONCEPTIONS OF THE UNDERSTANDING AND SENSE PERCEPTION.

So long as we can apply this test without contradiction, so long may we rest satisfied that we are on the path of truth. While it is not possible nor needful to apply this principle at every point in the vast edifice which the collective wisdom of the race has erected, yet there are many points where it can be applied, and the deep foundations of the temple of human knowledge must rest upon it. An architect in estimating the strength of a building first carefully examines its foundations, and then the su-

per-structure. Any great defect in the foundation condemns the building at once.

In the following pages the author has endeavored to apply the *criterion* of truth, as already defined, to an examination of the foundations upon which is based a Pantheistic conception of things. If in the course of this examination it should appear that our criterion is violated by this view of the Universe then we will be justified in throwing the Pantheistic theory aside as worthless; and as there is but one other hypothesis left—that of Theism—we will be compelled, perforce, to regard it as the true one.

It will be seen, therefore, that the method pursued furnishes an *a posteriori* argument for the existence of a Creator. It is this method, and this method alone, that can have any weight with the mind already prejudiced in favor of Pantheism.

The dictum of Descartes, embodied in the phrase "*J'ai tiré la preuve de l'existence de Dieu de l'idée que je trouve en moi d'un être souverainement parfait,*" appeals irresistibly to certain minds, but it is inconclusive, inasmuch as it supplies no argument against the assertion which the Pantheist might make, that "the Universe taken as a whole is a *Perfect* Being."

It may not be out of place in this connection, to pass in review Kant's discourse on this subject

in his "Transcendental dialectic." [1] He there marshals the various arguments for the existence of a Creator, and shows the weakness and insufficiency of each to meet the assaults of the skeptic. He says, "There are only three modes of proving the existence of a Creator, on the grounds of speculative reason. . . . The first is the *physico-theological* argument, the second the *cosmological*, the third the *ontological*. More there are not, and more there cannot be. I shall show that it is as unsuccessful on the one path—the empirical, as on the other—the transcendental. . . . As regards the order in which we must discuss these arguments, it will be the reverse of that in which reason, in the progress of its development attains to them."

Kant, therefore, first takes up the *Ontological* argument, which is particularly identified with the name of Descartes, and subjects it to a searching analysis, and clearly shows that, on purely *a priori* grounds, it is not proof against the assaults of the skeptic. In summing up on that argument he says, "Whatever be the content of our conception of an object, it is necessary to go beyond it if we wish to predicate existence of the object. In the case of sensuous objects, this is attained by their connection, according to empirical laws, with some one of my

[1] Meiklejohn's translation.

perceptions; but there are no means of cognizing the existence of objects of pure thought, because it must be cognized completely *a priori.*" He then proceeds to discuss the *Cosmological* argument. "It is framed in the following manner:—If something exists, an absolutely necessary being must likewise exist. Now I, at least exist, consequently there exists an absolutely necessary being. . . . But this merely aids reason in making one step—to the existence of a necessary being. What the properties of this being are cannot be learned. . . . Experience being utterly insufficient to demonstrate the presence of this attribute (*necessary existence*) in any determinate existence or thing. . . . Although the existence of a necessary being were admitted we should find it impossible to answer the question:—What of all things in the Universe must be regarded as such?"

It will be seen from the above quotations, that the *Cosmological* argument goes no further than the recognition of a necessary being leaving undetermined whether this being is the Universe or something distinct from it. The question of the truth or falsity of Pantheism is, therefore, left untouched. The *physico-theological,* or, as it is now generally designated, the *teleological,* or argument from design, is next taken up by Kant, and shown to be logically inconclusive, though worthy of the highest consideration and respect.

"It is the oldest, the clearest, and that most in conformity with the common sense of humanity. It animates the study of nature, as it itself derives its existence and draws ever new strength from that source. It introduces aims and ends into a sphere in which our observation could not of itself have discovered them, and extends our knowledge of nature, by directing our attention to a unity, the principle of which lies beyond nature. This knowledge of nature again reacts upon this idea—its cause; and thus our belief in a divine Author of the Universe rises to the power of an irresistible conviction. . . . But although we have nothing to object to the reasonableness and utility of this procedure, but have rather to commend and encourage it, we cannot approve of the claims which this argument advances to demonstrative certainty. . . . I maintain, then, that the *physico-theological* argument is insufficient of itself to prove the existence of a Creator."

While Kant thus questioned the powers of the human mind to demonstrate the existence of a Supreme Being distinct from the Universe, yet he was far from being an agnostic in the modern sense of the term. He again and again asserts his earnest conviction of the existence of such a Being, and bases his belief on ethical grounds.

The elevating influence of such a belief upon the individual and the race, and the practical

results in promoting the well being of mankind as a whole, were sufficient in his mind to produce conviction. In these latter days there has arisen a school of thought, with a very extensive following which affects to find in Pantheistic notions the same stimulus to a just life. In the minds of many, therefore, ethical arguments for the existence of a Creator have ceased to have any weight.

Independent of all religious considerations the subject is one of great intrinsic interest, and of transcendent importance to the cause of philosophy.

In the introduction of this book it is claimed that the theory of evolution necessarily implies the prior existence of that which is being evolved, that is to say, the material Universe must have pre-existed in *ideal* or spiritual form before it became an objective reality. In other words, must have existed in the mind (to use the only suitable word) of the Being who called it into existence.

Now, if the Universe were the *Sole Existence*, as Pantheism claims, evolution would be impossible, for the *whole* is already in material evidence, and, necessarily, has always been so. The human mind, being but a *part* of this *whole*, cannot in reason predicate such changes in the *whole* as the word evolution implies, without violating the axiom "*The whole is greater than*

any of its parts." Pantheism and cosmic evolution are therefore absolutely contradictory. But, if the Universe is a *caused* thing like man himself, it offers a legitimate field of conquest for the human mind, and we can entertain the idea of cosmic evolution without violating an axiomatic truth.

Aside, however, from the argument based upon the theory of evolution, there is another method of proving the existence of a Creator, and it depends upon the principle already formulated as the *criterion of truth*, viz. *the concordance between pure or a priori conceptions and the sensuous perception of the external world.*

The method is, therefore, both *Ontological* and *Cosmological*, depending as it does equally upon *a priori* conceptions and a study of the phenomena of nature which the possession of *sense perception* enables us to make.

In his review of the *Cosmological* argument, Kant showed that its strength, in proof of the contingent character of the Universe, depended upon the law of causality, the fallacious character of which he exposes. This law may be briefly stated thus:—*Everything which is dependent has a cause, which, if itself dependent, must also have a cause; and so on until a primal cause is reached, without which the chain would be incomplete.* This reasoning contains a *peti-*

tio principii—assumes the very thing to be proved.

The *Cosmological* argument alone is, therefore, of no conclusive value; but united with the *Ontological argument*, as enunciated in the principle already formulated as our *criterion of truth*, it acquires new strength. This may be called the *Onto-cosmological* argument. It claims to show that the analysis of the external world, which the possession of sense perception enables us to make, does not justify us in maintaining that the material Universe is an *absolutely infinite* thing, that, therefore, it is not self-subsistent or uncaused, but owes its existence to a Being distinct from it in essence.

Now, from *a priori* conceptions, we demand *absolute infinitude to be predicated of an uncaused thing*. Hence, if in our analysis of the external world, antagonism be established between this *a priori* conception and the teaching of sense perception, then are we justified in maintaining that the corporeal Universe is a dependent thing, and not the Uncaused Being which we are compelled to posit as existing.

"To subsist always according to the same, and in a similar manner, and to be the same, belongs to the most divine of all things alone. But the nature of *body* is not of this order." [1]

[1] Plato in the "Statesman."

CHAPTER III

PROPOSITIONS

Prop. I. If anything exists an Uncaused Being exists.

Prop. II. The Uncaused Being, not being dependent upon any other thing for existence is, therefore, *absolutely infinite.*

Corollary. There can be but one Uncaused Being, all other forms of being must be *caused* or *dependent.*

Prop. III. The Uncaused cannot be subjected to analysis by a caused thing. The caused cannot comprehend the Uncaused, i. e., "*the whole is greater than any of its parts.*"

Corollary. Growth or development cannot be predicated of the Uncaused Being.

Prop. IV. A caused being cannot determine what the Uncaused Being IS, but it can determine what the Uncaused Being is NOT.

Prop. V. The material universe cannot be the Uncaused Being.

CONSIDERATION OF THE PROPOSITIONS

Prop. I. *If anything exists an Uncaused Being exists.*

The celebrated Scotch philosopher, David

Hume, pointed out the weakness of the argument for the existence of a Deity based on the doctrine of causation.

He clearly showed that, if we regard the Universe as an unbroken chain of causes and effects, it is illegitimate to assume any definite commencement of this chain. In other words, he held that the mind cannot consistently rest in any such thing, as a Primal Cause, for this would be an assumption that the Universe had a beginning and, therefore, a Beginner—the thing to be proved. The law of causality has already been quoted in the first chapter, and that it contains a *petitio-principii* is very apparent.

But the criticism of Hume cannot be wielded against the proposition announced above. It will be observed that the proposition carries with it no implication as to the nature of this being, and it leaves the question open as to whether the Uncaused Being is the Universe or the Author of it. It lays down no theory of causation, but merely affirms that there must be an Uncaused existence if anything exists. The proposition is an axiomatic one and cannot be assailed by reason. The Pantheist affirms that the Universe, considered as a whole, is this Uncaused Being, and that the changes which we see taking place in the material world about us are the transformations going on within the

self-centered Cosmos. According to this view the Universe is the ultimate reality.

The Theist, on the other hand, maintains that the Universe is dependent, and owes its existence to a creative act by a Being which is distinct from it in nature.

Prop. II. *The Uncaused Being, not being dependent upon any other thing for existence is, therefore, absolutely infinite.*

If the Uncaused Being be conceived of as material or corporeal, i. e., as occupying space, an *absolutely infinite magnitude* must be predicated of it. An uncaused limited corporeality is at once repudiated by the mind. If the Uncaused be conceived of as *immaterial*, power to produce or create must be attributed to it; and this creating or producing power it must possess to an unlimited degree. From this proposition flows the corollary that there can be but One Uncaused Being. As an uncaused thing must be absolutely without limitations, it is quite impossible that there should be more than one absolutely infinite thing; and this holds whether we regard it as material or immaterial, for, let it be assumed that there are a plurality of uncaused things, then, on the supposition that they are immaterial, the sphere of activity or producing power of each would be limited

by the others, and none of them could be regarded as absolutely infinite. Again if material, they would limit one another in magnitude. A plurality of absolutely infinite beings is, therefore, a contradiction. From the recognition of this it follows that all other forms of being are *caused, derivative* or *dependent.*

Prop. III. *The Uncaused Being cannot be subjected to analysis by a caused thing. The caused cannot comprehend the Uncaused,* i. e., *the whole is greater than any of its parts.*

The truth of this proposition appeals to the mind with axiomatic force. From it flows the corollary that *growth* or *development* cannot be predicated of the Uncaused Being. The assumption of development or any change in the essential nature of a thing as a whole, presupposes that the thing under consideration has been circumscribed. But the nature of the Uncaused is absolutely infinite, and cannot be circumscribed or comprehended by that which itself has caused, i. e., "*the whole is greater than any of its parts.*" The reader will appreciate the significance of this axiom in its relation to Pantheistic Evolution.

Prop. IV. *A caused Being cannot determine what the Uncaused Being IS, but it can determine what the Uncaused Being is NOT.*

A being which knows itself to have been caused can recognize the same dependent nature in other things, and this enables it to say with the highest certainty that the thing under observation is not uncaused. Whilst the human mind can resolve the phenomena which the world presents into chains of causes and effects, still, on *a priori* considerations alone, it recognizes that it cannot circumscribe the whole of Being, for "*the whole is greater than any of its parts.*" If, therefore, the corporeal universe be the whole of Being, that is uncaused, it must forever remain an insoluble enigma. Not necessarily so, however, if it be a caused or dependent thing.

Prop. V. *The Universe cannot be the Uncaused Being.*

The external world is manifested to our consciousness as a combination of *matter*, *motion* and *force*. Space and *time* or *duration* are the conditions under which these operate. *Matter*, *motion* and *force* are always blended in the production of phenomena. They form an inseparable *triad.*

While physical science teaches that all phenomena whatsoever are the result of the working of this trial as a whole, yet a careful analysis

justifies us in giving precedence to matter, the substance which supports the other two, and without which they could have no existence. In other words, *motion* and *force* are not to be regarded as *entities* at all, but merely conditions of *that* which occupies space.

If we subject to analysis any chain of cause and effect, which the Universe presents, we will invariably find that *matter* is the *ultimate* cause which can be reached by experiment; that our conception of *motion* is that of a particle or mass of matter in the act of translation from one point of space to another, and that our conception of *force* is that of a particle or mass of matter in motion *communicating* this motion to another particle or mass of matter.

A mass of matter in motion must always be followed by the manifestation of force if there be another mass of matter to which it can communicate this motion.

Force is therefore communicated or transmitted motion. Reducing a chain of cause and effect to its ultimate *scientific beginning* we are bound to conceive of matter as initiating it and never a force.

On the supposition that there was a time in the history of the material universe when the matter of which it is composed was in a quiescent state, then we cannot call the *Something* which set it in motion a *force*, as physical science un-

derstands that word; *Will* manifestation is the nearest approach our terminology admits of in speaking of such a *Something*. On the hypothesis that the matter of which the universe consists has always been in motion, then it is clear that matter is the ultimate term, *motion* its attribute, and *force* the *transmission* or *communication* of this motion to other masses of matter. This is the force which is known to science, nor should anything else receive that title. Experimental science must, therefore, always regard matter as the ultimate *scientific* origin of all external phenomena—the *ultimate scientific* starting point for every chain of cause and effect observable throughout the physical universe. If we would attain to sublimer heights we must provide ourselves with wings other than those which experimental science can furnish, with which to soar. These wings are supplied by pure or *a priori* conceptions, *the concordance existing between which and the teachings of sense perceptions being the test* for truth.

In the course of this discussion we will endeavor to show that our notions of the universe from the empirical standpoint, are reducible to our conception of matter undergoing translation in space; and that this matter is not of such a magnitude to justify us in attributing to it an *absolutely infinite* character, in other words,

that we can conceive the mass of matter entering into the constitution of things greater than *sense perception shows it to be.*

In the following chapter each of the grand divisions, *space, motion, matter and force,* which, considered as a whole, constitute the external world, will be examined, and their claim, individually and collectively, to be considered the uncaused source of things, carefully weighed.

CHAPTER IV

SPACE—MOTION—FORCE—MATTER

SPACE

Space may be defined as the absence of matter, that is to say, space is a VOID, and therefore not an entity or thing.

The difficulties surrounding the discussion of *space, motion, force, matter* and kindred topics are familiar to everyone acquainted with metaphysical writings. Such subjects offer a fine field for the proverbial verbosity of the professional metaphysicians who, too often, in their efforts to elucidate, befog the main issues, which thus become lost to view in the mists created by their own metaphysical subtleties.

The celebrated German philosopher, Kant, discussing the nature of space says:—"Space does not represent to us any determination of objects such as attaches to the objects themselves, and would remain, even though all subjective conditions of the intuition were abstracted. . . . Space is nothing else than the form of all phenomena of the external sense, that is, the subjective condition of the sensibility, under which alone external intuition is possible."

The student of metaphysics will get much out of this, but, it is safe to say, that the individual who has no acquaintance with metaphysical language will get little or nothing.

If an ignorant man were asked the question "What is space?" he would probably answer: "Space is nothing," by which he would mean that there is an absence of objects to be seen or felt and his answer would be correct. Our sense perception teaches us that space is *no thing*, but the *absence of things*, that is, a *VOID*.[1]

The inability to see the air about it, and the consequent ability to see objects gives the infant mind its first notion of space. This visual knowledge is supplemented by the absence of obstructions to motion and the two together enable the child to acquire an idea of space or a void.

Space, then, is not an *entity* or *thing*, but the absence of things. To this, reply might be made, "How then does space exist, can *nothing*

1 "Absolute space in itself and without regard to anything external, remains eternally the same and immovable. Relative space is any movable dimension or measure of absolute space determined by our senses by the position of bodies."

SIR I. NEWTON.

"Space is a relation, an order, not only of existing things, but of all those which possibly might exist."

LEIBNITZ.

be said to exist?" This would be a mere play on language and gathers around the word *existence* as applied to a *void.* This verbal difficulty cannot be surmounted and those disposed to quibble will continue to do so. We can only define space or a void in its relation to matter, and therefore we say that space is the absence of matter. As we have defined space as the absence of matter, so we may define matter as the absence of space. If there were no void or space the universe would be a solid mass of matter (a *continuum*), and how human beings, constituted as they are, could *intuit* matter without space as a medium, is a puzzle for those to solve who believe that matter is a *continuum.*

Nor is space a *continuum,* for if it were, there would be no matter. As the individual atoms and groups of atoms are separated by space, so the various points of space are separated by matter. The separation in the latter case is of course not as complete as in the former, for space surrounds the atoms and groups of atoms. Space is, therefore, continuous, but the existence of matter prevents it from being a *continuum.*

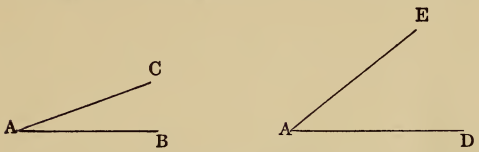
The extent or magnitude of space necessarily remains constant so long as the quantity of matter remains constant. The destruction of a single atom would increase the extent of space that much.

While we cannot say that space possesses motion, not being a *thing*, yet the movement of the atoms is perpetually abolishing and creating space (*voids*), so that the relations between the points of space and individual atoms and groups of atoms are constantly changing.

Space is infinite but not *absolutely infinite.* As this statement may cause a question in the minds of some who have always regarded one infinity as being necessarily as great as another, a little explanation and definition of terms may be in order. Those familiar with mathematics are aware that mathematicians recognize that one infinity can be greater than another. In mathematics it is customary to call a line starting from a fixed point and projected indefinitely, and therefore endless in one direction, an infinite line, but it is clear that such a line cannot equal another line projected endlessly in both directions. Calling the first infinite, we are obliged to call the second *absolutely infinite*, for a greater line cannot be conceived. The *absolutely infinite* must be defined as *that of which a greater cannot be imagined or conceived.* It is obvious that the first line fails to meet this requirement.

To illustrate further: let two lines, AB and AC, be drawn in a plane from a point A in that plane (Fig. 1) and extended endlessly. The area of the plane embraced by the lines will

therefore be infinite. Now increase the size of the angle (as in Fig. 2). It is clear that the



area embraced by the lines AD and AE, exceeds that embraced by AB and AC. Now conceive of A as a point in a plane which extends boundlessly in all directions; such a plane would be the greatest possible—would be an *absolutely infinite* plane. Hence we are justified in making a distinction between the *infinite* and the absolutely infinite, and of defining the absolutely infinite as *that of which a greater cannot be imagined or conceived.*

Though universal space or void has no geometrical figure, being without bounding lines, yet, for the purpose of exposition, we may liken it to a sphere with its center everywhere and surface nowhere. Space, therefore, would be absolutely infinite were it not for the existence of matter, but the presence of matter destroys its absolute character, for where body is, there space is not, hence space is not of such a magnitude that we cannot imagine a greater. The same obtains with regard to matter. It is not absolutely infinite because space exists. Let it be

granted that we could travel forever and still find matter floating in the depths of space, it would still remain true that we could imagine the voids between the atoms and groups of atoms completely filled, thus increasing the quantity of matter. Matter is, therefore, not absolutely infinite.

It is customary to speak of space as if it were a *phenomenon* (that which appears) of nature, but as it is through the absence of *appearances* (phenomena) only that we apprehend the existence of space, it is manifestly improper, to be strictly accurate, to call it a *phenomenon*. Thus, we can truly say that space is the negative and matter the positive of the universe. The first negates, the latter affirms the existence of beings.

Plato and Parmenides declared that space was non-being, by which they wished to convey the idea that space is the absence of material things.

MOTION

Motion is matter in the act of changing its position in space.

An atom or group of atoms undergoing translation in space manifests the phenomenon called motion. It is obvious that were there no space (*void*), motion would be an utter impossibility and the universe would be an absolute solid, a

solid of such a nature as we now conceive the ultimate etheric atom to be.

As space is the condition of all external phenomena, but is in itself *no thing*, so motion is the occasion of all external phenomena, but is in itself *no thing*. Space exists, and yet is not entity, so with motion.

It is said of Heracletus that he taught that "everything is motion, and nothing else exists." It is probable that he meant by this, that as the atoms were in perpetual motion, the word, *motion*, could be used as a synonym for matter itself.

Pantheism, negating as it does, the idea of Creation, asserts that matter has always been in motion, and that the universe as we see it, is the outcome of this perpetual change of place among the atoms which has been going on from a beginningless past. From this point of view we are to regard the material universe as a mass of atoms flowing along the line of infinite duration, and their mutual attraction and repulsion the occasion of all the phenomena.

Theism, on the contrary, holding as it does the idea of Creation, maintains that the atoms were created and that motion was primarily imparted to them by the *fiat* of Omnipotence. The motion so imparted will therefore continue during the pleasure of the Being who called the atoms into existence. The Theistic Scientist

while recognizing this, also recognizes that motion is indestructible in the regular course of nature or by man's agency, and he knows that its apparent disappearance at one point is always followed by the appearance of the same quantity of motion at other points. Thus when two bodies come into collision, both may be brought to a dead stop. The ignorant man might declare that here is an example of the destruction of motion, but the scientific man knows that the loss of motion exhibited by the bodies is only apparent; that mass motion has been converted into molecular motion, and that, if all this motion manifested as heat, could be collected, it would equal in amount the motion of the bodies before the collision. From this fact has been deduced the well known law of the "conservation of energy," which may very properly be worded in terms of motion; for, as we shall see later on, *energy* or *force* is nothing more than motion *communicated* by one atom or group of atoms to another atom or group of atoms.

FORCE

Force is transmitted motion, or motion communicated by an atom or group of atoms to another atom or group of atoms.

That which has not for its cause a prior state of motion cannot be empirically apprehended.

A mass or particle of matter in motion must always precede the manifestation of *force*. If there were but one mass of matter in existence, motion could not be transmitted, and, hence, force could have no existence. That *force* is definable only as transmitted or communicated motion becomes very clear when we consider that empirically we have no basis to work on where matter does not exist. Any definition of force that does not clearly recognize a prior state of matter in motion as the starting point is defective.

"Matter is not a go-cart, to and from which *force*, like a horse, can be now harnessed, now loosed," says Dubois-Raymond.

"Force without matter is not a reality, and both by their union have made the world and all its phenomena," says Spiller.

"Force without matter has no independent existence," says Cornelius.

While all these definitions recognize the inseparability of *matter* and *force*, yet, from their wording, it is still left ambiguous how we are to conceive of *force*—whether it is to be regarded as an entity in itself united to matter, or whether it is merely a condition of matter. That it is merely a condition resulting from matter in motion becomes apparent when we attempt to conceive of *force* abstracted from matter or preceding it in a sequence of cause and effect.

On the supposition that there was a time in the history of the universe when the matter of which it is composed was in a state of quiescence, then the *Something* which disturbed this equilibrium of rest cannot be designated a *force* as the scientist uses that term. Such a *Something* would have no affinity to the *force* known to science as such. Spontaneous Will Power is the only phrase which could describe such a manifestation, a wholly different thing from the force of the scientist which always possesses a *material* background.

Our idea, then, of *force*, when reduced to its lowest terms, is nothing more than *transmitted* motion, and presupposes the prior existence of matter in motion.

The well known law of the "correlation and conservation of force," the establishment of which is reckoned among the triumphs of modern science, might more properly be stated in terms of matter in motion. The phrase, *the indestructibility of matter and the perpetuity of its original motion*, really embodies the same ideas. The inseparability of *force* and moving matter enables us all the better to appreciate the fact that every kind of motion has its counterpart in a force of a similar nature. Thus we have *mass motions* and *mass forces.*

The course of the earth in its orbit, and of a stone through the air, are familiar examples of

the first. Heat, light, electricity, magnetism, chemical affinity and vitality are examples of the second. Mass motions and forces, and molecular motions and forces are mutually convertible. Familiar instances of the conversion of molecular energy into mass energy are seen in the projectile forced from the cannon's mouth by the explosion of gunpowder, and the propulsion of the steam engine by the use of coal and water. The chemical forces accompanying the digestion and assimilation of food are converted into vital force at work in building up the tissues, which in turn is converted into mass motion and forces, manifested in the movements of the body, and the physical force which it exercises on other bodies. All these motions and forces, mass and molecular, can be traced back to the sun, the great storehouse of physical energy.

Force, then, is not an entity associated with matter but merely a resultant of matter in motion. Being merely a condition consequent upon moving matter, force cannot be the Uncaused Being after which we are seeking.

When we designate by the name of *force* the Something which originally set the matter of the universe in motion (assuming that it has not always been in motion), we apply the term to that which is *totally different*, scientifically considered, from the force which we see around us in nature. On the assumption that the matter

of the universe has always been in motion, then, it is clear that all force is nothing more than the *communication of motion from one mass of matter to another in a beginningless and endless sequence.*

As already shown we have no empirical knowledge of any *force* which is not *communicated* motion. Any attempt, therefore, to identify *force* with matter necessarily leads to error. For it is plain that even were we to define *matter* as *force* which *impresses us as occupying space* we would still be no nearer the truth, and the wide distinction between this *space-occupying* force and the *force induced* by it would be lost sight of. Two widely different things would thus be confounded, much to the injury of philosophy. It is, therefore, wholly unscientific to give that which impresses us as occupying space any other name than matter, retaining the word, *force*, to designate the motion communicated from an atom or group of atoms to another atom or group of atoms. To the man, then, who denies the existence of a Creator, the Universe of Being is resolvable down to matter in ceaseless motion as the ultimate thing.

MATTER

Matter is something which impresses us as occupying space, or, better still, matter is the absence of space.

The definition may be worded either way, but

the latter phrase is less ambiguous, for it carries with it unmistakably the idea to be conveyed, that where matter is, there space (a void) cannot be.

We take congnizance of matter by the resistance which it offers to touch (mass resistance), and to hearing, sight, smell and taste (molecular resistance). These are the avenues which bring the Ego (and by the Ego is understood self-consciousness) into relation with the outer world; which, in other words, enables the Ego to recognize the existence of such an outer world.

All known forms of matter are embraced in the tables of elementary substances laid down in our text books on chemistry. They are called elements, for as yet they have not been resolved into simpler forms, with the possible exception of Radium. For a long time there has been a feeling among chemists that all the so-called elements are really compounds, and may be resolved eventually into something simpler. Even the notion of transmutation, so tenaciously held by the alchemists of the middle ages, has been rejuvenated, and many scientific men are of the opinion that it will be realized some day.

If there be a universal substance from which the so-called elements have arisen by some unknown process, then we must regard the smallest particles of these elementary bodies as *mole-*

cules or groupings of the atoms of some substance still simpler.

It has been suggested that the *ether* may be this common substance. This mysterious and subtle something, the source of light, heat, electricity and magnetism, is believed to pervade universal space and to interpenetrate all bodies. If the ether is the common substance, the parent of all tangible bodies, we are then called upon to regard it as consisting of particles, indivisible and incompressible, the *etheric atoms;* or to view it as a *continuum,* that is without pores or vacuities, and therefore without parts. If the latter view be maintained then space is annihilated. Space is the absence of matter, and if matter be *continuous* (without vacuities) and infinitely extended in all directions it is obvious that space can have no existence, and we must regard the ether as an infinite corporeality.

That the ether is a *continuum,* and the universe a *plenum* (absolutely full) of it, is the view held by Professor Lodge and others. The appendix to this volume is devoted to an examination of this theory and its logical consequences. The reader is referred to it for the arguments in refutation.

Assuming that the ether is the ultimate form of matter, and that the etheric atoms are the parents of all the so-called elementary bodies, we are then obliged to conceive of it as denser in

some places than in others; that, for instance, there are more etheric atoms in a cubic inch of iron than in a cubic inch of air. In other words, that the vacuities separating the ultimate etheric atoms are larger and more numerous in a gas like nitrogen or oxygen than in a metal like iron. Space, then, both interatomic and interstellar, does really exist, and the bulk of matter in the universe is limited by it, and cannot, therefore, be regarded as absolutely infinite, however extended it may be throughout the celestial sphere. Indeed, the quantity of matter in the universe compared with space is insignificant. Space is a necessary condition of motion. If the universe were a continuous mass of matter, such as we now conceive the atom to be, all motion would be impossible. It is inconceivable that motion can take place in a *continuum*, Professor Lodge to the contrary notwithstanding. This truth was recognized by the early philosophers, and Lucretius, in "*De Natura rerum*," pointed out that if there were no void spaces in the universe, motion would be impossible. But if there are void spaces in the universe, then matter is not of such a magnitude that we cannot conceive of a greater.

Matter, then, is a *limited thing*—limited by space—and is utterly incapable of fulfilling our definition of an absolutely infinite thing.[1] To

[1] Some critic may advance the plea that as *space* is

ascribe independent or uncaused existence to matter is to establish antagonism between *a priori* conceptions on the one hand, and sense perception on the other. *A priori* conceptions demand that we attribute absolute infinitude to that which has no cause, and sense perception declares that what we call matter cannot be an infinite corporeality. Hence the material universe cannot be regarded as the Uncaused Being.

But the postulate laid down by pure reason that "if anything exists an Uncaused Being exists" still confronts us, and from its unassailable position of apodictic certainty demands recognition.[1]

not *a thing*, it is evident that matter is limited by *nothing* and is therefore unlimited or absolutely infinite. The play on words would constitute the whole strength of such a criticism.

[1] Materialists in their efforts to give a semblance of probability to their notions of the universe, have resorted to the subterfuge of endowing the atom with a *quasi psychic* character.

The *pyknatoms* of Haeckel, referred to in the introduction of this book, though they correspond in general to the atoms recognized by the ordinary scientist, differ from them, in that they are credited with *sensation* and *inclination*, or *Will* power of the simplest form, "with souls, in a certain sense." "These atoms with *souls* do not float in empty space, but in the continuous, extremely attenuated intermediate substance, which represents the uncondensed portion of primitive matter."

"The two fundamental forms of substance, ponderable matter and ether, are not dead and only moved by ex-

trinsic force, but they are endowed with sensation and *Will* (though of the lowest grade): they experience an *inclination* for condensation, a dislike of strain: they strive after the one and struggle against the other."

"The shade of inclination, from complete indifference to the fiercest passion, is exemplified in the chemical relations of various elements towards each other."

The above quotations show the nature of the views now very prevalent among Materialists of the present day. That they are borrowed from the "Monadology" of the celebrated Leibnitz, and not improved in the borrowing, is clearly indicated by a few quotations from the work of Leibnitz, translated by Dr. Hedge.

"The *Monad* is a simple substance without parts. They are the atoms of nature."

"There is no possibility of their dissolution naturally, nor could they have begun to be naturally."

"Therefore the *Monad* can only begin by *Creation,* and end by annihilation by Deity."

"A *Monad* cannot be altered or changed (naturally) by external influences."

"*Monads* must have qualities or they would not be *entities.*"

"Each *Monad* must differ from every other."

"Each *Monad* is subject to change, but the change starts from *within* and is continual."

"This tendency to change may be called *perception,* which is not *conscious,* thus being distinguished from *apperception* or consciousness."

"The internal principle which causes perception may be called *appetition,* appetite or desire (i. e. attraction)."

"*Monads* that have memory may be called *souls.*"

"Memory gives to the *Monad Soul* a kind of consecutive action which imitates reason."

"The cognition of necessary and eternal truths is that which distinguishes us from mere animals. It is this which gives us reason and science, and raises us to the knowledge of ourselves and God."

"The final reason of things must be found in a necessary substance. This supreme substance is One and

necessary, incapable of limits, and must contain as much of reality as is possible; and since nothing can hinder the possibility of that which has no bounds, no negative, and no contradiction, that alone is sufficient to establish the existence of a God *a priori*. Also the existence of God is proved *a posteriori* by showing that, since contingent beings exist, they can have their ultimate and sufficient reason only in some necessary Being, who contains the reason of His existence in himself."

"God alone is the primitive unity, or the simple, original substance of which all the *Created* monads are the products."

It will be seen from the above quotations that the *souls* with which Leibnitz endows his *monads*, correspond to the *laws* which all modern Theistic writers recognize as governing the atoms in their relations to one another.

The wide distinction between the views of Leibnitz and those of Haeckel is very clear. The *Monads* of Leibnitz are *Created* things; the *pyknatoms* of Haeckel are self existent, *uncaused realities*. There is a family likeness between them and the *"Eaches"* described in the second chapter of this book.

Sir Oliver Lodge, commenting on Haeckel's views, well says: "Thus, then, in order to explain life and mind and consciousness by means of matter, all that is done is to assume that matter possesses these unexplained attributes. . . . This is not science and its formulation gives no sort of conception of what life and will, and consciousness really are. It recognizes the inexplicable and relegates it to the atoms, where it seems to hope that further quest may cease. Instead of tackling the difficulty where it actually occurs; instead of associating life, will and consciousness with the organisms in which they are actually found, these ideas are foisted into the atoms of matter; and then the properties which have been conferred on the atoms are denied to the fully developed *organisms* which these atoms help to compose."

CHAPTER V

CONCEPTIONS OF THE UNCAUSED BEING

As it is fully in accord with the demands of reason that a caused being might be endowed with powers sufficient to compass all other caused beings whatsoever, so, in the same measure, is it a violation of reason to assume that caused being can circumscribe or comprehend Uncaused Being. This truth naturally flows from the axiom, "*The whole is greater than any of its parts.*" As reason demands that there should be an Uncaused Existence, and as sense perception and reason unite in declaring their inability to identify such a Being with the corporeal universe, it becomes apparent that the powers of man are limited to a mere apprehension of Its existence.

But the apprehension of the existence of a thing is unavoidably accompanied by an attempt to picture in the mind or to formulate into words some conception of the thing apprehended. As it is the verdict of reason that Uncaused Being cannot be comprehended by that which Itself has caused, it is obvious that all such pictures or formulæ *are but expressions*

of an aspiration toward a goal which is absolutely unattainable.

In formulating our ideas of the Uncaused source of things we must be guided by what we conceive to be the *highest* thing known to us, the known attributes of such a thing serving to *mark out the direction of the line which aspiring thought must travel in its efforts to form a conception of Uncaused Existence.*

The mind of man with its wondrous powers presents to us the *highest* form of dependent existence, hence in forming a conception of Noumenal or Uncaused Existence, our only resource is to study the phenomena presented by the human mind.

Language, which enables us to express our ideas, possesses certain words descriptive of human attributes, and every qualifying term has its opposite—intelligence implies *unintelligence;* conscious, *unconscious;* personal, *impersonal;* design, *chance;* good, *evil;* wisdom, *folly* or *ignorance,* etc.

The first terms of this series are the *positive* elements; the second, the *negative.* If we are to formulate any conception of the author of our being we should make use of the positive terms of this series of adjectives rather than the negative, but so qualified as to take them beyond the bounds of all limitations. Thus, we can use the words *infinite, absolute,* or *super,* and

this will serve to distinguish the attributes of man from those of the Uncaused source of things.

Both Schopenhauer and Von Hartman selected the *negative* in preference to the *positive* of these terms, and the reason is not far to seek. They were anxious to remove themselves as far as possible from popular ideas of religion, and thus ran into the absurdity of using language which detracted from the dignity of the subject of which they were treating.

The *Will* of Schopenhauer (*The world as Will and Idea*) is an *unconscious something*, and Von Hartman, a close disciple, entitles his own system the "*Philosophy of the Unconscious.*" It is not surprising that both held *pessimistic* views of the nature of things.

Schopenhauer declared "it is the worst of all possible worlds," and Von Hartman was a close second in his affirmation that while "it is the best of all possible worlds, it is *worse* than none at all."

There is not much to choose from in these statements. Both philosophers have had and still have a tremendous following in Germany, and many ardent admirers in the United States.

THE UNCAUSED BEING AS A PERSONALITY

The word *personality*, as ordinarily used, carries with it the notion of embodied limita-

tion, hence the objection which has been urged against ascribing *personality* to the Uncaused.

But that which has no personality we regard as *impersonal*. Now, as we are compelled to make use of one or the other of these words in speaking of the Uncaused source of things, our choice of terms must be determined by the dignity of the conception suggested by the word. That which possesses *personality* is, by common consent, considered higher in the scale of being than an *impersonal* thing. The one is an *individual* in which all the parts bear a coherent relation to the whole, the other is an incoherent mass. What the crystal is to the same matter in an amorphous (without form) state, that *personality* is to *impersonality*.

Furthermore, when we carefully analyze our notion of *personality* we find that the word possesses other and higher meanings, meanings which peculiarly fit it as a descriptive term of the Uncaused source of things, and which do not necessarily carry with them ideas of embodiment and limitation.

The *personality* or *individuality* of a thing is measured by the qualities which are *peculiar* to it, and by its *independence*. The more *characteristic* its *attributes* and *complete* its *independence*, the greater does its *personality* become. To render this clear to the mind we have but to turn to external nature and trace the gradual

growth of individuality from the amorphous inorganic to the highest form of the organic. In man *personality* reaches its highest expression among terrestial things. A heap of sand possesses little or no individuality as compared with a crystal with its geometrical figure and planes of cleavage. A lump of charcoal has a less degree of individuality than the diamond. The machine, with its nicely adjusted parts of wheels and levers, possesses a higher degree of individuality than a confused heap of iron wheels. There is but little distinction among the leaves of the same tree or among the blades of the same species of grass. In the lower walks of creation individuality exists only to a noticeable degree among species, and among individuals of the same specie but few distinctions can be traced. Continuing up the scale of being, the higher we ascend the greater become the *peculiarities* which distinguish individuals of the same species one from the other; and the highest *individuality* or *personality* is reached in man.

Again, there are fewer distinguishing traits among savages than among civilized men, and among civilized men personality reaches its maximum with those individuals who are marked off as men of genius.

Thus the higher we mount in the scale of being the greater does *personality* become as measured by peculiarities of attributes. Further, if

we analyze our notion of personality as measured by the *independence* or *freedom* of the individual, the same truth impresses itself upon us. In the inorganic and vegetable kingdoms volition or personal independence of action is absolutely *nil;* and so faintly is it manifested in the lower orders of the animal kingdom that we are scarcely justified in ascribing personal volition to the animal creation until quite a height has been reached on the tree of life. The higher we climb the more does personal volition enter as a factor in the life of the animal, rendering it more and more capable of extending the limits of its environment. In man this personal volition reaches its maximum; for he covers the face of the habitable globe, and intellectually has brought himself into relation with some of the most hidden of nature's processes. He has even passed the limits of the terrestrial sphere, seeking in the abysses of space other worlds to study. With the growth of intelligence environment is widened, and freedom of action becomes more and more marked. The lowest savage in his manner of life, and in the degree of his dependence, reminds us of the higher brutes. As his intelligence grows this enslavement to nature becomes less and less, and volition in modifying environment, becomes more and more conspicuous. This extended freedom is rendered still more apparent when we remember that he makes

use of these same natural forces to neutralize their effects upon himself, thus converting the devastating powers of nature into beneficent allies to further his advancement. This growing freedom from natural bonds, so conspicuous in his material progress, is equally conspicuous in his increasing moral freedom, or freedom from the enslavement of personal appetites.

Man, in the Mass, is becoming more and more an intellectual being, and less and less dependent upon the lower elements of his nature for happiness and pleasure. The power of discriminating between *right* and *wrong*, according to some accepted standard, initiated the first step in moral freedom.

The imperative *Ought*, now came to be used among men, and its introduction opened up vistas in moral progress which the most enthusiastic altruistic of the century cannot see the limit of.

Whatsoever philosophical views a man may hold concerning the system of nature and his place in it, he is morally bound to give this word recognition, and to regard himself, in the practical conduct of his life, as a free agent.

We believe man to be at the summit of terrestrial creation, and in our ascent to him through the various grades of the animal kingdom, the more do we see fulfilled the requirements of the definition of *personality* which has been given.

Thus by gradual steps do we rise to the apprehension that Perfect personality can alone reside in the Uncaused, for He alone possesses *absolute independence* and attributes which no dependent form of being can possess.

THE UNCAUSED AS A SELF-CONSCIOUS BEING

One of our highest attributes is that of self consciousness. We know that we exist, and from this knowledge is suspended all other knowledge. That which is unconscious of its own existence is regarded, and very justly, as far beneath a self conscious being in dignity. The lowest forms of animal life, the vegetable kingdom, the earth itself, are wanting in this attribute. At least so we believe, and no seriously minded man would for a moment hold the contrary. This attribute is not confined to man, however, and the highest forms of the brute creation undoubtedly possess it. Where to draw the line between the conscious and the unconscious members of the animal kingdom would indeed be impossible, but we can safely hazard the opinion that the simple forms which constitute so large a portion of the animal kingdom, are destitute of this attribute. As we rise in the scale of being, the attribute of self consciousness becomes more and more developed, until it reaches its climax in man. We are thus led to

place the stamp of inferiority upon that which is unconscious of its own existence.

Hence, the utter hollowness of Schopenhauer's system is at once apparent. In the blind longings of his *unconscious will* we see the universe come into being and with it consciousness.[1] But can the stream rise higher than its source? Can the *conscious* have its ultimate origin in the *unconscious?*

Schopenhauer calls upon us to reverse completely the notions of *superiority* and *inferiority.* The world is to be literally turned upside down. Without attempting to define the nature of self consciousness, it is enough to know that all well balanced minds agree in calling that inferior which does not possess it. Now, as we are logically bound to regard as superior to ourselves the first cause of things, it is evident that consistency requires that we should not regard this Being as *unconscious,* but *should view it along the line which consciousness points out.* We must look up, not down. While the condition known to the human mind as self consciousness is wholly insufficient to express the *absolute* self

[1] The *Will* as thing in itself, constitutes the inner, true and indestructible nature of man. *In itself,* however, it is *unconscious.* For consciousness is conditioned by the intellect, and the intellect is a mere accident of our being, for it is a function of the brain.

SCHOPENHAUER—"The World as Will and Idea."

consciousness of Uncaused Being, yet, by the use of the term, we are saved from the great error of detracting from the dignity of the Subject by the use of another term which carries with it the notion of *inferiority*.

THE UNCAUSED AS A SUPER-INTELLIGENT BEING

The attribute of intelligence, or that power which enables us to discriminate the impressions received from without, and to appreciate the relations subsisting among the phenomena of the world; to call up new images by the formation of new combinations, in a word, the inductions and deductions of the mind, we regard, and regard justly, as another of our higher attributes. Intelligence or thought, therefore, in its nature implies the prior existence of things and the *externality* and *independence* of the things in relation to the thinker. The difficulty of ascribing intelligence, so defined, to the Uncaused Being is obvious at a glance.

Prior to all else, He and He alone existed, self-centered in his own self-sufficiency. Shall we then conceive of the Uncaused as *Unintelligent?* By so doing we at once confound Him with the lower creation, and thus run into the deplorable error of detracting from his dignity; and our conception, instead of being more exalted than ourselves, sinks to a level lower than

ourselves. Here, then, we are impaled on one of the horns of a dilemma. By ascribing intelligence to the Supreme we lay ourselves open to the charge of anthropomorphism; on the other hand by speaking of the Supreme as *unintelligent*, our conception is lowered. We can avoid the difficulty only by prefixing the word absolute or *super* to the term *intelligence*. So qualified, the limitations implied by the term, *intelligence*, are removed.

Caused or dependent intelligence, and Uncaused or absolute intelligence, differ from one another in the same degree that dependent being differs from Uncaused or Absolute Being—as finitude differs from infinitude. This artifice in the use of words prevents us from falling into the error of confounding the Uncaused Being with what we regard as the inferior part of the world.

THE UNCAUSED BEING AS A DESIGNING POWER [1]

The analysis of our conception of any *producing* or *causative* power resolves itself into our conception of *law* and *design*. Our conception of *law* is that of a power working through *necessity;* our conception of *design* is that of a power working through choice or *spontaneity*.

A designing power may, law must act.

[1] Rewritten from the author's work, *"Evolution versus Involution."*

Design implies forethought or intent, a preconceived end to be attained, and the adaptation of means to the accomplishment of this end. Man's relation to his fellows and to the lower world furnishes us with the type of a *designing* power.

The word *design*, carries with it another very important implication, viz. *spontaneity* or *freedom*. It is this element in the content of the word which renders it peculiarly fitting as a descriptive term of the acts of the Uncaused Being.

The human mind in its study of nature discovered the truth that the adaptation of means to the accomplishment of ends was not an attribute peculiar to itself, but that a similar method of procedure obtained in the processes of the lower creation. The contemplation of the beautiful adaptations of means to ends observable in all nature's ways has furnished to philosophy, science and literature their most brilliant productions. But it never occurs to anyone to attribute to nature Self-consciousness in bringing these adaptations about. They are regarded by all classes of thinkers as the operations of *law* working in or on the material universe. To one class of thinkers, the prevalence of *law* implies the existence of a Law-Maker. By another class these *laws* are regarded as the necessary and unvarying sequence of the phenomena which

nature presents. With the former, *law* is the Agent of a self-conscious overruling power: with the latter, *law* becomes a necessary attribute of matter itself.

It will be observed that in both these conceptions of law the notion of necessity enters as an all important factor. Our idea of *law*, then, from whatsoever source obtained, *is that of a causative power working through necessity.*

We are now called upon to consider whether our conception of what we call *law* in external nature is *inferior* to our conception of what we call *design* in ourselves.

The study of nature demonstrates that its phenomena are suspended one from another, forming an endless chain (as far as we can practically determine) of cause and effect, and the *whole cause* of a thing becomes a *law* unto that thing. Our idea of *law* is, then, as already stated, that of a causative power working through necessity. As natural causes present us with an apparently endless chain it is obvious that, *empirically*, we can never arrive at the notion of an uncaused cause. But looking in upon ourselves, the conscious power of volition to act or not to act, to come or to go, engenders within us a notion of spontaneity which external nature cannot supply. With the savage and superstitious, spontaneity is indeed ascribed to the powers of nature, but the notion is but a reflex

of what they are conscious of in themselves. Thus by the recognition of our own conscious freedom we arrive at an apprehension of the possible existence of an *Uncaused Causative* power. Now, as an uncaused thing must be greater than that which is *caused,* and as our idea of *law* is of something that is *caused* or *necessitated* by something else, it is obvious that the word *design,* which carries with it the notion of *spontaneity* or *freedom,* should be applied to the methods of the Uncaused source of things in preference to any other word which our vocabulary affords. In a word, our conception of *design* is higher than our conception of *law* in the same measure that *freedom* is higher than *compulsion.*[1]

SUMMARY

Having satisfied ourselves that there is an Uncaused Being to whom all things owe their origin, it becomes our bounden duty to contemplate this Being with reverential awe. But in order to contemplate, some attempt must be made to embody a conception. In forming this conception we must first determine which are our

[1] The vexed question of freedom of the *will* need not trouble us here. We are dealing with conceptions, and no one can deny that we at least possess the notion of spontaneity or freedom, and that it has been acquired from our internal consciousness.

highest conceptions. Having done this, we clothe this Being with these attributes, but so qualified as to take them beyond the sphere of all limitations.

We are therefore to think of this Being as Personal, not as Impersonal; as Intelligent, not as Unintelligent; as Conscious, not as Unconscious; as a *free* or *spontaneous* Causative Power, not as an *Inexorable Necessity* (our notions of which have been derived from the action of Law in nature) which must act, and which is not conscious of the results of its own actions.

But having done all this, having stretched our limited faculties to their highest bent, we may still recognize that we have fallen infinitely short of the Great Reality. But He who laid the foundations of the Universe, and prescribed the limits thereof will not judge His creatures for the limitations which He Himself has fixed.

The Uncaused Being has been designated by various titles, according to age and nation. They all denote some attribute of excellence, such as *Creator, Overruling Power, Permanence, Goodness,* etc.

Among the Hebrews, Jehovah signified the Permanent Being; Deus with the Latins, the Shining One; Theos, among the Greeks, Creative Power.

Our word, G O D , is the same as the Anglo-

Saxon word for *good*. Whether or not this is the origin of the word, it is most fitting.

In the Hebrew Scriptures we are told that He called Himself, I AM THAT I AM.

CHAPTER VI

THE THEORY OF EVOLUTION IN ITS RELATION TO THE PRESENT DISCUSSION

The doctrine of evolution teaches that the material universe is undergoing alternate periods of evolution and dissolution.[1] The evolution now going on will be succeeded by a period of *dissolution* in which the matter entering into the constitution of things will be resolved into gas and dissipated throughout space. When the worlds of space have undergone this transformation, another period of *evolution* will set in with the result of bringing forth a new universe.

The mind of man has thus attempted to circumscribe the universe of material being. Now, on the supposition that the Universe is itself the Uncaused Being, what are the implications of all this? Man is a *dependent* being and owes his existence to the Uncaused Source of things, which, on the above supposition, is the material universe. We are thus called upon to contemplate and to accept the astounding proposition

[1] The theory, of course, does not hold that these changes affect the whole material universe at once; evolution may be in progress at one point, while dissolution is taking place at another.

that the Uncaused can be *subjected* to *analysis* and circumscribed by that which is dependent upon IT for existence, and to ignore the self-evident truth that "*the whole is greater than any of its parts.*" Man being but a part cannot, in reason, predicate growth or development of the whole. As well might a blood corpuscle circulating in the vessels speculate upon the nature of the whole man. Any theory of evolution which embraces the entire universe cannot be consistently entertained by the mind which regards the universe as an Uncaused Existence. Pantheistic Evolution is antagonistic to the *a priori* conception that "*the whole is greater than any of its parts.*" But the philosophy that looks upon the universe as a *caused* thing, meets with no such difficulties in the adoption of the theory of evolution. Like man himself, the universe is but a creature, and the human intellect in attempting to weigh and measure it, finds in the undertaking a legitimate sphere for the exercise of its powers. It sees in the phases which the universe assumes the expression of the Supreme WILL, and is careful not to confound the manifestation of this *will*, as expressed in the phenomenal universe, with the essential nature of the Being who exercises the *will*. The theory of evolution has now a coherent basis upon which to rest.

Scientifically, evolution may be defined as the

unfolding of cause into effect; and, by the light of Theistic philosophy, this definition merges into the transcendental definition, that *Evolution is the unfolding of the Will of the Uncaused Being.*

Thus evolution, properly interpreted, finds its ally in that system of philosophy which teaches that the universe is a created thing, and that the Being who called it into existence is distinct from it in nature.

THE ETHER

An Examination of the Views of Sir Oliver Lodge Concerning the Ether of Space.

The existence of an etherical substance extending throughout space, and penetrating the interstices of all bodies, has been long accepted by science. It is recognized as the medium by which light, heat, electricity, magnetism, and perhaps, gravitation are manifested. As defined by the distinguished mathematician and physicist, James Clark Maxwell, "Ether is a material substance of a more subtle kind than visible bodies, supposed to exist in those parts of space which are apparently empty." In this very conservative definition there is no attempt to define the intimate constitution of the ether, much less to regard it as the parent of the elementary substances known to the chemist, and which go to make up all known bodies. Con-

siderably more than three score of these elementary substances are now set down in our text books on chemistry. All efforts to resolve these into simpler substances have failed, hence we recognize atoms of gold, silver, iron, copper, hydrogen, etc. The different combinations of the various atoms go to make up the visible world as we know it.

The word *atom* signifies that which is indivisible and incompressible, the smallest particle of matter, hence the use of the word to designate the chemical elements. The word *molecule*, on the other hand serves to distinguish the various combinations of the atoms. We speak of a molecule of sodium chloride because it can be broken or resolved into the atoms of chlorine and sodium, but when we attempt to resolve the sodium and the chlorine all efforts fail. But the time may come when the chemist may be able to break up or resolve what are now regarded as the simple elements, and then we will be obliged to consider as a molecule what is now called an atom of gold, and so with the rest of the so-called elementary bodies. Many scientific men believe that there is an ultimate substance from which all others are derived. This notion found expression in the efforts of the old alchemists to transmute one substance into another, and in quite recent times it is claimed that *radium* undergoes dissolution into other substances. If it be

true that there is one common substance from which all other substances are derived then the word "atom" as applied to the smallest particles of gold, silver, iron, etc., is a misnomer; they are nothing more than *molecules* or combinations of the atoms of the ultimate form of matter. Our conception of an atom is that of a *continuum* (that is, without pores), and the point in space which it occupies, a *plenum* (that is, absolutely full). Sir Oliver Lodge and others have advanced the theory that the ether is the ultimate form of matter, and that the visible universe is due to certain modifications of this substance to which they give the name of "*Electrons.*" They hold that the ether is a *continuum*, that is, without pores or interstices, and that universal space is therefore a *plenum*—absolutely full, without a break in its continuity. In other words a solid so dense that "lead and gold are as gossamer compared with it."

In his work on the "Ether of Space" Sir Oliver Lodge says, "It (the ether) is turning out to be by far the most substantial thing, perhaps the only substantial thing in the material universe. Compared to the ether, the densest matter, such as lead and gold, is a filmy gossamer structure. . . . The fundamental medium filling all space, if there be such, must in my judgment, be ultimately incompressible, otherwise it would be composed of parts, and we

should have to seek for something still more fundamental to fill the interstices."

Sir Oliver now goes on to tell us about the "*Electron.*" "The Ether being incompressible, and an *electron* being composed simply and solely of ether, it follows that it (the electron) cannot be either a condensation or a rarefaction of that material, but must be some singularity of structure or some portion (of the ether) otherwise differentiated. It might, for instance, be something analogous to a vortex ring, differentiated kinetically, i. e., by reason of its rotational motion, from the remainder of the ether; or it might be differentiated statically, and be something which would have to be called a *strain* center or a region of twist, or something which cannot be very clearly at present imagined with any security, though various suggestions have been made in that direction. The simplest plan for us is to think of it somewhat as we think of a knot on a piece of string. The knot differs in no respect from the rest of the string except in its tied up structure; it is of the same density with the rest, and yet it is differentiated from the rest; and, in order to cease to be a knot, would have to be untied—a process which as yet we have not learned to apply to an *electron.* If ever such a procedure becomes possible, then electrons will thereby by resolved into the general body of the undifferentiated ether of space.

The important notion for present purposes is merely this; that the density of the simple ether, and the density of the tied up or beknotted or otherwise modified ether constituting an electron, are one and the same." . . . "Hence, the argument above given, when properly worked out, tends to establish the ethereal density as of the order 10^{12} times that of water. There ought to be nothing surprising in such an estimate, inasmuch as many converging lines of argument tend to show that ordinary matter is a very porous or gossamer-like substance, with interspaces great as compared with the spaces actually occupied by the nuclei which constitute it. Our conception of matter, if it is to be composed of electrons, is necessarily like the conception of the solar system, or rather of a milky way, where there are innumerable dots here and there, with great interspaces between them, so that the average density of the whole of the dots or material particles taken together—that is to say, their aggregate mass compared with the space they occupy—is exceeedingly small." . . . "A reader may suppose that in speaking of the immense density or massiveness of ether, and the absurdly small density or specific gravity of gross matter by comparison, I intend to signify that matter is a rarefaction of the ether. That, however, is not my intention. The view I advocate is that the ether is a *perfect con-*

tinuum, an absolute *plenum*,[1] and that, therefore, no rarefaction is possible. The ether inside matter is just as dense as the ether outside, and no denser. A material unit, say, an electron, is only a peculiarity or singularity of some kind in the ether itself, which is of perfectly uniform density everywhere. What we 'sense' as matter is an aggregate or grouping of an enormous number of such twists. How then, can we say that (gross) matter is millions of times rarer or less substantial than the ether of which it is essentially composed? . . . It may be noted that it is not unreasonable to argue that the density of a *continuum* is necessarily greater than the density of any disconnected aggregate; certainly of any assemblage whose particles are actually composed of the material of the *continuum*. Because the former is 'all there,' everywhere, without break or intermittance of any kind; while the latter has gaps in it—it is here and there but not everywhere. . . . It may be said, why assume any definite density for the ether at all? Why not assume that, as it is infinitely continuous, so it is infinitely dense—whatever that may mean—and that all its properties are infinite? This might be possible were it not for the velocity of light. By transmitting

[1] For the sake of clearness, Prof. Lodge should have written "and space an absolute plenum" for that is what he wishes to express.

waves at a finite and measurable speed, the ether has given itself away, and let in all the possibilities of calculations and numerical statements. Its properties are thereby exhibited as essentially finite—however infinite the whole extent of it may turn out to be. . . . As for the elasticity of the ether, that is ascertainable at once from the speed at which it transmits waves. That speed—the velocity of light—is accurately known, 3×10^{10} centimetres per second. And the ratios of the elasticity or rigidity to the density is equal to the square of the speed; that is to say, the elasticity must be 9×10^{10} times the density. . . . But we must go on to ask to what is this rigidity due? If the ether does not consist of parts, and if it is fluid, how can it possess the rigidity appropriate to a solid so as to transmit waves? To answer this we must fall back upon Lord Kelvin's kinetic theory of elasticity; that it must be due to rotational motion—intimate fine grained motion throughout the whole etherical region—motion not of the nature of locomotion, but circulation in closed curves, returning upon itself—vortex motion of a kind far more finely grained than any waves of light or any atomic or even electronic structure. Now if the elasticity of any medium is to be thus explained kinetically, it follows, as a necessary consequence, that the speed of this internal motion must be comparable to the speed of wave propa-

gation; that is to say, that the internal squirming circulation, to which every part of the ether is subject, must be carried on with a velocity of the same order of magnitude as the velocity of light. This is the theory then—this theory of elasticity as dependent on motion—which, in combination with the estimate of density, makes the internal energy of the ether so gigantic. For in every cubic millimeter of space we have, according to this view, a mass equivalent to what, if it were (gross) matter, we should call a thousand tons, circulating internally, every part of it, with a velocity comparable to that of light, and therefore containing stored away in that small space, an amount of energy . . . equal to the energy of a 1,000,000 horsepower station working continuously 40,000,000 years. . . . The question is often asked, is ether material? This is largely a question of words and convenience. Undoubtedly the ether belongs to the material or physical universe, but it is not ordinary matter; I should prefer to say it is not "matter" at all. It may be the substance or substratum or material of which matter is made, but it will be confusing and inconvenient not to be able to discriminate between (gross) matter on the one hand and ether on the other. If you tie a knot on a bit of string, the knot is composed of string, but the string is not composed of knots. If you have a smoke or vortex

ring in the air, the vortex ring is made of air, but the atmosphere is not a vortex ring; and it would be only confusing to say it was. The essential distinction between (gross) matter and ether is that (gross) matter moves, in the sense that it has the property of locomotion and can effect impact and bombardment; while ether is strained, and has the property of exerting stress and recoil. All potential energy exists in the ether. It may vibrate and it may rotate, but as regards locomotion it is stationary—the most stationary body we know; absolutely stationary, so to speak; our standard of rest."

We have allowed the author of "The Ether of Space" to speak for himself so as to enable the reader, not familiar with the work, to exercise his own judgment as to the value of the speculations advanced. They are nothing but speculations, and speculations that are not only incoherent, but even contradictory.

We are asked to regard the ether of space as a *continuum* (that is, non-porous) and coextensive with space, which is therefore a *plenum*, that is, absolutely full. We are told that the ether is absolutely stationary, yet that it can vibrate and rotate. But what is vibration but motion within certain limits? We are told that it can undergo stress or strain, resulting in the formation of nodes or "*knots*" called *electrons*, which are in incessant motion, combinations of

which go to make up the particles known to chemistry as *atoms*, such as oxygen, hydrogen, iron, etc. We are invited to think of a *knot* in a *string* in order to bring before our mental vision an image of these *electrons* which are occasioned by the strain in the ether. Now, we are justified in requesting to know what is meant by *strain*, used in this sense. In ordinary science when a bar of iron, for example, is put under strain, it means that there is a force applied which tends to rupture the continuity of the bar —tends to tear the atoms of iron from one another's embrace. In other words atomic motion or vibration is set up in the bar, which, if it pass certain limits, causes the atoms to recede so far from one another that they cannot recover themselves, and the bar gives way. To return to the electron; these tied up "knots" or "strains" in the ether, are allowed translation in space, and we may well ask how they can change their position if there are no vacuities anywhere in the rest of the ether? We cannot suppose that the *undifferentiated* ether can penetrate through the *differentiated portions of itself* called the "electrons," for these electrons are themselves, according to the theory, so many individual *continuums*, as dense as the general body of the ether. Elsewhere we are told that these electrons are charges of *positive* and *negative* electricity, hence the name *electron*. "An atom of hydrogen

may consist of 700 electrons, 350 positive, and 350 negative. Sixteen times as many would constitute an atom of oxygen, 16,000 an atom of radium. The mass of the electron is about $\frac{1}{1000}$ of the atomic mass of hydrogen. If an electron is represented as a sphere an inch in diameter, the diameter of an atom would be a mile and a half. The spaces between the electrons are thus enormous when compared with their size, relatively as great as the spaces between the planets of the solar system." From this quotation we are called upon to identify electricity as one with the electrons, which as we have before seen, are nothing but "strains" or "knots" in the general body of the ether.

We are informed that the internal squirming circulation to which every part of the ether is subject, must be carried on with a velocity of the same order as the velocity of light, yet we are told that the ether is "absolutely stationary."

The speculations advanced by Prof. Lodge and others may be met on both physical and philosophical grounds.

1. It is physically impossible that motion can exist in the interior of a *continuum.* The possibility of such motion whether vortical, rotary, or in a direct line, presupposes the rupture of the *continuum.* But rupture means recession or giving way of parts; and how is it possible for recession to take place in view of the

fact that universal space is a *plenum* of the etherical *continuum*, so that there are no void spaces anywhere to permit of such recession or giving way. To make our meaning clearer, let us consider the "old" chemical atom. This atom was supposed to be without parts, that is a *continuum* and, therefore, science never predicated motion in the interior of an atom. The atoms moved as a whole, and their motion manifested itself in the phenomena of heat, light, electricity, chemical affinity, etc., but their interior was absolutely quiescent, and it was recognized that to assume the possibility of internal motion would have destroyed the physical constitution of the atom as postulated. Now, if universal space is a *plenum* of the etherical *continuum* we are justified in regarding the ether as analogous to the old chemical atom. We may indeed very properly call it an *atom of infinite dimensions.* As the "old" physics could not entertain the idea of motion in the interior of the *limited continuum*, called the atom, so, for the same reason, must we deny the possibility of motion in the interior of the *infinite continuum* called the material universe—*the One great atom.* But this is an absurdity, motion exists everywhere about us and in us, and, as far as the senses can determine, there is no such thing as stability; everything seems to be in ceaseless motion and commotion.

We are therefore compelled to regard the theory that the ether is a *continuum*, and that universal space is a *plenum* of it, as absolutely without scientific foundation.

2. On philosophical grounds the theory is still more objectionable for we are thus brought face to face with an absolutely *infinite corporeality;* but reason declares that there can be but *one absolutely infinite Being*, hence it follows that this Being is the Ether. A materialistic interpretation of the Supreme Being thus becomes inevitable. Psychic conceptions must give way to materialistic conceptions, and what we call the psychic element in the universe of things becomes interpretable in terms of the mechanical manifestations of the universal ether. In our studies of it we are subjecting to analysis the very essence of Being. When we speak of the density and elasticity of the ether we are really speaking of the density and elasticity of the Uncaused Source of things—The One Supreme Being.

But we are here met by one of those pure conceptions of the understanding that calls a halt to our reckless course—"The whole is greater than any of its parts." *The Uncaused cannot be subjected to analysis or comprehended by that which Itself has caused.*

CONCLUSION

The ether is not a *continuum* and universal space is not a *plenum* of it; in other words, empty spaces (voids) do really exist. However extended the ether may be throughout the Celestial Sphere it is *not an absolutely infinite* corporeality—not an absolutely infinite magnitude, for it is everywhere *limited* by the voids or spaces which separate its ultimate particles. We can, therefore, conceive of a greater magnitude than really exists, for in imagination we can fill these voids with matter.

The ultimate particles of the ether may be the *real atoms* of nature, and the various combinations in chemical union may be the source of all material forms. We may then regard the so-called elements, gold, silver, etc., as the children of the ether of space, and the old chemical atom as a *molecule* or compound of the ultimate *etheric atoms.* It may be that these molecules sometimes undergo dissolution (as is held to be the case with radium), and the etheric atoms of which they are composed returned to the general body of the ether whence they arose. It is unfortunate that the term, *electron*, has been grafted on the language of science, for it assumes the identity of electricity with the etheric atom, a mere speculation.

As to the nature of the ether, Newton con-

jectured that it might be about 700,000 times more elastic than air and above 700,000 times more rare. Its resistance he found would be above 600,000,000 times less than water, and that such resistance would make no sensible alteration in the motion of the planets in 10,000 years. This view of the ether as a subtle fluid of great rarity—so rare that its resistance defies all attempts at accurate measurement—is more in accord with our common sense perception than the theory advanced by Prof. Lodge.

From whatever point of view regarded this theory is unsatisfactory.

1. It abolishes space as such, and calls upon us to regard the universe as a solid mass of matter of *absolute density*—a *continuum*.

2. It declares that the ether is absolutely stationary, yet affirms that it is in a state of ceaseless vortical or vibratory motion of such magnitude as to bewilder the mind. This vortical motion is allowed it on the ground of its being a "*perfect fluid.*" We are thus asked to reconcile perfect fluidity with absolute density—a density so great that the heaviest metals are but as "gossamer" compared with it.

3. The theory holds that the "electron" is a "differentiated part," or a "twist," or a "strain," or a "knot" or some other "singularity" of the ether, and is as "dense as it but no denser." These electrons are in constant motion in the in-

terior of the old chemical atom with a velocity comparable to that of light. We are invited to contemplate these (the old chemical atoms) as minute solar systems in which the distance separating each electron is relatively as great as the distances which separate the planets. We are told that the body of the atom is composed of the *absolutely continuous* ether, and that the "strains" or "twists" in it, called electrons, are rupturing this mass ceaselessly with the above named velocity. Are we not justified in asking how such a remarkable motion could take place in a medium of *absolute density by a portion of this same medium arranged as a "twist" or a "strain"?*

The theory of an *Ethereal Continuum* is therefore worthless—worthless by reason of its inconsistency and fundamental incoherence; worthless as absolutely without scientific evidence; worthless as establishing antagonism between *sense perception* and *a priori conceptions;* worthless, therefore, in its philosophical implications, for, in predicating *absolute infinitude* of the ether, it lends itself to that system of thought which identifies the material universe with the ultimate essence of Uncaused Being.