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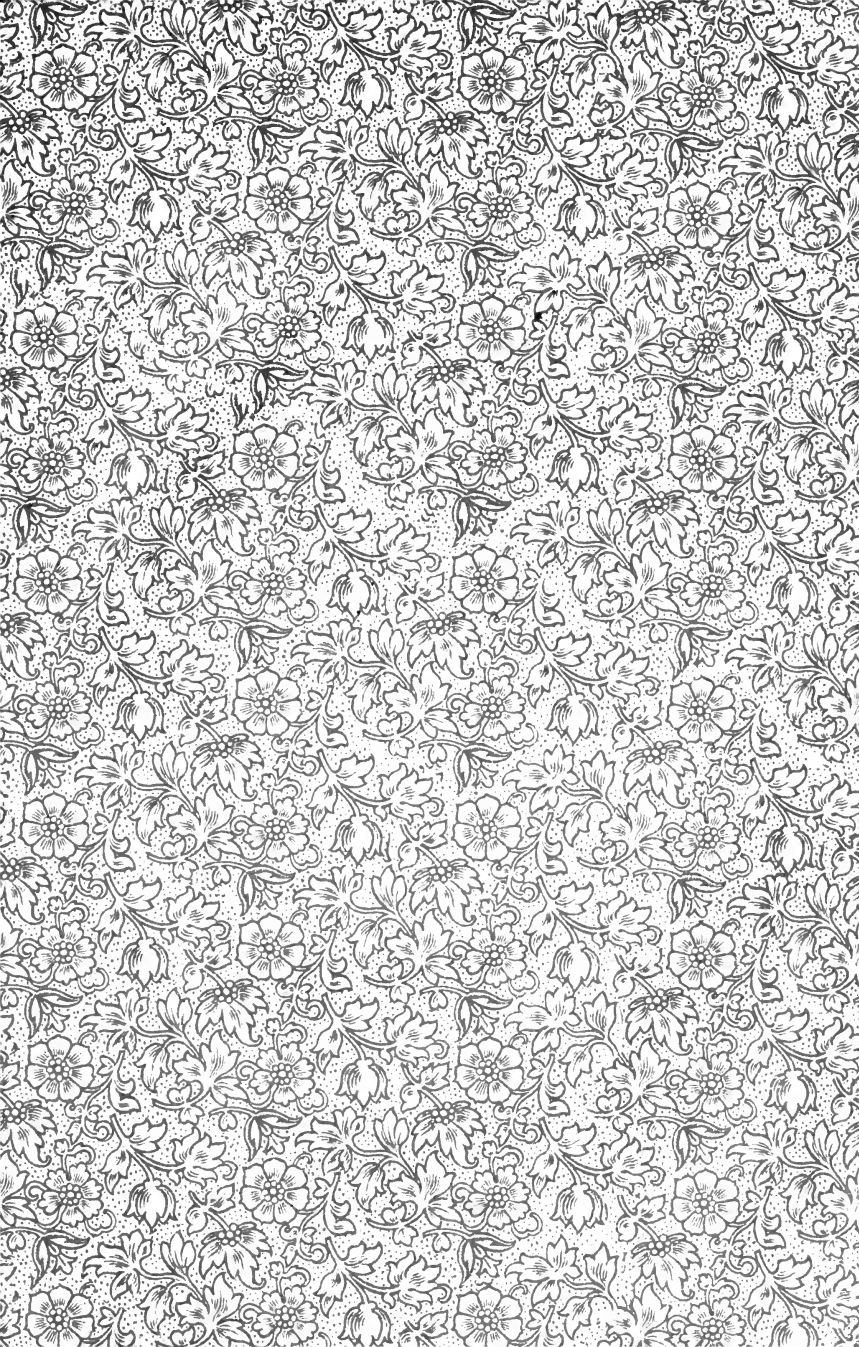
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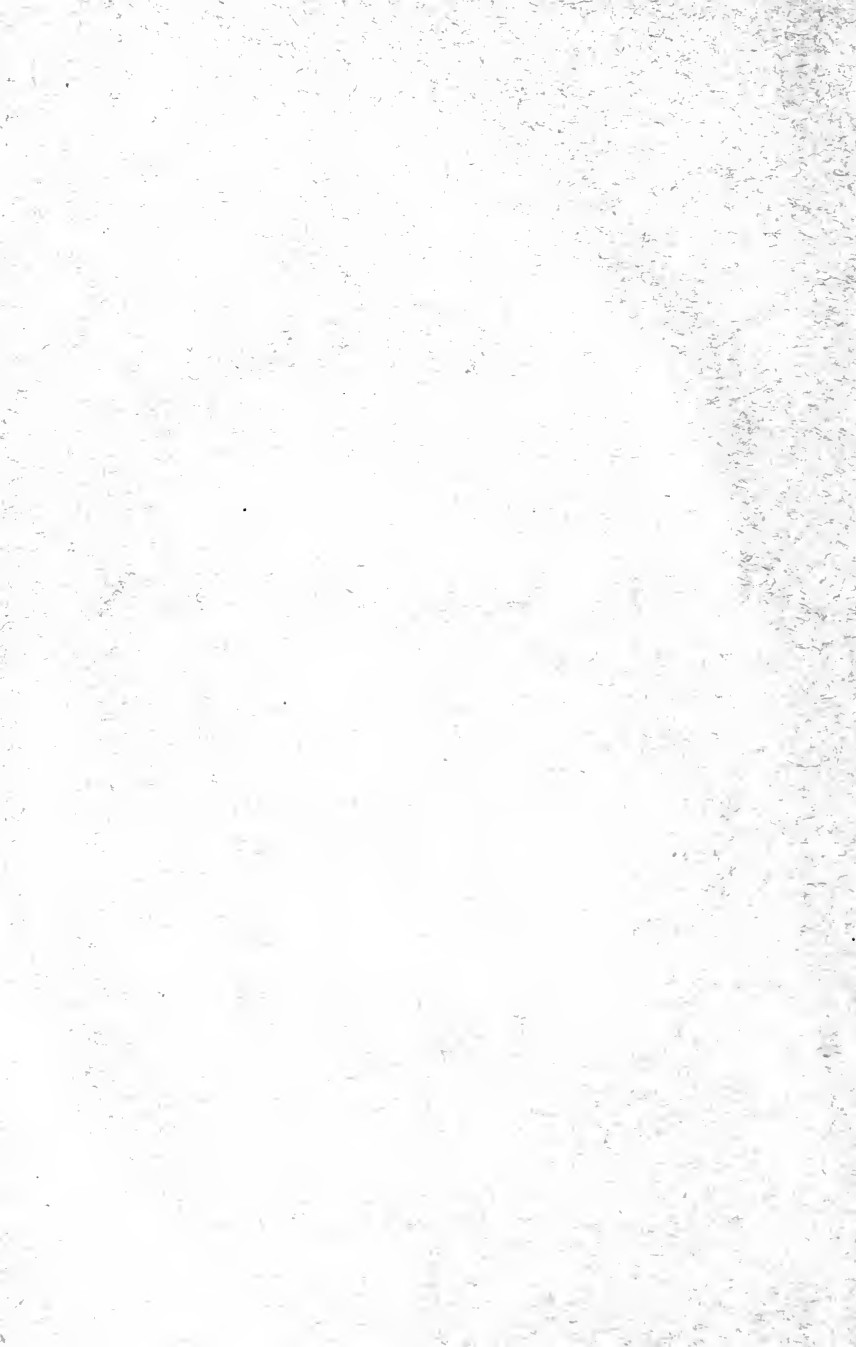
THE
CAUSE
— OF —
LIFE AND MOTION

— BY —
VITRUVIUS FRAZEE.



San Francisco:
BRUCE'S PRINTING AND PUBLISHING HOUSE
Sacramento St. below Montgomery.

—:1878:—



THE
CAUSE
— OF —
LIFE AND MOTION

—BY—
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P R E F A C E .

About thirteen years ago, I happened to be in the office of Mr. A. K. Smith, at Melbourne, Australia, and while there, I heard a clock which was in the office, strike the chimes just previous to striking the hour. It appeared to me that the notes of the chimes were peculiarly clear and perfect, and what then seemed to me as being singular, was that with each note a flash of color appeared before my eyes. At that time I had not heard of any analogy existing between sound and color, but I, nevertheless, became convinced that there was an analogy, and communicated my ideas to a number of my acquaintances. I believe that the fact of the existence of an analogy between sound and color was first actually demonstrated by some English philosopher, about a year after my experience of the chimes. However that may be, my discovery made a great impression on my mind and led me into many curious speculations, that always had a bearing as to the cause of life and motion. But all these speculations were vague or at all events only sufficiently clear to stand as con-

ceptions of the imagination. It was not until the present year, that the truth flashed upon me in a manner susceptible of being demonstrated, and it was prompted by the reading of an article entitled "Sound Color Figures, "by Sedley Taylor," published in the *Scientific American Supplement* of May 4th, 1878. After reading this article my mind was opened to a new light; the conventional theories of science regarding life and motion—never more than half accepted, were now clearly seen to be false. Subsequent readings on the same and kindred subjects, served to corroborate my impressions, and now I am firmly convinced that they are based on the truth.

In this connection, I would refer the reader to a very able paper by Professor Henry J. Slack F. R. S., entitled "Studies of Matter and Life," and published in the *Scientific American Supplement*, No. 27, 1876. The paper is very instructive, and is suggestive of something more than what is given, though it can hardly be said that it actually enters upon any new ground.

In concluding this preface, I take the opportunity of inviting correspondence on the subject matters of the following pages.

VITRUVIUS FRAZEE.

SAN FRANCISCO, 1878.



CAUSE

—OF—

Life and Motion.

INTRODUCTION.

The author has been guided in the preparation of this treatise by a desire to arrive at positive facts relating to the laws of life and motion, without reference to any accepted religious or secular doctrines, nor with any attempt to enforce his own preconceived ideas into an agreement with newly discovered facts derived from his researches.

The results of his labor as herein presented, though limited in detail, cover a field sufficiently wide to show conclusively that all the phenomena of life and motion are directly derived from a Supreme Power which pervades all space where there is life or motion. Those who are constituted with minds which are directly inspired with the influence of their Creator, require no better evidence than their own natural instincts to assure

them of His existence. There are others who require, or at all events, affect to require a positive demonstration of the fact. Of this latter class, there are many made-to-order scientists, men who are only capable of deriving knowledge from what they find in their bookcases. These, to a large extent, are the men who dignify scientific societies with their membership, and who are only useful as encyclopedical expounders. Besides these ready-made scientists, there are those who become dissatisfied with the teachings and disgusted with the actions of religionists and they turn from their God, something in the same spirit that a little boy turns from his food when offended by his father.

Another cause of atheism is derived from the material teachings of scientists, and as they profess to be exact in their doctrines, their influence over those incapable of thinking for themselves, becomes of great potency.

It is with the material doctrines of science that an issue will be taken in this treatise, not that it is believed that anything may exist without substance, but that as the highest principle in creation is of a substance inconceivably fine and absolutely indestructible and indivisible, and as such a principle can hardly be conceived by man, it can only be dealt with by considering it apart from matter. As an explicit means of classifica

tion, all bodies or masses composed of atoms will be considered exclusively as material.

Although the writer has felt constrained to use the term in its conventional sense, as a matter of fact, it will be found that he is more *material* in his views than the most confirmed materialist, since he does not admit the possibility of the existence of any life or movement whatever without a direct and systematic cause, whereas, curious as it may seem, scientists, as a rule, refer the cause of all life and movement to imaginary influences, either derived from existing anomalous properties or from dormant qualities infused in matter at some remote period of the past. In other words, they teach that a body of matter has various unexplainable, not to say inconsistent qualities within it, which always act voluntarily and exact under certain conditions.

If a ball is thrown up into the air, it will stop at some certain point, dependent upon the quantity of projectile force given and the attraction of gravity; it will then descend, and upon reaching the earth it will rebound, apparently, by reason of its inherent elasticity; again it will stop and descend, and thus it will go on with its ricochet movements, until after a series of systematic decrements it is brought to a stop by the force of gravity.

From whence does this inert body of matter get its apparent self-sustained and systematic action? We are told that it is derived in part, from cer-



tain properties existing in the body itself. An atheist, while he readily accepts this absurd doctrine that confers an eternal capability of action to matter, is endowed with a fund of reason too searching to see any evidence of a God in nature. He will profoundly argue that his own mind is made up and developed by the voluntary action of atoms as they skip about in his brain. This extraordinary stupidity in placing mind at the disposal of matter is somewhat akin to making the wind subordinate to a wind-mill.

Although no direct practical evidence of the existence of a God has heretofore been vouchsafed, the fact of His existence, has nevertheless been asserted over and over again in all ages of mankind, of which we have a record. Nature is ever prompting the idea and is ever giving man evidence of the fact, but it would seem after all, that man was perversely blind to the many signs before him, since the Power which instigates and sustains all movement has been persistently ignored as a direct and systematic element, while without it there could be nothing but chaos.

In effect, we find it seriously asserted in some of our massive books, that God in the beginning implanted many properties in each atom of matter, and that then, after aggregating them into huge bodies, set them into motion, relying on their individual properties for the keeping of

all things in equilibrium. We are not told what became of God after this, but we are led to suppose that he went away into some mysterious seclusion, leaving all creation to take care of itself.

This pertinacity in ignoring the presence of the Almighty is peculiarly characteristic of the modern scientist, who will industriously explore every narrow path leading away from the great highway of Truth, while he blindly passes the wider paths leading to it.

When we seek the foundation of facts, we are referred by the scientists to the "fundamental and immutable laws of nature." And what is the conventional meaning of these terms other than an implication of absurdity? Let us now examine a few of these laws as they are generally represented by science.



The Earth's Movements.

Respecting the Earth's movements, it would appear that, in the first place, she was given a daily movement about her axis, and an annual movement around the sun. A momentum was thus established by which under favorable circumstances she would maintain her movements forever. Any one less learned than a scientist

would be inclined to the opinion, that this much would have been sufficient. But it would seem that notwithstanding the earth's vested power to maintain her diurnal and her onward movements. She found herself quite unable to keep within her orbit without some assistance. Therefore, the scientist invented two central forces, one to keep her from going inward from her path, which he called centrifugal force, and the other to keep her from going outward from her path, which he called centripetal force.

Now if two forces acting against a moving body, oppose one another in equal degrees, their effect on the body would be nothing, and therefore with regard to a revolving body, when once it was given a circular movement, it would keep it just as well without the central forces, as with them. It will be shown however, that no such forces exist. But even if they did exist, they would not avail in keeping the earth in her orbit. The earth in her path around the sun, describes an ellipse, and therefore, notwithstanding all the ingenious theories to the contrary, it would be impossible for the supposed central forces to act without constantly changing their relative powers.

The Attraction of Gravity.

To account for the fact of bodies being drawn to the earth, scientists have enunciated the theory of the attraction of gravity.

If the theory were correct, all things whether in masses or in atoms, would be attracted equally to the earth, whereas it appears highly probable that nearly all matters rise from the earth when decomposed or vaporized in the air. But we are told that all masses which rise in the air are of less density, and therefore lighter than an equal bulk of air, and rise in consequence. Although this does not necessarily follow, it is nevertheless untrue, since steam confined at a high temperature is of greater density than the air, and yet at the moment of escape, it rises with greater rapidity than afterwards, when it becomes more rarified. In fact it is only necessary to destroy what is called the atomic cohesion of most bodies for their immediate ascension in the air. Fire may be so intense as to dissipate a body and carry the atoms upwards almost instantly. There is a legend about the air becoming rarified by heat, and that as nature very properly abhors a vacuum, she causes the air to rush in and fill the void. If heat rarified the air in the manner taught us, the air would be rarified most in the hottest place, which would be directly above the flame, and as a consequence, the air would rush into it from above instead of in at its base. The fact is that the air particles are held in regular geometric positions and those of the consuming body, as they rise, force them out of their positions. There is no vacuum produced nor is there any tendency to its production. The positions occupied by the air particles are simply taken up by the particles from the body, which are forced up by a power which will be considered further on, not only in spite of the air's resistance, but in spite of the so-called attraction of gravity.

The theory that air has weight in its natural condition cannot be sustained. Experiments have shown that a vessel weighs more when filled with air than it does when the air is exhausted. But this is no evidence that the air has weight. If it were possible to extract all the air from the vessel, then the experiment might, at least, be plausible. Since this condition cannot be accomplished, the experiment only shows that rarified air is impelled to a higher place than the natural local air. The fact that air balances a column of mercury, and also a column of water, is not a proof of its weight but a proof of its tendency to maintain its geometric or crystalline form. If it was a proof of its weight, the mercury or water would not be balanced by it under confinement in the receiver of the air pump in the same or nearly the same manner, as when not confined.

The theory of the attraction of gravity is based on the hypothesis that a mysterious force existing within a body exerts an influence in some inexplicable manner beyond its limits. The theory in all its phases is irrational and inconsistent. If any body is impelled toward another body by force, such force must either be independent of the body or it must act in some manner by means of a connecting link between the bodies.

The term attraction, is an invention derived from a misconception of the true cause, producing an effect, and, considered as a property of positive force residing in matter, it does not exist even in a magnet. Of the various experiments made to illustrate the supposed properties of

attraction and repulsion as existing in the elements of matter, in not one of them have the the forces representing these properties been disposed as the properties themselves are supposed to exist. And though the experiments illustrate very prettily the equilibrium of forces, this much could have been calculated equally as well without them. All such unphilosophical experiments are merely crude attempts at enforcing agreements with conventional dogmas.

The theory that the moon by its innate power principally controls the tides is untenable. It may however be the passive cause, or possibly its movement may be coincident and perhaps controlled by the same power which causes the tides. While the true explanation of the cause will most probably be forthcoming in the near future, it may in the meantime be safely asserted that the effect is not produced by any such power as is understood by attraction.

F O R C E .

The theory which defines such properties as attraction, repulsion, cohesion, latent heat, etc., as existing innately in the elements of matter, is based on the most narrow-minded observations.

What then is it that gives birth to these apparent properties of matter? It is acknowledged that a body of matter is inert to all intents and purposes unless it is actuated by a force. But if it should be put in motion by a momentary force, (if we accept the scientists' teaching,) it would become endowed with eternal life, unless it should be brought to rest by some obstacle or force equal in effect to the initial impulse.

Now we are anxious to know something about this element of force, and also whether a body of matter has even the inherent power of sustaining a principle altogether at variance with its characteristic inertia. For we will find on reflection that the dogma decreeing latent forces to inert matter is absolutely untenable. The element if force cannot be latent; or, at least, it can not be dormant; it must ever have active existence. What is it then? What is this power that sustains a cannon ball in its flight; that exerts a tangential strain at all points of a revolving body; that maintains the particles of the air in crystalline form; that disperses in systematic order all matters of decomposition; that arranges the particles of crystallization in beautiful geometric order; that carries the light of the sun to us; that gives action to our brain, to our heart and to our whole body; that gives us our intelligence and our very soul?

Again it is asked what is this force? The word force is defined in some of our books as "active power; momentum or the quantity of power produced by motion, anything that moves or tends to move a body," etc. This lucid definition resolves itself into the original term. In its analysis we finally discover that force is force. Let us discard our books and endeavor to ascertain by the innumerable manifestations constantly before us, a rational meaning to the term.

If we throw a ball forward in any direction, we find that it will be carried along by some sustaining power, in the direction given it. If we examine water with a suitable microscope we will see inorganic particles moving about in almost every direction, we see the same thing in the forming of crystallizations. We might also see something very similiar in the cells of our organisms. In all these signs we may discover evidence of a power at work identical with that which causes the effect of an explosion of powder, which conveys light and produces its reflections and refractions, which causes the tangential strain at all points of a revolving body, and in short, which causes all the phenomena of nature. Why need we involve ourselves in a maze of foolish theories when the element we seek is manifested in direct connection with every movement in nature?

We will find that there is an universal and systematic power having vibratory lines of force in every direction, which give positive movements to the elements of all decomposed matters

and which reciprocate with all movements of bodies. These lines of force do not act equally on all bodies, but particular lines act equally on certain atomic structures. Thus a dense body is acted upon by certain lines which vibrate proportionally with its elements, and other bodies in like manner are acted upon in accordance with the elements of which they are formed. Or the material elements according to their respective forms are built up by accordant forces, and are sustained in equilibrium in the body thus formed.

In order to arrive at a clear understanding of these forces, we should proceed slowly and carefully in our investigations, viewing every evidence as we advance, with critical and broad discernment. Let us not deceive ourselves with enforced agreements, but let us with quick determination, cast all inconsistencies from our minds, for by this method we will gain the co-operation of a higher intelligence by which we will be enabled to see a glimmer of the Truth.

We will now disburden our minds of all prejudices and start out in our researches as free and intelligent beings. We will doubtless meet with many obstacles, but with what little progress we make in these researches we will be enabled by our individual investigations to eventually find a well defined and beautiful road, ever widening

and revealing new magnificence as we advance, and with each succeeding developement, we will find our souls expanding with purer and nobler aspirations. We will then know of a surety that we are on the road which leads to eternity.

In the endeavor to give a consistent explanation of the forces which most assuredly control all things, the author, while he fully commits himself in a general sense, nevertheless does not necessarily hold himself bound to every minor statement he may make. He simply presents an incontrovertible truth in the best form he is capable of giving it at the present time, reserving it for the future, if it may be, to give a more extended and also a complete revision of the whole subject.

These forces then penetrate all bodies, organic and inorganic. They completely fill all unoccupied space and all interstices between the atoms forming a body. They form centers at every conceivable point and every point is the center of an infinite series of polyhedrons, formed by the radiations of other centers; those of a kind being formed in concentric order. The forces contained within every pencil of force, have an indefinite variety of vibrations, and altogether they form an indestructible network throughout all creation, and although extremely sensitive they cannot be swayed in any direction

beyond certain relative limits, and therefore, no body can exist whose component elements are in contact.

Within a body of matter, certain of the forces are neutralized, while those which vibrate consistently with the body's atomic and molecular structure, hold its elements in suspension. By the quick vibrations of the sustaining forces, the body is allowed a free movement, but its velocity will be limited by that of the vibrations, beyond which it cannot be impelled without being dissipated.

Those forces which are neutralized or deprived of a full action within the body, do not lose any part of their total energy, but by the measure lost within the body, just so much is it increased about the body's exterior. This energy of the forces about the surface and vicinity of a body, gives rise to two phenomena, one of which is called inertia, or that force which resists the movement of a body, and the other of which is called the attraction of gravity, or that force which impels or tends to impel bodies toward one another.

The force of gravity, or more correctly the force of displacement, is greater in proportion as the body and its density is greater, but the proportion does not hold the same in differently constituted bodies, even when of equal densities.

Any body of matter is nothing more than an aggregation of atoms held in suspension, somewhat in the same manner as a cloud, with the difference that the cloud elements have no absolute fitting places within isochronous polyhedrons of force. Or it may be said, that the body of the cloud does not sufficiently displace the energy of the forces to secure an adequate outward pressure to sustain it in a permanent form. The same circumstance applies to water, for notwithstanding its density, its force of displacement is not sufficient to hold it to a form. By the withdrawal, however, of certain of its elements, it is brought to a state of comparative rest in the shape of ice, or by the infusion of new elements it may take numerous other compact forms, depending entirely in any particular case upon the forms of such elements.

The elements of the air take up the principle positions of rest in the space near the earth, but become more diffused at certain distances above it. The positions unoccupied by the air elements are not voids, they are always taken up by certain elements which are continually aggregating into minute bodies and in these forms they are finally impelled to the earth by the force of its displacement.

The optical instrument, called the kaliedescope, illustrates very beautifully a single system of the polyhedrons of force. In this instrument, we

may see the direct action of the very forces under discussion, for it will be shown how reflections are directly dependent upon these forces.

In this place, it may not be amiss to enter into a brief explanation as to how a body may freely be moved about in a space which is absolutely solid with force lines and inert matter. Now we are aware that water is far more dense than many substances through which a body cannot be impelled without the application of unusual force, but the water has a considerable amount of life derived from the forces, and therefore a passage through it is easily accomplished. The forces however, since they are the very element of life reciprocating as they do with every atom in a body, offer very slight resistance to its movement. The elements of which the body is composed, vibrate freely with those forces which hold them in suspension, simply passing by an interchange of atoms from one environment to another, whether the body is at rest or in motion. All bodies are crystalline forms, whose elements are ever interchanging with the elements of the surrounding space.

Natural Phenomena.

We will next consider a few natural phenomena, and endeavor to ascertain whether they

can be reconciled with conventional theories. Before proceeding with the investigation, the author would state that henceforth the forces will be frequently alluded to as the Celestial forces, particularly, where it may seem necessary to distinguish them from indirect forces.

A cannon ball, when impelled from a cannon, is followed for a very short distance by the initial force, nevertheless, it speeds its way onward in the face of obstacles, sustaining itself in its flight against what is called the force of gravity. What is it that sustains the weight and keeps up the momentum of this mass of iron? Scientists gravely tell us that it has no power to stop, and that it would go on forever, unless it should be opposed by one or more impediments equal in effect to the initial impulse. According to the scientist's view, momentum is power, and since the ball has momentum, it follows that it has just as much power to stop as it has to go on. On the other hand, to say that it has no power to stop, would absurdly enough, imply equally that it would have no power to go on beyond the limit of the initial impulse. In truth, it has no power whatever, nor is it capable of receiving or transmitting any power except what is continuously given it by force. How then is the momentum kept up? We have seen that the displaced energy of the forces within a body are accumulated about its exterior. This accumulated energy may be likened to a series of minute quick moving waves gradually becoming less, as their distance from the body becomes greater. These waves are ever tending to recover their normal condition and consequently their greatest action

is toward the body. When a body, a cannon ball for instance, is suddenly impelled forward, a large proportion of these waves are immediately thrown on its posterior side, and they will sustain the ball in its movement until the ball is either brought to a stop by some obstacle or until the waves recover their equilibrium.

The limit of the ball's flight cannot exceed that which is due to the displaced energy, by any power in the universe applied as an initial impulse. Therefore, the limit of flight of any ball may be measured by its displacement of energy, or in other words by its inertia. A ball of cork may be projected with a velocity that would soon exhaust its displaced energy, and in such a case the ball would either be dissipated or it would stop as suddenly in the air, or even in what is called a vacuum, as if it had impinged against a granite wall. If a piece of cork should be placed in the water and allowed to remain there long enough to become soaked through, its displacement of energy would become much less than before, and an impulse might be given it by the hand sufficient to exhaust its surrounding energy. And with such an impulse, it would suddenly stop and rebound. If another cork however should be experimented with of precisely the same shape and displacement below the water line, but formed into a thin hollow vessel so that a considerable proportion of it should

stand above the water, then its momentum would be sustained for a considerable distance.

In the discharge of a gun the wad will suddenly stop at the limit of the force of explosion, in consequence of the exhaustion of its momentum or displaced energy. And yet the same wad might be thrown a considerable distance by the hand. It would appear from this and many other familiar phenomena, that the range of flight of a projectile is in some inverse ratio with the force of projection when such force exceeds the measure of the projectile's displaced energy.

Light bodies, or those having the least displacement of energy, are more easily propelled than heavy ones, but heavy ones have the advantage in overcoming obstacles. A fish although it has very little momentum in its native element, is enabled to travel at a very high speed because it travels in a uniform medium.

The displaced force waves about a body have their greatest extension about its exterior in the direction of the body's longest diameter, and up to a certain limit, a long body projected in the direction of its length would have a greater range of flight than would a short body of the same weight. It therefore follows that the greatest apparent attraction of any uniform body is in a line with its longitudinal axis, notwithstanding any theory to the contrary.

In the revolving fly-wheel, we have an illustration of the action of the forces, the same as exhibited in the cannon ball, although the effect is different. As the vibrations of the forces follow each other respectively in nearly right lines, they act tangentially within and about the fly, and by these means we get an effect over and above the momentum, which develops itself as a radial strain on the fly, while the effect of the forces on the cannon ball is developed in sustaining the momentum and the weight of the ball. The force or momentum of a moving body is simply a measure of its weight and velocity, and if we ascertain the weight and velocity of a certain falling body and then find a fly-wheel of the same weight and of the same velocity at the center of gyration, we will find that each develops the same practical force, all other things being equal. But we find in addition to this practical force, a constant strain or extra force on the fly, accruing from the tangential forces. In the toy called the gyroscope, these tangential forces are sufficient to almost wholly sustain the device in the air when it revolves rapidly. There is no new principle developed in the phenomenon however, notwithstanding its being a puzzle to scientists, for the toy is supported in somewhat the same manner as the cannon ball in its flight. It is very probable that if a suitable ring were revolved in a plane about its true center, and at a high velocity, by means of some device which could suddenly be withdrawn without affecting the center, then such a ring would be maintained in the air by the tangential forces.

Such a force as centripetal force, considered as a central force, does not exist. It is supposed to be a force emanating from some mysterious

power situated in the center of a revolving body. It is simply a childish invention to account for an effect of centrifugal force. Since it is shown however, that the so-called centrifugal force is not a central force, there is no need for the invention. As far as the author is aware, the so-called central forces of any terrestrial body revolving about a center, are generally supposed to be generated by the very body they control! An atheist would rather believe this, than have his reason interfered with.

The Magnet.

The apparent properties of a magnet can only be explained by a consideration of the Celestial forces. The atomic elements of a magnet in common with those of all other bodies, have no properties whatever except solidity, susceptibility, size and form. The two last named are considered by the author to have been imparted though imperfectly, in the first place, by the Celestial forces when the elements were eliminated from an absolutely dense inert mass, which ever exists in advance of each succeeding creation.

If we take a powerful horse shoe magnet and hold a weight of soft iron at a distance, say of one inch from

its poles, we will find that some unseen force tends to impel the weight toward the magnet. Now, where does this unseen force come from? We may place our fingers between the weight and the magnet, but we will feel nothing. Can the force be derived from a subtile fluid emanating from the magnet and returning to it? Would it be rational to suppose that such a fluid would return to the magnet with a mysteriously acquired auxiliary force? Let us say no, without the slightest hesitation. The weight is impelled toward the magnet by a force more potent than what could be derived from the so-called subtile fluid. But we cannot feel it as a general rule, because its vibratory action is so fine that it passes between the elements of our organisms without sensibly affecting them.

Without attempting to show the true molecular structure of a magnet, a crude illustration will nevertheless be given to show a possible condition by which the natural action of the vibrations of the forces may be so changed about its exterior as to produce its apparent attractive power.

A magnet then, like any other body, displaces a portion of the Celestial forces. But in consequence of some peculiar strained or tense arrangement of its elements, some of the extremely fine vibrations of the forces are greatly impeded and changed in their action. The vibrations thus changed, while they become amplified and extended for a limited distance outside of the magnet in their action towards it; lose

their energy or amplitude in a proportionate degree in their passage through and exit from it. Here then we have the condition at all exterior points of the magnet, as in all bodies, of one set of forces acting towards it and another set acting away from it. The former forces in a magnet act with by far the greatest energy, except at neutral points, where their natural action is not greatly impeded by the magnet's molecular arrangement.

We will now suppose that we have two bar magnets before us on a table lying with their respective north and south poles in contact, so as to form together a direct line, and with their north poles pointing to the right hand. For the sake of a clear understanding, let the supposed magnets be two pieces of white paper. As a crude representation of the molecular structure, we will mark on the longitudinal axis of these attached pseudo magnets, a single regular system of cones with their axes coincident with the axis of the magnets, and with their apexes throughout pointing say to the south or left hand. We will now imagine that the vibrations of the forces coming from each direction, follow the contour of the cones, or that they proceed as if they were following the toothed edge of a saw. In this vibratory action derived from the assumed molecular structure of the magnets,

we have two sets of isochronous opposite vibrations interlocking one another and assisting in holding the two magnets in contact. We separate the magnets a short distance and in the space between them, the vibrations will still continue the same, except that their energy weakens very materially with the distance, their combined energy however acting as it does reciprocally, is sufficient to neutralize their individual pressures against the opposite poles of the magnets, and therefore the remaining forces displaced about the other parts of the magnets, having nothing to balance them, impel the magnets together again. The vibrations between the magnets offer some resistance to this, but as they act reciprocally and as they are also very sensitive their resistance is easily overcome. When the magnets again come in contact however, the vibrations become interlocked as before, and this added to the pressure of displacement, holds them together with great tenacity.

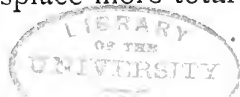
We next take one of the magnets and place it with its north pole in contact with the north pole of the other, and we will find that the vibrations cannot reciprocate, but that they must repel one another, and also that instead of neutralizing the energy between the magnets, they increase it, and force the magnets apart. As before stated, the most powerful vibrations are

towards a magnet, and therefore, any susceptible body with indifferent or weak polarity would be impelled to it.

The slight extra force which causes the magnetic needle to lie with its axis in a plane, or nearly so, with the earth's axis, is probably caused by two sets of forces, one from a northerly and the other from a southerly direction, and crossing each other at unequal angles on true meridian lines. There is nothing peculiar about these forces except their somewhat greater energy. Therefore, the energy about a magnet is not materially changed by any special position it may have, although it may retain its molecular condition, best with its axis coinciding with that of the magnetic needle. In a number of instances, pieces of magnetic ore have been found, with several diverse poles in a single piece.

Since the magnet derives its apparent power from certain impeded vibrations which pierce it in all directions, and since the power is principally superficial, it would seem that a magnet which should have the greatest surface with the least transverse sectional area, would be the most powerful, all other things being equal; therefore, a magnet with a star shaped section, would probably be more efficient than the ordinary kind.

If a piece of steel should displace more total



energy after becoming magnetized, than before, then a steel projectile of a cylindrical form would have its range of flight increased by being magnetized. The proof of the condition would be by a test of the projectile's inertia, both before and after being magnetized. Of course, the longitudinal axis should be coincident with the magnetic axis.

Equilibrium of the Elements.

A great accumulation or a great displacement of local elements must always result in some unusual atmospheric disturbance, caused by the Celestial forces in regaining their equilibrium. The effect would probably be exhibited in its greatest degree at some considerable distance from the cause. The material elements if dependent upon their supposed inherent properties could have no choice as to their positions about the earth, nor could what is termed the attraction of gravity, assign any special positions to such elements. The equilibrium could, therefore, only be regained by the action of the Celestial forces, for by these forces, each class of the elements, according to their forms are forced respectively into fitting crystalline positions. Near the earth, these positions are in certain dispersed orders, and at certain distances above it, they are probably, in close but limited aggregations. The positions are constantly

changing with the vibratory action of the forces, and new atoms are ever entering into the composition of the elements.

There are certain elements which fail in finding any positions of rest about the earth or its vicinity, and these are either carried off into indefinite space, or else to other worlds. Among the elements thus carried off, are those of light and heat. These elements only manifest their properties under particular crystalline forms, which they lose in leaving the earth's atmosphere; but they regain them on entering the atmosphere of another world.

With due allowance for the passive interference of the sun, moon and the planets, it may be said, that all the principal accumulations and displacements of the material elements, in and about the earth, are caused by the regular action of the forces on its physical disorder; thus the forces at work in some sealed cavern below the earth's surface, gradually decomposing the elements of matter will finally generate such a force as to rent asunder the whole superincumbent mass, and the elements will be forced upwards with great violence, developing the phenomenon called a volcano.

L I G H T.

One of the most evident manifestations of the existence of the Celestial forces is derived from

the phenomenon of light. All the theories advanced by scientist, to account for this phenomenon are singularly at fault, and altogether at variance with certain properties which they ascribe to matter. That the particles of light should travel of their own volition is an irrational supposition at the outset. For in what manner could power be stored up in infinitesimal atoms to propel them ninety-two millions of miles, to say nothing of the greater distances traveled? How do the atoms overcome the so-called attraction of the body they leave?

In the refraction of light we have an anomaly very difficult to explain, if we hold to the scientist's theory, For all bodies or particles moving through space of their own volition, would in entering a new uniform medium at an oblique angle describe a curve. As a matter of fact, however, when a particle of light thus enters a new medium, it instantly changes from its first direct course to another direct course, and the latter course will be at some consistent angle with the former, depending upon the obliquity of entrance the character of the new medium and the form of the particle. Now, any particle whether of light, heat or other class, when it is impelled at an oblique angle against a new medium, is thrown out of balance by a change in the action of the forces near the surface and within the medium,

and it is instantly impelled in a new direction by any set of vibrations which coincide with its form, and at the same time balance it at the instant of change. As it enters a new medium, the particle changes its form by uniting with the elements of the medium.

Of a number of particles, impinging at or near the surface of a new medium, a percentage depending upon the angle of impact and upon their coincidence with certain vibrations, will be refracted, while the remainder will be reflected.

A considerable reduction of light at the back of a plate of glass will cause an apparent reflection of an object, not so much because the glass reflects better with a darkened space behind it, but that the image of reflection is lighter than the darkened background, and is therefore made visible by contrast.

Light may be conveyed and in a great measure maintained within a stream of water. The phenomenon can only be made obvious in a dark place and the effect then is that of a brilliant stream of light. It is supposed that the light is thus held captive by repeated reflections from the surrounding darkness. But darkness does not reflect light, otherwise we should have no night on the earth. And besides, if the effect was caused by the surrounding darkness, a stationary cylinder of glass would produce the effect equally

as well as a stream of water. The light is no doubt withheld by the perverted action of the forces ensuing from the stream's movement, by which the principle vibrations are caused to act in a forward direction and convergent to the stream, in a similar manner to what their action would be on a moving body.

S O U N D.

Sound is derived from the action of a body upon certain active crystalline forms by which they are temporarily changed and carried onward in new forms continuously reproduced by the Celestial forces.

Sound crystals are comparatively large and are not reflected well from polished even surfaces, as such surfaces tend to scatter their component elements. A good medium of reflection may be had in a clean cut surface, having close and minute indentations.

If two musical keys or bars of steel of the same note should be placed in suitable positions at some distance apart, and one of them should be made to vibrate, the other would also vibrate; while a third bar of a different note, placed in some intermediate position, would not be sensibly affected. The learned scientist explains this by telling us that a certain series

of isochronous air waves would be produced by the first bar and that no other bar of a different note would be influenced, because its form would not admit of its vibrating in time. This explanation would do very well if these musical bars were like pendulums; and if isochronous pendulums would vibrate in sympathy with one another at considerable distances apart. But since neither condition exists, the explanation must fall to the ground. Pendulums do not vibrate sympathetically, because there are no force vibrations sufficiently slow to transmit the action.

It takes a great deal more power to vibrate a bar of steel than it does to oscillate a pendulum, and therefore, if the air were nothing more than a quiescent fluid, pendulums of equal lengths would vibrate from sympathy at considerable distances apart. In any case, the supposition of a fluid being quiescent, is absurd, for such a property could only exist in a mass whose component elements were absolutely close fitting and immovable.

We will now endeavor to find a cause for this sympathetic action of the musical bars. Let us suppose then, that two of these bars are secured in vices at some distance apart, and that they are exactly of the same size and texture and have equal lengths exposed above the vices. In this condition, we find that each bar has an equal displacement of energy. In these displacements we have an indefinite variety of vibrations, as to

time and amplitude; and though the amplitude may be changed in a line of vibration, the time in that line will always remain equal at all points. The increase of amplitude being simply an increase of lateral movement.

The amplitudes of the various vibrations within a bar, will remain nearly the same, respectively, whether the bar is large or small. But about the outside of the bar, they will change very materially with its size. For as will be obvious, the amplitudes of the slower vibrations about the exterior, will increase in some ratio with the bars' size, while the fine vibrations will scarcely be affected. There will, therefore, be some resultant action between the lower and higher vibrations, by which the bar may be set in motion and which will reciprocate by gradual decrements with the forces which maintain its molecular structure. If we should shorten one of the bars we would destroy its original note. For the two scales of vibrations, respectively, from the base and the apex of the bar necessary for its production, would not then come to rest at the new axis of vibration, but would pass it and neutralize the action. By this shortening, we would get a new resultant action of less amplitude, and the note would therefore, be higher than the previous one.

If the bar should not be much shorter than

before, we would still have a considerable total action of the lower vibrations, though they would not have power to control its movements. Now if we should reduce the bar thus shortened, about its new axis of vibration, preferably below it, we would not by doing so, change the amplitude of the lateral action above it, but we should put the bar in a condition to be controlled by that action, and by these means the original note of the bar could be reproduced, although it would lack power. This lack of power would ensue principally from a loss of action of the forces at the upper end of the bar, in consequence of its longitudinal displacement being made less by the lateral reduction.

Experiments have shown that sound produces geometric figures of color on a soap film. The actual outlines of the polyhedrons of the Celestial forces may be seen on the film, and more than that, they cleave the film in their lines of action. These facts while they point to the existence of the Celestial forces, also show that sound enters into a composition with the particles of light, from which it would appear that sound may yet be the means of distant graphic communication.

V I S I O N .

We have been taught that all the knowledge we have of an object we see is derived from two

very minute pictures turned upside down in our eyes. Can we look at any object and reconcile this teaching with the fact?

We are told that although we actually see the object inverted, our intelligence nevertheless tells us that it is not inverted. We are still further confounded by being told that the little inverted image is made more insignificant by being conveyed through the optic nerve—presumably in a stream—to the brain, where the atoms are supposed to be sorted out and rearranged by the intelligence in proper order. It is strange how science ever strives to pervert the truth. An ignorant man guided solely by his natural instinct would say that he sees an object outside of his eyes, which assertion would be treated with derision by the scientist. And yet the man of ignorance would be right. The vision and the mind are undoubtedly both outside of the head, though they reciprocate with the internal organs.

A natural scene does not appear on the retina as an image on a flat surface, but the forces from the eye reciprocate with the forces which carry the elements of the scene to the eye.

The eye and the mind reciprocate with the brain, and the brain is the prime material medium of action between the mind and the several parts of the body. There can be no action without a perfect reciprocation between force and matter,

and therefore if the optic nerve should be destroyed there would be no vision, for the reciprocal circuit would thus be broken.

When we look at the two pictures in a stereoscope, we have a perfect realization of form, but although the pictures may be at the proper focal distance, the scene appears in miniature, and in case they should represent a group of human beings, and should even be magnified so that they would subtend a much greater angle than the natural scene; the figures, nevertheless, would appear like Liliputians. Perhaps the scientist would say that this was merely imagination. He might also say, that our estimate of from ten to twelve inches for the sun's apparent diameter, was imagination, since it forms an image on the retina much less in size than an ordinary pin's head. The scientist will eventually find, that there is method in this much abused faculty of imagination. In stereoscopic pictures we have all the elements for producing the exact image, excepting the color, of a scene on the retina, as it would be produced naturally. Nevertheless, we do not by any means, get the natural effect of size. But let the stereoscopic pictures be enlarged to the full natural size and placed at the proper distance, and then if a few mirrors should be adjusted to bring the visual rays of the spectator's eyes, respectively, within the center of each picture, the effect of size would be found to be nearly natural, and yet the image on the retina would be less in size than before.

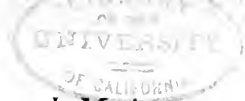
The Derivation of Action.

In all the preceding manifestations, we have evidence which points with unerring certainty,

to a system of crystalline forces, pervading all space where there is life or motion. These forces can act directly only on minute particles or atoms. Hence, in the muscular action of a man, the movement may be traced by successive stages from the extended action of the limb to the more restricted and tense action of the muscles, from the muscles to the still more restricted and energetic action of the fibres, and so on from the greater to the lesser organisms, until finally we reach the molecules where myriads of atoms are acting with incessant energy within hardly conceivable spaces. The greatest muscular action of a man, is the measure of the energy of the forces on those atoms from which the action is derived.

The earth is, no doubt, controlled in its movement by the action of the forces on the elements of the atmosphere. And it is extremely doubtful whether any dense mass whatever, floating in space, could be maintained in a systematic movement, without either being surrounded by an atmosphere or without having an atmosphere contained within it.

In all material actions we find the greater movements derived from the more restricted ones. Thus in a large tidal wave as caused by an earthquake, we find that it is developed by a series of unusually energetic small waves, or if developed at once from a sudden upheaval then



we may know that the upheaval was developed from minute primary movements.

This principle is also shown in elastic bodies. If a solid ball of some such material as glass, should fall on a stone pavement, it would become indented at the point of impact and all the particles in the ball, would be thrown more or less out of their true positions. That is to say, the polyhedrons of atoms or the minute crystals forming the ball would be flattened, but they would immediately be reinstated in their previous condition by those vibrations of the Celestial forces which should hold them in suspension, and thus a reciprocating movement would be given to the ball sufficient to project it nearly to the point from whence it fell.

If the ball however should fall from too great a height it would at the point of impact be reduced to powder and would also be fractured, because the force of its descent would then overcome the forces which held it together.

The law of elasticity can never be explained by any reference to the supposed properties of matter. A ball held together by what is called the attraction of cohesion, would have no elasticity whatever, and it could have no power to recover its primary form when once it lost it.

The Equal Density of all Things.

After a careful consideration of the various phenomena of nature, the conviction will be

forced on us that all space and all matter therein contained are equally dense. That all creation is an infinite crystalline system, and that the planetary systems are maintained in their order by the reciprocal action or interchange of the displaced energy of the Celestial forces by which circuits of force are sustained.

A vacuum cannot be produced. All space is filled up equally and there is positively no room for the slightest approach to a vacuum. A man may exhaust the air pump receiver of the coarser elements, but their places will be immediately taken up by the finer ones, and the Celestial forces cannot be disturbed. The receiver, no matter of what material it may be constructed, is nothing more than a sieve. It may be crushed by the outside air crystals, but that would not be evidence of a vacuum within. The elements within would offer no resistance because there would be no resistance opposed to them. They would pass through the walls of the receiver as easily as light passes through glass.

All atoms are the same in substance but are divided into innumerable classes of forms which are arranged into crystals, and the individual characteristics of these crystals are dependent upon the peculiar combination of atoms which form them. The atmosphere contains all the needful atoms for the formation of any crystal.

The element of light from the sun does not pass through space in the form of light. When it reaches the atmosphere however, it forms light crystals which are probably made up in part, of certain elements of the atmosphere. In other words, the forces from the earth and those from the sun reciprocate and form light crystals as high above the earth as there are suitable materials for their formation. The same may be said of heat.

Animal Life.

Animal life begins when certain crystals become so grouped, that the atoms of which they are composed may by means of the forces, form several complete circuits throughout the group. Life possibly may exist without mind, but a mind becomes necessary when an animal has to seek its food. There is a part in most if not in all animals, where the circuits from the various organs interchange one with another by which new crystals are formed at such part and thrown off and returned to the part. These reciprocating crystals form an atmosphere about an animal which is the resultant, so to speak, of the animal's whole organization. It may be called mind, instinct or anything else, but it simply stands for what the animal is worth. It is the animal's

identity as derived from the peculiar actions and forms of the elements of which it is constituted. There are many plants which have individual identities or minds, and these in common with a number of the lower orders of animals see an object close at hand with their minds. That is an object when sufficiently near, becomes enveloped by the mind, and it is seen at all parts at once.

M A N.

Man is the highest form on earth of the animal creation, and his identity may become so perfect as to have a self-sustaining circulation; that is to say, his mind may become like a perpetual machine, circulating within itself. Such a mind and such, only is fit for Heaven. It must be in harmony with the forces which sustain it, and then it becomes as a body unto itself.

The Spirit of God is ever trying to assert itself in the mind of man, but if the material of the man is too gross to receive the impression, he must die the everlasting death.

The earth is a mass of corrupt material under process of purification, and the work is going on with all possible speed. God is one part of the Universe, and matter is the other; one is the embodiment of Life, the other of Death, and

the dead matter must be brought to life, even to sustain the Almighty; but the new life must be refined, otherwise it can no more find a place in Heaven, than can a corrupt pool find a place in the sky.

Let not the meaning of the term refinement be misunderstood. It refers not to the gilded man of fashion, nor to the gilded man of wealth, nor yet to the gilded thief who steals from his fellow man his natural inheritance from Heaven; for such as these are the inventors of slavery and the inventors of dank slimy prisons in which they cage their fellows. Cannot these men, with even their coarse brutal minds, see that with every injury they inflict on their fellow man, they bring a curse upon themselves? Cannot these gilded men, see that their short-lived glory is wholly supported by the gaunt ruination of their fellows?

We hear a great deal about the grand achievements of science and the glories of civilization, but what are these achievements and glories other than a damnation to the best part of mankind? If we look at our greatness in our splendid cities, we will find it a miserable sham. We need but to go forth into the slimy by-ways and into the gloomy tenements by the way-side to find the noisome dregs of civilization. There may we find the haunts of crime and disease,

and of all manner of abominations; and we may trace all these hideous things to the more than brutal selfishness of a certain class of men, who have no souls and who live but to make a hell upon earth,—imperfect men who live for the gratification of their bodies and whose earthy minds must die and rot with their earthy bodies. But they do not die by the curse of God; their life is merely an early stage of progression in the refinement of gross matter, and they die because their constituent elements are too coarse to be sustained in action.

The Atheist and the Bible.

Whatever may be said to the contrary, it is extremely doubtful whether a man who gives the lie to his own existence by disavowing his God, can safely be trusted. Such a man can have no hold on himself. Yet these men do good; they often show us incongruities in conventional doctrines, and it is in these incongruities they find an apology for becoming atheists. An atheist stands as a dark cloud between the light of Truth and its imperfect semblance; he looks only toward the semblance upon which his dread shadow is cast, and he can only see the darkness which he is the cause of. But in the very

shadow, an intelligent being will see evidence of light, and thus like every evil, the atheist serves a purpose albeit a poor one to himself.

And now, however superfluous it may seem, the author would say a few words for the Bible. Let it always be remembered that this book was written by comparative savages; and in that light, who shall say that the writers were not inspired? If man could receive the exact truth from Heaven, he would no longer be a man—he would be too perfect to live upon the earth. But let us take the Bible, all in all, as we find it, and compare it in the matter of truth, with the complete book of science and we will find that it will compare favorably. For each absurdity in the Bible, we will find a score of absurdities in the pretentious book of science; and for the latter book, above all others is claimed the pre-eminence of truth. These books of the Gospel and science are kept respectively, within stately temples, where infatuated mortals kneel at their shrines. But these temples in many instances, have come to be guarded by mountebank showmen.

HEAVEN.

The soul, when it leaves the body, is like a vapor of self-sustaining elements, that is, there is a reciprocating action of the several circuits of

elements which interchange with the spirit of the Almighty. This vapor is ever giving off elements and receiving new ones, but it is eternally becoming greater in extent. It is the embodiment of a free will and may travel at its discretion. In this vapor, then, we have the ideal mind existing independently of a coarse body; in it we have all the elements for the realization of our most ardent aspirations. What is darkness to the human eye may be the most glorious light to the unfettered soul. No pain can exist because there is no resistance to the Celestial forces. Forms may pass through one another as easily as beams of light. The Celestial forces become mediums by which loving friends may summon each other together, and these friends may interchange elements with each other, and form a world unto themselves.

Our dreams on earth give us but a faint conception of what our imagination is capable of when unfettered by a coarse body; but life in Heaven is no evanescent dream, it is the most exalted and refined reality.

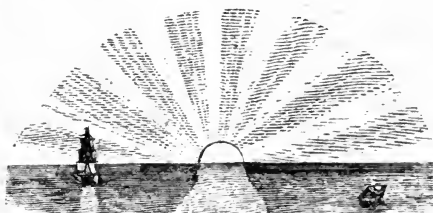




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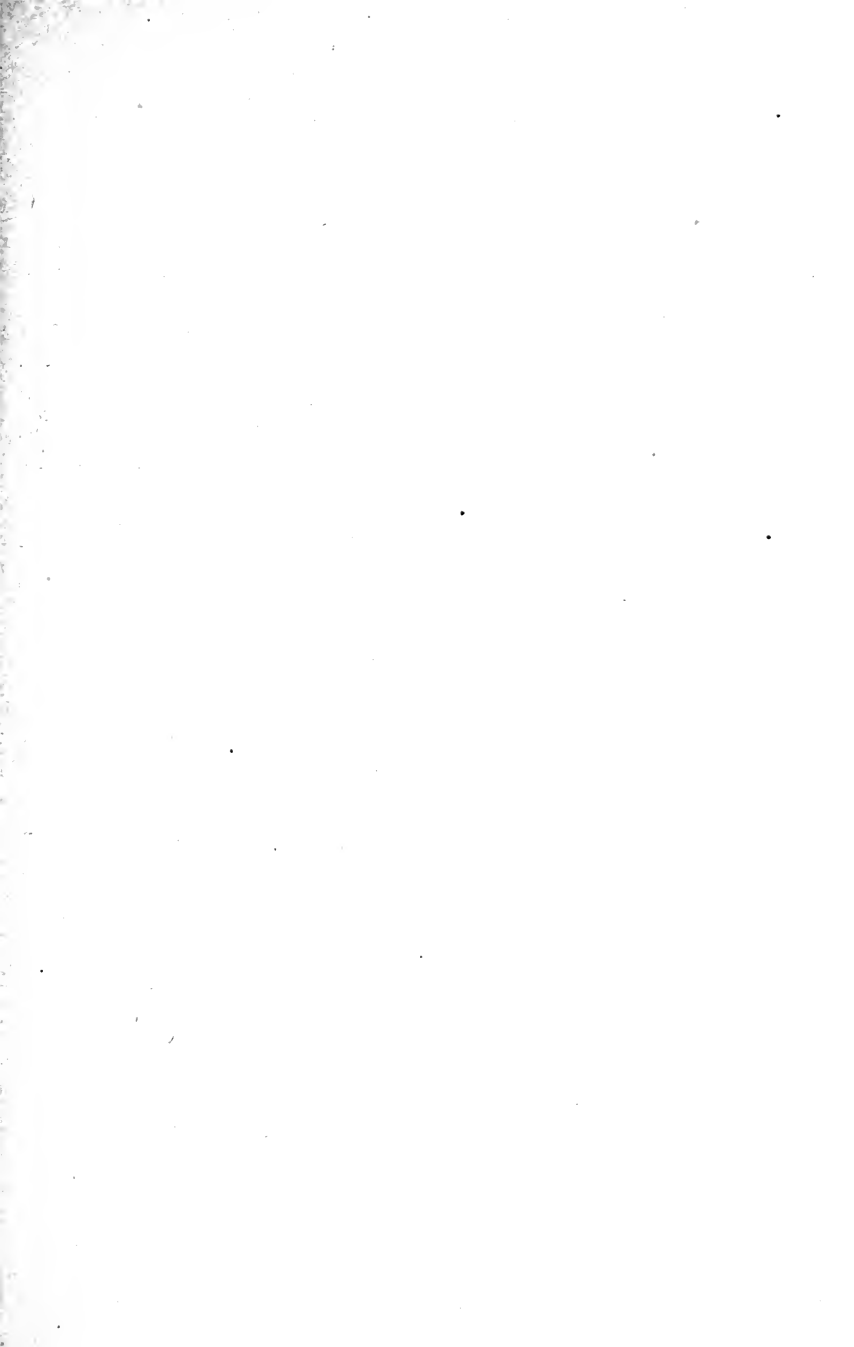
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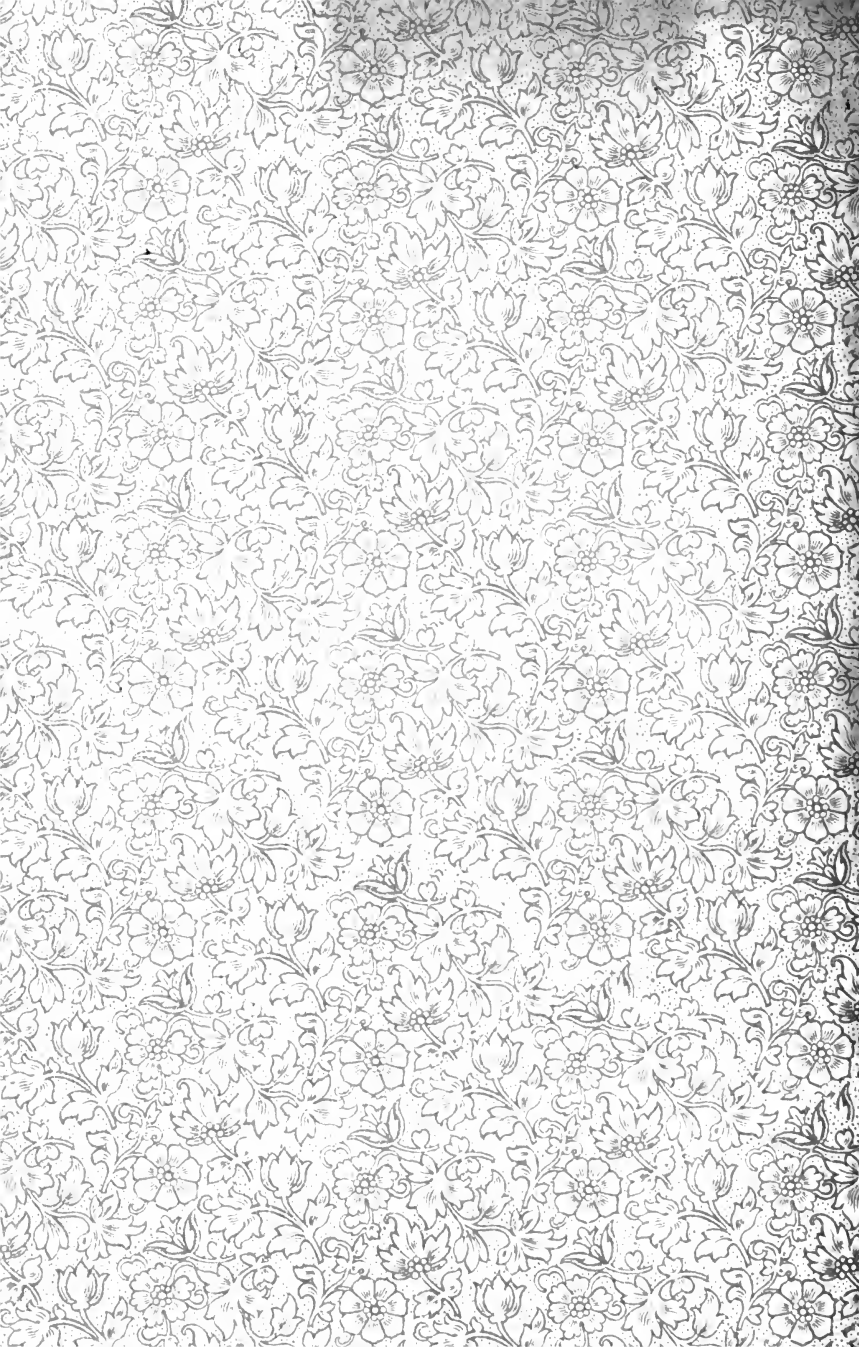


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