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ANIMAL ELECTRICITY;

OR THE

ELECTRIC SCIENCE;

AN

APPLICATION OF THE PRIMARY LAWS OF NATURE,  
NEVER BEFORE DISCOVERED AND DEMON-  
STRATED; TO A SOLUTION

OF ALL THE

PHYSICAL AND INTELLECTUAL PHENOMENA THAT EXIST.

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BY JAMES S. OLCOTT, A. M.

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## TO THE PUBLIC.



In presenting this volume to his fellow citizens, and the world, the author is not insensible, as it regards the position he sustains, and the responsibility he has assumed. He is well aware that all great changes, either in belief or practice, in each of the great lines of human confidence and action, must be effected through the operation of causes adequate to produce the effect; and that especially in regard to science, the causes must be founded deep in truth, and the change, while slowly progressive, be effected by the operation of universal mind. Not less is he aware that, when that science embraces as a whole, all others of a human character, the causes must be proportionately great; the exhibition of truth clear; the result protracted; and that, to the same extent, it must be the result of the universal and concentrated effort of the master spirits of the world, embracing the past, present and future—the past and present having, by their individual efforts, discovered facts; established truths; formed systems; perfected arts and sciences; the future, to confirm, perfect, establish and commend that which, as a primary law of physical action, lays the foundation of a change deep in the unchanging and eternal necessity of things. In presenting,

therefore, to the world a new science, professedly embracing all others—or, in other words, a new system of natural philosophy founded on the primary laws of nature never before discovered; he feels the necessity of exhibiting those laws in the light of fact, proof, demonstration—with such clearness and certainty, as to make, on the mind of the man of science, irresistible conviction. Resting on the labor of the past and present, for the materia of truth; and on that of the future, to defend and perfect what he has commenced; he is humble in his feelings and pretensions, and asks nothing more, than for the sake of truth and universal science, this system may receive a candid, critical and profound investigation. If not true, it ought at once to perish; but if true, it will be thus the more speedily and universally established.

JAMES S. OLCOTT.

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# ANIMAL ELECTRICITY.

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## CHAPTER I.

### UNITY OF MATTER.

We start no new theory, nor do we affirm anything calculated to effect or alarm religious faith, when we affirm that matter is a unity, and that all that can be seen, ad-measured and known as different things, forms, elements, are only modifications of matter. Ancient philosophers, and the master spirits of the world, down to the present day, have so believed and taught. The theological faith and teaching of the whole religious world has coincided with the philosophical. God and matter, is a phrase of universal use and acceptation, and the direct inference is, that if there be unity as it regards God, there must of necessity be as it respects matter. The word also conveys to the mind the idea of unity. It is matter—"mater terra," mother earth; and, since we can have but one mother, so also there can be but one procreative mass, out of which all materialities are produced. This is moreover confirmed by the fact, that chemical science is, as it progresses, continually diminishing the primary elements, and at the present day has reduced them to four or five, and from the fact that at almost every step, they are met by what is called a 'phenomena,' a 'mystery,' 'a fact as yet unaccounted for, and perhaps never to be explained;' and we may also add, from the fact, that mankind are universally waiting for the discovery of some universal solvent, some keystone to the arch of science, some higher and primary

law of nature, by which all mysteries, as regards matter, may be finally known, the temple of truth finished, and her foundations secured. But if the theory of a unity in matter has thus prevailed; if it has been taught by the great, wise and good from time immemorable; if, as a correlative, it is thus identified by the unity of the Almighty One; if the word implies the idea of oneness; if chemical science is, in the energy of its efficiency and in the light of its benevolence, diminishing the elements, and if the whole scientific world pause, hesitate, desire, in regard to some high discovery, in the laws of nature, which shall dissipate all the darkness which meets them at every step, and pour upon them a flood of light, in which they may see all truth in connection with material causalities; why may we not fearlessly affirm that all things, forms, and elements, inert or active, vegetable or animal, are but formations of a single unity called matter? On principles of the soundest reason, we may—and so it is.

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## CHAPTER II.

### THE ELECTRIC FLUID IS THIS UNITY.

The electric fluid is that subtle, invisible substance which we call electricity, and which, when seen passing from the cloud to the earth, the lightning. Dr. Franklin has the honor of discovering that electricity, collected in an artificial manner, is one and the same element. We contend that this element constitutes the unity of matter, it being a universal solvent.

That it is a universal solvent, is evident from the fact, that no element or combination of elements, can be brought under its influence, under adequate circumstances, and not become dissipated in its own essence and excessive brightness. Professor, now Dr. Hare, placed a num-



ber of ounces of duly prepared bicade of mercury, and of the fluat of lime, into his compound deflagrator, having produced by the air pump, and afterwards deflagrated hydrogen gas, as perfect a vacuum as possible, and brought a powerful current of the electric fluid to pour upon it. The result was, that in a few minutes it was dissipated in purple light, too intense for the eye to endure a moment. The remains of what was unconsumed was not larger than a pea. There was nothing into which this portion of matter could enter. It had to escape through glass, through which no gaseous substance could pass. It did pass in the appearance of light and heat. But light and heat are modifications of the electric fluid. The inevitable conclusion, therefore, is, that had the conditions been perfect; that is, had the electric current been perfectly pure, free from all hydrogen, some of which must be carried with it; had it in no way been retarded by the medium of communication nor disturbed in itself; and had there been a perfect vacuum, that the dissipation would have been complete; all would have been changed to light and heat; that is, the electric fluid. Now ten thousand such experiments would give no fuller demonstration of the truth. It was only necessary for Dr. Franklin to subject the lightning itself, once to electric investigation, to prove its identity; nor for Newton to demonstrate but once, that matter was attracted according to its quantity directly, and the square of the distance inversely, to authorize him to carry it to the planetary system, and the infinitude of systems throughout infinite space; nor was it necessary for Dr. Hare to have done any thing more, than to have inferred at once the unity of matter, and *that* matter the electric fluid; because here was in a resolution of a part, confirmation of the identity of the whole. The analytic method is demonstrated in its resolution; the synthetic, in the formation as prepared in the operations of nature herself. We then arrive at the conclusion that the electric fluid, being a universal solvent, constitutes this unity in matter. If there were any other modification to resolve the electric fluid itself, so that we might, in

the light of fact and experiment, demonstrate it only an element, a modification of matter and not the essence, the unity of matter itself; then, indeed, our conclusion must be rejected: but as it is, it is inevitable and the conviction complete.

It may be urged, it is true, that this substance may be God. Be it, or be it not so, the conclusion would follow; because God is one. We have nothing to do with the question theologically considered. This belongs to sectarians, polemics and divines. With us the question is simply, the unity of matter in the electric fluid. We have demonstrated it a universal solvent, in that all other elements and modifications, may be reduced to itself. It may be urged that, thus far, we have taken as granted the existence of the electric fluid, and that it is a universal solvent. Its existence as an entity, is universally admitted. Its existence as a material causality, has never been denied. Its existence, therefore, is a self-evident truth, a well known fact, reality, which can neither admit of proof, assumption, or denial; because that which is self-evident requires no proof; that which is well known, established in science, cannot be assumed; and because for the same reason it cannot be denied. There is, however, one process in reasoning by which, although we cannot demonstrate its existence, we can nevertheless throw its existence into an entirely isolated position, and of course more commanding point of light. It is this. In chemical science, which covers the whole ground, and with which our subject is as yet alone connected, it is universally admitted, known and confirmed, that there are, in inorganic matter, five primary elements, Carbon, Hydrogen, Nitrogen, Oxygen, and Chlorine: and that in organic matter, as plants and animals, there are only four of these primary elements, Carbon, Hydrogen, Nitrogen, and Oxygen. But the electric fluid does exist independent of these primary elements, which are said alone to constitute inorganic and organic matter: take away, then, these primary elements, one by one, and the electric fluid alone remains. It is isolated, distinct, and stands forth in its existence as the sun in mid heaven. Its existence is independent of all elements.

Planet after planet, with or without their satellites, have been identified and removed, and the sun alone remains; and that, too, in a pure and cloudless sky. By the same process of reasoning we demonstrate it, and it alone, a universal solvent.

Neither Carbon nor Hydrogen, nor Nitrogen nor Chlorine can constitute it, because they are the elements, and the alone primary elements, which constitute inorganic and organic matter; and each alone and independent cannot be. Carbon, as in diamond, cannot dissolve any of the other elements, nor can it dissolve itself. The same may be said of each of the other elements, and we may add, of all and each of the infinite variety of modifications, of which the primary elements form the constituents. But the electric fluid still remains; it exists independent of all these elementary principles; it is the most active powerful, and perfect solvent conceivable;—by it the diamond itself can be dissipated in its own brightness, and were the conditions perfect; perfectly so—we have demonstrated the unity of matter—itsself this unity—it is, therefore, a universal solvent. This is conclusive. To impress a conviction of this fundamental truth more fully on the mind, let us present it by a simple diagram to the eye.

A. B. C. Let the figures A and B represent the two entities, God and matter; A, God; B, matter; and C the electric fluid. As there can be but two entities, God and matter, then C must be a part or the whole of either A or B; but it would be absurd to assume it as a part of A, and still more so as the whole, because two entities, and but two are admitted to exist, and still more because C, the electric fluid, is admitted as material. C must then be resolved into B, and the figure C be blotted out. Now, since A and B alone remain, and C is resolved into B, it remains, as a necessary consequence, that C constitutes the whole or else a part of B. But it cannot constitute a part, because we have demonstrated a unity in matter, and it can constitute the whole only as a universal solvent; that is, that by which all elements

and modifications of elementary principles may be converted to itself. The electric fluid, therefore, is a universal solvent, and, being such, constitutes the unity of matter, its essence and whole. It follows, also, as a necessary consequence, that as a material causality, the electric fluid is the alone instrument of which, and by which the works of deity are made, fashioned, beautified and adorned; and by which they are destroyed; and that it and it alone, is all he created. This is a plain, full, clear, but to many an overwhelming and astounding conclusion: but it is nevertheless true. This being the case, it remains that we receive the truth in the fullness of a rational and heart-felt conviction.

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### CHAPTER III.

#### NATURE OF THE ELECTRIC FLUID.

The electric fluid being a unity in matter, or rather the essence of matter itself, all else being only the formation of itself; however varied, multiplied, or combined; it follows, of course, can only be described by its effects. Its nature can never be defined. There is no specific difference between it and any material thing, modification, causality, or effect. But by its effects it can be. In a free state pervading all things; it is that subtle, invisible fluid which produces the spark when collected in an artificial manner, as it is made to pass through the air, or left to pass freely into it, from an overcharged conductor. The fluid itself is never seen. The spark, in either case, is produced by the decomposition and combustion of the air; and the report, the vacuum thus momentarily formed, as instantly filled. It is the same with it as seen in its effect in the lightning. The electric spark, collected as the electric fluid held in solution by the water, has been suffered to escape on its condensation, seeks a vacuum

wherever it may exist ; as it passes, the air is consumed under a more or less intense splendor ; the vacuum it has made is instantly closed with a tremendous crash, and in the direction of its path, and as is the density of the medium, at different points, will be its more or less frequent and heavy intonations and its distant roll. The variations of distance from the earth, inequalities of the surface of the earth, and of the soil over which it passes, will increase or diminish the variations in sound, both as to heaviness and duration. If, as we have demonstrated, it be the essence, the unity of matter, then it is the material causality of all causes and effects, antecedents and consequents. Heat, light, caloric, are only effects or modifications of itself. All forms, colors, motions. There can be no other conclusion. To determine its laws in its infinite variety of formations, as it creates or destroys, or in the infinite variety of their motions in velocity or change, is not necessary in order to arrive at this conclusion. As all formations of matter are resolved into it, all are formed by it, and since in the formation and resolution nothing else material can be employed, all effects are the action of itself according to laws and principles yet to be determined. This is abundantly evident. We need not fear to admit the conclusion because of the variety of labor, or the amount of difficulties before us. Newton saw an apple fall to the ground, and assumed as a cause, a nonentity, an effect ; as gravity or attraction ; we have seized on a material causality, an entity, the unity and essence of all that is of a material nature, seen or known. Nor need we fear to do so, because of the change such an admission must make in regard to the whole circle of science, should it, as it must, be followed by the fundamental laws which govern the universe. Whatever is in all its circumstances true, will eternally continue to be so unchanged, and unchangeable. If we assign a true causality, where others have assigned an untrue or imaginary one ; if we discover the ultimate laws of universal nature, which go above and beyond all that has yet been known, so as to solve all

mystery, phenomena, unaccountable facts, as connected simply with material things, in their form, circumstance, or change; then we shall do much to enlarge the bounds of science; sweep away its flummery, the jargon which necessity and the schools have thrown around it, and shall merit well of ourselves and of future generations. This we propose to do in the work before us.

Having laid the foundation, we would here observe that as to the essence of this fluid; how deity operates with it, or how and why it, considered in itself, thus and thus acts, forming and destroying its own creations; we have nothing to do. As we leave deity here and everywhere amid the beauty, splendor, majesty and glory of the universe, infinite, invisible and eternal; so do we the invisible, subtle, universal substance he created, and through the instrumentality of which he has spread that beauty, majesty and glory, over and throughout the universe itself.

While speaking of the nature of electric fluid, it may be well for us to observe that we have to discover and demonstrate its laws of action as we find them exist; substituting it, as the material causality where as yet only an imaginary one was placed; and those laws as the laws of electric motion, action and reaction, instead of imaginary effects from imaginary causes. We have the whole world of science and of literature before us. The works of the Natural Philosopher, Chemist, Mineralogist and Geologist, are spread around us. We have these high and fundamental sciences almost perfected at our hand, and we have fortunately only to take the data already given, facts, proofs, results, sustained by the highest authority, to effect our object, which is, *to advance one step farther in the world of science.*

We would also further observe that, in the discovery of the laws of electric action and reaction, and in making the substitution of which we speak, we have to proceed according to the order of reason and science; and that, as far as we advance, the whole ground must be occupied. We must advance surely though slowly, till the work is effected, and the edifice complete.

## CHAPTER IV.

## MAGNETISM AN ELECTRIC EFFECT.

That magnetism is an electric effect, follows as matter of course, and is a corollary of the conclusion that the electric fluid is the alone material causality of all causes and effects, antecedents and consequents. It is, however, necessary to demonstrate the truth, in order that we may not only become rationally convinced, but that we may, by an attention to the most important points in the subject under consideration, clear the way through the obstacles before us, to that higher object proposed. This is evidently the next step in the order of reason. Especially will it appear so, when it is remembered, that in language and idea, magnetism and electricity are in all scientific standards confounded together; and that, in appearance, here is a silent, invisible influence, ever followed by effects, which appear to be the result of a magnetic influence, and still more so, since a long and continued habit has led us almost instinctively to regard it as a science. To meet all this, we have to present fact, proof, demonstration. The proposition is, that magnetism, in all its circumstances of action and reaction, results from electric circulation in action and reaction, according to laws already discovered, defined, and determined.

Let A be a horse-shoe magnet composed of soft iron, and, when armed, of sufficient magnitude to sustain 2070 pounds, as a magnet. Let D and E be two series of galvanic batteries, of sufficient power to produce the effect under the circumstances required. Let a helix of fine copper wire, covered with silk, be prepared, sufficient to try the experiment. Form the circle and pour the galvanic current into the soft iron, and it becomes a powerful magnet. Surround it now with a few hundred yards of the wire, and its energy is doubled; entirely cover it as far as the experiment requires, and it sustains the enor-

mous weight of 2070 pounds. It will also be found that its energy increased exactly according to the square of the distance the galvanic current passed through the wire. [Hare.] Now it is universally admitted, that the galvanic current and the electric fluid, are one and the same. But here is a piece of soft iron converted instantly to a magnet by the electric fluid. Invert the order, that is, stop the communication, and in a short time the magnet loses its power and returns almost to its former condition. In this single experiment we have the most convincing proof, that galvanism and electricity are not only essentially the same, but that magnetism is an electric effect. With such an experiment, proof, demonstration, before them, there must be, in the mind of the reflecting and intelligent, full and perfect conviction, and with such, one experiment is of as much efficacy as a thousand. But while magnetism is an electric effect, is it the effect of electric circulation? In this experiment it is evidently so. The fluid is collected, the circle of communication formed, and afterwards the distance increased, and the several effects follow. Now it is known that in a perfectly conducting medium, the velocity is directly as the square of distance, and in a regularly resisting imperfect one, inversely as the square of distance. Here the velocity is imparted and accelerated; the material causality, electricity, in the line of electric circulation; the 2070 pounds are sustained; and as there is no other causality in all the circumstances of action; we are permitted, by the principles of the inductive philosophy, to infer, suppose, adopt, and take this in all the conviction of truth and the certainty of fact. The reason why it is thus in experiment, fact, result; is because the iron, being an almost entire vacuum and of course good conductor of the freely circulating electric fluid, receives it with avidity, and in celerity and amount to the velocity of the fluid, which is as the square of distance; and being isolated, and the fluid unable to escape, the electricity seizes upon the iron to become appended as a weight, and in millions of concentric circles, as so many chains or rivets fastens it to



the magnet. The circulation is infinitely rapid ; and since every atom of the iron becomes the centre of action, the result follows. It may here be asked, how that electricity, evidently collected in the battery, evolved and put in circulation, was generated ? The answer is plain and at hand. It is by the electric decomposition of the metal and the acid. As the metal or metals and the acid are electric formations, these, as they become slowly or more rapidly destroyed, are resolved back again into this unity, this essence of matter ; and since it is in the line of conduction and in an isolated condition ; that is, contained in a vessel which will not in its present amount and velocity suffer it to escape ; it is, for the time being, a permanent fluid of active energy, or of the electric fluid. This is further evident from the fact that the nature of the acid and of the metals ; the size of the wire, that conducts ; the magnitude of the battery, in the size and number of the plates, have all to be considered and defined by experiment—and it is still further evident, since decomposition is seen in the fluid in the escape of hydrogen gas, and the metal in diminution of weight, bulk, and of course of substance. That it is not generated from the atmosphere is evident, because the metal is submerged, and between the air and acid there is an appulsive force ; that it is not in part, because the effect follows in a glass vessel from which all atmospheric air is excluded. This being the case, for the terms Voltaic, Galvanic, Electro magnetic, Electro galvano magnetic, attraction, affinity, magnetism ; we substitute in science, however long the terms may be used, for the sake of interest and convenience by the wise, or from ignorance by the unlearned, *electric attraction* or *appulsion* ; or *circulation* ; as the case may be, and for magnetism, *electricity itself*—all that is seen or known being produced and effected by it in the line of cause and effect, antecedent and consequent.

We have proceeded now, we think, sufficiently far in the line of demonstration, to assume the position, which we shall, in another part of our work, prove ; that the electric

fluid, in a pure state, pervades all its formations, and all space throughout the universe; that in each particular formation, from the largest magnitude to the smallest; in each element, and in forms resulting from their combination, and in each particle or atom of what is called matter, there is an *into* and *out of* in electric circulation, independent of the circulation which holds it in existence, and that it is this, which, when increased by natural or artificial means, originates, hastens, and perfects similar formations, elements or forms, or else wastes, dissipates and destroys them; that is, in the synthetic method builds them up, and in the analytic, reduces them to first principles, and finally to itself. When we have established this, we shall have removed the idea of the annihilation of matter, and have thrown before us, in the farther prosecution of our subject much light, while at the same time we shall have removed many obstacles in the way to our final result. We may also assume that this fluid, when collected either by natural or artificial means, will, as soon as the energy that collected ceases to act, and the restraints that confined are removed, dissipate itself; first, by seeking a vacuum, and then the undisturbed equilibrium of its own essence, and on the other hand that the more or less perfect vacuum from which it was taken, will, as soon as all opposing influences and obstacles are removed, become perfectly filled. That its formations are more or less slowly or rapidly formed, and more or less rapidly destroyed; that there is an attractive force between some and an appulsive force between others, while with some there is neither, is what is open and known to every one. Finally, we are warranted in the supposition that, being a fluid, it acts and is acted upon by the things that are; that if in any of these there is attraction there is a want, a vacuum to be filled, an appulsion, an equal throwing off, or, if no effect, that the electric circulation in each is equal. In all things there is, so far as we have limited our subject, a material causality, and a causality adequate to produce the effect.

*Of the Magnetic Needle.* But to return to our subject. If magnetism is an electric effect, then the needle must be made by electric energy, and should be subject, if so, to all the laws of electric circulation, and, so far as circumstances permit, action and reaction. We shall demonstrate that it is true, and exhibit the most important reasons why it is. Let us suppose a steel needle perfectly balanced, and in all things prepared for the compass, except that it is not endued with the necessary energy, either as positive in itself, or negative, as the case may be. Now there are three ways of imparting this energy which prepares it to act as a compass. The first is, having placed it directly north and south, the loadstone is passed slowly from the centre towards the north or towards the south, as we would give it north or south polarity. This is continued till the thing is effected. The second is to do the same with the purple rays formed by the spectrum. The third is to place it within a helix of copper wire, in an isolated position, and to bring the electric current to bear upon the wire. In either of these ways the metal is polarized. The last is evidently an electric effect and made by electric energy. We have, therefore, every reason to believe that it is the same in the first and second instance. It is so. The loadstone has been consolidated, under circumstances under which it has been deprived of a due proportion of the freely circulating electric fluid. It cannot obtain it from the atmosphere. But steel becomes a good conductor, and the velocity it imparts, as a common sewing needle applied to the stone enables it, in electric circulation, both to hold up the needle and at the same time send it into the stone as a vacuum, while the velocity imparted carries it through and leaves it permanently a vacuum still. The stone will hold one, two, or more needles, according to its size. It is then loaded. Hence the name. The violet colored rays, passed through the spectrum, a bad conductor of the electric fluid, are deprived of the freely circulating electric fluid in light, and the same effect is produced. Now, whether the effect is merely excited electric action, or

whether with it an effect has been physically produced, remains to be considered. We now place the needle on its pivot, and, though before nicely balanced, the balance is destroyed. It has a dip. The balance is mechanically made, and the needle is complete. But why the dip? We demonstrated attraction an electric effect. We assumed that there was an into and out of in the electric circulation of any modification and forms of matter. The into is greater than the out of, in regard to the earth, and hence our specific gravity; and as electric ducts, upright position, and hence the dip of the needle. The exterior surface has been electrified, a thin scale saturated, filled with a larger amount of the fluid than is naturally required, and the current into the earth resisted on the principle of the lever power, produces the effect. As it points to the north or south, as a north or south polarity is given, and since the two needles, one of a north and the other of a south point in exactly opposite directions, and moreover since, as in thousands of experiments, there are demonstrated to be two electric currents directly opposite; polarity in an electric effect. And lastly, since by a heavy artificial shock by electric action, the loadstone and needle may be destroyed, we have the demonstration complete. The one is no longer a vacuum, nor the other an electric duct. This being the case, the needle should, as far as circumstances permit, be subject to all the laws of electric circulation, in action and reaction. It is. Let us state a number of facts confirmed by experiment, and, as we advance, assign the reasons. A piece of steel placed floatant in a tumbler of water, is attracted or repelled as the opposite poles of a needle are presented, because as an electric duct there is alternate demand and supply. Two needles of equal power and magnitude, secured by artificial means the one north and the other a south polarity, become inefficient; separated, repulsive; because in the first place neutralized by mechanical force; and in the second, efficient by the law of projectiles. A needle between two masses of iron is attracted by the largest, because it presents the largest electric

vacuum. A small needle secured to a large one of opposite polarity, will impede but not destroy the greater, and impede exactly in proportion to the energy of the smaller.

Now bodies, said to be positive or negative, when thus circumstanced or placed in an electric current, are attracted or repelled in the same manner. But these are subject to the laws of electric circulation; the needle then, is, as far as circumstances admit, subject to all the laws of electric circulation, in action and reaction.

*Of the Barometer.* The Barometer is an electric balance. On the same mountain, with the same instrument, at different times, in the same hand, we obtain a different altitude; it falls just before a tornado, or typhon drops down upon the ocean; it stands high all around a storm, but low within it, and it is demonstrated that there is the same quantity of oxygen in the air all over the earth; upon what other principle, then, than that of electric action, can these and a thousand other facts and experiments be solved? The barometer varies not according to heat or cold, but the electric condition of the atmosphere above, or the earth beneath; and as these are formed or destroyed, the electric circulation into and out of the earth vary; and in the same proportion, the barometer, as an electric balance, rises or falls. If the wind rushes to any point, it is in consequence of an electric vacuum, and the air is hurried onward by the electric fluid in its course to fill it. If it is followed by torrent after torrent of rain, it is because of vacuum after vacuum formed in the air, by which condensation takes place, and, becoming specifically heavy, the rain descends. If the barometer stands high all around the storm, and low within it, it is because the electric fluid all around, held in requisition by partial influx, leaves undisturbed the electric circulation into the earth, while within, from a partial vacuum, it is; and in proportion to the perfection and extent of the vacuum; and the fury of the storm will be in the same proportion.

## CHAPTER V.

## ELLIPTIC MOTION IS AN ELECTRIC EFFECT.

We come now to one of the most important subjects which, in a scientific point of view, can possibly be presented to the human mind. If we establish the position that elliptic motion is, in all its circumstances, subject to the laws of electric circulation in its action and reaction, then indeed we not only arrive to a unity in matter, and demonstrate in what that unity consists, but we arrive at the primary laws, never before discovered, which govern the universe. If this should be successfully effected, we shall be enabled to solve, in all the lower departments of science, ten thousand unaccountable and impenetrable mysteries, and explain all the phenomena in nature, and in chemical combination and resolution, which lie more or less directly under this influence. Especially shall we be able to substitute significant and definite terms for those which have a vague and indefinite meaning; to ascertain in the line of cause and effect, the material agency; to determine, with absolute certainty, the laws by which causalities are originated, sustained and governed, and effects produced; and, in short; while every thing which is known and true in fact and science, under real or imaginary causalities, and laws now believed to be true, will be more fully confirmed, we shall successfully and triumphantly solve every difficulty, remove every obstacle which lies either above, below, or beyond the present knowledge and credence of mankind. Especially will it explain everything in regard to the *tides*, the doctrine concerning which has ever been crude, uncertain, unsatisfactory and absurd; lunar irregularities, &c. Since our system may fall into the hands of some who are not acquainted with Natural Philosophy, or who, if they are, need their memories refreshed; and since what is presented to the eye in the light of numbers

and demonstration, makes a deeper impression than that addressed simply to the understanding, we would direct them to peruse attentively a brief outline of the solar system, embracing most of the important facts now known in regard to it. They may find this in any system of natural philosophy. They will then see what is known—and we would observe that, beyond our system, its sun, planets, satellites and comets, the most profound philosopher knows no more than the most ignorant peasant. He knows nothing of the distance, size, motion, of one solitary fixed star. He may see myriads through a telescope of powerful glasses, but he only sees them; of them, except that they are stars, he knows nothing. He knows that those that are visible to the naked eye, have been ranked into different constellations, permanent clusters of standing stars, going on to perfection, or an unchanging priesthood; forty-eight in number with imaginary names; he learns these names and the relative position of the constellations to which they are applied; he can point them out on the celestial globe, and in the heavens, and so can the school-boy do the same. But he can do nothing more. Not that we would decry the name, calling, acquisition, capacity, greatness of the philosopher, even at the present day. He must be a true lover of wisdom, and one who brings it to the world; his acquisition in science immense; his capacity great; his understanding clear, profound, discriminating; and his life one of untiring, ceaseless effort. But being all this, he is only learning to do what others have done. If he makes any new discovery, it has been already predicted as certain, and he is dependent on the advance of other sciences and of mechanical invention. He has finally to bring his disciplined and powerful mind down from the heavens, to the little phenomena of the things passing around us. Who can get fame, or become useful now, by circumnavigating the globe? The age of discovery past, who starts on a voyage of discovery? of chivalry, who would become a knight? But we would encourage the common people by showing to them the limits of science; to enter upon that which, in the labor of

ages is now made known, and which, as far as useful and instructive to them, lies upon a level with their capacity and ability to acquire.

#### THE SOLAR SYSTEM.

Those acquainted with the solar system, are well aware that the planets, which revolve around him as their centre, move in orbits more or less elliptical; that the eccentricity of the earth's orbit, is more than three millions of miles; that the sun itself has its diurnal and annual motion; that the fixed stars are suns to their several systems; and that elliptic motion extends to the infinity of suns and worlds. Some of the planets of our system have satellites, others not. These revolve round their centres as regularly as if there were no sun, with the exception of an influence which effects equally their primaries. The comets, of which more than five hundred have been seen, move in orbits extremely elliptic, making the sun their centre. It is, therefore, elliptic motion with which we have to do, the laws of which are not to be inferred, but demonstrated and carried out in science. The demonstration has been made; we have to do only with the principles by which it is effected, and the application of those principles—the material causality in action and reaction, by which commenced, perfected and constantly sustained. The planets are at various distances from the sun, from 36 millions to 1800 millions of miles, and their diurnal motion, from 24 hours to 9 h. 56 minutes: the annual motion of the most remote being the slowest, and the diurnal most rapid. The comets vary in eccentricity, velocity, annual and diurnal motion, form, size and color. Having presented the outlines of the solar system as it is taught in connection with its most important facts we proceed to demonstrate that *cliptic motion* is, in all its circumstances, subject to the laws of *electric circulation* in the action and reaction of electricity, as a material causality on its own formation, and is therefore an electric effect.

We have demonstrated the unity of matter, and that



the electric fluid constituted this unity ; and that being the essence, the substance of all things, it was the alone thing created, and is the alone material causality by which deity operates—that all that is seen of substance of a material nature in form or effect, is generated or destroyed by it, as a material causality, according to well known and determinate laws of action. We demonstrated its separate and independent existence to the exclusion of the five primary elements into which all forms of matter are now demonstrably resolved. We exhibited it in experiment as reducing pure carbon, the diamond, to itself. As what is called magnetism resembled in many instances electricity, and might be supposed to result from a material causality, either as an essence or modification of matter, we demonstrated it an electric effect in its origin, nature, and laws of action. The way is now clear. The object stands out in bold relief. It is resolved into the single proposition, *Electric motion is an electric effect*. This demonstrated, all the rest will follow as a necessary consequence. It will only illustrate what will be already confirmed in regard to the primary laws which govern the universe, and throw light upon the other scenes connected with them as far as dependent—Chemistry, Mineralogy, Geology, Botany, and especially those connected with the constitution of man.

Motion is change of position, either as regards place, distance and velocity, or a change in the velocity of one part or particle of a body in reference to itself. The motion of a sleigh answers to the former ; that of a wheel to the latter. A chariot in its advance, combines both—the whole the former, the wheels the latter. Motion is an effect, and an effect of an adequate cause, agency, or instrumentality. All motion is straight, circular or elliptical. Straight motion is the passing of a body in the nearest distance between two points. Circular motion is the passing a body through a figure everywhere equally distant from the centre. Elliptic motion is the passing of a body through a figure, every part of which is at all times unequally distant from a point called the focus. There is a fourth kind

of motion called the Cham, which in operative mechanics combines every kind; but with this, we have in this part of our subject nothing to do. Direct and retrograde, accelerated and retarded; regularly accelerated, and regularly retarded; voluntary and involuntary, are terms that explain themselves.

Circular motion must, in order to obtain with a freely progressive body, be retained by two unchanging forces; that which drives it from, and that which confines it to its centre; and that which confines must be as much stronger than the appellatant as continually to change the course from direct to circular, because on the principle of projectiles all mechanical, all directly imparted motion is direct. If we suppose the appellatant centrifugal or projectile, to have been already imparted, then to retain the circular motion it must move in vacuo, meet with no resistance, and experience no directing force, because a resisting medium retards, and a directing energy diminishes momentum. Each must act against the body. Nothing can be more evident. Its moving in vacuo would not supersede directing and of course retarding energy; for the reasons already assigned, all imparted motion is necessarily direct, and all directing energy reactive and retardant. If our premises and conclusion are correct; did the planets move in orbits, which were perfect circles, it would nevertheless require an accelerating if there were a material directing energy, some property in matter to retain called attraction or the centrepetal force. There would be the absolute necessity for a continually imparted as well as directing energy, and since nothing would be gained by assuming attraction in matter, we might as well say that both were of divine operation; unless, indeed, there be a material causality, whose action and reaction shall result in these two unequal forces, at once increasing or retarding momentum, and directing a body in its course. Much more might this be affirmed in regard to an ellipse, in which a body, instead of swinging round a centre, is wheeled around a point more or less far removed from the centre, and in the elliptical orbit of

the earth more than three millions of miles, and in that of some of the comets, billions. But we are not to prove the impossibility of what is assumed, but the fact, the certainty, the *is* of what really exists; that elliptic motion is an electric effect. We require still, however, a few more primary truths, and philosophical facts, before we can come fully prepared to demonstrate the position. Let us adduce them. Space is infinite, because whatever limits occupies space—and we can conceive no end—the electric fluid, the essence of matter, occupies all space; otherwise there is a vacuum which nature is not only said to abhor, but which, without the special and continued intervention of almighty power, cannot, on account of the nature of the fluid, exist. In the destruction of the primary elements, which are its formations, and all the formations of which these are constituents, it is evolved in the changes effected between them, and in them it is sometimes evolved, and sometimes consolidated. Thus in changing a solid to a fluid,  $141^{\circ}$  of latent heat is lost, or the reverse given out. It is well known that an undue quantity of free electricity will, if it can pass to a vacuum, carry the body with it, thus overcoming gravity or attraction.

Let A be a glass stand; B and C two metallic plates; C filled with electricity, and B deprived of it. Put small images of common paper on C, and they will one after another rise to B, and as soon as their free electricity is deposited, they will fly off, or drop again to C, and continue to do so till an equilibrium is nearly restored. Here has been appulsion and attraction; appulsion from C, and attraction in B; and while attraction is overcome, electricity is the material causality. Again, remove B; and let A be charged with free electricity, and cork, feathers are thrown off; or make it negative, that is, deprive it of its fluid, and various bodies are attracted.

It is well known that in all electric experiments, the electric fluid, when free, does move in elliptic circles, and in one direction, and that there is ever a counter current. The influence of different modifications of matter upon

each other depends upon their nature; that is, the electric condition in the state in which we find them. They have all, except the five elements been decomposed, and their decomposition has been effected with so much regularity in the line of cause and effect, as to lay the foundation of the doctrine of atoms in almost mathematical certainty. In the article of decomposed glass, we have presented to the eye electric circulation in formation. It is in meniscuses running into concentric circles of surprising thinness, tint, and beauty. These meniscuses are some of them mammalated, and the apex of a variety and tint in color, surpassing description, or anything seen in art or nature. In some electric experiments which have been made expressly to effect rotary motion, we have seen the most triumphant success. Bodies, isolated and adjusted, have by this agency been made to circulate around each other. In all melted metallic matter, falling from a distance, we see the globular or round form. The drop of water, falling from the eaves, can be seen to assume it, and to retain it in rapid circular motion.

We shall now present a chemical experiment, in which elliptic circulation in elliptic motion is absolutely, palpably and demonstrably effected. It is almost universally known and can be easily performed, and thus proven true in experiment, by any one with a galvanic apparatus. Take three glasses, A, B, C, pour into B, the middle one, a saline solution; into A and B distilled water; into C a few drops of the solution of litmus, and into B a few drops of the juice of violets; now connect them by moistened cotton, and pass the electric current. The alkali appears in the negative glass, and the acid in the positive; and neither contain any saline matter. In this experiment, the electric fluid is the material causality; and as there has been a complete transfer of these distinct modifications of matter, it is palpable; self-evident to the sight and taste. That it could not be effected without elliptic circulation is evident; because on condition of no circulation, there could be no transfer; and if not elliptic, the appelland forces

would meet and counteract each other. But there is not only elliptic electric circulation, but different modifications of matter have been unchanged and carried by the fluid. A complete demonstration that elliptic motion is an electric effect. One more experiment. Put in the central glass B, an alkaline solution, in A of Glauber salt, and in C pure water. The acid will pass from A to C through B, and be found there, not having combined in the least with the alkaline solution, although naturally much disposed to do so. Here is the electric fluid in circulation, and, in that circulation, an actual transfer of matter has been effected. The elliptic circulation is demonstrable as before. Besides the positive transfer, the identical materia found where it was not, we have demonstration of the fact, in the deposit left on the edges of the glasses in the wet cotton. The deposit of the materia, the distinct portions of certain modifications of matter, is proof positive that they have been carried over as they were. Let us now collect these facts, proofs, experiments, demonstration. If by forming a pleonasm and a vacuum by electricity, and so circumstance them, as that with material bodies gravity or attraction is destroyed; if by a pleonasm alone, some are repelled and others attracted, or a vacuum alone some are attracted; if it is well known, as in electric experiments on the needle that the electric fluid does circulate, and that there is ever a counter current; if substances composed of different modifications of matter, act and react on each other according to the condition in which we find them, or to which they have been artificially, that is, chemically reduced; if in their reduction the quanta in atoms have been reduced to mathematical certainty; if in glass an electric formation from electric fusion, we have in that partially decomposed thin lamina formed in concentric circles to an infinite extent; if with bodies prepared for rotary motion and duly circumstanced, we have by the electric current perfectly effected rotary and circular motion; if with this element we have made a complete and an alternate change; and, if all this is palpable to the senses, then there is all that

is required to prove that elliptic motion is an electric effect. We thus arrive at full and complete conviction of the truth.

Before we advance further, it will be necessary to attach definite ideas to the words positive, and negative as applied to substances, and to the ends of the conductor in the chain of electric circulation as positive and negative as applied to substances, and to the ends of the conductor in the chain of electric circulation as positive and negative poles. It is evident that since freely circulating electric fluid fills all things, infinite space, that no modification of matter is in this respect either positive or negative. It is not less manifest since this is the case, that if any modification in this respect becomes positive or negative, it is in the one instance in consequence of a pleonasm caused either by natural or artificial means, and the other a vacuum. It is in the line of cause and effect, demand and supply, antecedent and consequent. The positive and negative poles of the platina wire in a galvanic battery, result from an interruption in the electric circle in the materia of conduction. The air is a bad conductor. The electric current, like all properties, loses its velocity in some measure; it is seen in deflagrated air, terminating in a point, at the end on the side of interruption, and in a round mass at that of continuation. All not being received as it revolves in elliptic circulation, it is thrown back again in a counter current. This is fully confirmed in the change of the different modifications of matter in the experiment of the three glasses.

Again, bodies are said to be positive or negative, as receiving or rejecting the electric fluid artificially or by natural causalities, collected in more than an ordinary degree. Thus steel is attracted and feathers repelled. This results from the more or less active circulation in which the formation was left in its completion, and still continues to exist. This electric circulation, in all special modifications of matter, no doubt constitutes what has been called attraction of cohesion, and attraction of gravitation. It is in the modification fine and rapid in

exact proportion to its powers of resistance; and in the same proportion must be the freely circulating electric fluid collected and conducted, either artificially or naturally, to overcome and destroy. That in the air destroys the rose leaf; the lightning melts the watch; the electric current, in the combined energy of the compound deflagrator, dissipates the diamond itself. This accounts also for what is called positive or negative in the line of conductivity in the galvanic battery. Copper and zinc, the one positive and the other negative, on being soldered together at the edges, become equally positive; separated they return to their former condition. The velocity of the freely circulating electric fluid passing through the one, gave it sufficient celerity to overcome that of the other, and having now by the excited energy of the latter, greater celerity, momentum, intensity, it is known in science, what is found on experiment, to be exactly what is wanted in such an electric apparatus, in order to produce the greatest effect.

From what has been demonstrated, it is evident that the common electrifying apparatus is constituted on the same principle. The chain perfects the circle; friction between the positive and negative elicits the electric fluid, which is artificially collected and mechanically employed. It is moreover evident, under all these various conditions in which the terms negative and positive are used, there is an infinite variety in degree, either in the ascending or descending series. The primary condition is a perfect equilibrium; as this is disturbed on one side, is the ascending, and on the other the descending line by which they are graduated. Therefore what were negative to the positive; may become positive and negative in the lower line of gradation to each other; and what were positive negative and positive to each other in the upper, and so in infinite combination and degree. Hence an infinite variety in position and magnitude.

We must attend to one more fact in regard to electric action, as we consider the different portions and particles, or atoms of the freely escaping electric fluid, in the light of

projectiles. In itself being matter, it has to be thus regarded. It must be thus regarded in its essence; and in a relative point of view, under all the various modifications in which escaping, it can be ejected by the modification in which it is; or attracted by another body as a vacuum, it escapes by evulsion, to the more or less forcible and manifest physical derangement and destruction of the body. This is in right lines from the appellant point, till the escape from the modification when appelled, and when attracted till it arrive from its point in position to that of its destination. In its atoms as it regards each other where there is no formation, we see the simple action or reaction in each in right lines; that is, if it be supposed that they be appelled in different directions. With single atoms we should have angles in infinite variety, and all the rectilinear figures we see in nature, while with a vast number of atoms thus appelled, we should have all the solid lines of figures formed in its modifications. When the electric fluid has escaped beyond the special modification as appelled, it may then meet a series of attracting modifications or vacuums, and be inflected in any line of circular motion; or here and there one, in right lines, as it passes from point to point, till it reaches the ultimate and most energetic position in demand; or largest vacuum. It will evidently be the same in regard to different modifications of matter in bodies, as they are ejected and pass from point to point, or regularly inflected till they are finally deposited in the body as a part of its whole; or, if thrown out of it, till they reach the point of their destination. What this point is, depends on circumstances. If appellant or attractive influences drive or draw it back to itself, the point in itself is according to the line and angle of projection. If the line is perpendicular, that is, in the continuation of a right line from the centre, the point is that from which it was ejected; if not, according to the angle of projection. But if this be not the case, then the point is to another body, and from body to body till it finds one with which it coalesces and becomes a constituent part; or out of all influence from other different modifications of mat-



ter, it finds a vacuum in the electric fluid, in which it strikes, and then circulates around whatever centre becomes the electric appellant and attractive point in elliptic circulation, that is, electric elliptic motion. It is evident, then, that rectilinear motion, be it direct or retrograde, or angular, is an electric effect; and that all modifications of matter, and all bodies are while in it, under either a directly appulsive or attractive energy; and as such move under well known fixed and determinate laws. These two kinds of motion, separate and combined, give us all the figures and forms in lines and bodies, in diagrams and solids, which are found in nature, or according to nature seen in art. They can give in formation nothing but regularity in form and figure, and in these an infinite variety when considered as a whole. This is beautifully illustrated on a small scale by what is seen in the Kaleidoscope. Twenty-seven pieces of different modifications of matter, some broken and some regularly formed, will, on moving the instrument, give us billions of regularly formed figures, in which are combined the rectilinear and circular lines, which can alone as effects have resulted from the rectilinear and circular, or in other words, the direct and elliptic movement of material causalities. As bodies circulate in themselves, and receive and throw out the electric fluid according to their special modification; and as light is the medium through which all this is effected, which is constrained in the sphere to present to the eye the combined electric effect; we may regard this as a beautiful illustration of what is affirmed, and of what is seen in nature; not in images but substantial formations. It is evident that primary motion, both direct and elliptical, rests upon the same ground as the creation of matter; in its unity the electric fluid. The first atom could no more move than create itself—and so of the whole. God therefore energises, makes as well as creates.

We proceed now to a demonstration of the position that planetary motion, as seen in the movement of satellites around their primary planets; and planets around

their common centre; and their common centre, the sun, with its planets and their satellites constituting the solar system around some greater, is an electric effect. It is all resolved to this single proposition; that planetary motion is an electric effect

What is planetary motion? The word planetary is literally that which we perceive, or think to be wandering. In the acceptation in which we use it, it is applied to any body or system of celestial bodies which revolve about a common centre, and whose relative position is seen to change in regard to the fixed stars and each other. We limit it to our planetary system, the outlines of which we have already given. We find that the Sun has its diurnal and annual motion. We discover in the data spread before us the combined effort of universal mind in its highest efforts laboring for ages; the fact, that each planet has its diurnal and annual motion; that each revolves round the sun during its year; that each has its polar stars, in a northern and southern constellation, in the heavens; that each revolves in an elliptical orbit; that each is advancing with inconceivable velocity; the earth more than a million and a half miles a day; that the satellites make the primaries their centre and polar star, and that, according to their relative magnitude and distance, they effect each other. All these things are in the light of observation, experiment and result, reduced to mathematical, absolute certainty. Now, since they are all in rapid motion, they have received the rectilinear, the right, direct, or projectile, and as they revolve in ellipses the elliptic; but rectilinear or direct motion and elliptic motion have been proven to be electric effects. Planetary motion is then an electric effect, unless indeed we detract so much as was given at the commencement of it, and say we know not how much was imparted by the power of deity itself. But we take planetary motion as we find it, and the position holds good; because already in their positions, magnitude and velocity, their motion is not only elliptic, but they require a continually projectile energy, to drive, equal to the retarding energy which keeps them in their orbits, unless, indeed, there be a material causality

whose action and reaction shall, according to known and determinate laws, result in these two unequal forces; at the same time increasing or retarding momentum, and directing these bodies in their orbits. But we have demonstrated the electric fluid to be this material causality. There is no need, therefore, to suppose, as planetary motion now is, any special intervention because here is an agency, acting under well known and determinate laws, adequate to produce the effect.

To have a clear conception, however, of planetary motion, there are many things to be taken into consideration. It is easy to assume an imaginary causality for a real one; to discover some higher laws and in part or in whole ascribe them to that causality; to form a theory, and on it construct a system. The substituting an imaginary causality for a real one, will not effect either the nature, extent or efficiency of those laws, so far as they obtain and are demonstrably true. In an age of ignorance, when the wisest cannot disprove the imaginary cause, and substitute the true one; and when as yet no higher laws for this very reason can as yet be discovered, demonstrated and fixed; the fortunate man who has made the discovery, formed his theory and system; will have the whole world, the ignorant and the learned, crowd around him to embrace it. It belongs to an age of superior science to substitute the real causality; and by demonstrating laws connected with it; superseding all that is useless, crude, and disjointed in such a system. A new system is formed, more beautiful and excellent because more true. The perfection of all the sciences we should suppose to be necessary to discover the primary laws which govern the universe. To bring these observations to bear upon the Newtonian Philosophy. Attraction, or a property in matter, was assumed for the electric fluid, the material causality; and the terms centrefugal and centrepetal for the electric effects resulting necessarily and determinately in its acting on its own formations. Now these assumptions, these words and phrases without meaning, have to give way. That attraction in matter,

that property in matter, is the essence of matter itself, and the centrifugal (that which deity makes fly a hundred times from the centre;) and the centrepetal (that which he makes fly an hundred times to seek the centre,) are barbarous terms in the room of those permanent electric effects, by whose laws the universe is governed. The Newtonian Philosophy never accounted for the tides, lunar irregularities, and the thousand less phenomena which now meet us in the pathway of science. We shall soon demonstrate that the Electric science and Philosophy will. The Newtonian Philosophy, although matter was seen to act and react on itself by certain fixed and determinate laws, never superseded the mediate and continual acting of a God—the electric science does, and makes now the whole one beautiful and perfect result, from the laws of electric action and reaction which he has established.

There is in planetary motion a consideration worthy of strict attention—perhaps we should say a philosophical fact. It is this. That although the paths of the satellites round their primaries, and the primaries round their centre, the sun; are through the heavens not elliptic circles, but waving circular lines, doubling on themselves, or arrested at every angle of inclination; yet they do, in fact, revolve round their centres in the perfect ellipse as to effect; so that, with the irregularities of satellites excepted, which are now well known as to causality, and absolutely determinate with mathematical certainty in result; the field before the philosopher is as fixed and permanent in its limits, as if our system were not progressive in its onward wheel through the heavens. In one word, as if all these orbs were all secured by an orrery whose right lined pieces were silver, and its circles gold. They are secured, but by an invisible materiality, infinitely stronger than bars of silver in extensive position, or rings of gold in retentive. This is the electric fluid, in its action and reaction, on and in its own formations.

We say not only *on* but *in*. Throughout universal nature there is not only an attractive energy to aggregate, but an

appulsive to scatter, and in each particular body or formation of matter, to preserve itself and appeal others. This exists in an infinite variety in degree. In no case can it be overcome without conflict, action, motion, a cause adequate to produce the effect. Keeping in mind the rectilinear as well as elliptic action and motion of the attractions of pure electricity on each other, undisturbed by the influence of its own formations; the demonstrable truth as seen in experiment, that, while under its influence, its different modifications, under certain circumstances, were thus acted on, directed, conducted, fixed; as in the exchange of distinct modifications from the extreme glasses from each to each, through a modification in the centre, all three remaining unchanged in any particular; and as in the Kaleidroscope, from twenty-seven irregular different pieces of so many different modifications of matter, left entirely to chance in their relative position, yet in billions of figures producing each dissimilar and yet perfect in its whole within lines direct and circular, recollecting the fact that, in converting a metal from a solid to a fluid state,  $141^{\circ}$  of free caloric is lost, and that while the amount is as the intensity of heat, that it can never be again melted till that is overcome, or set free; and we shall cease to wonder, because we see the conflict, action, motion and the effect produced, and a material causality adequate, under existing circumstances, to produce the effect.

Before we can advance any farther, we must come to clear, distinct and determinate ideas concerning heat, light, caloric. Heat has been regarded as an effect, and caloric as the cause. We feel the heat, or it is a feeling; but caloric, or *smiting heat* is the cause—from “calor” heat, and “ico” to smite. But this heat, this feeling, this effect, is still spoken of as existing in a latent state, in bodies almost infinitely cold, and in others almost infinitely hot, even while the caloric, or *smiting heat*, is raging with all its fury. Hence the absurdity of such terms and such philosophy. Light has been considered as both a cause and effect, as material and immaterial, as

a modification of matter, and as an element or simple body. It has been called a wonderful, mysterious element. It can exist in its splendor in the extreme cold of polar regions; and is seen, in insufferable brightness, in the electric fire, which dissipates the diamond itself. And yet this light will be passed by some modifications of matter, in connection with heat or caloric, and no caloric absorbed, or heat arrested, while other modifications will not pass, and while they reject or reflect but little, absorb both. Light is said to have been consolidated, and heat or caloric polarized. Each, separate or combined, in some instances, appear to possess all the properties of projectiles. We are, then, reduced to the absolute necessity of making light and heat modifications of matter, acting separately or combined, as the case may be, and acted upon according to the nature of the modifications of matter which they effect, or by which they are effected; and as such, subject to fixed and determinate laws. If they were effects simply, they could not be used. If effects simply, they could not separately or combined be subjected to the laws of projectiles. An effect could not be used up in the consolidation of metals, and then in their liquefaction again produced. We want a philosophy without absurdities and absolute contradictions. As formations of matter, they are generated by the electric fluid, and then may be used by it, and act, and be acted upon, according to the fixed and determinate laws by which they are governed. We wish this to be distinctly understood, and retentively remembered. As color is intimately connected with light, and since light—as we shall soon demonstrate—is the medium, and electricity the agency by which planets and satellites are seen; and since the color of this light is essentially different; we wish, nay, are under the absolute necessity, before we progress any farther in the investigation of what is connected with planetary motion, to determine what it is. Is color merely an electric effect, a modification of matter, or a combination of both? This is an important inquiry. At this time we shall pursue it only so far as the subject connected with planetary motion

requires. The different colors, whatever we may call them, are produced by passing a small pencil of light through a spectrum, a triangular piece of glass. The colors always appear in the order violet, indigo, blue, green, yellow, orange red; the violet being that portion of light which has passed through the thickest part of the glass. These colors may all be seen in miniature, by placing an extremely thin piece of mica in the formation called ising-glass, about the circumference of a pea, on the end of the finger, and holding it at such an angle between the eye and the sun as partially to see it. The light will be in diverging rays, and in these every color of the rainbow seen. Wind blowing over melted lead presents correctly to the eye most of the primary colors. Colors can be obtained from vegetables, and the colors set, that is, by a chemical process, made for a period permanent. From minerals, and by the same process made more lasting and permanent. We get all the colors of the rainbow in passing before a pendant drop of water upon which the sun is shining. We may form the rainbow with different acids, or different precious stones, placed one above another in the order of prismatic colors. The condition of light and darkness, is not to be considered, because it is in pure sunlight that color is by the eye to be seen, known and felt. The primary colors, painted on a circular card, and put in rapid motion, appear all white. An iron wheel of many spokes, in extremely rapid motion, its axis parallel with the horizon; is seen only in its axis and rim, and an object can be seen distinctly through its spokes. Certain acids that were colorless, will, on mingling, produce red; add a third, and we have another prismatic color. When the object is colored, it is said the particles have only the power to reflect such and such rays. In the prism, could the colors be extended, we should have on the left hand black, and on the right, white, in approximation, as the perfection of all these circumstances were perfect. Still the question returns, what is color?

All we now say of color is, that it is an electric effect, either as positive or negative, under which either a differ-

ent effect is produced on the eye, or by which the condition of the body or modification of matter may be identified. In the prism, the light meets with a continually resisting medium to the electric fluid; the violet colored rays, therefore, have the least electricity, and are therefore used in making the magnet an electric instrument. In the mica, or ising-glass, there is a divergency of rays seen partially, it being near, through the humors of the eye, which is a resisting medium, answered for a prism. The wind in passing over the melted lead, as it passed unequally, left the oxygen of the air, to combine unequally; hence the effect upon the eye. The coloring matter from vegetables, is evidently the effect of light and heat, under vegetable circulation—but it is coloring matter! We need not advance farther. Under vegetable life, we shall give it a more profound investigation.\* Considering color, then, to be a positive or negative effect on the eye, on account of the electric condition of the body, or modification of matter, (that is, so far as we have pursued the subject) we discover the reason for the different aspects, as to color and brightness, under which the bodies constituting our planetary system appear; and the changing appearance which the stars, that disappear, assume. Mars is red; Venus a brilliant white; the moon a pale silvery white. The stars that disappear from their diamond brightness, become red, then gradually a pale white, and finally fade away. We have still another consideration, and it is in regard to the condition of a body thrown from another, in what is called volcanic eruption.

It is evident, on the least reflection, that if a part of a body be ejected from itself by physical energy, it must be less than its half, and that, circumstances being the same, the velocity, momentum, distance, will be as its relative weight as it regards the masses that compose it. It is the same, and seen in solid bodies, whose electric cohesion is

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\* In animal and vegetable formations in those parts considered excrescences, we see formations of matter more than a million of times beyond the powers of unassisted vision. There is no more reason to doubt that color is, in a positive sense, an electric formation, and in a negative sense an electric effect, than in regard to what is seen in electricity itself.



overcome by rapidity in circular motion. If a small part of a millstone breaks off in rapid gyration, it is thrown in a direct line called a tangent, to a great distance, and less and less according to the greater magnitude of the segment. In all evulsion or appulsion there is action and reaction. If a vacuum were formed, and a part of the body torn instantly off and hurried into it, the body from which it was sundered would have to resist equal to the force imparted, and the materia around the vacuum to the same extent. Compression is on the same principle. The forces compressing have to resist each other. This principle is too well understood to require illustration. It is also evident that if a body be ejected, all things being the same, that electric circulation or attraction, will regularly overcome the projectile force, the momentum become regularly diminished, the velocity cease, and then the mass return back to itself. If exactly perpendicularly, it would enter the same point from which ejected; if obliquely, as the angle of projection. If a body were torn away in part by a vacuum, and in part by internal physical force, it would be carried as much farther as the vacuic energy, added to the projectile; still, everything the same, it must, unless carried beyond the recuperative energy of the electric formation, finally return; but if carried beyond it, can never return, unless, indeed, by some adequate causality it be thrown within the sphere of its influence. If a body were thrown within a vacuum, and its electric circulation in itself and in all its particles were not sufficiently rapid to resist, it would be torn to atoms; if in an electric vacuum, resolved into the electric fluid itself. If thrown into an electric vacuum of so small a capacity and energy, as to resist both the impellant and expellent energies exerted upon it, and that vacuum was the extreme point of its destruction, it would stand still in that place as to direct motion, and if it had progressive motion with the body, it would still progress in the line and with the velocity, till overcome—as to the vacuum, its direction was direct, a right motion the nearest distance between two given points; but as to the line it made, it was circular.

The line it now makes is direct, and in the nature of things, as the motion of the primary is circular, and this direct; if thrown within the circle of its elliptic motion, it must fall again within its influence; if without, not, unless, indeed, some electric vacuum should be formed to accelerate its velocity, and attract it within the sphere of its influence. Thrown there, there must, in the attractive and expellant power, be such a balance as to hold it in its place; if these are equal in the resolution of ordinary forces they destroy each other, and the body drops into the primary. The same difficulty exists, if we suppose bodies formed from small centres, and finally brought within the sphere of influence. We get no circular, no elliptic motion round each other. Let us now bring in *electric circulatory elliptic motion*. There is, after all extra influences are overcome, mutual action, and reaction, a double force which draws together and expels. The velocity is neither increased nor diminished, in the onward course. In a relative position, the mutual impartation and reception, no matter where the centre of motion be, produces the balance. Had God created separately and put in motion, still this is the agency required, and this is what is employed. Planetary motion is therefore an electric effect. That it is so, in all its actings and reactings is involved as the greater involves the less, and therefore true. The position therefore assumed is true.

The color and appearance of those stars which disappear is not only an indication of their electric condition, but their disappearance, of a high state of electric fusion. Every thing around us, though under more or less rapid change in destruction and formation, yet indicates regularity in the progress. Uncommonly sudden changes require an adequate cause. The earth, water, air, in their original formation, indicate a slow, regular process. The sudden decomposition of air, water, earth, calls for unnatural artificial violence. Now thirteen fixed stars have, during the last three hundred years, disappeared from the heavens. They have changed color, the same as highly ignited iron or melted glass; they have finally vanished in an evanescent

whiteness. Now when we recollect that sight is an electric effect, and that a body under ignition or electric fusion, ceases to exert that influence, which produces an electric contact and feeling, if we may use the expression; what other cause is there adequate to produce the effect? The eye, the atmosphere, our whole system is unchanged. The change is in the star itself. We do not say "burnt out," but in an electric condition; an electric liquefactive state, in which its projectile capacity cannot reach us. The matter may still be there. Whether it is or not we cannot demonstrate. We know not the energies which almost unlimited space may exert on a star or sun. If a combination of circumstances and causalities, may, with this instrumentality in the hands of man, dissipate in excessive brightness the diamond itself, why may not the Almighty, or a combination of circumstances and causalities, setting the instrumentality in play, dissipate the sun? But every star is a modification of matter; and we have demonstrated that all modifications of matter are electric effects—in reaction, why not destroy what itself has formed? It is more likely, however, that the star that has disappeared, no doubt an inhabited world, has only lost from self conflagration its electric capacity, and disappears; and that, after series of ages, its elements and modifications of matter, are reformed. This, on a large scale, is no less reasonable, than on a small. The only reason is, we are not as accustomed to the occurrence.

Having established the fact that elliptic motion is an electric effect, and having carried it to the revolution of the heavenly bodies, and demonstrated it to be, as it regards them, the legitimate effect of electric circulation as the alone causality; we may now show, and are required to do so, why the laws of nature, as were supposed to be discovered by Newton, still hold good in planetary motion, so far as mathematical calculation and certainty are concerned, and why they cannot hold good in regard to all beyond and below their sphere of operation, while the true laws of nature, formed in electric action, and reaction, resulting in electric motion, do? The great end of

inquiry is, to know from demonstration, to prove, and to learn. The age of theory and authority is passed, and we bow only to truth seen in experiment and fact. The *law* of nature, that bodies are attracted according to their quantities of matter directly, and as the square of the distance inversely, is eternally true, *so long as these bodies retain the same relative electric capacity, and no longer*. As a general truth, it holds good; limited to our system, it will hold good so long as this relative condition obtains. Say they are *now* attracted thus, and it is true. And it is true, because the circulation of the electric fluid and of bodies under its influence, under such circumstances, is as the quantity of matter directly and the square of the distance inversely. This is demonstrable as to velocity in the helix of copper wire, circumgyrating the horse-shoe magnet. Its power is increased as the square of the distance. It may, by a series of experiments, be so proven as to the quantity of matter. We have here only to invert the series. In the circulation here, we have not similar bodies, and we have a regularly conducting medium. The one body is a pleonasm, and the other a vacuum, and the medium of the wire equal and uninterrupted. It is, therefore, as the square of distance, directly. It is true that electric energy is lost in a regular escape of the electric fluid from the wire, and that, if continued far enough, all would escape; but the experiment, in limited circumstances, confirms the principle. Now the medium, through which the planets circulate, is the same, and the resisting energy, therefore, to make the principle hold good, is found only in electric reaction. This Newton never discovered. He supposed such a law to exist, because there must be—we know it to exist, because it is, and because it is demonstrably an unchanging law in electric circulation.

The law discovered by Kepler, that the vector radius of any planet describes equal areas in equal times, and that the times are in proportion to those areas; was, and is still true, because true in mathematical calculation; and, the laws of nature are ever the same. All that the Elec-

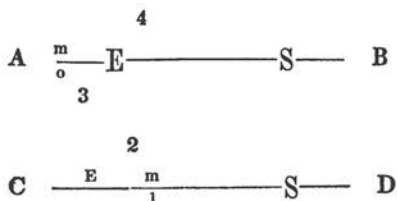
tric philosophy claims is the discovery of the unity of matter, the electric fluid; and that electric circulation, in its action and reaction, resulting from material causalities, constitutes the fundamental laws which govern the universe.

We here gain an important object—and this is now achieved.

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## CHAPTER VI.

We affirmed that the tides had never been correctly accounted for, on the principles of the Newtonian Philosophy. There are three points of position which can never be brought within the laws of gravity and attraction, but which, in electric science, are mathematically determined. These are, why the spring tide, at the conjunction of the sun and moon, should be less than the extreme flood tide at their opposition; and why the spring tide should happen some fifty hours after conjunction; and why it is that there is an opposite tide? Now the electric philosophy solves all these difficulties.



Let the line A, B; and, again C, D: represent a part of the diameter of the earth's orbit—S the Sun; E, the Earth; and m the Moon; 1, the position at conjunction; and, o, at opposition; 2 the moon's true place at spring tide, and 3 at extreme flood; 3, 4, the position of the

double tide in its eternal gyration and sequency round the earth. On the principles of the electric science in the demand, and supply; as pleonasm and vacuum, we have the power of attraction; and in the electric circulation of each body in itself considered, according to the condition in which it is left; the appulsive. Now in the resolution of forces, the Newtonian Philosophy has the attractive, but not the appulsive, and is left on the same ground, *supposition*, as in elliptic motion. And it is the same at every point of solution. Again, in the resolution of forces, were there no disturbing causality, we should have the spring tide at the exact time of conjunction, and the flood tide at the exact time of opposition; but we get them some fifty hours after. This disturbing causality is the interception of a portion of the freely circulating electric fluid in demand and supply, as passing from the sun to the earth; so that the moon, which makes her demand almost entirely from the earth, in part supplied by the sun, does not exert all her power as a vacuum, till removed from between them. This will be when arrived at 2, her position at spring tide. At opposition; what comes only from the earth, and that of the sun arrested by it, she will receive the full supply after it has escaped, together with the increased energy imparted by the earth; and hence the extreme flood tide. The water being a moveable fluid, and the freely imparted electric fluid making specifically light, we have to bring in the consideration here, that the *swell* is an electric effect, manifested to the eye simply, because of the moveability of water. But why the opposite tide? Here the Newtonian Philosophy is absolutely aback. No system or theory has as yet made any approximation in accounting for it, except as it has hinted that it might be an electric effect. To say it results from the centrifugal motion of the earth, would give a high and an eternal tide at the equator, which would be no tide at all. To speak of a lunar and terral wave, a moon wave, and an earth wave, is only to say what is, or, rather, to assign an imaginary causality for what we can in no way account. All is

plain. The eternal escape of freely circulating electricity, on the side of the earth opposite to the moon, having nothing to receive it, thus manifests itself in the influence exerted on the water. Hence the eternal gyration and sequency of the opposite tide round the earth. This science solves the many phenomena of swellings, currents of the ocean, and of the aspects under which it appears, and also of the winds.

The ever continued, long, changing swell of the ocean, seen whenever it is calm, results from electric vacuums formed in the air, making an alternate and ever-changing demand. An almost perfect vacuum above, extending down in consequence of its contiguity to the earth, gives, according to its extent, the hurricane, tornado, typhon. The free and sudden escape of an undue quantity of the electric fluid from the earth, on the land the whirlwind, and on the sea, the waterspout. When its escape and collection is caused by a vacuum of powerful and extensive demand, we have the combined energy of demand and supply, meeting near the surface of the deep. The water is condensed above, and comes down in torrents; that of the ocean is light, and appears to mount into the heavens. The electric fluid that escapes cannot penetrate the deep, for there is no vacuum for it to seek there; it cannot smite the vessel, for it becomes an electric pleonasm. It darts from centre to centre, so that half a dozen balls of electricity (for it too globates for self-defence) will cause, in rapid change, an almost continued peal of deafening thunder, and flashes of blinding lightning, accompanied with whirlwinds, which rend, and twist, and sweep away sails, yards, masts. When these meet on land near the surface of the earth, rails, trees, earth, rocks, iron, are made light amid a torrent of rain and hail, and as the latter descend, the former ascend toward heaven. It is well for us to know, not only that these are natural effects from natural causes, but why it is so. A galvanic battery has been formed, and, as far as possible, in demand and supply, modifications in the rapidly flying elliptic current, are exchanged. The pleonasm is imparted,

the vacuum filled, equilibrium restored, and the conflicting bodies put in motion, wind and water return to their former condition.

*Of the Gulf Stream.* The Gulf stream is evidently an electric effect. If it were to restore in one part of the ocean the water that is taken from another, occasioned only by the trade winds; it should then expend itself on the principle of hydrostatics. If to this we add the influence simply of heat, we should still expect this to be the case, since the equilibrium of heat and cold is the result of general diffusion. But it hugs our continent—it retains its warmth. It is evidently water highly charged with the free electricity of equatorial regions. It is what has escaped from the condensation of sixteen and a half feet of falling water. The earth, ocean is filled, and it thus escapes. Now when it is remembered that the changing of water to air, or an invisible storm; is an electric effect—this being far more rapid in winter than in summer; and that the return of that special modification to water, is from condensation by vacuums, which causes it to escape; we may well conclude that this is the case. That we cannot collect this fluid from the water and make it visible, is no argument against the fact. Neither can we from the air. Who can collect and admeasure the quantum of light or caloric in a given quantum of air, as under more or less rapid circulation? Again, quicksilver, in a fount in the summer, is of the same temperature as water. Isolate each in equal quantities; the quicksilver is extremely cold, when the thermometer indicates its temperature, the same as that of the water. Ice in thin cakes, isolated by a silken thread, in places on the north side of a mountain, where it never thaws in winter, may, in a few days, be completely frozen away; that is, changed to air, or that modification of matter, (not of heat and water) *called vapor*. But we have pursued this subject far enough. That the Gulf Stream, a river in the ocean, running back to its ten thousand fountains, and wasted before it gets there; or, rather, an



immense fountain, spreading itself over a land of ocean, is an electric effect, is demonstrably and conclusively true.

*Of the Lever Power and Mechanical Invention.* What is called the principle of the lever power is well understood. Place the fulcrum at any point in a given line, and it is easily determined what is the gain or loss of power. Any one can graduate it, and make what is called a steelyard. It is well known that loss of time is gain in power, and that gain in power is loss of time. Since the wheel is the lever in a rotary action, and wheel acting on wheel, is the same as lever on lever in unchanging action or motion, it is, in any piece of machinery, easily estimated what is the loss or gain; and making allowance for friction, it is on the same principle. But this is only saying that what is, is. We wish to know the material causality, why, at a certain distance, four pounds shall counterpoise 800 at a certain distance from the fulcrum. Or to make it more striking, why an infant can sustain 800, or if the hand were placed as a fulcrum, crush the hand of a giant. To lay down the lever and make its arms the diameter of two concentric circles, and to demonstrate that as the radii, or arcs, or chords of the one are to the radii, arcs or chords of the other; so is the bead to the weight, or power to the affect; is only still telling that what is, is. It was true before, and is no more so now.

We want the material causality. This is found in electric circulation. The centre of motion is at the fulcrum. The electric current into the earth is permanently unchanged. This penetrates and circulates in all bodies. This into the four pounds and square of distance, directly balances the same into the eight hundred, and the square of distance—directly invert the terms, and the contrary effects follow. Thus the earth balances the moon, and the moon the earth; the sun the planetary system, and the planetary system the sun. *The fulcrum* is the centre of focal distance, and the focal distance determines the lever power. Since this is the case, it is

evident that there is no such thing as man's originating perpetual motion. Whatever he poises and adjusts to motion, he has to put in motion. If he takes it from material causalities adjusted, it is not what is supposed—it is not what is sought—he has still to adjust—he has originated nothing. The resistance of air, the friction of rough bodies, the resistance of gravity, resting on the smoothest substance or centre, are constantly diminishing the imparted momentum. The more expanded and complicated, therefore, the sooner it is lost or expended. The simpler the machine, therefore, the longer it will run. A pendulum, in a perfect vacuum, would feel only the resistance of gravity; but this would stop its motion. The originator, then, of perpetual motion, must be enabled to destroy gravity; that is, make the electric circulation of the earth into and out of equal. In short, he must originate a self-originating and imparting mass of the electric fluid. He must create, or he must make and preserve a self-preserving vacuum of the electric fluid. Either the pleonasm or vacuum, thus made and preserved, will do. But this is beyond his power, infinitely, absolutely, and eternally. We have been thus full because of the far-spread delusion under which fortune, talent, family, reason and life have been expended. The whole sum of mechanical invention consists in devising a plan, be it more or less extended or complex, by which, with a known power, a certain result may be produced. The only motions that can be employed are the direct, circular, circular elliptic, and cham. The direct from point to point, in the same line; circular from a wheel, or the radius spoke of a wheel, exterior to the wheel which revolves, giving the figure of the circle in rotary motion; the circular elliptic, the band of a wheel, running on an ellipse, or an ellipse carrying a wheel; the cham, the groove adjusting the motion to any form and figure. The materials to be used, the preparing them for use, are, in the judgment, choice and skill of the inventor. The whole operation, in all its parts, is to be known; the plan to meet every difficulty by a part adjust-

ed to meet it, conceived; and, securing every facility a termination which leaves the operation complete, is what is expected of a perfectly successful and able mechanical genius. He will of course require a mind of strong concentration, of large capacity, of acute discernment, and of patient investigation. His mathematical talent need be only the medium. The inclined plane gives the direct motion and diminishes friction and weight, as its length exceeds its elevation. Now all power is from electric circulation. The electric current moves the wind; it rolls on and in condensation pours down the water; it fills the cylinder with an invisible modification, which, when condensed or made to escape, drives the machinery and in the "electro magnetic," the positive and negative electric, the fluid itself drives the almost invisible wheel. When imparted by beast or man in muscular action, it is this fluid sent from the brain along the nerves, which gives a contracting or extending energy to the muscles and limbs. All mechanical power, therefore, has to be adjusted in invention to this element as it moves itself; or as in moving other modifications, they appear only to operate. The reason any salutary result cannot be found in mechanical invention, proposing the electric current as the causality, either positive; or positive and negative combined; is found in the fact, that it is slowly and expensively obtained—is with difficulty confined, and is obtained in the instrumentality of too weighty a materia, which, in all locomotives, has to be self-conveyed. Boats have on the Neva been propelled at the rate of four and a half miles an hour; but it is doubtful whether this process of originating power will ever prove efficiently useful. Other modes of originating electric action, less expensive and slow than the decomposition of metal and of fluids, must supercede that of which we speak.

In mechanical invention, few machines of extensive and complicated operation have ever been perfected by one man. One conceives and makes rude and imperfect attempts; and another makes this improvement, and another that; and after some thirty or forty years the thing is

perfected. The steam engine is an instance of the fact; the cotton ginney and cotton gin may, with a thousand others, be adduced. The most important inventions are only the application of known principles to known purposes and modes of operation. The individual has little left of which he can boast, and that little will most likely be eclipsed by the more splendid achievements of others. If his design was in an enlarged benevolence of feeling; if he was the first to design or successfully apply the principle to an important attainment in the line of human economy; if he has made great, continued, persevering and expensive sacrifices; and consequently exhibited some of the noblest traits of moral excellence, he cannot for ages be forgotten. Fulton and Whitney thus stand pre-eminent. Thus much for mechanical invention. When we hear of this and that wonderful discovery, we do well to withhold our belief, till we know that it is a fact; and are made acquainted with the *modus operandi*. We hear no more of fixing the electric spark; the lightning itself, so as to illuminate Paris!



## CHAPTER VII.

### VEGETABLE LIFE AND DEATH—ELECTRIC EFFECTS.

Having established thus far our system by demonstrating the unity of matter; that the electric fluid constitutes this unity the essence of matter, all that deity created—that it is the only material agency by which he operates—that, in its action and reaction, it is the only material causality by which all forms, elements and modifications are generated, made or destroyed; that it is the cause of elliptic motion, and its action and reaction in material agency constitute the primary laws which govern the universe; having solved the phenomena of the tides on the electric circulation, and applied to the lever power in connection

with mechanical invention and operation, we come naturally to vegetable life and death. This is an important subject. We advance upon organic existence. We enter the middle ground between inorganic existence and organic existence, endued with self-action and energy, thought, will, intention, desire, sentiment, affection. The subject before us is simply *vegetable life* and death; that is, what is it that, as a material causality, originates and sustains, to a certain point, and then wastes and destroys? And here we would observe that our whole ground of inquiry rests not upon definition and limitation, which, however perfect and exact, leave the cause only the more isolated, not the less profoundly unknown; but on facts, principles, operation, in which we see life and death originated, perfected, complete. We may, in vegetable organic life, make our own selections from any of the six great classifications of plants, in genera or species; but here must be the fact, principle, operation, result. Having presented instances enough to enforce connection, we may then illustrate and confirm, as far as the subject requires. The term organic may be objected to by some as applied to vegetables. By an organ, we mean that particular part of a whole, which has its special function and by whose especial operation the whole is in a measure sustained; and by organic existence, the standing out of that, which, while thus standing out, feels their energy of action. That life doth exist in vegetables, and that in this sense they have organs, is not denied, and cannot be contested.

We shall commence with life in its perfection in vegetables, which is at the moment of perpetuated existence. That point in existence in which the plant propagates the most perfectly its kind, may be said to be its highest in the perfection of life. If it should continue for years and centuries, still that point of time, in which it could the most perfectly accomplished this, would be at the perfection of its existence.

Since we have demonstrated that the electric fluid is a unity, the essence of matter, the alone material created, the alone material causality of all causes and effects, of

the formation and destruction of all modifications of matter ; it follows, as a necessary consequence, that vegetable life and death depend upon the same cause, and that the bodies in which they are seen, as positive or negative effects, in all their forms, size, magnitude, are electric formations ; that every organ, however, multiplied its formations, and every vessel, fluid, filament, atom, in each organ, was equally so, and finally that, though in more complex and multiplied display, it is all on the same ground, agency, operation, result, as the modifications and movements of matter, destitute of vegetable life. But we wish to carry out not only conviction, but instruction, into this world of higher existence. We say *higher*, and so it is. We must forget the infinity of the universe ; our sun, and elements, and satellites ; the thousands of stars that meet our unassisted vision ; the millions which in telescopic energy burst upon the sight ; and the million of millions which in the celestial concave, thus admeasured and adjusted at every point, however inconsiderably small, lie all around, infinitely, still, infinitely beyond. These on account of magnitude, number, appearance, velocity ; deeply effect us. Let us not look at them, and for the present let us not think of them. Or, if we must, let us concentrate mind in the very act. Let us emerge from the infinity of space to that circumscribed by our system in its ceaseless course ; from the infinity of number to the eighteen worlds which compose it ; from these eighteen to our earth. We are here. It is covered with vegetable life in endless variety of form, beauty, and excellence ; above in the midst of this and sustained by it an infinite variety of beings in animal existence, from the lowest in degree up to man, who stands erect in physical beauty, moral excellence, and intellectual energy. Which is the more excellent, the solid earth, or that which covers it ; the throne, or he who sitteth thereon ? Now if we will look abroad through the universe of suns and worlds, let us recollect that they are each the abode of vegetable life and animal existence in each, in variety, number, and excellence, according to their own magnitude and relative excellence, and we shall be

prepared to enter, with due equanimity of feeling, on the work before us.

In the selection of our subject for intellectual dissection, we take, in the first place, the Lily. It is a plant well known to every one. It has a flower of five anthers and one stigma. The anthers are the almost balanced bodies which hang on the filaments. The stigma is the central stem and its termination. On the anthers are a vast number of small round bodies, which, as dust, cluster together. Now, in order that seed be produced, it is necessary that some of this pollen, which is on the male part of the flower, should fall on the stigma, which is the female. This is known from experiment; and on other plants, ten thousand experiments: for take any non-conducting medium, and effectually cover the stigma, and there is no seed produced. Cut off the stigma, or leave the stigma and pluck off the anthers before the production of the pollen, and the same effect follows. Take a hill of corn, and cover any ear as it commences silking, just at the time the pollen on the stalk is beginning to appear, and there is no corn. Plant in the centre of a field of yellow corn, one hill of red, and all around and in the direction the wind is most prevalent, at the time the silking and pollening is perfect, will be scattered the red. In fact no well informed person doubts these facts.

Let us now take the Lily at the period specified, and by mechanical means hasten, and see the operation. A small portion of the pollen is collected on the point of the new made pen, and placed carefully, without touching, on the stigma. It is in a few minutes completely absorbed. If we do the same with the Holyhock, or Ocrea, or Cotton plant, we see a large quantity in a single minute absorbed. That it is actually so, we have only to take of the pollen of two plants, the ocrea and cotton, flowering at the same time, and placing the pollen of the cotton on the stigma of the ocrea, we shall not only see it absorbed, but instead of finding an edible pod and seed, the pod and seed of a new species of cotton.

Now, in this absorption, we see an electric effect. There

is a vacuum and a pleonasm; there is a materia formed and a place for the deposit; and however long before it arrives there, and how multiplied soever its windings, and various the forms and modifications it assumes, there must be a material causality to start and to carry it to its destination. We find the embryo of the seed, if we may use the expression, and finally the seed itself, in the same condition of the diamond, when no diamond was, and as the diamond where the diamond is. The extremes are formed; they meet, and each is ultimately produced. There must exist the extremes, the medium of communication, and the place of ultimate deposit. Now when it is recollected that all vegetables are composed of the four elementary principles, Nitrogen, Oxygen, Hydrogen, and Carbon, and that these are, in vegetable life, so combined as to produce every vegetable, and every vegetable combination and formation, as found in the works of the botanist, or of the chemist; why should we hesitate to say that vegetable life is an electric effect by which a vacuum is formed; that this vacuum, filled up with modifications of its own formation, becomes an active, circulating centre of matter, which is now reduced gradually to form; that the into and out of in this formation, while they leave a deposit, dispose the materia in more or less regular lines, and smaller and more rapid circulation, and greater hardness at the points in which resistance is met at the out side? It is so. If there are many seeds produced in one receptacle, then there are many such centres; if there is beyond what protects a rind, which afterwards becomes food, that rind was produced in the same manner, the matter thrown beyond in myriads of electric lines, direct and elliptic, and centre within centre. Light and heat, all the conditions of vegetable life, are required to bring us to this point; so are all the conditions for the formation of a single pebble, and as much so as the conditions for the formation of a diamond. Where many seeds are produced, the number, more than the size, will depend upon the circumstances of soil, air, water and cultivation.



But this we shall the more successfully consider under the continuation of vegetable existence in the germination or quickening of the seed itself. We have seen the male and female parts of the plants unite, and in the plant itself the result of that union in the seed produced. It is an electric result. From all the predisposing causes and antecedents in the circle of its vegetable existence, and from all the sustaining and accelerating causes from its individual commencement in the parent plant, till this moment, it is a vegetable, material, electric formation. It now requires another medium; not to create, originate, form vegetable life, but to place the vegetable life in a condition in which the vegetable may be evolved. This is an important idea, and we therefore repeat it; the seed now requires another medium; not to create, originate, form vegetable life, but to place vegetable life in a condition under which the vegetable may be evolved. This is the ground composed of various earthy combinations, and the remains of decayed vegetable matter. That more or less of each is required; more or less water, light, heat, cultivation; more or less time, are only conditions or circumstances. Neither of these constitute life. Neither nor all of these are vegetable life. The vegetable life of that future vegetable is there, "Whose life is in the seed thereof." We may retain the seed during months, and of some plants for years, and yet all this time the vegetable life is there. It may lay in the ground for months, and of some plants for years, and still the life departeth not. Well, we wish this seed, this vegetable receptacle of vegetable life, to evolve the vegetable life; to be seen and exist in the plant itself. We put it in the ground, and the result is seen. The plant appears to flourish, propagate its kind, and decay. But we wish to see this process. Well, without pain to the plant, and little trouble to ourselves, we may adopt these methods—we may dissect and examine, one after another, a hundred seeds, planted at the same time, and under the same circumstances, till we are satisfied—we may put on cotton floatant, in a half tumbler of water, seeds that will thus vegetate; and observe, from

time to time the process—we may subject the germ, the vegetable life, of some seeds, so laid bare, as to expose the first action of the first particles visible only under the aid of powerful glasses. In the first instance, we shall see the seed moistening, softening, enlarging; the roots, leaves, stem, more and more evolve and protrude themselves, till the plant is perfectly formed, and stands forth in vegetable existence. In the last instance there commences a rapid circulation exceedingly fine and limited, and we see produced the first formation of roots, leaves, stems. This is enough. We have, in a modification of matter, the seed in which is life, *the life* of the plant; electric action to evolve the plant. We leave, therefore, the subject of vegetable life, isolated, distinct; and it has an electric effect clearly seen. Vegetable death would be the destruction of that capacity for electric action which the seed possessed, whether it were by a destruction of the seed or by withholding from it the conditions which were required in order to fill that capacity and evolve the plant.

By experiments made on the vegetable life of different plants, in the seeds gathered ripe, and perfectly dry, and in bags suspended against a dry wall, it has been found that, in the seed of the Beet, Celery, Cucumber, Mangel-Wurtzel, Melon, Pumpkin, and Squash, it could be preserved ten years; in Hysop, six; in Fennel, five; in Balm, Brocoli, Cabbage, Cauliflower, Horse radish, Mint, Mustard, Ruta Baga, Spinach and Turnip, four; in Corn, Coriander, Garlic, Lettuce, Potato, Rosemary and Tansy, three; in the Bean, Camomile, Cress, Hop, Lavender, Leek, Onion, Pennyroyal, Radish, Savory and Thyme, two; and in Asparagus, Carrot, Pea and Rhubarb, but one. Here different seeds, gathered and preserved under the same and most favorable circumstances, have, in the same element, the air, different capacities; or rather capacities in themselves, of preserving vegetable life. It consists no doubt in the electric condition of the shell, by which they are surrounded. This fact is confirmative of our position.

Again, in Botany, we have six grand classifications of plants; the Anagama, those which are supposed to have no sexual organs or propagation; Vascular Cryptogama, those which have the organs and connection in the vessels; and concealed Celular Cryptogama; those which have the organs and connection under the rind; Gymnospermous Phanerogama, both the organs and seed open; Monocotyledenous Phanerogama, single pod; open, sexuality; and Dicotyledenous Phanerogama, double pod, &c. In Fossil Botany, there are four grand periods; one from the granite to the coal; one from the coal to the new red sand-stone; one from the new red sand-stone to the flint and chalk; and one from the flint and chalk to the surface of the earth, identified by the fact that no two species of any one of these six great classifications of plants, are found in the one which exist in the other; and since the number of species in each varies to a great extent, it is demonstrably true, that the variation, and, we may add size, can be assigned to no other cause, than, that, the variation in number and size depended on the electric condition of the seed, and of the air, earth, soil, light, and heat, at the same period. As some species are destroyed, others generated, we must assign the generation from time to time to the same causality. A result confirmative of our position already demonstrated.

Once more, it is now universally admitted, that the different parts of plants perform different offices; that while the primary elements enter more or less into their formation, they evolve more or less of any one of the almost infinite variety of forms, modifications, substances, qualities; that it is not the vegetable mould called humus which enters into them; but that this becomes only the medium, the condition, in which they can alone flourish. Another strong confirmation of the truth demonstrated, that vegetable life and death is an electric effect—life positive, death negative.

Again, once more; by mingling the pollen of different species of flowers, we may get an almost infinite

variety in tint and color. The common potatoe presents a new species, if propagated from the seed of the ball. The variety of species in this excellent edible root, may thus be increased to a vast extent. First, pluck the seed from the ball, which is the primary centre of vegetable existence—as it now obtains—the next year plant the roots of the produced vegetable; on the time of flowering, mix the pollen of any species of rigorous stock, plant the seed of this, and so on; and year after year, you advance in an ascending series, a more rigorous and abundant growth, with a vast variety in species and excellence. Full confirmation this, of our general proposition.

We shall now present a few facts, and dismiss the subject. Those kinds of wood which are durable, solid, and susceptible of a high polish, and of vast variety in tint, are, as are the diamond and other precious stones; continue long in coming to perfection; those which are the reverse, spring up in a few generations, and as speedily perish. Those trees which occupy a middle ground, assume a medium character in regard to their circumstances and qualities. In the whole vegetable world, we mark all that we should expect to find in circles, lines, ellipses, in fixed permanent centres, thus formed, and acted upon. They are, according to their primary formation, and the circumstances under which they flourish. The primary being the same, they vary as isolated, or together, according to soil, climate, position. In a forced state, in which the tree has to spring up in the midst of a forest; and in the extreme of this, in which the forest tree, in an isolated position, flourishes in the open field; it is strikingly manifest. In the former case, of the same genera and species, we find the very elliptic circulation, in lines almost perfectly straight; and in the transverse, the circle giving almost perfect rotundity in form, and it is easily cut and split; while in the latter, we have irregularity in every line and angle of vegetable formation, and find much difficulty in converting it to the same use. When different species of different genera are found in a forest growing together, one invariably overcomes the other, as is

evident from appearance on dissection. The one is stunted; thrown out of its upright position; and the heart of each, the pith, the primary, elliptic centre of the vegetable, is thrown into the focus of another ellipse which would, had it not been for this, have been found a circle. In all wounds, decayed points, &c., we find the electric circulation interrupted in the materia which is deposited in self-reparation. There are evidently whirlpools formed, and every line is more or less imperfect, varied, abrupt, destroyed. Do all the parasite planets wheel round with the sun in the same cardinal direction? and do all turn in the same direction on their axis? Does water, left free, in entering a natural or artificial vortex, always circulate in the same direction? And are these electric effects in electric circulation? So do all vines which are sustained by close gyration, wind round in the same direction, and those which in winding twist round themselves in the same manner; and so also in the regularly formed vortex, we have the same ligneous circulation under electric action. Is it a universal principle that the same materia in consolidating, becomes more compact, so that unless matter is added, there must ultimately be formed a vacuum somewhere; and is it a fact, that in a regularly formed body, this is near the centre, as in the lithites on highly electric volcanic ground; and the silicious stone turned in the interior to rock crystals, all pointing to the centre? This same principle holds good, throughout the vegetable kingdom. In some, we find the centre, in a few weeks, entirely gone; others in a few months; some in years; and some in centuries. The double circulation, and the double polarity exist—the into and out of in electric circulation, act and react, and there is ultimately seen a point from which the one has taken and the other deposited. Hence the stalk and hollow, the stalk and pith, the heart and sap, the trunk and hollow. External circumstances may prevent, but let the vegetable, the plant, the tree, in which is the life derived from the seed, flourish to maturity and old age, and it is ever the case.

It is this reason, or rather fact, which is seen, in ten thousand instances, this series of facts establishing a principle; facts to which they could assign no reason, and a principle which they could not discover; or if they did, in some distant approximation, dare not avow; that has led some philosophers to hint, and some enthusiasts and monomaniacs to affirm, and spend life in convincing others, that the earth and planets are hollow spheres. The rings of Saturn appear equatorial belts of former consolidations, the surface of the earth in continents, and islands, submerged and thrown up, after lying for ages in the sea; immense fissures filled with secondary formations, or remaining in immense caverns; the masses of secondary formation extending and thrown into mountains, as the anthracite coal at the polar regions; have given hints to the one, and certainty to the other. Sober science, in her advance, now establishes as a truth, that which on the one hand was supposed might be, and on the other assumed to be so. These two laws of elliptic circulation, in action and reaction, in which the electric fluid is forming, transposing, sustaining, destroying its own modifications; is adequate to produce, and does produce the effect. It is seen in the sexual union of the plant; in the centre or focus of the seed; and ultimately, in the plant evolved from vegetable life. Thin centres are more or less perfect electric vacuums; and in degree, as the nature of the electric formation demands. The propagation or rather *continuance* of vegetable life, from parts of the same plant, is too plain to require comment. The bud becomes the electric centre, and is in all such in sufficient perfection, strength, energy, as to give play to the laws of electric action. Inserting a twig; planting a root in the ground; inserting a bud beneath the bark; or a sprout into an amputated limb; are the four modes of mechanical operation. Thus the twig of the willow, poplar, rose-bush, thus inserted, puts forth roots and flourishes; the potatoe, planted again and again, from year to year; the apple, peach, pear, plumb, quince, elm, are grafted with this or that,

and do the same ; and a thousand of different kinds, and genera, may be inoculated by inserting a small branch with a bud at the extremity of another genera and species. The Romans grafted the pear to the elm. We only lengthen the line of electric circulation in the medium. The engrafted is the line, the electric centre. The stalk that sustains, becomes only the medium of communication. This is evident from the looks, taste, smell and qualities of the wood of each ; they remain unchanged, and are essentially the same.

But we must dismiss this interesting subject. We wish only to establish and confirm the laws of electric action, as they exist in vegetable life and death. It is the part, duty, privilege, and life of the chemist and botanist, the economist and physician, to carry them out in all their diversified bearings and results on the principles of science, and the best interests of man. As vegetable death is only in the particular, and in every particular plant, the destruction of the electric centre, constituting life by filling it up, so as to suspend the electric circulation ; and since all that afterwards follows in decomposition, and reduction to humus, is beyond and after its death ; it is evident that anything further, would be irrelevant to the subject. The fullness of vegetable florescence, and the rapidity or slowness of vegetable decay, may depend on a thousand circumstances and causes. The undisturbed operation of those laws on which the existence of the plant depends, will give the perfection of florescence, and the disturbed operation hasten decay. Their commencement was life to the seed, their destruction is death to the seed ; their commencement was life to the plant, their destruction its death. In one word—the electric fluid constitutes the essence of vegetable matter, all its forms, qualities, modifications, electric results—even from life to death. It is seen, demonstrated, known ; and while it lies at the foundation of all science, connected in botany and chemistry with the vegetable world, it should be so received, believed, and taught.

## CHAPTER VIII.

## ANIMAL LIFE AND DEATH—ELECTRIC EFFECTS.

We advance naturally from the organic vegetable world to the animal. There is a close and intimate connection. They both rest on the same earth. They are composed of the same elementary principles; share in common some of the same modifications of matter; and, as far as the eye sees, or the skill of the chemist discovers, are in the individuals that compose each, surrendering up their subjects to return more or less slowly to the same elements; till all that remains is found in humus, the medium of vegetable floescency, as in part, the formation left from vegetable decay.

In order to a successful examination of this subject, and demonstration of the proposition assumed, we have to limit our subject, and divest ourselves of all the prejudice and influence, which, going beyond its true limits, necessarily produces. It is simply, *animal life*—not *spiritual life*. The former, rests on material causalities, and is seen in matter, organic and living; the latter, on immaterial causalities, and as separate from matter beyond the distinction of organic life, in annual formations. As we have expressed our faith that the electric fluid is matter, in its essence—the alone material causality, by which Deity operates; and as it is contended that the soul, spirit, is not material, it is evident that, confining ourselves to the primary laws of nature connected with matter, we can give no offence—cannot approach religious fact, truth, revelation. We must, moreover, in order to meet the subject fully, and openly, come down from everything of the ideal, imaginary, invisible world, to this world of real, palpable existence; we must regard *animal life*, and nothing else; we must regard the subjects we select, in the combined excellence of all that is seen or known, from the discoveries, inventions, and skill of universal



mind, during all the past. Let us then do this. We select our subject from the perfection of animal life, and at the time of the highest perfection of animal existence—in its florescency. This subject is the male and female of the human species, when the most capable of perpetuating existence. They are of the most beautiful of the human race, because Circassian; the most graceful, lovely, because of their formation; clad in the softest, finest, and most beautiful robes, because such have been thrown around them by the hand of refined and civilized society; in perfect health, else were they not adequate to the work; in perfect willingness, desire, affection, else they could not have been selected, as at the most favorable point of time in the period of florescency.

Now, in what consists the principle of animal life, which is seen soon to evolve animal form, and animal existence? Whence differs the process, except that fewer electric, primary centres are formed in passing through the medium of formation. Here, in these flowers of organic animal existence, are the anthers, the stigma, and the pollen. Either of these destroyed, and the work cannot progress. Here is the pleonasm and the vacuum; the one exhausted or the other filled, and it could not commence. Here is the contact, the impartation and reception; the conducting the materia in its dark, secret, winding, but certain rout, to its vacuum or resting-place; and here is this slowly filling up this centre within; a centre with the form of human life, animal life; and with it, in perfection, is evolved not into animal life but *animal existence*. Animal form and animal life, were in perfection before, but confined, dependent; but now unconfined, self-dependent, free. At the birth, a new electric circulation commenced from an electric vacuum which had been formed; and life, with this new impulse, commenced as less dependent; not more a reality. The lungs and arterial blood constitute this vacuum; the air—the materia of conduction, and the freely circulating fluid contained in it, and evolved, on partial decomposition, the materia to fill it. This being constantly demanded, leaves

it a vacuum till death, when the demand ceasing, life terminates of course.

It is true, that in bringing forth the perfection of animal organic existence, all the electric vacuums which have been formed, and which all along commence their operation; must be filled and emptied by alternate supply and demand; demand and supply. The different systems—gastric, digestive, biliary, urinary, generic; with their their ten thousand centres, and lines of concomitant action; all the faculties of hearing, tasting, smelling, feeling; all those organs of the brain which result in desire, thought, sentiment, affection, passion, must be excited, and brought into lively action: the individual must, according to his nature, be thrown into his own sphere, and in twenty years or less, the living, thinking, statue—the man or woman, is in organic animal existence complete. Life, however, all along was perfect; without some of these conditions, however, it must soon have perished; and without all of these conditions, organic animal existence could never reach its highest perfection.

Now, do we wish to bring in observation, experiment. We have it as fully, clearly, and conclusively presented as in that of organic, vegetable existence, resulting in vegetable life, and vegetable life in organic existence.

The female has been, at every week after connubial endearment, subjected to anatomical examination. The electric formation has been traced through the Folapian tubes, its first electric centre, to the ovaria, thence in a different modification through a continuation of these tubes into the womb; here, surrounded by the chorion, it has been watched in its developments to the perfect form. As none but the dead subject, killed by accident, could be obtained; comparative animal formation has supplied the deficiency. The first action of procreative life, has been, by powerful glasses, seen in larva; to commence in free and rapid circulation. In the chrysalis of the worm, and in the polywog of the frog, we see the slow, steady and perfect development of one form of animal existence and life into another. The Chrysalis is changed to a gor-

geous butterfly, with all its superior endowments, tastes, habits, nature; the tadpole to a frog, with his almost human form and active limbs.

The human fœtus first appears a chaotic mass, with here and there a filament in a right or circular line. These continue to multiply. A small red dot which ultimately proves the heart, and other centres of action, which become eyes in connection with the brain, now appear; lines of electric action and circulation, forming arteries, bones, nerves, muscles, and so on, till the whole is perfected. The first self-action—the electric fluid sent from the brain through the nerves and centres, into the muscles, is a mere tremulous quivering; by and by, with the lapse of a few months, it becomes strong and determinate. Thousands of animals have been subjected, while living, to the knife of the demonstrator; and thus animal life on to animal existence, fully traced. What have we here, but observation, experiment, full, clear and conclusive. Recollect that it is *animal life—its transition into animal existence*, and nothing more. We have exhibited this in the highest point of perfection; and, in illustration, confirmed it, by exhibiting the same line of operation and progression, as it passes through the lower species of animals in regard to life and animal existence. And life and existence are still the same. They are distinct and definite ideas, as the signs of them, and as realities to which these ideas are affixed. Life had become procreated in the fly, which deposits the egg in the leaf of the cabbage plant; it remains unchanged in the worm, which, winding itself up in a non-conductor of heat, becomes a chrysalis; in the chrysalis which emerges in a gorgeous butterfly: but the existence of the egg was not before it was formed; nor of the worm, nor of the chrysalis, nor of the butterfly. Animal life is one thing, and individual organic existence is another. Having now distinct and definite ideas of life and existence, of animal life and of animal organic existence, and having demonstrated in the highest series that these are electric effects, in the line of cause and effect, antecedent and consequent;

we may proceed through all the concomitant lines connected with this as the primary, and with this descending down through all the lower series and their concomitants, in infinite number and variation; and while the idea remains unchanged, and a conviction of the truth remains unchanged, we have only confirmation and illustration in the path of science. Animal life existed in what forms the oyster, but the existence of the organism—the whole, is the individual oyster, standing out isolated—the *is*. As we have pursued this illustration in plants to a considerable extent, we shall be comparatively brief in animals. We shall find, however, that animal life and animal existence, while they obtain under the same determinate laws as do those of vegetables, while they are more determinately marked as manifesting sensibility, independent action, motion, desire, affection, passion, though determinate on will, reason, judgment, choice, as the case may be, from the oyster to the man, and from the animalcula seen from the smallness of its magnitude, only by two millions of microscopic enlargement; and if they exist invisible, on account of their tenuity, and by perfection in some unknown science can be ever seen the invisible beings as much larger around us, and in attribute above us; are in the same parallel lines of order and progression.

The six great classifications of plants, rest on the appearance or non-appearance of sexual connection, and the concealment or open manifestation of their seed to the sight, with the addition and distinction, of one or two lobed; to the two last and highest classes. In passing from these classifications to the genera embraced, and through the species of each genera, and through the species which by combination are formed from these; there is a different form, figure, way, organization, texture. In procuring life, and in evolving existence, there is difference in action, motion, time, and the number of entities; and in the number of centres, producing one or many entities of existence. Thus all along, down through all the classifications, genera, species, orders, names, there is something seen or known, common to the individual class, genera

species, order; or incidental to the name. It is the same with the (?) classifications of animals. It is true, the classifications are not as distinct; in language, religious faith and sentiment, having so divided the attention, and confounded the judgment, either antecedently or subsequently, as to leave language deficient and confined; but yet, we see by what is, what ought to have been; and in passing down from classifications to genera, species, orders, as we have already observed, it is something that exists; is seen and known, special and peculiar, which gives the name, and assigns the location, of each particular. In each, and in all these, there is something special, as to the organism. In form, position, figure, number, perfection, design, use, end, operation, time, result, they vary. It is true, we are limited in some points—some one particular, in these incidents, because of the imperfection of our faculties. The oyster may have as *many* organs as a man; so that in number, they would be the same; but in every other respect, in something, they would be different. Bringing in the aid of comparative anatomy and phrenology, in the highest series, man; we find the greatest simplicity, distinctness, and wisdom displayed. As in the most perfect machine, there are no useless wheels, springs, pivots; no unnecessary motion gained, or necessary, lost; no unnecessary provision, or expenditure of power; each particular part adjusted to itself, and every part to the whole; so in man, each and all is perfect, in his organic existence—in an organism adjusted to effect the highest object—the perfection of animal organic matter. In his brain is seen, as in no other, the largest number of organs, all needed, adjusted, balanced, and distinct; and yet, all perfectly united, as the most perfect piece, of the most perfect mechanism. We see the tissues of infinitely fine ducts; we see the machine in operation as the man; expressed in language, looks, gesture, that which is peculiar to his nature; we mark, as different portions of his brain is laid bare by surgical operation, the distinct, independent action of each organ; and then, its limited, dependent re-

action, with correlative organs; living, we see some organs of the brain paralyzed, and destroyed, by violence; dead, we trace the connection and central point from the lines of infatuation, derangement, decay; dissecting the brain, itself, we come, finally, to the central point of all; and from these lines of action, leading from line to line, from centre to centre, to every limb, muscle, gland, and articulating fibre of the whole body. All these are electric centres, and become, under all circumstances of action, either electric pleasms, or vacuums to each other. Here, then, in this organism of man, we have the most perfect organism of organic animal matter, in animal organic existence. He is as dependent in regard to all the circumstances of his being, as the plant; and as much more so, as he is the more perfect. Without air, he instantly dies. In a multitude—a forest of men, in solitude himself, isolated, unknown, he in a few years, becomes more changed than a tree; food, action, rest, calling, thought, desire, passion, all change—the relative size and position of the organs of his brain, and the whole form and aspect of the man. Long to neglect to use certain organs, leaves them almost entirely to perish. This holds good, down through all the lower order of animals.

Having specified those points, in which animal organic existence differs from vegetable, and having shown the determinate lines of action in each, to be electric effects, we have all the illustration and confirmation, the subject demands. To the ichthyologist, ornithologist, zoologist, anatomist, chemist, is left the pleasing task of carrying out these principles—these primary laws of nature; that animal life and death are electric effects; and that, too, in all their concomitancy with animal organic existence, florescence and decay. Thus, in all that is palpable, demonstrable, known; our argument is conclusive, and our demonstration complete. If there be a soul in man, distinct, but now dependent on the body; at death, living, distinct, and independent of the body; if there is to be a re-union of soul and body in a spiritual state; the evidence, proof,

demonstration, rest on other ground than we occupy; and if there is not, it does not affect in the least, our argument. That ground is revelation; we have stood on what is called material existence; and having discovered the unity of matter, and the fundamental laws, by which it operates, have only demonstrated all that is seen in organic animal life, and organic animal existence, to be effects under the operation of this, as a material causality, in its action and re-action on its own formations. In taking a survey of the whole subject, we must come to the conclusion, that animal life and animal existence, are as various and multiplied in number and degree, as possibility can produce. That wherever animal life and existence can be, there it is.



## CHAPTER IX.

**INSTINCT AND REASON—ONE AND THE SAME. AND REASON SUPERIOR IN MAN, BECAUSE OF THE MORE EXCELLENT ORGANISM OF HIS BODY.**

This subject rests upon a broad and firm foundation. It follows in the order of nature and reason. We have examined bodies destitute of vitality; those possessed of vitality, but destitute of sensibility; and, finally, those which, possessed of sensibility, have determinate self-action, motion, choice, will, desire, affection, passion, thought, judgment; varying in some, as individuals, and in all, as the amount; from imperceptibility, up to the full, clear, distinct and triumphant display seen in man—the perfection of organic existence. We have cleared our subject from all diversion in thought, any obstacle in prejudice, or contradiction in fact. We now plainly state, and openly affirm, that which we shall soon conclu-

sively and demonstrably prove;—that instinct and reason are one and the same; and that reason is superior in man only because of the more excellent organism of his body. First, then, let us establish the point, that instinct and reason are the same.

Instinct, means, literally, *that which is infused*; and, as is generally used, means that which Deity has implanted in the nature of the animal formation, inferior to man. Reason, in its literal acceptation, means that which turns itself perfectly to the thing; and, as now received, is supposed to be that faculty which man alone possesses;—which enables him to think, know, compare, judge, determine; and in the line of cause and effect, antecedent and consequent, go on to make continued advances in science, to an unknown and unlimited extent. It is the ratio of an infinite series in the line of human existence.

We shall now, for a few moments, lay aside all our religious feeling in prepossession and prejudice, and examine the subject in the pure light of reason; that attribute in which we exclusively glory. This is what the subject and our duty require. It is purely matter of fact which we are to examine, and then, after such examination, simply to decide. It is not whether man has, or has not, a soul; nor whether inferior animals have, or have not, a spirit; but whether each has reason; that by which they know, think, compare, judge, determine. It is not how far superior is man to them, or they each to the other; but do all possess. The soul, spirit, spiritual existence, belong to another place, and to another science, and profession of men.

Have animals and men—those which have been called the rational and irrational creation, each, reason?—Or, in other words, do the inferior animals reason? Do they reason, and in the exercise of the same faculties and organs of man, so far as they are in common possessed by them? They certainly have the same avenues of knowledge—seeing, hearing, tasting, smelling, feeling. The eye, ear, nose, palate, skin, are to each the electric vacuums through which the brain is affected, and they know.



That they act on such communicated knowledge, is evident from the fact that they manifest fear, hope, desire, affection, determination, choice, concert, design, perseverance, wisdom. None, attentive to fact, or who believe the Bible, can deny this. Let us sustain, however, our position, by a series of facts.

Beavers select the fittest place for a dam; choose the most favorable season of the year to build it; form their dam in the best direction to resist the force of the stream; live in a community of public interest, yet have huts of their own, made two stories, and plastered; lay up their food; visit, and repair promptly at call to prevent a common evil. The ants are well known to prepare their habitations as a community to provide food, and lay it up in storehouses, wisely constructed for the purpose; and to impart to each other in the most rapid manner, the most important information. They not only know, understand, but *accredit*. If there is an obstacle thrown in the line of march, or a prize laid a little out of their way, the discoverer wheels in direct countermarch, and conveys the intelligence by stopping a moment to converse with each of his fellows. If it be an obstacle of danger, there is an instant halt, and return of most of the band, and the second express brings back all with him; if a prize, they hasten on, and the second messenger accelerates the march of the whole army. The testimony of two is ever sufficient. Any one may make the experiment on their civil and political economy. The bee, to all these perfections in the economy of life, has evidently one of the most perfect governments that ever existed. They not only, as male and female, propagate animal life; in a body seek a fit habitation; construct its interior wisely, in regard to room, safety, convenience; but they have the most perfect civil and political polity that can possibly be conceived. They are regularly divided into great classes, and thence into sub-divisions. Each knows his place, and duty. In time of peace, from the king down to the lowest subject, each discharges his respective duties, or meets the penalty. They prepare and send off

colonies, all adjusted as to government and laws; and if the colony has made an absolute departure, there is no return. In time of war, they set and relieve guard, rank and file, at the entrance of the hive. They know their own, and after examining, let them pass; while they as instantly recognize, and then as instantly inflict death on the enemy. While this is transpiring, the front and second line is instantly filled up by two in the front, and three in the rear rank. The enemy destroyed and dashed without the apiary, ignominiously to the earth, they return triumphantly to the hive, and enter to receive their rest and reward. Birds of passage, before they leave for a far distant region, diet themselves by almost extreme abstinence, during three weeks before their aerial journey. After they have become light, being divested of all unnecessary flesh, they then feed richly with a medium of exercise; and a few days before their departure they take frequent flights, each more long and lofty. On the day of their flight they arrange, according to age and strength, and in the best possible form, to meet the least resistance; rise and press with undeviating course onward to their destined clime. The martin will return with all its progeny from year to year to the same plantation. It selects its companion; builds its nest; has been known when it could not expel its enemy, to wall it in with mud—imprison, and starve it to death. It feeds most assiduously its young; is full of sport, chat, activity; but a few days before its young are old enough to fly, gradually withholds its food, then imparts it rather more abundantly; and, as soon as strong enough, and sufficiently well fledged, after teaching it by hovering before it how to trust to the air and use its wings, it withholds it altogether, and by presenting it at a distance too great for it to reach, tempts it, till, overpoised, it has to use its unaccustomed and trembling pinions. The dove selects its mate, is delicately affectionate, unchangingly faithful; and not unfrequently, at the loss of its mate, dies in sorrow at its loss. The dog, the horse, the monkey, the lion, the elephant, have all been taught to perform according to

their nature, a most perfect part in theatrical exhibitions. The Newfoundland dog, never taught, for it is beyond instruction, plucks a child from the fire; and at the expense of its comfort, and hazard of its life, dashes among the snow and ice of a mountain torrent, and saves its sinking master: or when it cannot entirely rescue him, runs, selects and returns with help. To give the finish to intellectual and sentimental excellence—knowing that he is dead, it not unfrequently watches by his tomb, till it makes it the grave of his own faithfulness and dust! And is this not reason? Most assuredly it is, and that in lively and most striking exhibition, because it is seen in those of inferior organism to man. But if in these, then in all; and it follows, as a necessary consequence, that instinct and reason are one and the same thing. It follows, also, as a necessary consequence, that reason is superior in man, because of the excellent organism of his body. This adapts him to all the duties, privileges and enjoyments of his higher sphere. He has the more capacious brain, the more multiplied and nicely balanced organs, the more perfect hand, the more upright form. He can record the wisdom of the past, and profit in the acquisition of science from universal mind. Still, few political governments are as perfect as that of the bee; while many of the human race debase reason, degrade humanity, and sink far beneath the beast.

It may be said that education, instruction, effects much in regard to what we see in the dog, horse and monkey. Education, instruction, only direct, elicit; they cannot create, reason. The organism, must be there. Memory, action, in time, place, number, in degrees, in strength, lines of position; and, all along; judgment must exist.

We wish this subject to be fairly, fully and conclusively, examined. It is time we had definite ideas, on principles and lines of action, which lie at the very foundation of truth, and are intimately connected with the operation of those primary laws which govern the universe.

The argument, that the fish, fowl, beast, insect, never, collectively, learn any more; and that the individual bird

never improves on its nest, therefore it is mere instinct; while man, because he does, and the individual of the human race, because he can, improve, is therefore endowed alone with reason; is altogether presumptive and fallacious. We cannot enter into their science; we do not understand their language; we are ignorant of the keenness of their faculties, the extent of their observations. They mark out new regions of migration, improve from association, and, for aught we know, the individual bird may make a better nest. But were it not the case, it would be the perfection of reason, that it could, in its sphere, operate invariably right, and never wrong. In all the less amiable sentiments and passions—in cupidity, deceit, jealousy, revenge, we have, in the animal creation, the strongest marks of reason, intelligence, mind. They travel for miles, to gratify desire. Many make use of the most consummate deceit to foil their enemy, or secure their prey. The squirrel castrates every male it possibly can, to secure its own dominion in enjoyment. The cock will fight to the death. The elephant never forgets nor forgives an insulting injury. Are all these things—and ten thousand might be enumerated, mere instincts; or are they the results of will, determination, reflection, thought, reason? Most assuredly, the latter. We see all these things, as manifestations of reason, exciting passion, action, as plainly demonstrated, as it would be possible to be, in man. We mark, then, all in the actions, motions, looks. If the martin fasten in the unjust occupant of her house, with a wall of clay, slowly and perseveringly constructed; it is because she is determined on this method, to overcome, and get revenge; if the fox, or cat, crouches low, and lies still, all the time intent on the mouse or fowl, or creeps stealthily along, and then pounces upon them; it is sensible of the necessity, and intends the deception; if the squirrel emasculates all the he ones he can possibly find and master; if he gets others to help him effect his purpose; and if the male rabbit kills all the male young ones, if he can find them; it is because of present jealousy, or prospective defeat in his amato-

ry career ; if the cock will fight to the death—watch, charge, defend, to the last ; aim to wound, kill, it is because he seeks revenge and shuns defeat ; if the elephant never forgets an injury followed by insult, but will avenge it for days afterward, in a wise and summary manner ; it is because he remembers, reflects, reasons, feels, determines ; and on such remembrance, reflection, reason, sentiment, acts ; and finally, if the bee, in time of war, places his double guard, passes his fellows, and arrests and executes his enemies ; and, in all this, manifests regularity, obedience, promptitude, decision, courage, passion ; it is because he sees, knows, reasons upon, and then enters upon, and executes his plans of self-defence, and political revenge. Away, then, with instinct. Say that it is reason, acting in its special and limited sphere. The instinct of animals, is then the reason of animals ; and though in less degree, rests on the same foundation as that of man. The senses, faculties, organs, reason, feelings, of one common animal nature—in man superior, because of the higher excellence of his organic existence. This is true, in fact, science, experience, observation.



## CHAPTER X.

### THE DIFFERENT RACES OF MEN, LANGUAGE, LAWS, GOVERNMENT, RELIGION.

It is but of late that any special attention has been paid to the different races which compose the human family. Their color has been supposed to be the result of climate ; their peculiar constitution and formation to the manner of life, habits, calling, society, and their language to have resulted from one common original tongue—or if there was anything surprising, unaccountable, it was resolved into a miracle, or the divine will. Things are now regarded differently, and the attention of the benevolent and

intelligent, is called up to a special investigation of facts, instead of theories, and to demonstrations of truth as seen in reality, instead of resting on the authority of man. The age of theory and authority is passed; and that of sound sense, sober reason, and free investigation, arrived: Every theory is reduced to experiment, and, as far as possible, has to sustain this double ordeal of truth.

As it regards the different races of men, they are generally regarded as consisting of five varieties. The Circassian, Mongolian, Malayan, African, Indian—there is, however, another race recognized by some as the Oceanic. This, however, found in mountains of the islands in the Indian and Pacific, south of Asia, probably belongs to the origin of the negro race. These five races are distinctly marked. The Circassian race is distinguished for elegance of form, fairness of skin, elevation, fullness, and breadth of forehead, lightness of eyes, hair, grace and intelligence.

The Mongolian race has yellow skin, straight, black hair, square head, flat face, small flat nose, prominent cheeks, and pointed chin.

The Malay race has a brown skin, black, curly hair, soft and luxuriant; prominent, but rather low forehead; thick, wide, flat nose, and projecting upper jaw.

The African race has black color, wool for hair; thick lips, projecting cheek-bones, large flat nose, raised chin, receding forehead; crooked legs, long heels, and flat feet.

The Indian is copper color, coarse, straight, black hair; high cheek bones, sunken eyes, low, narrow, recedant forehead, nose and face broad, nostrils open, lips thick.

The Abyssinians are almost identified as a distinct race, being of a violet color, resembling pale ink. These races, in some instances, vary in themselves, on account of climate and manner of life, but are so strongly marked, that all philosophers, however they may attempt to account for their existence, still agree in acknowledging that they are specifically different. If placed one of each in a dark room, they could be discriminated by feeling.

To attempt to account for this variety in the human

race, from climate, food, manners, is impossible ; because in the same climate we find the Indian, and Circassian, and Malayan, and Negro, living on the same food, the herbs, grain, and animals, of land and water ; we find the same in sections, and yet unchanged ; and on the same parallels of latitude all, more or less, in refined society, remain unchanged and determinate. Some have ascribed it to perpetuated disease, primogential deformity ; but diseases and deformities are never thus perpetuated. We may, nay we must come to the conclusion, that these are distinct races of men. We are further led to believe this from the fact, that two thousand years have made no change, as recognised by history ; and that, with observant, intelligent men, sixty years have not effected the slightest variation. We do not say different *species*, but different *races*. To determine to what race different tribes belong, is of little use to science ; but to ascertain whence, from what series of causes they have mounted up from an African, black, woolly, flat-nosed and footed, thick lipped, monkey cunninged, velvet skinned ; to the Circassian ; fair, elegant, noble, intelligent, graceful ; is worthy of the most unwearied efforts of the most talented and learned. To ascertain these causes is the object of this chapter, and the design of the electric science and philosophy.

There is no reason, however, that we should not affirm that there are different *species* of men. The canine race and the feline race embrace all the species of dogs and cats ; and yet, who hesitates to say that the Newfoundland dog, the fox, the wolf, the common bull-dog, terrier, are different species of the canine race ; or that the panther, leopard, domestic cat, different species of the feline ? Is there in either as great a difference as between the fair Circassian and woolly Oceanic Negro ? The reason, however, that we should object, is, because we gain nothing. We advance no nearer the truth. We discover no reason, no material causality, adequate to produce these effects. We see nothing of the origin of these races. Species will not do ;—they do not go too far ; but do not

go far enough. We, therefore, return from a mere verbal change, and propose, for our serious inquiry, what are the causes why there are different *races* of men on the earth? The theological difficulty, if any, which may arise, will afterwards be adjusted, if adjusted it can be, in the light of science and of fact. And here let us remember, that the subject before us regards material, visible existence, and not immaterial, invisible; that it regards men, not angels; the races of men, and not of the invisible beings composing "thrones and dominions, principalities and powers;" on and of this earth; and not in and of venus, the sun, heaven.

Let us, in the examination of the subject, forget, for a few moments, all our preconceived opinions; lay aside our prejudices; and turn the eye from all real and imaginary greatness; and as we did in a former instance, forget suns, and worlds; the boundlessness of space; the infinity of systems, in infinite variety, inconceivably rapid, and complicated motion; in order that we might regard plants in connection with vegetable life and vegetable existence—so let us forget the real and imaginary greatness of the invisible world; those moral and intellectual satellites and planets; those stars of truth, holiness, glory, and all but the upholding, omniscient, invisible, omnipresent—the "am;" that we may examine man in his physical, corporeal constitution, his origin, nature, race; or, rather, since as to his origin and nature, we have already become convinced; the different *races*; *their origin, cause*, in which we find them. We have here nothing to do with his soul, spirit; but his body; and not even with his body, any farther than the specific difference which identifies the race. We have nothing to do with genera and species, in themselves considered. We admit that man is of the animal race, from animus—mind, spirit; and a contraction of "Alla," implying existence; that he is a human being, formed of humus, the vegetable mould; that there are different races of men. In one word, we are to *discover and demonstrate the alone material causality, which has generated the distinct races of men.*



Our subject is now isolated and distinct. It is on the table before us—and so is our work, a work of *discovery* and *demonstration*. Happily, as it regards discovery, everything is prepared at our hand. Geologic science gives us a foundation of solid adamant, which no power can shake. Let us state *a series* of *facts* and *demonstrable* truths, sufficient in number to answer our present purpose, and, at the same time, remove the objections which have been urged, militating against them; and then we shall be able to rear up a temple “composed of gold, silver, precious stones.”

In geologic science, we have fully confirmed and established the following facts. The granite is the lowest strata in the earth to which man has penetrated; or the materia of which, in rock, he has, by physical violence, seen thrown upon its surface. It is the gray, hard, crystallized rock, of which the Astor House, N. Y., is composed, and which generally constitutes the summits of our loftiest mountains. It composes not the summit rock of all mountains, because there are some sections in the lines of special stratification, in which this, in common with every other, is entirely absent. It, however, pervades, lies the lowest, and circuminspheres the earth. There are above this, ten series of stratification, distinctly marked, specifically identified; each of which is unchanged in its order of position, and, of which we may say, in regard to all above, in an unchanging order of position, it is the lowest; and of all below it, it is the highest;—pervades and circuminspheres our globe. Any one may be sectionally wanting, or volcanic, electric physical influence, have sectionally forced through it, or all, and then in masses ejected over the surface of the portions of different formation; but in its order of position, it is never changed. It is as a lamina, a distinct formation in the earth's shell, never above or below. Hence, the value of geologic science to the miner. It is absolutely, palpably, mathematically, sure. The indices of a known ratio, are not less sure, and absolutely known, and determinate.

The old red pudding sand stone forms a stratum in one of this strata, and lies between (in locality passing by some of the series) the granite and coal formation. In this formation, extensively pervading the earth, we have pebbles of all sizes and colors, in infinite variety, from common stone to the hardest and purest flint or silex. They have been worn round by attrition. They are firmly imbedded and encased. The direct inference and ostensible fact is, that, before the coal formation, there was a universal deluge, and before that deluge, all the variety of formations of which they are composed.

The coal formation is circumsphered between the old red sand stone, and the new red sand stone. This is composed principally of vegetable matter, and is found from the extreme north to the southern frigid zone. That it is a universal formation and special deposit, in the order of some periodical change in the high line of cause and effect, yet to be determined, and not from electric circulation and deposit, as in the case of the materia in the glasses, is evident, because vast forests of trees are found in their natural form—roots, bark, limbs, embedded in, and changed to coal. These trees could never have been carried there, upward or downward, through the other stratifications; besides, all this materia was, before its formation, organic vegetable existence, sustained by vegetable life.

The new red sand stone is a formation of vast amount.

The flint and chalk lie directly below the four vast periods, identified by the filling in the hollow places of the earth, and in animal organic matter, the dividing line between petrefactions and skeleton remains.

These four periods, as we have already observed, are identified by the remains of land and sea animals, incarcerated above or below each other in solid rock. They are never changed. First, we have land animals, then sea animals, then land animals; and, finally, land and sea animals concrete. These identify the Eocene, Miocene, Older and Newer Pliocene periods.

Geologic science establishes, then, the fact, that there

have been various and universal changes, in regard to our earth, far more important than a solitary deluge, "covering every hill and mountain, fifteen cubits and upwards." "There have been vast ceonomies ; periods of vast duration."

In speaking of plants, we were led to state the fact, that there were four grand periods of fossil botany, in which no two species of the six great classifications of plants which were found in the one, were found in the other ; and that they lay between the granite and the coal ; the coal and the new red sand stone ; the new red sand stone and the flint and chalk ; and the flint and chalk and the present surface of the earth, or vegetable soil. It is also true, that the size of different vegetables has depended on the electric condition of the earth and atmosphere, and that these changes have been thus effected.

As it regards organic animal remains, we have, from the granite to the coal, the impressions of shells, and the forms of vegetables. Of the shell fish, nothing remaining but the stamp ; and of vegetables, the mould, and a little carbonaceous earth. In the coal, we have the snake, toad and lizzard, occasionally broken out alive. From the coal up to the flint and chalk, we have petrefactions of animals and plants ; and from the flint and chalk, the skeletons of animals. Of shell-fish, the ostrea or oyster, is the only one in genus or species, which has come down to us ; this only, of all that existed from the formation of the granite. In genera and species, they have been forming and perishing, all the way up through myriads of ages--periods of vast duration. Of other animals, this has been also strikingly manifest. Many, in genera and species, have perished. After we arrive at the Meocean Period, we find thirteen species of the elephant ; four of hyena ; many of foxes, birds, and of the thick skinned animals, which have thus become extinct. As we pass upward, we find various species, as of the horse, deer, antelope, first appear. The diluvium of Noah, or a deluge, is identified by the surface of the earth, all over the world ; *but the re-*

*mains of man, as a part of its ruins, are no where to be found.*

We have, now, all the materia we need, to construct our edifice; and we insist on the truth of this demonstrable proposition, that the different races of men have each resulted in regular order, from some of those stupenduous changes which have thus affected the earth, and its vegetable and animal existence. These changes have transpired—these results are seen. It would be with man, the same as with plants and animals, *did he exist*. But it is affirmed, he did *not* exist, because his remains are not to be found. We affirm that he *did* exist, and that his remains are not to be found, because of their perishable nature—besides, the argument that he did not exist, because his remains are not to be found, would prove too much, both in fact and for the purpose for which it is used. We might then say, and believe with the utmost confidence, man did not exist before the last deluge, because his bones are no more perishable than those of animals, and his bones are no where to be found; but the bones of animals, are, in vast quantities, of those, living only in the torrid zone, piled up in masses in the polar regions, and strewed and scattered, as if by the waves of ocean, and the winds of heaven. We might say, that grass did not exist, and ten thousand kinds of plants, because their remains are not to be found; when the remains of the animals are found, which lived only on grass, and the animals now exist, beneath whose feet everything perishes, and of which nothing can be petrified. The fact is, the remains of man cannot be preserved by any electric process of nature. He is the most perfect organic formation of animal existence, and therefore soon perishes. This is true in fact, experiment. Other animals are found in a state of petrefaction, but man is not. Of all the armies whose slain have been scattered, and left on the surface of the earth, in petrefactive regions; of all the travellers that have perished, we have not one solitary instance. His bones consigned to the earth, put in caverns, multisphered by coffin within coffin, cannot be preserved in form

or substance. In Indian mounds, standing for ages, we have nothing left but a little white chalky earth; and in the mausoleums of kings, there is only a small line of black, carbonaceous matter lying along through the centre of the coffin which contained the body. The only rational conclusion then is—if man did exist, his remains are not to be found, because there has existed no natural or artificial process by which they could be preserved. The question, then, is simply this, did he exist? The only proof we have, are the distinct races before us. We descend regularly, from the Circassian, down to the woolly, black, ape-formed African, whose lowest members are below the monkey, in all the attributes of reason which pertain to each. There is a regular descent in organic perfection, and in reason; resulting from the more or less excellent organic formation. What have we here? Why that which can be accounted for by no law in ordinary electric formation? It is not the result of climate, nor of food, nor of manners, nor of education, nor of all combined. What then? Why, they each are the distinct remains of a race of a former economy. The Negro far back, and the Mongolian the more near, and the Circassian the last formation of the last great change.

The conclusion, then, is inevitable; that the different races of men have each resulted in regular order, from some of those great changes which have thus affected the earth, and its vegetable organic existence. This conclusion is warranted by the inductive philosophy, that when all other causes assignable, are inadequate to produce an effect, then that which alone, is, and under the same circumstances, has; may be assumed as the true, and only true one. And there is nothing, either in truth or reason, which can authorize us to reject such a result. Let no one, then, flinch from the conclusion, because there are difficulties in the way of our further progress, and because religion is concerned. We are to remove these difficulties, and the electric science demands that we leave the religion of man untouched, in its excellence and efficiency; stripped of all the darkness, gloom, and despondency,

which friends and enemies have thrown around it. *The difficulties now*; religion in the place assigned it in the caption and subject before us.

We say that on the falling in of some portions of the crust of the earth, or on a changed polarity, or on both conjoined, there has been a vast destruction of human life; and that at each time, commencing with the Oceanic Negro, some, of all the races then existing, escaped; and that the Circassian race is an electric formation of the last great change. This, though our affirmation, our opinion, our theory, is, nevertheless, capable of as strong confirmation as the subject requires. Let us adduce some facts, in regard to all but the last position. That will require a distinct consideration.

It is a fact, that the surface of the earth, by which we mean its crust, continents, islands, oceans, seas, carries this two fold aspect. It has so been considered by the greatest men—that is, that it has at some period been larger; and that its crust has fallen in towards its centre; and that its polarity has been changed. That the earth has revolved on a different axis, is demonstrable, from the fact, that the coal formation circuminspherates the whole globe; that now, on the present surface of the earth, a vast amount of animal remains are found in polar regions, which could have belonged only to animals which had been produced in tropical climates; that the different stratifications of the earth being universal, and regularly disposed, and the hollow places of the earth regularly filled up by deposit above deposit, are so identified by organic remains, as not to be mistaken; and that these, with ten thousand striking instances, so marked and determinate, as to leave mind, perfected by the most excellent organic formation, in thousands of individuals, to rest in full conviction of the fact; are sufficient to convince us of a changed polarity. The facility of such a change in worlds, is greater than in smaller forms and modifications of matter. They are globular; are in empty space; are retained in their position, as already demonstrated, simply by electric elliptic motion, in action and

reaction. As this position of which we speak—the revolution of our earth on its present axis, was the effect of an equilibrium of electric forces, as it regards itself; so also, can it, as regards the direction of its poles to any point in the heavens, within the whole sweep of the starry firmament, be directed by the disturbance of that equilibrium; and this is, as seen in the economy of things; though in remote periods, easily affected. It is no doubt, however, brought about by the instrumentality of a combination of causes, which, with this, as with all worlds, is put in play at stated periods; and, although we understand perfectly the principle, may, as to the special, determinate causes, and fixedness of time, be forever above and beyond us. The sun has its annual motion; it has, therefore, its centre—it has its diurnal; it has, therefore, its polar star. To us, it is the source of electric action. A change in its internal construction, causing it to withhold the quantum we receive, would leave the earth to wander, as to its axis, to another point in the heavens. Again, a change in the condition of the interior and exterior portion of the earth, might change the earth's electric capacity, and the same result follow. The greater the change, the more rapid and stupendous the consequences.

That the earth, and all spherical, consolidating bodies, become hollow spheres, we have before considered; since there is less in centrifugal motion, in its revolution, to confine to the centre; since all bodies, in consolidating, occupy less space; and, from the fact, that the exterior surface of such a body, is the first consolidated. On this shell will rest the consolidated weight of the ocean and atmosphere. What shall prevent this yielding to the stupendous weight; especially, when we reflect that volcanic forces are at work within? The rings around Saturn are supposed to have been thus formed; and, when we consider this grand law of consolidation and electric excentration, which is now demonstrably and experimentally true; we may confidently and warrantably affirm, and believe, that they were. This will account for those higher

convulsions, which are seen in islands thrown up, and continents almost entirely submerged; lofty plateaus, and beds of seas which strike the eye. The four last changes have evidently been less violent, and it is from these we date the different races of men. We need not pursue the subject any farther, in regard to these two points. Whether a changed polarity, in itself considered, or a changed polarity and a breaking in of the surface, and some portions of its surface mingling the formations of matter in a more or less perfect aqueous or fiery deluge, is immaterial. These great changes have taken place; these distinct races do exist; and it is only on this ground, that the former could have taken place, and the latter have existed.

In regard to the continued production of a new race of men on every changed polarity, it rests on the same and no more difficult ground, than that of a new race of animals of the brute creation. This we have already demonstrated. The argument, it will be recollected, is simply this. If they are all along up in different races, and species reproduced, why not new races and species of men; but they are thus produced, so also is man, and thus to believe and teach, both rational and true. But not without an instrumentality and cause adequate to produce the effect. This we have to infer, but our inference is sustained by all the proof which the subject demands. As we have never experienced a changed polarity, we cannot have experience; and since every thing from others must be traditionary, we cannot have historic fact. It is not expected that we see men and women starting up from the water or ground, any more than any of those more beautifully moulded and graceful animals, which rise upon us in the grand changes and reformations of different portions of the earth. We, however, in the moulds, petrifications and skeletons, read the former in the history of the globe, more sure in its demonstrations in lines of earth and rock, than mathematical demonstration. And in the existence of the races; and the tradition of the thus emerging the horse and woman; we have all that is requir-



ed to make conviction complete. The tradition is, that Neptune brought forth the horse from the waves of the sea, and Venus from its foam. Whence the tradition without the fact, or rather the reality of a more graceful horse, and beautiful female, having emerged from the deep? This is sustained in the first instance by the fact, that the horse has appeared; and, in the second, that the more beautiful race does exist. This is illustrated, and made easy to faith, from several facts. It is a fact, that it is one way by which electric centres are formed in progressive existence with life unchanged. The frog is from the water. This is the electric medium. Thousands of different flies and anamalcula are from this element.

Now what would take place on a changed polarity in regard to some of the most interesting centres of human existence? Millions of females would at the moment be enciente; and just at that period, too, when all was prepared for perfect formation. They would, the more delicate and amiable, swoon away, and in this semi-living state, soon become emersed in electric menstrooms, soft and energetic enough to crush, and at the same time warm enough slowly to evolve the embryo. This might remain for ages, and finally perfected, in form, strength and beauty, come forth into the light of the sun, and communion of man. This is nature's process; and it was thus that the last race was formed; and at their turns, the different ones, in their order, which compose the other. We are brought to this, as the alone legitimate conclusion. This is no more wonderful than the production of new species of plants and vegetables, by just mingling their seeds in the air, and then depositing the centre formed in the ground; nor than the change of the mote in the water to a beautifully tufted fly, in whose eye alone can be counted thousands of electric circles. Here only is the frequency—the thing, the operation, the result is the same. This does not militate against religion, nor does it weaken the the Mosaic account of the creation of the world, and the formation of man. It is evident, on inspection, that man has been left to form his own religion, so far as his in-

strumentality is concerned ; and, if there be anything under the special operation of Deity, in regard to him, it is through the instrumentality of material causalities. The essential truths, whether affirmed more or less clearly, or predicted more or less distinctly, are all there ; the first in fact ; the second in the purpose of an unchanging God. Had all been taught—which could not have been, there would have been nothing further to know. It is sufficient that there is a God ; and, that, as a whole, everything is infinitely wise, good, beautiful and glorious. The progress of science, compels us, in every branch of human knowledge, to use different terms, phrases, language, thought, sentiment, faith, teaching ; and why not in religion ? It has, and does. Say that Moses wrote as a man, and that God discovered to him—if indeed he did, just what he was pleased ; and we have all that is required ; and to this conclusion and teaching we have to come.

Thus we have established the fact ; that different races of men do not only exist ; but that their existence has resulted from the great changes which have taken place during intervals of vast duration, and from the electric perpetuity of human life, in animal existence. Thus being understood, it must be perfectly plain, why there is a difference in the different races of men, as regards the influence which time, as it is passing, has upon them. One remains wild ; another imitative ; another inventive. The phrenological constitution of each, answers to its origin, and duration, and position. This brings us to speak of laws and rules of action, as it respects the different races and different sections of each, as of savage or civilized society ; and to present them in the line of electric action and reaction.

We do well here to observe ; that in order to a full and clear conviction of the truth, it is necessary that we recollect that the brain is composed of a variety of distinct organs ; each answering as the centre of action to some one propensity, faculty, sentiment or affection ; that these are distinct formations ; and, although determinate,

as to place and position ; are, nevertheless, as much under an active, electric influence, and all dependent on one common centre the sensorium, as are the bodies composing our planetary system. This is confirmed in the light of the electric philosophy, and is so accredited and taught by the learned societies of Europe. The brain is divided into distinct sections as the region of physical, social, religious instincts ; of reasoning, perceptive and reflective faculties. These organs are upon the principle of action and reaction, dependent in their size, position, and convergency or primogenital formation, both in the male and female ; on maternal sympathy during gestation ; on the habits of life, calling, society ; and in short upon every thing as it becomes more or less the centre of perception, reflection, action. We need not illustrate, by presenting a variety of actual or supposable cases. Now to bring one race directly under the laws of another, or one portion of the same race in a savage or semi-savage state, under those of another portion, is to hasten together extremes in electric formation, and a reaction is sure to take place ; though perhaps a benefit to the whole, yet inevitably destructive to the inferior order in the line of race or of civilization. This is confirmed in the face of all history, experience and observation. The less, the inferior is overcome, scattered, destroyed by the superior. We have only to open our eyes to see it ; to reflect, to know, that it must be so. Thus savage tribes have ever passed away ; and now the different races are melting before the electric energy of the Circassian. The law, the rule of action, for the more civilized, is not for the less. The energy, moral and intellectual, of the former, is too strong for the latter. Hence the violent opposition, enmities, desperation, cruelty, destruction, which follow, when either, through physical force, secure the supremacy.

The same is evident in regard to government. If it be true in reference to a rule of action, it is still more so, when made in reference to a system of rules, a regularly, densed plan, and appropriate functionaries to carry it into execution, embracing a country, and sometimes almost

a continent. They are points of electric formation which are to each absolutely appulsive. Violence may subdue, policy circumvent, fear compel; but there is no heart-felt union, oneness. The dominions of a conquerer are heterogeneous masses, soon to perish in sections, or become self-scattered to the winds of heaven. Hence conspiracies, rebellions, insurrections, revolutions, slaughter.

Not less evident is it, that one religion cannot in any country, over any race or people, be made suddenly to supersede another. It can be effected only by the sword, and the lapse of ages. The first is ever the advanced guard. Witness the whole history of man. See the Pagan, the Christian, the Catholic, the Mahometan, the Persec and the Jewish. Their religious faith is the first for which men will rally, and the last for which they will contend. Whether a true or false religion it matters not; the electric energies of mind is in them so far as possible centred, and in its might they contend.

But we need not dwell on the subject. We have presented the formation of action in science and motive, and the wise can carry it out in all its bearings upon the interests of individuals, tribes, kingdoms, and the world. They will see much to cause them to reflect, consider, pause. Thus the moral world is spread before us, and under the same laws of action, assumes all the certainty, permanency, and expansion of the material universe.



## CHAPTER XI.

### DIFFERENT LANGUAGES, RELIGIONS—RESPONSIBILITY, FREE AGENCY.

It is as evident to any one acquainted with the history of man, that there are as distinct languages, as there are races. It is in vain to trace all to one common original, as the distinct races to one single pair. In the attempt, we are met by a thousand facts directly op-

posite, repugnant, invincible; and are sustained by only those common incidences, which, in all formations, necessarily exist. Hearing, sound, and imitation of that sound, are at the foundation of all, and every language; hence, there must be, in certain words adapted to sound, similarity. But, by language, we mean those radically distinct. Those, which in simple and compound words, present a pleonasm in themselves—something which lies below and beyond all that has been effected by conquest, intercourse, science, fashion; and that, which, finally, did we understand all other languages on earth, could be learned only as arbitrary signs; we being compelled to determine the meaning, by the order of reason. We thus, in the different languages of Europe, trace in those very languages, the march of conquest and civilization. We separate all that is Greek, Latin, and come to the Gaelic—or of any of the modern languages, and come to the Latin. Now it is a fact, that when we adopt this rule of action, *that* language which is the *original*, if known, must be of this character, and have this specific difference. But the Hebrew, while it has the evidences of an original language, has not the specific difference which makes it the original of all languages. The Coptic is the only one resting upon it. The Arabic; the Sanscrit and Panscrit; the Chinese and Japanese, have the evidence of independent originality; and if there be an original to them, it must be found in the Japanese alone. The Japanese can learn the Chinese, but the Chinese with the greatest difficulty, and never to perfection, the Japanese. In carrying out the science of language in the light of the electric philosophy, we see the operation of the same determinate laws in action and reaction, which are seen in the formation of organic and inorganic matter as it progresses onward to perfection, in form, life, existence. Every word is an effect, and the language itself the creation of the individuals which have formed it. Words become softened, assume a more finished form, become flexible to different acceptions, and in some instances, are radically changed. The language

assumes, at the same time, in all the circumstances of form, sound, ease, copiousness, different phases as it is passing on in the currency of life and thought; business and enjoyment. If we take the English, in specimens presented by our great lexicographers of different centuries, we mark a most striking and surprising change. And we have in this, in the light of its own history, the history and philosophy of all. We have here in these, high laws of electric action, certainty taking the place of doubt; and science, seated on the throne of theory and speculation

From the languages of the earth, we turn naturally to its *religions*; and at once infer, that they are as essentially different in their formation, as are the races of mankind, or the languages of the world. Some must, in the order of reason and nature, become primary; and some, secondary; one, perfectly simple; while all the rest are compound. The primary religions must have that, which, in its origin, makes them specific. Not sects, denominations—religions springing out of moral and spiritual purifications; stamped by tenets, forms, and the names of zealous reformers; but religions originated from new physical changes in nature, or a new teaching of man. These will make the specific difference required. Thus, in the Perseic, or fire worship, we have the object of worship in fire; and in the indestructible remnant of the once splendid religion, an evidence that a fiery deluge gave it its origin. In the Jewish, the teachings of an individual, who insisted on the worship of a one God, to the rejection of idols; and with the offerings of sacrifices. In the Christian, the teaching of a filial worship, and self-sacrificial offering once for all; the same as the Hindoo, from which it originated. In the Mahometan, a rejection of all sacrifice, and the concentration of all prophets in self. In the Mormon, (if it become established,) the concentration of all gifts, graces and revelation, in a new dispensation. Thus, we must have the starting point—a centre of action, from which the for-

mation is commenced, and by which it is perfected. They are effects from definite causes; and causes, too, as the result proves, adequate to produce the effect. There must be a foundation, broad, deep and solid enough to support the edifice. When this is not the case, the thing which is attempted to be effected, and which is consecrated as a religion, perishes. This has been the case in all ecclesiastical schism. It will be the same with the Catholic and Protestant. When the necessity of protesting, shall have passed away in the light of science and savor of piety, the schism will be healed in their mutual coalescency. It will be the same with the Greek and Roman church. But with those on the foundation specified, this cannot be. The Perses, the Jews, the Mahometan, the Christian and the Mormon, have to exist, or be destroyed by the sword; because the primary articles of faith, the cause, origin, the centre is there. Salvation from, and purification by fire, in connection with eternal life; an entire change from idolatry to the worship of a one God, with animal sacrifices and a promised deliverer; an entire change of animal sacrifices, in the once offering up in incarnate deity of one self-consecrating sacrifice—one divine filiation once for all; in the concentration of all polytheisms to a one God, and all prophets and prophecies to a one prophecy and prophet; a union of all gifts, graces, rights, in a one prophet and people, on a new bible, or revelation. Such being the facts, the inevitable conclusion follows, that these must be permanent, because they are special formations, lying deep in the constitution of man, and of the immutable laws that govern the universe. Races must be changed, names blotted out, the primogenital and habitual electric formations of ages destroyed, in order to effect it. Other religions and faiths are, in the same proportion, indestructible. All this, which is true in theory, is found demonstrable in fact and experience. The world's history confirms it. The Perses, the Jews, the Christians, the Mahometans, have withstood all instruction, motive, violence. Different sects have resisted unto blood—persecuted and persecut-

ing. The violence of the sword can alone destroy. Now, how evident is it, in the light of the electric science, that all the good that can be effected, must regard the world, and not the people of such a religion. They may be wasted away—not converted. Sects and denominations amalgamate for a period, again to originate and flourish. These changes are as permanent and periodical as those of inorganic, or vegetable and animal organic existence.

The inquiry, in the light of this high science, on what rests *responsibility*—the power and obligation to answer righteously, arises before us; and its answer is direct—to act according to our natural and acquired constitution, with an intention to do good, and not evil. This embraces the whole subject and ground of inquiry. The intelligent and benevolent can carry out the argument.

A second inquiry, not less important, is, on what depends *free agency*? And the answer is not less direct. It is, simply, the act of choice; accompanying and originating every self-determinate action. It can no more be separate from organic animal existence, than the electric circulation, which is in worlds, or in plants, or the parts of plants. It may be said to be, as it regards determinate action, the focal point. We first choose, and then will, to act. Free agency, therefore, rests on an immovable and indestructible basis. Argument, either for, or against it, is equally useless.



## CHAPTER XII.

### FUTURE ORGANIC EXISTENCE IN MAN, AFTER DEATH.

The subject upon which we now enter, is of the highest possible interest. It is evident that it can be established only on the ground of science. It is, moreover, manifest, that, since the electric lies at the foundation of all other science, it can be demonstrably proved in the



light of no other. Arguments drawn from analogy; those drawn from the testimony of others, when that testimony is met by what appears an absolute impossibility—as contrary to what is, or can be; and especially that which rests on tradition, and a persuasive hope and faith—and, still more, on an internal feeling that it is so; are altogether short of the subject, and fail in a rational conviction.

We must, then, seek more solid ground. To do this, we have recourse to the highest science of the day; but one which, though demonstrably true, is, as yet, but partially received by the scientific world. We mean *animal electricity*. We shall prove, independent of all that has been done, that it must be necessarily true.

We take the position, that the highest portion of organic animal existence must have the most delicate, intimate, perfect and efficient connection with the electric fluid itself; and on each special modification of its own nature, in action and reaction. It cannot be otherwise. It would be contrary to reason, fact, mathematical progression, and certainty in result. It is in its whole, and all its particulars, and in all its infinite variety of centres, in each particular, an electric creation. This being the case, the action and reaction must not only necessarily follow; but must, in delicacy, intimacy, efficiency and certainty, coincide with the perfection of the parts and of the whole. This is too self-evident a truth to require argument. We have thus in the whole, and each particular, the first in efficiency, and the last in result.

Our second position, that this is confirmed in matter of fact, observation. Beavers, bees, ants, are intelligent, sentimental, operative, only within the sphere of a common interest. The formation of animal life, resulting in animal existence, is, in its commencement in the highest series, the result of thought, desire, affection, passion, action, under which there is mutual action; and in each, in delicacy, intimacy, efficiency, according to the nature and perfection of each individual. After life is originated, the vacuum is filled up by the most fine and perfect elec-

tric circulation ; and is, from the sentiment, passion, affection, alarm, fear, fright, terror, of the mother, often seriously and hopelessly disturbed. In the performance of all arts, in the prosecution of all sciences, we acquire skill, force, certainty, in regard to execution ; all the senses, all the faculties, all the members, nerves, muscles, become more vigorous, active, delicate. Individuals have arisen at every age and period of the world, who have been called "prodigies." One plays, at a very early age, the most difficult piece of music, which he had never heard ; and without a single variation or discord will carry out any part assigned him ; another, equally young and uninstructed, returns answer after answer to the most complex combinations of numbers, before the question pertaining to each can be written down. The efforts of the former would have been beyond a Handel ; and that of the latter infinitely surpassing Newton. There have taken place, under the influence of mind, some of the most stupendous effects. In the Salem witchcraft, persons swooned ; lay in trances, fits ; were spasmodic ; had dislocation of limbs, piercing pains, partial phrenzy of mind. Now these are facts. They can be accounted for on no other principle than electric action and reaction ; in degree, in delicacy, intimate union and energy, in exact proportion to the perfection of the organic formation.

That there is independent vision, without the eyes or light, is demonstrable, from the fact, that individuals have, in the midst of darkness, arisen and performed the most difficult operations in algebraic analysis, in what has been called somnambulism. They evidently saw. That they saw without their eyes is evident, because there was no light ; and, because, when in other instances, they have had light, the axis of the eyes has been seen to remain all the time fixed and immovable. But if there may be independent vision in one instance, there may be in a thousand. Now since man is the highest in the perfection of organic existence, it follows, as a necessary consequence, that in independent vision, he must surpass all inferior animals ;

and not only so, but to the extent of that superior nature. There must then exist, if it has not as yet been discovered, some way by which he may thus admeasure the sphere of his pre-eminency. Independent, therefore, of all that has been said in regard to such discovery, it is demonstrably true that such a science must exist.

It does exist, and has been discovered in animal electricity. It is all understood at once when we affirm that it consists in a determinate electric influence; and that the electric fluid exerted takes possession of the subject, acting on the nerves, muscles and organs of the brain, under the determination of will, sentiment and affection. That it differs from ordinary electricity only as modified by the animalized materia through which it has passed—and that since a vacuum has been formed in the brain, it becomes an eye to be directed, and brought in contact with whatever existing in fact and reality the electrifier chooses it to be. The body being an electric formation, and the most perfect of all others; and the electric fluid filling infinite space infinitely subtle and rapid; time and distance are blotted out. The past can be seen, because all has existed in its own light and energy; the future, because with deity all is fixed and unchangeable; all a necessary part of one stupendous and perfect whole. This being the case, all mystery is blotted out in reality, and we enter upon the high discovery and science, in all the confidence of truth and righteousness.

Now in the teaching of this science, as it regards a future existence, there can be no doubt. The future invisible state is seen; individuals recognized; a vast variety of higher intellectual beings seen rising, order above order. It is on this ground, that future existence is to be believed and demonstrated. It could not be otherwise. It is impossible that any form should ever be blotted from existence, and become unknown to deity; and it is impossible that any line or point of electric action, or combination of electric formation, however multiplied or combined, should lie beyond the discriminating ken of that point of high organic existence, to which deity wills

it to be seen. The question is simply ; is it so ?—if so, he wills it. We are then to see to what extent this high science may be carried ; and from experiment, how far in any particular modification or individual. Thus the determination of the fact, the instrumentality and result, are all distinct questions. The fact *is all*, and the rest a sequency in correlative operation. It is on this fact now known, that we rest our faith in regard to the future existence of man in the invisible world. It is not our business here to exhibit the various confirmations made by men high in professional life, and of thousands of undoubted piety ; nor is it to give in this place, instructions in regard to the science ; but simply to state the fact that the discovery has been made ; that the future and past can be seen ; and mind act on mind, with secret and irresistible power.

We may now bring in analogy, and the argument is conclusive. The fly deposits the egg in the cabbage plant ; and from electric action, excited by the matter composing the plant, the worm is evolved—the worm an animal formation, from the materia he has eaten of the same plant, and the modification that he has assumed in the electric action of his organism as a worm ; spins his aerial palace, which, when finished, excluding the atmospheric air, prepares an electric vacuum, in which his existence as a worm is destroyed ; but life is left to revive under a new energetic impulse, and to become evolved in a gorgeous butterfly. The fly may have come from the water, or the leaf of some tree ; a fact which remains as yet to be established, but the worm did come from the cabbage plant, and the butterfly from the chrysalis of the worm. Here a leaf, the air, an aerial castle, are the line of progressive life in changed progressive animal existence.

The passing of life in man from a body into the air in electric formation, so that there is in the same life renewed existence, to us invisible ; is not greater nor of any harder faith or difficulty in science, the principle being discovered, than that of a worm to a gorgeous butterfly.

Things are too small to be seen, except by excited electric action on the eye; they are too subtle to be seen, except by excited electric action on the brain. Each are exerted according to the determinate laws of electric formation. A new modification of matter is created, and throughout universal nature it is sent forth in its semi-celestial operation. Hence the certainty of future existence, and hence responsibility, since every secondary formation, in its existence, depends on all the lines of action and reaction which immediately precede. It is so seen in man. It is so exerted on his electric formation.

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## CHAPTER XII.

### FOOD AND MEDICINE.

It requires but a moment's reflection to discover that the electric formations of vegetable life and existence; of animal life and existence, as it regards food, must have a perfect concomitancy and congruity. Each must be nourished by its correlative. As these formations become more perfect, so also will their nourishment become more pure. The laws of action and reaction in elliptic motion and electric formation remain unchanged. It is so. A thousand facts testify to its truth. Each animal has its element, sphere and food. The earth-worm lives on humus and water, while the humming-bird lives on the honey of flowers. One species of wasps lives on spiders; another on flowers. One kind of fish lives on another, and one kind of carnivorous beasts on another. What is food to one is poison to another; and simply because of a congruity between the two. There must be neither a neutrality nor an extreme. Man being the highest formation, has, and by art accommodates, a vast variety to his organic formation. Still he can convert to food neither wood, earth, or stone.

It is the same in regard to medicine. As he mounts

upward, and the purity of his food increases, so also should that which, as medicine, he employs. It would be absurd to send him down to metals or minerals, however prepared, since, received into his system, they are too excitant or paralyzing, and liable to be converted back into a crude and solid formation, even while circulating in the most delicate and solid parts of his body. This is known from fact, observation and experiment. This medicine should be of the vegetable, and of the animal electric. This coincides with his organic constitution; and it is found, on the outgoings of the immutable laws of electric action and reaction, ever to hold good. For bleeding, sudorification must be substituted; and for blistering, friction and lubrication, with an electrified ointment. It is too late to argue the case. It is now established in the light of science, experiment and fact. The botanic electric system is established in nature, and must, in the theory and practice of medicine, inevitably prevail till it becomes efficient in science, and universal in operation.

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## CHAPTER XIV.

### PARTURITION—MIDWIFERY.

We shall insert in this volume a chapter on parturition, in connection with the means in medicine, and instrumentality which ought to be used in relieving nature, whenever from any causality she may become aberrant or inefficient to performance required. That such aberrances and inefficiencies do exist, is matter of serious reality.

It will be remembered that the mother is the electric pleonasm to the embryo, or life in its progress on to animal formation and animal existence; and that it is an electric vacuum, which the animal electric circulation is, immediately after conception on to its birth, continually filling up. This is the line of cause and effect, action and reaction, continually resisted and accelerated by the

vessels of reception and the centres formed in the new organic formation itself. It is, however, perfected at the full period of gestation. Changes in the electric state of the atmosphere, or in the health or sentiment of the mother, or the peculiar energy of the formation itself, may retard or hasten it a few days. When the pleonasm is nearly filled, in consequence of an arresting of some portion of the various kinds of electric formations, which are carried and returned through the material system in its connection with this vacuum, faintness and pains (resulting from spasms) are felt. The electric energy restored, the pains cease; if not, the period of parturition has arrived. As the embryo descends, since the regular impartation which supports life is disturbed, it makes an extra demand upon the generic organs of the mother. Hence contraction and relaxation; pain and rest, follow in the line of electric action and reaction, as cause and effect, antecedent and consequent. They are all necessary. When the infant has verged into its new element of animal existence, it is by the law of electric demand, compelled to receive that which continues life through the air, as a medium and the food required. The deficiency causes spasm; the spasm pain; the united action of which results in opening the mouth, the inhaling air, and consequent crying of the child. So soon as the antagonistic forces become adjusted, rest and sleep follow. The stomach, as an electric centre, now begins to act, and all the organs prepared for digestion are put in play. The mouth contracts and opens; the breast is applied, and the materia received for its electric energy, to change to a formation, which shall be prepared for the supplying the materia in building up the body, in the universal electric circulation. We now insist on the truth of a number of almost self-evident propositions.

The pleonasm which can sustain all the demands of supply and abduction, till the full period of full digestion, can, with ordinary means, complete parturition, except in extreme cases. What holds good in every thing else should in the present instance. Whatever is calculated to disturb

the laws of electric action, near the time of parturition, must be evidently injurious, and result in difficulty, pain and danger. These must be prematurely, and in all the line of electric vacuums and pleonasms, derangement takes place. It is found true not only in reason, but also fact. Hence bleeding, by its reactive influence, is injurious, hastening or retarding; and leaving the system destitute of energy to sustain labor—especially, still more, in the midst of parturition—and not less after it is effected. Nature requires all her life-giving power. The blood being the electric channel; to disturb it is to cut off life; to do it in the time of parturition is instantly to arrest the work; to do it after is to close up the lacteal system, and leave the whole formation clogged and loaded with that which should be turned to food for the support of the child.

Since the hand is of a different electric energy, it is evident that it ought never, except in the greatest danger, to be inserted, and then, after having discharged its office, to be instantly removed. As we are sentimental and religious beings, every expenditure should be prevented in the misgiving of a cheerful hope, and every assistance imparted. All violence in voice or muscular action should be avoided. It is an involuntary act, through electric action and reaction, on the mother and the child; and all the energies of nature are required, at least none ought to be uselessly expended.

Such is the teaching of electric science on this important subject; and what is more, till that is received, it is the language of experiment and fact. We have thus effected our task, and presented from the unity of matter its most perfect formation in the microcosm man, and in his individual egress, as a beautiful planet in a cloudless sky. We have all along followed the operation of the same laws of electric action and reaction, and have struck out its strong and determinate lines in motion, formation, life, existence, death; perpetuated life and repeated existence after death. We have accounted for the elliptic and diurnal motion of worlds and systems; elucidated and determined the doctrine of the tides; thrown light on the



geologic history of the globe; settled the question in regard to instinct and reason; confirmed the existence of different races as the remains of old economies; pointed out the origin of languages and laws; illustrated the effects of such institutions as are the result of high degrees of civilization, or of a higher race when forced upon the inferior; dwelt upon responsibility, free agency, and presented a firm foundation for our belief in high perpetuated existence, after the present period shall have passed. We leave the whole in the hands of truth before the world. Our effort is here safe, and our labor will not be in vain.

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## CHAPTER XV.

### INSTRUCTION IN REGARD TO ELECTRIC OPERATION ON A SUBJECT.

Having selected one who, from phrenological development, shall evidently in activity of mind, flow of language, soundness of judgment, and benevolence of disposition, be of use after he has become an electric centre, retire alone where there is none to disturb, and taking the thumbs in the hands, compose the mind and countenance, and in fixedness of purpose and benevolence of feeling, fasten the eyes steadily on those of the subject—continue till he close them of his own accord, all the time willing that he sleep. This suspends the inflowing of the electric fluid through the eyes, and the sending it forth in determinate volition through the limbs. The brain commences becoming a more perfect vacuum. Lay the palms of the hands a minute on the shoulders, touching as nearly as you can the region of the subclavian arteries, willing steadily the same. This throws the electric modification of your own body, into the heart blood of the subject. Place them the same

time on the head and face—this deposits the same on the head and face, and excludes exterior influence. Put them gently over the body, passing down the limbs, and at each pass throw off from the fingers and with the palms turned towards the subject, continue to operate on different members and organs in determinate action and volition, as the case, experience, judgment, skill, feeling dictate. Each subject may require a more or less varied manipulation, and volition, and each will be affected according to his peculiar constitution, and the circumstances of the case. After entire possession, and a perfect knowledge and confidence in the subject, he may then be used in any exhibition or work of benevolence. With an able electrifier, and highly perfected clairvoyant, there is no limit as yet discovered either in regard to time, space, the past or future, publicity or profound inscrutibility; except what is limited by the radical constitution of distinct classes of beings. The butterfly can know nothing of the reasoning, language, feeling of the worm; nor the worm the butterfly; nor can we converse with horses, nor of those of the inhabitants of the invisible world, who are not of our order of existence in the line of life; that is, electric formation in perpetuity. They must be intimately, not in extremes, connected with man. The dog can know more of his master, than the master of him. We advance in an ascending series. The past becomes lost in the perfection and brightness of the future.

In the line of operation, all our gestures should be elliptic or direct; that is, in sections of an ellipse or the parts of a triangle, the former coinciding, as near as possible, with the figure of which the organ is the focus, and the line the vector radius, into and out from the centre. Practice and the electric circulation will make perfect.

#### DIFFERENT THEORIES—ELECTRIC EFFECTS.

Having carried out our system, it is very natural to ask, why there should be so many theories? One believes that an "equilibrium" is the grand law of nature; and

another that a neuraura is the medium of action ; and another that "no medium is necessary, any more than for thought to act ; or, if it is, sympathy is the medium and Pathetism the agency." Now if we bring these men to a phreno-electric examination, we shall see at once that they are the ones that have their origin in their own individual formation and self-dependent volition, and design, so that their differing and entire reversion of the primary laws of nature, in substituting an effect for a cause, and a nothingness for a material causality, is evidence of the truth of our system.

Dr. Buchanan says "that a nervous fluid is eliminated from the operator into the subject ; and this fluid, when the finger is applied to the cranium of the latter, excites the mental organ located in the place touched by the operator—hence Neurology is the name of the science."

Mr. Sunderland says, "I find it equally easy to cause patients to excite their own mental organs—I have a thousand times produced these phenomena without a contact, and without willing, consequently without any fluid ; therefore there is no electric effect, nor any medium."

*Doctors* will disagree. Let them ; it is a natural consequence. But what says the electric science ? Why, that an equilibrium is no law, but that the lines in which disturbing forces ever operate are the laws, and those of elliptic motion in action ; the *fundamental* laws which govern the universe, and any formation and amount of mind or matter—thus ; if there be a nervous fluid it is a modification of matter ; and that the electric fluid is the material causality—that in action and reaction there must ever be a medium, according to the nature of the formation ; that, as regards the person, general or specific effects may in some instances be produced without will or contact, because of the electric condition of each ; and because there is ever action and reaction. Distance is nothing ; opposing obstacles are nothing ; our ignorance how it can be, is nothing—the question alone is, is it so ? We can see a star—it is an electric effect ; we pass to it, and are in it—it is an intellectual electric effect ; that is, we pervade ; pen-

trate survey, with the brain as a more perfect eye—as the whole being, the object. We penetrate the past—the whole circle of electric centres and formation are in sight, hearing, emotion, through the electric fluid, which forms them at once before us; we pass onward to the future; the centres, forms, emotions, to be formed by an unchanging being, by this as the material causality, in plan and purpose, are open before us. There are limits; but they have yet to be discovered in science—and his purposes in the exerted energy of the being in his present individual existence, and future perpetuated existence; in the line of life, intelligence and perfection.

We now dismiss the subject, leaving the amateurs of different arts and sciences, to carry it out in their respective departments. It is high time that a foundation should be laid—not in theory, but system; and that which is founded on the primary laws of nature must, of necessity, be the alone true and permanent one.

EXPERIMENTS. 1. Throw the fluid in water, giving it determinate action, as to design, effect; and though kept for months, and the subject be ignorant of it, it will effect the object. The electric formation is adjusted to the organic formation.

2. Place the person before you, lying on a bench with stiffened muscles, breathe forcibly over him and lift, and he is lighter according to his electric condition, and the determinate electric energy of yourself at the time. The electric fluid makes specifically light, when imparted in excess; and taken from the air immediately above him, leaves a vacuum.

3. Extend the arms of the subject, and operate on the muscles as required, and spasms and apparent vast muscular energy is produced. The electric fluid deranged as a pleonasm, or a vacuum, produces spasms, or relaxation; this added to the previous principle, gives the result.

4. In a clean vial, put a quantity of pure water; insert the fore finger, and invert the vial, and thousands of exceedingly small bubbles will be seen to ascend; exert

the will, and this will on the subject produce the specific effect. The escape of the fluid is seen, as well as recognized in its efficiency.

5. Electrify a dollar; and the individual who is the subject, meets a repulsive, paralyzing resistance.

6. Place the subject before you; each stiffening the muscles, and bracing and exerting all your energy; with the action suspend the will on either side, and you are resistless, or non-resistless as the case may be.

7. Electrify a quantity of fluid, as a specific for yourself; change your will and electrify it for another; and there is nothing definite, either in mind or matter, taste or sentiment, feeling or affection. The electric modifications are heterogeneous.

8. Write an epistle, having electrified the ink and paper beforehand; and, afterwards, placing the letter before you, as the person, electrify the letter, willing certain specific effects; and they will, according to the electric constitution of the individual, be experienced, when it is read. The ink and paper form the contact.

9. Take any subject, whose ear has become highly an electric vacuum, and he can hear the lowest audible whisper, though made at a mile distant; if it has never been thus affected, but the eye has, he will in any specified battle, see all that can be seen; but hear nothing. The air in one case, and the light in the other, is the medium; and the electric fluid the material causality—one avenue is, in either case, closed.

10. Take a person—one who has died of insanity; and, who, in his affection, has had all his friendships and enmities reversed; and, on post-mortem examination, on the very organs and lines of electric action, it is manifest to the eye, in inflammation and derangement. But the latter are electric effects; the former was the result of the same causality.

11. Individuals have expired under the extreme of passion; and these results have been in all their circumstances, according to these determinate laws, in the case of each individual.

12. Tears relieve the agony of grief; but tears are an electric formation—and their rapid formation relieves the organs of the brain—especially ideality.

13. The best swimmer, on coming into an electric vacuum in water, instantly sinks; relieved, he has had no spasm, and nothing but the conviction that he was nerveless and heavy. The moment a man, who is successfully buffeting with the waves, ceases to hope, he instantly disappears, and never rises again. Again, a man may be powerless as to his limbs—have confidence, and remain floatant. But these are, evidently, electric effects.

14. Certain passions, emotions and affections may exist independent of will, intention; and continue to exist against will; or, on the reverse, cannot, on volition, be produced; or, if produced, continued. A complete demonstration that a pleonasm, in electric circulation, will act independent of what is called mind; and that a vacuum, in the same circulation, in the extreme, cannot be filled. Each case, therefore, is from electric circulation, as the well known and determinate material causality.

15. Let the person, who has become an almost electric centre, receive the permission from the electrifier, to put himself to sleep, or to travel, limiting a certain time; and in exerting the power, let the clairvoyant limit himself to intermediate points, and the intermediate points of cessation; and the final one will take place to a single moment. But that which thus admeasures time must be a material causality. We cannot say that it is a God, and we subject it; but rather that we use this invisible fluid according to his fixed and unalterable laws of action and reaction, in the line of its universal existence and operation in man.

To conclude—from all that I have discovered—(and I have experimented in practical electricity, since the spring of 1838—and from that time, in all my communications to the public, have insisted on the truth of the principles here established;) I have come to the full and perfect conviction, that, in animal magnetism, we have simply the electric fluid acting according to its well known laws on

the human constitution, in action and reaction. In April, 1838, I asked, "Is this God, or does he permit us to operate through this wonderful element, so as to see, hear, taste, feel, with the eyes, ears, &c., things past, future, distant, as though present before us?"

In all my communications, I have insisted that "this was the alone element—the material cause of all causes, antecedents and consequents."

This, some gentlemen magnetizers have used; others, may have since come to the same conclusions, who had never seen the articles I have written on the subject. If I have laid claim to this discovery on wrong grounds, then let it return to the one who has the merit of discovering the entire laws of electric action and reaction; and of establishing the science on those immutable laws of nature, which can never be reversed. If animal electricity be anything, it is all we make it. We advance one step farther in science, and acquire a knowledge in the operation of causes and effects, antecedents and consequents; by which we can solve a thousand phenomena and mysteries which before were apparently forever beyond the ken of human investigation. Nay, we acquire, so far as necessary to be used, a sixth sense, in clairvoyance; by which we are enabled to penetrate into the recesses of disease, and make visible the secrets of the heart. While we regard the effects, so new, so vast, so wonderful, so mysterious, we are astonished; but when we understand the agency, the way, the why and wherefore, all astonishment ceases, and the science rests on the same open and solid foundation as all others. It is no more wonderful that the animal electric fluid should penetrate the solid opaque adamant, than that the silex and potash, of which glass is made, should become transparent, and the natural eye should see through the solid body it has formed.

## P A T H E T I S M .

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I have carefully perused this theory of the Rev. Mr. Sunderland, and find it commended for nothing but that plausibility which rests upon its entire foundation; and that is plausibility resulting from *sentiment*. Take this away and nothing is left on which a discerning and discriminating mind can rest in the confidence of truth and righteousness. We have nothing against the gentleman; we commend also the volume on account of a mass of facts, and an intimate knowledge and skill, in regard to the physical and moral energies of man; and we are moreover well aware that the author, depending first on himself, and then upon the well known laws of electric action and reaction, which he calls sympathy, can wield a tremendous power upon an individual or an audience. He concentrates himself upon the most sympathetic, and having subdued him, makes him an electric vacuum; and directing all the present out-going electric energy of the audience to him upon whom he lays his hand in the determination of will, fastens it upon this and that individual, entirely unknown to him, but not to the all-pervading energy of electric action. He thus, instead of exhausting himself, gains electric efficiency. But this he contends is merely sympathy, even if it effect and put to sleep a person two miles distant—and the theory he calls Pathetism. A person in the pathetistic state, hears distinctly the least audible whisper eight or ten rods distant; a partridge is killed, simply by blows inflicted on the snake that charmed it; violent opposers are subdued by the jerks, even while they continue to curse; and yet it is all sympathy. That is simply, *here are definite, determinate, life-destroying effects, without any causality,*



*either material or immaterial.* Now this is contrary to all sense and reason. It will not bear a moment's investigation. It does not require it. Any one, on an attentive examination of the volume, must be persuaded that its author does not even desire it. He depends on sympathy, not conviction; on feeling, and not proof; on personal success, and not the advancement of science.

We shall place this theory on its true ground, as presented to the eye, and as seen in the false reasoning of its author; and by false reasoning, we mean, simply, illogical, inconclusive. We attach no blame, no moral turpitude. If he depend on sympathy, feeling, personal success, *primarily*; and conviction, proof, science, be secondary; it may either result from his personal constitution, his habits, or an electric concentration among his phrenological organs, which leaves him, both as a rational creature, and as a christian man, entirely emancipate and free.

Let A—————B, be two extremes; under A we place a series of causalities, agencies, means. And beneath B, the effects results, and consequences which followed. We select the cases as accredited or confirmed by Dr. Sunderland.

1. "Use the term life as a fact"—"is not the result of organization, but a distinct element"—"has identity and perpetuity."

2. "One of the most mysterious agents of nature, is mind through the voice"—"bread pills are given"—a snake charming a bird is killed."

3. "A man believes he is to be executed"—"a lady

This element, regarded as a fact, resists and evolves caloric; electrifies iron and animal formations; and there is no medium of connection, no electric fluid, no material causality;—that is, here are all these stupendous effects, and nothing upon which either to act or rest. If an element, it acts without any connection.

Effects. Anger, love, joy, sorrow, fear, hope, &c.—violent purging—the bird suffers every blow, and dies at the instant the snake does—no connection.

He dies at the time, and no violence—drops dead—paralizing

reads a letter"—"a man exerts his will."

4. "A cock, a fish, a spider, a cat, are seen."

5. "Operate on the brain," and separate ganglions by will—(this his secret.)

es his stomach, heart, dies. No connecting link.

One abhors, another trembles, another fears and another faints. No material cause.

All our experiments are produced—paralysis, spasm, &c., and yet no fluid—no material causality—no connecting link.

We come now to his false reasoning.

1. He assumes life to be an element. His whole system, therefore, rests on assumption, and the whole is *begged*. Life is evidently an effect, and depends simply upon conditions, whether it exist or not. Every hair contains at its root a living animal; more points of life, or the destruction of them, will depend on the food, circumstances of time, place, climate. Every polywog may become a frog, an entire new modification of animal existence; but it depends on temperature, light, air: if life be an element, it is evidently changed, and therefore not an element which admits of no change. Gold can never be changed to silver; nor the life of a polywog, if an element, to the life of a toad—but the latter does take place, and under known agencies and causalities adequate to produce the effect. Life, therefore, is not an element, but the effect of laws intimately connected with the alone element which exists, and which determines both mind and matter in their various modifications.

2. He assumes mind to be an agent. It is simply the perfection of organic matter. It is as much in animals as men, but not as diversified, capacious, educated; and instinct and reason are one and the same, except as that we refer the former to animals, and the latter to mankind. The mind energizes or paralyzes by the will, and yet there is no connecting link; and yet to pathetize, directions are given to pass the hand over the arm some five minutes, and it can be known whether the subject is pathetistic or not, and yet the will must be determined—and yet because he can effect it without touch, and the person himself can do it, there is no fluid either nervous

or electric. Now where is there in this chain, either in the premises or conclusion, the least logical fairness or legitimate conclusion? There is none.

3. The nerves are not conductors; therefore there is no nervous, no electric circulation in pathetizing. But the nerves are conductors when in a living, moistened condition; and do conduct nervous energy through electric contact with inconceivable velocity and resistless power; and in the living state, the determination of will, does, in the subject, produce the same determinate energy. Since it is exerted in taking away, as well as in bestowing; and that in determinate volition, and as exerted in most cases, action; there is a paralyzing, relaxing effect produced, as well as a contratile spasmodic.

4. In all the arguments in which we expect a directly coming to the point, there is absolute evasion; whether real or intended, we do not decide. Take the following. "Each of the cerebral organs may be excited, as we know, through the external senses; but excitements produced in this way, do not differ from those produced by pathetism; and hence I infer that the immediate agency is the same. If there is no fluid communicated or received into the nervous system of the patient, when his caution is excited by a mere sound; how does it appear to be a fluid, when I excite that organ by merely placing my finger upon it?" Are the senses agents? They are simply sources of perception. Are the senses the same as himself? Does not sound as an electric effect, carry conviction by sending the electric fluid, elicited by percussion, to the very organ—caution to vivativeness; or as the case may be? Does he put his finger on an organ without design, will, determination? What evasion! Again. For if it should be admitted that a fluid is actually received by the patient from the operator without the laws of pathetism, we could not tell why it should excite one organ any more than another. If it should be said that the fluid passes from the cerebral organs of the operator into the same organs in the brain of the subject, because organs effect their like; I answer, this is by no

means clear, for we have seen above, that one organ in the same head, excites others, whose functions are entirely different. Why could we not tell? It would, of course, effect that upon which it was exerted; and that, either directly or inversely, according to the then condition of the subject, and the energy of the operator. That different organs should effect different organs, is, evidently, a necessary consequence; and as much so, as that different muscles should effect through a nerve, one or a dozen, as the case may be. In the electric science, all is plain. There is electric, elliptic motion from others to my brain, and from mine to the clairvoyant. The electrified becomes frantic—the audience fear, I fear for them, and he fears for himself through me. The moment I perceive his fear, I take courage, for there is no more danger—exert will, and reduce him to quietude, and then rationality. This, those who learned from self, and not from others, in magnetism, &c., do well know. Why is it? Electric action and reaction in elliptic circulation, exists.

The expression—“organs effect their like,” is only in part, true; they effect action and reaction, and are effected by others of a different character, directly and inversely. They act and react. Making, as is fact, the electric fluid, the alone element—all God created; and all forms, figures, existences of a material nature, as evidences of his wisdom, power and goodness; and the actings and reactings of these upon each other, through its circulation, producing all formations and their ultimate decomposition; and we have a system sustained by observation, proof, demonstration. As it passes from the whole person—from the fingers or eyes by the determinate action of one person on another; or on any particular limb or organ, it acts as a connecting link; and is, at the same time, darted from organ to organ; or if in a continuous or indefinite circuit, with an energy adequate to produce the effect. Its velocity—the fact that it partakes of the same nature as the being who ejects it, and of the same organ as that from which it is drawn,

are sufficient to convince us of the congruity between the agency, instrumentality, cause and effect. On no other principle can we find a full and satisfactory solution. We must have the means. There must be a material causality. Perfect and stupendous results must be brought about by regularly acting, determinate causalities. If the charmed bird feels every blow inflicted on the snake, there has been formed a strong, and, for the time, an indissoluble bond. This is the electric circulation in elliptic motion, swift, strong, indestructible. If an audible whisper is heard eight or ten rods, this conveys it to the brain, which has been made an electric vacuum and centre. If we operate at a distance; and, as I have frequently done, throw my person before another, and cause it to remain in a clear and silvery light, and in all personal properties and attributes—and that too for days, whether I myself were engaged in this or that, is because there has not only been, but is still, an electric connection. The thing is plain; and we speak of it with all the certainty and rationality of any other operation or law of nature.

If there were a "neuraura"—a nervous fluid—still something must direct, sustain, convey, return. This something would be the electric fluid. But we receive impressions, sensations, perceptions of things entirely inimical; and of others destitute of life. Whence sympathy! whence a nervous communication!

The doctrine of "equilibrium, as the primary law of nature," is absurd; because a law cannot exist, unless there are antagonistic principles; and the lines which are invariably and imperiously ascribed to these, will require a plurality of laws. They exist in the very nature of the things themselves. This is elliptic motion in action and reaction. This results in perfection or imperfection, according to the nature of the case; partial decay, (and as to the particular form or modification,) entire destruction. It is no more the part of reason to speak of the law of equilibrium, than it would be to contend for the law of life. Causes and effects are not the law; but those

rules which make causes and effects absolutely certain and assignable.

It is, however, useless to argue the case any farther than to sustain our position, and the cause of truth in a general manner. We shall have thousands of theories, until the world has settled down under the fullness of conviction; and it is the only authority we know in science, or to which mind can bow. This is becoming the case with chemistry, as it has been with mathematics; the same with geology as chemistry; and the same with phrenology as with geology, or even anatomy itself. We reject all theory and authority, and demand proof, demonstration—palpability in fact and argument. We can no longer believe in witchcraft. There must be science; and that, in the reality of known material causalities in antecedents and consequents.



### PHENOMENA EXPLAINED.

**THE SALEM WITCHCRAFT.** The children first affected were, in consequence of their original constitution, and also their habits of life, electric vacuums. A woman of strong and concentrated feeling, looks upon them; and, perhaps, in benevolence, touches them. They become affected—faint, fall. They are disturbed by the minds of others—especially parents, and have fits. It is noised abroad—conversed about; and as witchcraft is believed, the old woman suspected and hated. This hate and fear in the congenious fluid, centres in the mind of the children. The old woman is accused; and, in fear of criminality and loss of life, is dragged before the children. The conflict is now more fierce and terrible than before. They shriek—are convulsed; and lie, finally, as in a dying state. The experiment is made again and again; till, finally, ignorant of the laws of electric action, they proclaim, try, condemn and punish her for witchcraft.

Others are suspected; and trial after trial, and execution after execution, follow. The pious, overwhelmed by the conviction and sentiments of others, poured into the organs of the brain, confess their guilt; and die, penitent and believing. The impenitent, in fear, terror, execration, horror and despair. Thus, as centres were formed, the work spread; till twenty-seven were executed, and one hundred and twenty-six confined in prison. Each one now began to fear for himself; and as no more electric formations take place, all is dissipated. There was no witch, no god, no devil there; but barely the ignorant abuse of the certain benevolent and determinate laws of physical and moral action.

2. DREAMS—Are imperfect connection with the realities of the past, present or future; varied according to the constitution, life, habits, relationship and expectations of the subject. Hence they appear true and false; may be, nothing but confusion and variety; or the most perfect order and re-elation of a past transaction or future reality.

3. A vessel, in the Indian Ocean, passes out of a rough sea into a perfectly smooth one; yet sails without any wake, at the rate of five miles and a half during three hours; and then comes suddenly into a rough sea; all the time, there is a perfectly inverted cone of a milky, whiteness, of which the eye is the centre, and the sky the circumference, and the moon and stars entirely obscured. Solution. There has been a sudden escape of freely circulating electric fluid from beneath the ocean; and, as the air is a bad conductor, it remains at the surface of the water. Had the escape been caused by a vacuum above, a tornado or typhon would have followed with copious rain, and fearful horizontal zigzag lightning; because condensation must have taken place; and while the water was formed, the electric fluid could find no region in the depth, in which to escape; there being already a pleonasm beneath it. There would be resistance between the air and water, and therefore the wind could not ripple the surface as though it continued to blow.

The vessel would make a rapid demand on this superabundance of the electric fluid; and it, in entering the vessel, would carry along the water in its wake, and cause it to up-heave all around it at the surface, and there would therefore be no wake. The eye is the centre of vision; color, an electric effect; and hence the inverted cone, and the consequent extinction of the moon and stars.

4. A snake fascinates a partridge, till it becomes powerless—it is discovered at the crisis, and every blow inflicted on the snake, tortures the bird; and as the snake is killed, the bird dies. There is an electric vacuum made in the brain of the bird, and the electric elliptic circulation permanently formed. Its energy and strength is demonstrated by the effect. Each blow agitates it in the bird in the same manner as its pleonasm; the snake is affected. When he is crushed, so is the bird.

5. The light of the moon, though concentrated to three hundred thousand volumes, does not produce any perceptible effect on a centigrade thermometer. The moon has been thrown in volcanic evulsion, from the earth; and makes her electric demand, almost entirely, upon it. The light of the sun being deprived of its electric energy, comes to us entirely destitute of heat. We will the sun's light to be deprived of the electric fluid, as we are electrifying the clairvoyant; and the face of the electrifier assumes the same appearance of the moon. No electric fluid enters the eye, which becomes with the brain, an electric vacuum, to be filled according to the will of the electrifier.

Thus every phenomena in nature can be solved. We at once perceive, that the science lies at the foundation of all others; and is, therefore, of the most transcendent importance.



## BENEVOLENCE—THE ART OF HAPPINESS.

The word, benevolence, is a contraction of four words, derived from the Latin. "Bene"—good, or well; "volo"—I will; "ne" lest, and "cio"—I call up. It is, no doubt, a contraction of an interrogatory proposition—shall I not excite myself to well willing towards you? Will you not will me well? The word will, was superseded by the less definite term, "wish;" and the consequence was, that the same indistinctness in determinate volition, and feebleness and uncertainty in result, followed. The word, malevolence, is the reverse of benevolence; "male," being evil. God is infinitely good, because he wills well; and the devil, infinitely evil or bad, because he wills evil. The one, in his nature, blesses; and the other, in his nature, curses; that is, here are the two extremes in beings—in rational intelligences. This brings us down to the very essence and spirit of character, person, contract, action. Marriage, is the agreement to have, as man and wife. The form, ceremony, legality, is nothing but the sequency—the requisitions of society. The man who has promised to marry a female, or a female the man; is married to the person. The deed remains eternally and unchangeably done; and is ever before God; and is, in the electric science in clairvoyance, seen, as if cut in marble, or in diamond; and standing in statuary, in the open sunlight, thrown by Omnipotence, all around; no shadow—all seen in every point in Omniscience at once, and forever. If this is severe morality, casuistry, it is God's teaching, and the teaching of the Christ of Palestine and of India. If it is severe, it is the severity of eternal truth, and the unchanging laws of nature in electric action.

This also gives at once, the key to the science and art of being and making happy, or blessed. It rests upon

the certain, efficient and unchanging laws of nature, as taught by the electric philosophy. Those who have carefully read and digested this work, will understand the following instructions; and those who have the constitution and will, may acquire the art and skill to exert it in all the blessedness of truth, righteousness and love; or in the accursedness of unrighteousness and hate—in all the blessedness of blessing; or cursedness of cursing.

**THE ART.** Concentrate your mind upon the person or thing; obtain a distinct idea of the blessing or curse; limit it as distinctly and determinately in regard to its operation in time, place, person, number; exercise now a full conviction in the existence and presence of an infinite God; as we are in a Christian land, to unite both Jewish and Christian electric energy, call him Jehovah; if among Mahometans, the God of Mahomet; the Hindoos, Brama; as universal, not regarding religion, piety, as sectional—Jehovah, or the infinite, the alone and only God; if your idea and feeling is more distinct, by saying *name*, then say in the name of Jehovah; if you can concentrate mind more powerfully by substitution, take a convenient piece of wood, or a pillow for the person. Now, with a concentrated mind on the person or thing; a distinct idea of the blessing or curse; a full conviction of the presence of the *here*—of the Jehovah; and a full determination of will, *independent of him as willing*; but present in infinite power to act; and in unchanging law, in the materiality of things to be used; say, *I will that*—here specify the blessing or curse, coolly and firmly; and then repeat, *I will that it come upon him, her, or it*—pause a moment, and in absolute independence and assurance of certainty, say, I will that it come—in the name of Jehovah, let it come!—*I will it!* We thus escape diversion of thought, which ever divides the mind, and renders powerless. This, to a pious person, may at first appear wrong, sinful, blasphemous; but on reflection, it cannot. It is not in intention to blaspheme, or speak reproachfully; it is in full conviction of his presence and power; it is in the use of the means—the electric energy which he

puts into our hands; and we thus operate, because it is thus alone, that we can operate, in the plentitude of our power—in the economy of our being. This is the teaching of Jesus Christ. The prayer, "Our Father," is absolute. When we ask, we receive—we are to come boldly—"Father, I will." This is praying. Wishes, may, ifs, are not; either in fact or result. We are to *will* to have it, and *believe* that we have it, and *it is*. If we are to think of relation and condition in the act of prayer, we effect comparatively nothing. A man may as well think of rules in grammar, logic, rhetoric, in argument, as these things in prayer. In both cases, all these things are known, understood, used. But we are not arguing the case any farther than to instruct. We say, *so it is*; and in experiment, will be found *to be*.

It is now understood, that in determination of will, we use the freely circulating electric fluid; and make it determine, according to the laws of electric action on things and in persons, clearness of thought; depth, fixedness, fullness of will in determining to do and have, being the conditions in us; the laws of electric circulation in that, limited only by itself in the use of another; or the special operation of the infinite God, which can be seen only in the result.

But there are a thousand facilities in using this agency. We will specify a train, on the principles of mathematical science, which will answer all the purposes of the most enlarged and successful operation. It is always understood that our ability to operate, will be according to our capacity, skill, energy, and our more or less perfect contact or union with the person. That the subject become highly susceptible, and the highest, most perfect, and beautifying effects follow; it will be necessary to have a full and perfect possession. But parents, husbands, wives, children, intimate friends, christians, have the opportunity of perfect contact and possession. The beloved disciple lay on the bosom of Christ. It was said of primitive christians, "behold how these christians love one another." **Martyrs have been sustained by love; the electric energy**

imparted so that they have felt no pain. That it is the same principle and agency is evident, because we produce the same effect. We induce affection the most intense, and we render the subject insensible to pain. That it was God's work, is no objection; because he then worked as he does now, by means. What was witchcraft, is witchcraft no longer. Having obtained this possession, and it is easily obtained by repeated experiments in the line of operation prescribed; the individuals in any family or society, can have the most perfect union in sentiment, feeling, affection. They can promote each other's happiness without any expense, by the still, silent and powerful operation of affectionate volition. If there were an expenditure in this operation, either of intellect, sentiment or animal spirits; then, indeed, it would be less desirable to have the art. But, even then, since there would be so large a good effected, it might be well to make the sacrifice. But there is no expenditure. The reservoir from which we draw, is as boundless and infinite as the universe, and as deity itself; and then, the principle being understood; instead of diminishing the flow of sentiment, the animal spirits, they increase them. This will be found in the light of experiment; which is the best of instructors.

The truth as to fact, may be commended to those who may not be able to know experimentally; from the consideration that the materia is not only without us; the agency in high efficiency in another; but from the fact, that the direction of the attention to the good of another—the willing his or her happiness, does, in fact, benefit ourselves, and strengthen the attention, the sentiment or affection of our own mind, heart and spirit. The electric circulation brought in play through these organs, invigorates and enlarges the organs themselves; and we emerge from the low, plodding, selfish, worldly, mercenary spirit, into a higher and nobler sphere of existence. This is the whole secret of love, and art of love. So far as to its nature and operation, it is laid in our common constitution as social beings. We do not say rational,

intellectual; because love is common to all. The ant, dove, deer, sheep, &c., associate, love—evidently permanently, their kind; have their banquetings of affection, and the tenderest attachment to their young. They reflect, reason. That their memory is limited, and that their affection, as to individuals, terminates, is no more than is to be expected, and is seen as extensive as their sphere of action requires. It is in the same ratio and limitation. Man loves longer and more wisely, in some respects; but he hates longer and more foolishly in others. His love is as high, bright, pure, as heaven, and triumphs in death; but his hate is as deep, dark and polluted as hell; and as intense, firm and unchanging. Leaving these things as they are, in lines of eternal truth—however the sceptical, the superstitious, or the ignorantly or wilfully foolish, may contend with each other about them—let us advance one step further in instruction.

Take the digits, 1, 2, 3, 4, 5, 6, 7, 8, 9; the squares, cubes and biquadrates, &c., as of 3, 9, 27, 81, 243, 729; or any number you please. Now make 1 a definite effect. Say that it be to excite religious enjoyment. We wish to make the person religiously happy. We, sincerely, for a good end, desire it. This is the motive and object; otherwise, it is not blessing in the line of goodness, though it might be in present enjoyment. We *will*, as directed, it come upon the person. If it be general, it remains as it is; if special, we limit it to the special grace and organ or organs, which are acted upon, when it is in lively and definite exercise. If special, and it be love, we may will 4 to hope, in the same degree; 2, to reverence; 9, to marvelousness; 27, to ideality; 243, to faith; and 729, to full fruition in action and reaction. Call these numbers in the place of tens or hundreds or thousands, and the result is proportionate; unless, indeed, it exceed the capacity of the individual; it will then be powerless. This is determined in experiment; thus, I have found 3, 9, 27, 81, overwhelmingly powerful; but 9, 27, 81, 243, powerless. In other individuals, I have found 27,000, 81,000, 243,000 and 729,000 in the most lively exercise.

In Rahway, N. Jersey, a middle aged lady wished to be made as happy as in the moments of her "first love when she indulged the hope of the gospel." Judging from her physical and phrenological constitution, I supposed her capacity as then filled, to have increased to 9. I called the ideal the mingled emotion of confidence, love and joy. The sums then stood, 9, 27, 81, 243. The ideas were faith and benevolence; benevolence and sensibility; the heart, fruition. The result was, a complete resting on the bosom of a covenant God in Christ. I now put 3 in play, willing it to effect in each, the fullness of capacity; and from ecstasy, she sank into infant weakness, smiles and slumber. The effect lasted 45 minutes. Complete, perfect happiness. I imparted strength, and she departed vigorous, and in a happy, triumphant, revival spirit.

Without specifying any further, we have here all the science in order to be happy, and make others happy or miserable. We have blessing and cursing. The good and bad may each select their instrumentality, and clothe themselves as with a garment.

We must add one more rule of action. The husband wishes to produce in his wife, or the wife in the husband, the most vivid perception, feeling, of their first love in the nestlings and banquetings of connubial endearment. Fix upon the idea. Now select the purest, the most thrilling, the most devoted, self-consecrating of the season; and the whole season, be it weeks, months or years. Carry this through the series in electric efficiency, and we have the sublimation reduced to the highest capacity. This is almost insupportable felicity—it is ineffable. This is what has been called Platonic love. Not cold, but too warm, bright, thrilling, angelic to descend to physical indulgence. The sisters of the apostles realized this, and remained virgins and sisters still. It will be laughed at by some, but let it be remembered that if the limbs can be made spasmodic, the whole physical energies prostrated, the limb cut off, or as with Madame Plantain, the most delicate organ, as the breast, amputated, while she is in-

sensible to pain and the operation, yet seeing and directing concerning it; then there is no point in felicity or misery, within the sphere of our individual capacity, to which the individual may not by this instrumentality be carried.

We conclude with a last instruction in the art of happiness. The individual who has become clairvoyant, and who, as a husband or wife, agrees that, when absent, it shall at stated hours take place, may make a compact to carry into execution the most endearing purposes. Concentrate the mind; go through the operation of reducing to clairvoyance; will your personal appearance and action to the person as life, and that the transaction follow; and the individual will experience the result—and *as a reality*. Sublimate this by the electric numbers and operation, and the tenderness and felicity will far surpass the communion of flesh and blood. This is a high exertion of concentrated mind on a beloved and devoted object.

Reversion will transport the wife into the presence of the husband. Few females, comparatively, would have sufficient determinate and fixed energy of mind. The heart would excentre the head. With those who are thus electric, though at the time asleep, we have but to say—calling the name distinctly, as *Eliza, awake*—and sleep is no more. The object starts from sleep with the affectionate inquiry, What do you want? Delightful excursions may be taken from city to city, and from country to country, attended with the most interesting conversation, without expense to either, during the hours of sleep.

Everything as before being done; make a covenant to travel in the way directed, and this energy shall come from infinite space. Electrify a pencil to this effect; specifying, as it is electrified, all the particulars which a general design would require, when made special; now electrify one end to put to sleep, and the other to wake, and give it the person. The receiver must specify the object, time, place or jaunt, and will to awake him or

herself at such a time. The receiver of the grace will exercise the power, and enjoy everything as life, without any demand upon the absent person. I had my form before a person three days, open, distinct as life, while the individual was awake; and travelling with the person when asleep; I being all the time insensible of any demand made upon me; and during the time actively engaged in all the scenes of busy life. These things can be sustained by the affidavits of the individuals; but they are sustained more fully in the light and energy of the science itself.

Finally, to make most efficient, easily and rapidly; take the purest religious enjoyment, or conjugal affection, as the case may be, and determine the high numbers upon the head, heart, and that part of the brain or system designed to be principally effected, making each special; as 27000 upon the head, 81000 upon the heart, and 243000 upon any class of organs, or any system; and add, *in the name of Jehovah, let it be—and it is so.* The effect comes upon the mind, heart and system with almost instant celerity and amazing power.

To conclude. This is a high science, and may be abused. There are safeguards, however, equal to the power. The influence is almost instantly felt; and virtue can know and escape. The name of Jehovah used in faith, will shield every one, either in a special or general emergency, from all influence or injurious effect. "I will in the name of the Jehovah that this pass;" and it is gone. Say, "I will that Jehovah be my shield and defence;" and it is powerless. The person who does not consent, and the truly pious person, whether Christian, Mahometan or Indian, is safe. Not that it is evil, except in evil hands. It is a high law of action now known and understood; and which will be put in operation. Though destitute of the first principles of the science, yet as spreading out many facts, we recommend the Rev. La Roy Sunderland's system of Pathetism to the perusal of all those into whose hands this volume may fall. My object has been to present the science so far as to es-



tablish animal electricity upon its true foundation. I trust I have done so, and leave others to make a noise, and claim immortality for what they never discovered and never knew. I have been throwing these ideas before the public since 1838, when they were as to the unity of matter; that matter the electric fluid; and what was called animal magnetism and clairvoyance, electric effects; made known to the world through the columns of the Charleston Courier, S. C., and the equilibriists and pathetists of the day. I have now "written a book"—and for the alone sake of the science. If cordially received, we can follow it by something more extensively illustrative of the principles of animal electricity, in their bearing upon the high interests of mankind. The field is illimitable, and the object transcendently important.