THE PHILOSOPHY

WHICH SHOWS THE

PHYSIOLOGY OF MESMERISM,

AND EXPLAINS THE

PHENOMENON OF CLAIRVOYANCE.

BY

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To form a just opinion of a novel mode of philosophising, we should study the subject, and not condemn without being able to prove it erroneous.

He is not an Esculapian who is unacquainted with the Philosophy of the Animal Economy.

LONDON:
LONGMAN, BROWN, GREEN, AND LONGMANS.

1848.

TYLER & REED,
PRINTERS,
BOLT-COURT, FLEET-STREET.

DEDICATION.

THE following trite sketch of the Philosophy of Nature, dedicates itself to the most noble Champions of Mesmerism, Doctor ELLIOTSON and Doctor ASHBURNER of London, and Doctor ESDAILE of Calcutta, in compliment and grateful acknowledgment for having rescued from the fangs of ignorance, envy, and self-conceit, the science of health and knowledge—the science of Mesmerism, which unfolds the hitherto unknown wonders of the Animal system; and will unfold the wonders of the entire universe, when the telescope and microscope are familiarly used by the Clairvoyant.

ADVERTISEMENT.

It is not the intention of the present work, that what is herein described should be received as the philosophy of Nature according to the precision of Nature; but, through exemplification, on principles deduced from the Natural Inertia of Matter, to point out the mode by which the philosophy, which should govern all illustration of physical phenomena, is discoverable,—the Philosophy of Mechanical Nature.

Jersey, *July* 1, 1848.

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PHILOSOPHY OF MESMERISM.

Long as clairvoyance has remained the riddle, jest and wonder of the world, it is questioned by none why the established philosophy of this superiorly enlightened age is incompetent to account for this or any other mesmerically produced phenomenon, or afford the least glimmer of light by which it were possible to arrive at the physiology. Why the philosophy of Aristotle, Bacon, Newton, Des Cartes, Davy, Liebig—honoured names, and most justly, as the ancient and modern fathers in science—can afford no scintillation whereby to lessen the obscurity in which this most interesting subject is involved, should appear strange and unaccountable to all lovers of philosophy. By Professors the question should be answered. To consider it unworthy of being looked into, would be a tacit confession that Professors are indifferent to the natural truth; which proves all such to be but half reasoners, and not philosophers, notwithstanding all their mathematical learning and experimental experience.

It should have been questioned long since, whether the philosophy be not untrue which leaves all mankind in the dark, in a mere physical case, however mysterious the psychological result, the effect of manual application, and in the power of almost every person to produce. The mesmerising operation and effect includes nothing of necromancy or trick; is openly performed, and produced mechanically; and although the passes make a living being appear as if in a novel state of existence, the immediate effect, polarisation of the extremities of the body, is the same precisely as is effected on the iron bar when passed along the poles of a loadstone. This, and numerous other physical phenomena, which to the present day remain unexplained, and as if inexplicable, afford much reason for at least the conjecture, that modern philosophy is not the philosophy of physical nature; which, if not, it must be false and misleading, inasmuch as there can be but one philosophy, by reason of there being but one species of matter throughout all nature, and but one cause of action,—*the general pressure*. From which it follows, that as the philosophy of nature is that of matter universally, there can be no physical phenomenon which it does not explain. Therefore, the phenomena which modern philosophy has neither laws nor rules competent to explain, are so many proofs that the established philosophy of the age is false philosophy; which is provable throughout all its particulars, however rash and adventurous may appear the announcement. Besides, at the present day, there are several

different philosophies maintained; every profession has its own; which is proof of the strongest nature that not one is true, dissent from the truly natural being impossible, so universally is it applicable. Eventually it will be admitted that the philosophy of the nineteenth century is founded on the crude ideas of the imperfectly learned in the earliest days of science, ever since adopted, and never investigated, instead of being deduced solely from the INERT NATURE OF MATTER, the only true basis. On modern philosophy, Davy makes the shrewd remark, that "it is no better than a mere compilation of isolated facts and circumstances, differently accounted for, and leading to no general theory:" such is not the philosophy of nature.

That matter is *inert*, is made manifest in there being nothing whatever throughout the whole of inanimate nature which can act or move of itself. Matter does nothing, cannot act; it is the passive patient of the general pressure, which alone can act; and pressure is universal, because of matter being *inert*. Matter is not only *inert*, but *unalterable;* on which principles the constancy of the order and laws of nature depend. Inert, unalterable matter can suffer no change but of a local nature—change of place, which implies motion, for which there is no analogous cause but impulsive pressure. These unquestionable physical truisms are stated in advance, from being intimately connected with every physical change, in order to serve as a standard of comparison from which to form an opinion while canvassing the principles and laws by

which the scientific world has been for centuries not only governed, but misled.

Newton admits the *principle* of *inertia*, but considers it an innate *passive* power, which *enables* a body to resist against being moved; and when in motion, enables it *to resist* that which would put it out of motion. *Inertia*, a passive power, is as death, being passive animation; and *inertia enabling* a body to *act* against force, is nothing short of *active inertia*, or *vis inertiæ*, which means the force of inability. This monstrous perversion of a natural fundamental principle, and by such high authority, pervades the whole of the established philosophy. It makes the planets, which are but clumps of deadly inert matter, gravitate themselves through space; and makes *inert* atoms competent to perform attraction on each other wherever they exist. A more absurd article of *belief* has no place in the Athanasian code of mind-perverting dogmas; yet admitted as true by the most eminently talented and highly learned of the present age. While such inconsistent principles of common-place use are gravely defended, the *known facts* of mesmerism are obstinately and ignorantly denied; and only because of not being understood; that, were it not for the good sense and philanthropic perseverance of the enlightened, noble-minded Elliotsons, Ashburners, and Esdailes, of the British empire — honourable, heroic champions and victors in the cause of truth, humanity and science, in despite of the self-conceit which affects the knowledge of the limits of possibility; that, were it not for the magna-

nimity of those superiors belonging to the learned profession, this heaven-bestowed boon, carrying healing on the wing to suffering humanity, would have been contemptuously received, ungratefully acknowledged, and long since consigned to the rubbish of oblivion. Yet all have claim to the common apology, *false scientific education*, excepting those who have assented to what they have seen with wonder, and afterwards denied their admission.

The established philosophy cannot account for the boy's marble going farther through the air than the fullest extent of the impelling thumb. The proposition may appear trifling and insignificant, yet is it worthy the consideration of the Chair of Knowledge, from which it has never been explained nor there understood, as involving the cause of planetary motion; for, *in all nature there are not two causes of motion.* That the marble "*partakes*" of the *force*, and "partakes" of the *motion* of that by which it is impelled, is an absurd idea; the force and motion of a body were not, and cannot become, the force and motion of any other body.

The established philosophy cannot account for the splinters of a stone having motion out of the direction of impulse, nor for having motion in every direction but that of the stone-breaker's impelling hammer, which appears at variance with the natural, immutable dynamic law, which says, that *as a body cannot move itself*, so must it have motion in the direction only of that by which it is being moved. Neither is there any philosophy extant, which explains why the stone at Texteth of one hundred

tons should rise, as if of itself, six inches in the air, under which the quarrymen could have shoved a hand and withdrawn it safely, before the immense mass fell crushingly on the former bed.

On the other hand, what the established philosophy undertakes to explain, it explains erroneously. Beside maintaining the transfer of a local casualty, in accounting for continuous motion, it teaches that the power of steam consists in heat, and that cold congeals water: whereas heat and cold have no physical existence; each is a sensation, anything similar to which it is impossible for either fire or water to possess. So that to the present day the power of steam, the cause of combustion and of congelation has in each instance remained unknown.

So simple is nature, so few her laws, that were any one of her phenomena known throughout all its bearings, it would be found that the knowledge includes the philosophy of the whole of matter. Of this Aristotle was aware when announcing, that he who is unacquainted with motion, is ignorant of all things in true philosophy. Motion being the *only effect* producible on *inert, unalterable matter*, the knowledge of the phenomenon includes that of all effect. The substance of all things being of the same species, and the power of Nature consisting in universal pressure, the formations in general nature and in the laboratory of art can have but the same principles, laws, theory, and philosophy. Paul may plant and Apollos water; nature germinates, the weather or climate grows and fructifies. The chy-

mist's fire does not burn itself; in the absence of air and its pressure there is no combustion; neither is there growth, respiration, nor life.

According to the philosophy of the astronomer, the earth has projectile motion, from "impulse once impressed, at the beginning, and not since renewed;" which is effect six thousand times, at least, greater than the cause. Then, again, as motion must be in the direction of impulse and cease out of that direction, the earth, from "impulse once impressed," goes round the sun without being impelled; or of its own accord, and should be centripetally attracted to the sun, if solar attraction were possible. It needs no mathematical calculation to prove, that, from such philosophy being wholly independent of all consideration of natural cause, it is untrue, and at variance with common sense.

The philosophy of the chymist is of every-day make. It assumes different species of matter; chymical matter and matter not chymical; attractions innumerable, such as chymical, electric, galvanic, capillary, and attraction of cohesion; likewise magnetic forces, chymical affinities, and affections of matter—"while as yet there is none of them"—matter being *inert* naturally. To mechanical nature the entire is useless and foreign, and their value lies solely in being terms of professional application in the highly important chymical art; but to the discovery of true philosophy they are an insurmountable obstacle. How chymical matter differs from the common matter of the world, no chymist

can say or conceive; nor is there any difference in the substance and nature of inert matter: as well might it be maintained that motion is not always mechanical, but sometimes chymical. The true philosophy of chymistry is dynamic, the basis inertia, the laws those of quantity and relative position.

The philosophy of the anatomist and physiologist is semi-natural, semi-spiritual, mechanical and vital. Life, throughout all belonging to the frame, does not suffice; the heart and blood have each an imputed, distinct, living principle; the nerves are sensitive, the muscles irritable; the flesh has its susceptibility, according to the modern physiology. The sainted health-preserver shudders at the irreligious notion of the economy being philosophised on at all; more especially according to the laws of hydrostatics; it being "impious beyond measure" to reason on the work of God's own hand, formed after his own image and likeness, (malformations excepted,) as on human mechanism. Yet, where are any of these vitalities and living principles when respiration is suddenly stopped? Verily, these professionals endow, most gratuitously, the animal frame with as many vitalities and living principles as the lives bestowed on the tailor's—so much the more unfortunate—cat. As every organ of the body is inert; no organ, of itself, performs the function; every function is mechanically performed, and every effect analogous to impulsive pressure, whether consisting in formation, intermixture, or dissolution, all depend on elementary local change. The contrary is not in the power of the anatomist

and physiologist to prove of inert, unalterable, atomic substance; nor should more causes be assumed than what are natural, common, sufficient, and analogous to effects. Spiritual principles for mechanical purposes are as little requisite for animal organism as for the steam-engine, or the performances of a watch.

The last on the list of professional philosophies is that of the Therapeutist; the least misleading, from being the most concise. The word ACTION includes the whole. There is no inquiry to which the word *action* is not the deeply-learned significant reply; being indefinite, it stands for a dead-stop silencer. The doctor knows best—with much room for knowing better. The doctor knows, and assures from his own certain knowledge, that the *action* of the dose on the stomach upheaves the sac; but rather than be thought positive, allows that the effect may be from the *action* of the stomach on the dose. The good easy man of M.D. celebrity, or mediocrity, has to learn, that the dose is as *inert* as when in the tea-cup, and the stomach as *inert* as when it has arrived at the predicted destiny, the dissecting table. Again, the *action* of the pain prevents the *action* of the physic, otherwise the cure would have been immediate. Such philosophy is harmless, if so to the patient; from its insignificance it corrupts neither pathology, osteology, nor dynamics. Not so the learning, published on high surgical authority, to enlighten ward-walking noviciates—that "pain may exist in the *flesh* and bones without being felt, owing to the *insensible* sensibility of the part," which

amounts to an excruciating, painless toothach, and, the being unconscious of excited consciousness. Pain is not in the diseased or wounded part, being the consequence of cerebral excitement; pain is one of the objects of perception belonging to the scenery of the sensorium, from which it cannot migrate. The disorganised part is but the apparent place of pain; and wisely such, or else all remedial applications would be to the brain. As to the dose and stomach *action*, it stands corrected by the diagnosis; the stomach is lifted in consequence of the equilibrium of pressure being destroyed by means of the dose, notwithstanding its additional weight, within the stomach. Chymical action of the dose and self-lifting muscles are all of Esculapian surmise. The faculty should cease to identify feeling, pain, sensation, with organic ailments and disorganization of the flesh.

ATTRACTION.

Attraction is the all-pervading, all-perverting sin of the established philosophy, the scape-goat, on which the blunders of illustration are heaped. Newtonians endow every atom of matter with not only an attracting property, but another, as if to neutralise it—repulsion, which renders both useless; as if to make matter both active and inert, naturally, and as if Nature were planned on principles of complexity, from having double the number of powers the universe is possessed of atoms. One steam power would suffice for the whole of England, all

appendages being feasible. How is solidity either maintainable or attainable, while attracting atoms are repelling atoms? The free, uncombined condition of the atoms of the atmosphere, as well as their *inertia,* proclaim their inability to attract each other; and the mere crack in a pane of glass, that between bodies there is no attraction. While it is left to be conceived by the so-taught rising generation, that the atoms of a bar of iron are busily employed in attracting one another, and as busily in repelling each other at the same time; and that the same atoms are inert, the long-denounced aspersion stands good, that there is no absurdity, however great, into which philosophers have not fallen; which is removable only by Philosophers, Professors and Teachers coalescing to reform the erroneous doctrines universally promulgated, which cannot stand the test of rational investigation, and for which, as National Instructors, they are morally responsible.

Terrestrial attraction, attenuated on arriving at the moon, and there sufficiently strong to prevent the satellite having tangential flight, should be at the surface of the globe at least two-hundred-and-forty-thousand times stronger; yet here a puff of the breath drives the dust into the air, and the smallest winged insect is not restrained by the attraction of the enormous magnet the earth is considered, from escaping off the surface of the globe. There is philosophy in mists, as well as "sermons in stones." Rain should come down from above the clouds, if terrestrial attraction hold fast the moon: mists

and exhalations, by quitting the earth, solve the problem; but we are ignorant of the philosophy, ways, and expressions of simple nature; hence, ours is foreign philosophy.

In attributing the fall of bodies to the ground to attraction, it is overlooked that the earth's greater attraction has to be exceeded by the minor muscular, or explosive force, which caused the ascent. The foregoing plain facts, although demonstrations to the contrary are on record in the royalized TRANSACTIONS, but without reference to the inability of inert matter to attract, are certain proof that attraction is founded on a guess-work basis. Hence, that all learning is not knowledge is a moral certainty; and that the nature of cause is not to be arrived at by demonstrating the properties of lines and angles, time has sufficiently proved.

Had the fall of Newton's apple been an effect of terrestrial attraction, there should have been some stronger attraction from somewhere above the tree, to make the juices of which the apple was formed ascend from the ground, and capillary cannot be said to be stronger than terrestrial attraction. There is nothing but puzzle, contradiction, and inconsistency, in human opinion, where the natural truth is unknown. Oh! apples, apples, why for discord sent? the first cut short eternal life on earth; another turned "heaven-born reason" to inventing dreams;—that heaven-born reason which tells us every day of its yesterday's mistakes.

EXPERIMENTAL PHILOSOPHY.

The Baconian precept, to "torture Nature out of her secrets," has been, and ever must be, abortive of the good intended. Nature is performing freely and openly every hour, without making us wiser, and as little while she is operating in our own experiments. Her language, of which *inertia* and *pressure* are the alpha and omega, is not studied; nor does it mislead or flatter like our own. Experiments innumerable have been performed; the *experimentum crucis* resorted to; the screw applied to the utmost pinch, without either confession or concealment on Nature's part. Hence, the experimenter is left to make his own philosophy of the case, of which the next operator makes a different; and all are falsely interpreted that violate the principle of inertia, which all do. Aristotle, Bacon, Newton, Black, Reid, Davy, Des Cartes, experimented indefatigably under the most favourable auspices,—exalted talent, and the institutions of the world at command; but all on false principles; yet Nature, tortured or not, left them to their own mis-interpretations. Aristotle, true in his opinion of motion, was himself ignorant of the cause of continuous motion, or all would not be so at present. Bacon recommended experiment, without teaching the natural mode of interpretation. Newton spent his valuable time, to the world's great loss, in experimenting on light, in ascertaining and describing its properties, as if there were material light; instead of which, light is a mere sensible effect; hence, a

physical nonentity. Black and Reid called to their assistance all the powers of numbers, to ascertain and prove the quantity of heat in the animal system, and of cold in ice; but could not torture Nature out of the information, that heat and cold do not belong to matter or bodies, as a knowledge of the function of the senses could have informed them. Davy travelled to Skehallean to find from the size of the hill, a ratio of attraction, whence to calculate the quantity of attraction in the entire globe of the earth: at home, correctly sought, he would have found, without numerical assistance and the pendulum, that the amount is zero. The deflection of the pendulum was caused by the pressure on one side of the bulb being greater than on the side facing the hill; which, from varying hourly with the sun's altitude, should have told him that the deflection is a mere weather-deviating circumstance.

On the other hand, who perceives the natural truths elicited by even his own experiments! That truly great philosopher, Priestly, remained ignorant that his own experiments on blood and air brought to light the principle on which the blood is arterialized, without coming in contact with the air in the lungs; of which experiments the faculty are reprehensibly ignorant at present; also the principle of congelation without cold. It is a general error that men must be philosophers because they are mathematicians and first-rate experimenters, yet do not know what keeps the blood in motion, nor how water becomes ice.

What experiment was ever so absurdly illustrated

as that of ice formed in the midst of fire; which is explained by, "evaporation generating cold in a red-hot crucible," and while maintaining that cold is only the absence of heat. The *rationale* is: the oxygen of water is the hindrance to congelation, which the evaporation carries off, and the remaining elements of the water are compressed into ice. What are the elementary constituents of water, has yet to be learned. Misled by false-directing philosophy, the analysis of a rotten potato, in quest of the cause of the vegetable epidemic, is as wise as were the same scientific procedure taken on the contents of a pustule to discover the cause of the small pox: the result in both cases must be a complete new formation; and in the former, the result could be no preventive information whatever to the planter. To convince planters and remove all timidity, every garden owner should plant an experimental patch with potato *peelings*, each having an eye; the crop is certain and good, and supplies the cottager with the next year's seed at no expense. The *cutting* for seed may be of exhausted vegetating power, while the peeling of even the same potato may be as sound as ever. The badly grown potatoes of the previous crop caused those of the following to be of imperfect growth and perishable: hence the general potato-rot.

PHYSIOLOGY AND FUNCTION OF THE SENSES.

By the popular expression, "Evidence of the Senses," is universally understood, the perception, or seeing external bodies by the organs of sense:

yet externals are invisible and the senses insentient. This mistake, common among the fathers of every age, has corrupted the prevalent false philosophy tenfold.

The eye is not possessed of sight; neither is colour a property of matter, or it must be indestructible by fire and every other means. The senses should be considered as but mechanical agents for exciting the brain; by which means it is we have our knowledge, the particulars of the whole of which are mental, confined to the brain, and consist, solely, in the cerebral excited scenery of the sensorium. We have no other kind or means of acquiring knowledge, that is, mental information. By the mere organs of sense we know nothing. The knowledge we have by means of the senses exciting the brain, consists in sensations or sensible effects, and, *we know nothing but our knowledge*, whatever may be thought of externals being objects and immediate objects of our knowledge.

In describing what we know, it is imagined the description is of external bodies, their appearance, qualities, and properties; which, however harmless the mistake throughout busy-life affairs,—as all abide, judge, and are directed by the same kind of evidence,—not so is it in philosophy, which is a description of nature's own mode of procedure; and although it is impossible to describe invisible things, as they are really, they should not be philosophised and reasoned on, *as they are not;* they are not according to what we know, and can have no resemblance in any manner to sensations, which are

all we know by means of them. Instead of knowing by the senses what bodies are, we know only what they *are not*; modern philosophy is regardless, totally heedless of this most instructive most pointedly directing information, instead of making the just allowance for mental appearances, it materializes every sensation, and imputes the whole to the bodies outside of our own, of which all we can possibly know is but inferential knowledge: it considers our sensations as being qualities of bodies or properties of matter, and maintains that some are physical causes by which certain physical effects are produced. Such may be considered some of the principal reasons why *clairvoyance* is unintelligible to all the most learned; and so must it ever remain, or until a truer philosophy arises and rescues the great subject from the darkness and errors of a perverting philosophy, the whole of which has to be abandoned before the mind is fitted for the reception of natural truths. We must cease to identify sensations with their unseen, unknown, and but *promoting*, material causes. In proof of the foregoing, a short review of the senses, their physiology, function, result of the function and use of the result, must prove satisfactory and convincing.

The *physiology* of a sense, consists in an external organ,—as the eye or ear, its nerves of sensation which spread through the brain, and, the nervous fluid. To each of the senses there belongs a distinct cerebral organ, which, if deducted, leaves nothing to constitute the physiology, but the exter-

nal organ, the nerves, and nervous fluid; such may be considered the physiology of all the senses, so far as the exciting mental perception is concerned.

The *function of a sense* is, to act on and excite the cerebral organ, when the nervous fluid is put into an acting state through external circumstances.

The *result of the function*, is a sensation, of which we have immediate cognizance, by reason of a sensation being *a recent change in consciousness*. The nervous fluid, not the tubular nervous *striæ*, is that by which the brain is excited.

The *use of the sensation* is manifold. Emanating from the wonderful Economy, is the law, that, *the sensation which an external body promotes, shall, to ourself, seem to belong to that body.*

The law is imperative. The sensation being apparently at, and belonging to, the external object or body, it is imagined the body is visible, seen by the eyes, and of the colour, flavour, or odour known by the sensation. The apparent place of the sensation directs to where the body is situated.

No person thinks, when a rose promotes the sensation of colour, that the object perceived is within himself: without the sensation there is no perception of red, and with it, nothing is perceived or seen of colour or of the flower; so that, were the object coloured or not, it is to the spectator invisible; and as the sensation would be useless were the object coloured and seen, it is obvious that the flower is uncoloured, therefore is not seen: the seeing an uncoloured object is a physical absurdity. So is it with all sensations; they constitute the only

objects of perception with which we are acquainted; and, such as they are in any respect, the outward objects are in no respect. Sound is a sensation; a sense has been provided that we should have knowledge of sound; there is nothing of sound or noise in the air; the function of the sense is not to hear, but excite the auditory cerebral organ, and the sensation, in which alone sound consists, *seems* to be outside of us, and *seems* to come from a bell, but which has nothing of the kind to part with; yet it is imagined that sound enters the ear. Thus is it supposed that the sensation externally exists, and is sound heard by the ear. The philosopher so instructed, calculates the velocity of the physical nonentity sound.

Luminousness, light, colour, sound, heat, cold, flavour, odour, are sensations,—each of the entire is traceable from the function of the senses to the sensorium: deduct these, there is nothing perceived or to perceive; by means of the senses, respectively, we have knowledge of each,—and by the senses exciting the brain are the whole produced, as sensible effects. Outward bodies can have nothing the same or similar to sensible effects; and therefore nothing of the whole belongs to matter or bodies, or to physical philosophy. To mechanical nature the whole would be useless; to sensitive beings only are they useful; to us they are substitutes for Nature's deficiency in these respects; and the whole present a convincing proof of the wise, the strict economy of the Great Architect in his works.

The objection is unfounded, that the external

object should be like the sensation, in order to produce such sensation. But where is there sound in a musical string or in the metal of a bell to promote the sensation; or yellow in the snowdrop to promote the sensation of yellow, when the eyes are jaundiced or a stained lens is before them: the sensation of pain is not the effect of pain; it and pain are one. That which in health promotes the sensation known as sweet, promotes that of bitter in sickness; the object is the same, the sensation changeable. In reason it cannot be said that fire is like the sensation, or the latter should be burning hot in the brain, where it is excited; neither is any material thing outside of us like a sensation of the brain; nor does the sensation inform us of anything but itself, excepting that it has a remote external cause. The common show-box exhibits the same landscape picture under the different aspects of summer, autumn, winter, and spring, according to the stained lens before the eyes; the picture has not all these colours, nor any, it is a mere black and white print, in which the stained lenses make no alteration. Nothing can be like a sensation but a sensation.

That the objects we perceive and their remote cause are distinct things, is proved by the perception being that of a coin of the half-crown size, when the eyes are directed to a shilling and a convex lens before the face; if the lens be red, yellow, or blue, so is the perceived object, which is not the white shilling. We are invisible to each other; what is imagined to be a man's appearance, may be described as, various sensations of different

colours symmetrically arranged, and constituting a single optically-excited mental effect. Neither is it the likeness of the sitter that the canvass exhibits, but the excited perception within the sensorium of the limner; for the renewal of which it is that he directs his eyes so frequently to the sitter's face, which is invisible to the limner, although he feels certain that he sees every feature.

Those who imagine the eye-balls look and see, and that externals and the perceptions they promote are the same, should, upon reflection, attribute sight to their spectacles; for, as sight is nothing bettered when the glasses are removed, so should the temporary improvement be referred to the spectacles having sight as well as the eyes.

In consequence of all mankind being similarly organised, that which seems coloured, sonorous, hot, acid, or aromatic to one person, is so to every one else with sane eyes and senses; by which unanimity of opinion, in these respects, prevails throughout the great family of man, in the worldly concerns of active life, and the social compact is maintained indissoluble.

The all-wise, benevolent dispensation of the senses, by which man's existence is supplied with enjoyments not in all nature otherwise to bestow; and his intellectual faculties provided with means of contemplating the attributes of his Maker through his knowledge, such as it is, of the creation, which makes known to us not only God's regard for his creatures, but his supreme omniscience in the economy made manifest throughout all his works.

Were bodies coloured as we imagine, there should be an element of each red, yellow, and blue atoms; elements of sound, heat, and cold; elements of flavour and odour innumerable: whereas, by the substitution of sensations, matter without any such qualities, or any whatever, excepting that of being everlasting, is made subservient to the formation of a universe of worlds, teeming with beauty, harmony, and wonders; all contributing to the comfort, enjoyment, happiness, edification, and future hope of its sojourning inhabitants.

Now, when from the established philosophy we deduct gravitation, attraction and repulsion, which are as foreign to inert matter as vitality to the dead, —the host of chymicals, so repugnant to the principle of *inertia*,—the imaginary living principles, erroneously imputed to the mechanical organs of the animal system,—the sensations of luminousness, light, colour, sound, heat, cold, acidity, and of flavours and odours,—when the entire of these unphysical, mere nominals, are deducted from modern philosophy, there remains nothing whatever to produce action, physical change, or motion, excepting *pressure*, which has been always looked upon as a mere adjunct to the imagined numerous powers of nature. When common sense has rejected the whole, then will the philosophy of the Fathers be valued by the world, as would be a garment with more holes than threads.

MATTER.

As a general term, *matter*, means substance; with scientific precision, the term is confined to the elementary state, in contradistinction to the term *body*, applied to matter consolidated into solids and fluids.

Matter consists of atoms, which are hard, opaque, *unalterable*, of homogeneous substance, of the spheric shape, and naturally *inert*, therefore of inactive essence; being *inert*, various species of substance would be useless. The spherical shape admits immediate atomic contact, and leaves interstices uniformly throughout all bodies. There cannot be either communication or alteration of the essence of inert matter; and what the essence of unalterable matter may be, is impossible, and would be useless, to know.

An element is any volume of atoms of the same size. There is no difference between elements but in the size of their atoms.

Every element is a rarer medium to every other element of larger atoms; the minor is as a partial vacuum to the major, which involves the principle of *inequality*, on which motion depends.

Correlative elements are any two, the atoms of one of which are fitted for the interstices of the other, and for no other interstices. Such elements will naturally be together. On the correlative principle magnetism depends.

All bodies consist of several elements; there is

nothing simple, but an element. Bodies are divisible, matter is not.

All bodies include a portion of *elementary* or *electric* matter, which is removed without injury to their general texture.

Matter can suffer no change but change of place.

Weight is an accident of matter, the effect of motion: all *effect* consists in motion; there is no result until effect has ended in rest.

Rest being natural to inert matter, is no effect, has no cause.

There is no power but impulsive pressure; nor is there any effect whatever attributable to *inertia.*

The fundamental principle of *inertia* is that only from which the philosophy of nature is deducible: all philosophy is false which is not consistent throughout with this universal, all-directing principle.

Note.—The terms *electric* and *elementary* are of the same signification, which is, *highly rare:* quality and power to act are wholly out of the question with the inert atoms of the elements of bodies and matter.

MOTION.

Motion admits of no definition, from being but a local casuality of transitory endurance; motion is the same in all things, from an atom to a planet, against which all difference in velocity and direction makes no exeption.

Impulsive pressure is the only cause analogous

to the mechanical effect motion; pressure is universal because matter is inert.

Motion is not natural to *inert* matter: the term is expressive of the local condition of a body, while the body is prevented remaining where it is, and while the body is being passed through contiguous portions of space.

THERE IS NO CAUSE OF MOTION BUT PHYSICAL IMPULSE.

As effect and cause are necessarily equal, so is motion the measure of impulse, in time. Therefore as long as a body is in motion it is being impelled, however insensible the impelling cause. Motion must be in the direction of impulse; for, as a body cannot move itself, and is the passive patient of impulse, so must its direction be the same as that of impulse; therefore when the direction of motion is changed, it must be by a novel impulse in the novel direction.

From all matter being in motion, and all effect consisting in motion, and because like effects everywhere are attributable to the like or same cause, so must there be a cause of motion as universal as matter; rather than that there should be a distinct impelling cause for every individual motion following after the body, to put and keep it in motion. In all philosophic research the golden rule of nature should be held in mind, which prescribes "the shortest mode and fewest materials:" *to mistake on the side of simplicity is more wise than censurable in the search after natural physical truths.*

A universal cause of motion, it would seem, can

be no other than a universal medium, a medium of pressure, one occupying the regions of planetary space, competent to keep the planets in interminable motion and effect all terrestrial minor motion: only by such means is it conceivable how the earth can be under endless, ever-varying impulse, productive of ever-changing direction. When impulsively pressed into motion by such a medium, the direction of a planet must be orbicular, on account of the pressure on the solar side being always less than on the opposite, by which the projectile direction is diverted from rectilinear to curvilinear.

Newton imagined that a medium, and however rare, occupying the regions of space, must retard, in time destroy, and eventually require the hand of Deity to restore the primeval order of planetary motion: no very bright idea of the great mathematician, considering the Omniscience of the Projector of a *self-going*, *self-regulating* Universe. Whereas a medium as dense as molten gold, could produce no such disorder as long as impulse is greater than resistance; which the long-continuance and order of planetary motion strongly seem to indicate is the case. Were there no medium in space, the planets must be at rest; one could not possibly affect another but by its shadow: Uranus being agitated by the greatly remote presence of Neptune, is proof of there being a connecting medium between. Gravitation is supposed to move the body possessed of the property, forwards,—why not every way?—to the sun or towards some neighbouring planet, but not to send that body or planet an agitating

warning of its presence. How is gravitation within one planet to keep another in a state of agitation; which agitation being motion—a mechanical effect—is proof of there being a medium by which mediate connection is maintained between the two, Uranus and Neptune. Without a planetary medium there could be no *system* of planets. Suppose the existence of such a medium, then its sudden removal,—must not every subordinate system, which makes part of the universal system, become disjointed the same instant? Besides, from the laws of vision, rather of optics, there is equal proof that space contains a medium. There is no light to come from a star to the eye; there is nothing of sight belonging to the eye-balls; and there must be something between a star and the sense to connect the star with the sense; or how is the sense or brain to be so affected by the star, as that the perception or sensation shall be always the same when the eye-ball lenses are directed to the same star; and only by a universal medium can all the stars of the hemisphere be in connection with the eye at the same time, or the time of a few winks of the eye. Therefore until it is proved that constant planetary motion can be without constant and equal corresponding impulse, as to direction; and that a star can affect the sense of itself, immediately or with nothing between, all denial of planetary space being occupied by a medium of pressure, is utterly untenable.

Pressure being obviously the cause of planetary motion, so is it of all terrestrial motion. To produce atomic motion and transfer generally, it is necessary, only, that the atoms of the medium of space should be of less size than the minutest interstices in bodies.

A universal medium must be of universal service, (as would be conceived, were the universe involved in a medium of water,) to be in accordance with nature's economy: to keep the planets and matter in motion, to retain atoms together, and effect their separation occasionally, include the whole of action required by its service; more in this respect it cannot effect; nor is the common general procedure otherwise effected. Therefore in pressure, by the medium of space, consists the PRIMUM MOBILE: the beginning and end of all physical cause of action and of all physical effect.

Pressure is nothing assumed, hypothetic, or unproven, like attraction and gravitation,—the justly dethroned imbecile usurpers of the imperial chair of philosophy for ages past.

On barometric evidence alone, that pressure exists all round the globe is fully proved; and that it is indispensable to the maintenance of the existing general order, all must readily grant who reflect for an instant on the fatal consequences which the cessation of the general pressure, for only a few minutes, must cause. Hence it is no immediate

question how the general pressure originated, how maintained, what the confining boundaries or *point d'appui*. Most likely it is the consequence of the motion of the planets themselves, surging through the ocean of space. As every performance of nature has some ulterior object in view, it is probable that the effect of the motion of a planet on the medium of space is tributary to the motion of another planet, and that the motion of the whole is a means of preventing the cessation of motion of any of the parts. Most likely the medium of space was not in a state of pressure at first; that planetary motion, however commenced, effected the state of pressure necessary for its continuance, and which would be useless beyond the precincts of planetary evolution: where pressure is not needed, of a certainty there is none. Hence the conclusion is warrantable, that the general pressure, however commenced, is maintained by not only the motion of the planets individually but in systems, through the ocean of space.

The earth may be said to swim through the medium of space, and to be soaked with it as a submerged sponge is with water, and the portion within the globe of the earth, is continuous with the like medium in space generally. By which all parts of the interior of the globe are under the general pressure equally as the surface, and all terrestrial bodies subject to its vicissitudes.

By such means, only, is the great earthquake to be accounted for on dynamic principles. Far as the subterraneous grumbling extends, the physical cause

must be present, and in a state of force equal to the awful result. No pent-up air suddenly set free, or suddenly exploded gas,—both naturally forceless,—subject to attenuation and obstruction in the passage from the source—is competent to burst the globe and hurl whole cities into the engulfing chasm: nor is fire any assistant, judging from the absence of flame, smoke, cinders, and ashes. Dreadful as is the catastrophe, it is but a natural casuality and in perfect accordance with the laws of matter. An extraordinary rushing into the body of the earth of medium of space, preceded by an equal efflux of elementary matter atmospherically induced, are the cause and promoting means of the extraordinary, terrific phenomenon.

All things being under the general pressure, and elementary atoms of all sizes everywhere present, the interstices of bodies cannot remain empty. From all interstices being formed by spherical atoms, and the atoms of the medium of space the smallest, there are always interstitial spaces for medium of space to enter, pass through or remain within, and which *is not insulated*, but continuous with the outward source. Thus, has the medium of space access to every atom, and by the pressure from without, is enabled to act *centrifugally* within the body, as a kind of back-spring against each and the whole of its constituent atoms, to produce expansion, dissolution, and elementary dispersion according to the medium or circumstances in which the body may be placed. These general principles admit of repetition, in order, that, by repeated showing, to prove their

validity, against others more generally known and adopted, although unfounded in nature, sense, or reason.

MINUS-PRESSURE MATTER.

Taking the maximum of pressure as a fixed quantity, or, as not being subject to increase, and assuming the degree to be not less than equal to the tenacity of steel, there must of necessity be means of mitigating the maximum, so that in the scale of descent every degree of force should be attainable; and more, to keep the equilibrium in a state of disturbance, without which all things must be, and remain in the rest of death. Were there no minus-pressure means, the solid, or perhaps aëriform state of matter would exist everywhere, and of motion there could be none. Such means for promoting motion are amply supplied, and without any addition of matter to the measured quantity sufficient for the formation of bodies and service of nature generally, in the elements themselves, of matter.

As the body which is involved in a medium of air is under less pressure than in a medium of water, and still less within a medium of elementary matter, so is elementary matter, and the elements generally, the natural means of mitigating the maximum of pressure on and within bodies. All bodies within and on the surface of the earth, possess removable elementary matter, which prevents superficial contact, and excludes medium of space proportionally from their interior ; and because the medium of space is

the cause of pressure, in being thus rendered discontinuous, so is its force, as it were, intercepted or lessened. For instance, a polished needle floats on water, but when wetted or smoked is precipitated, from having its electric or minus-pressure atmosphere removed; from which it is obvious that with the minus-pressure atmosphere, the needle is under less pressure than when without it; and the same atmosphere it is which makes the bed in the water so much larger every way than the needle.

The minus-pressure principle is well exemplified in the rise of water within a tube over which fire is situated. When the fire is removed, the water falls. The fire must be in the state of combustion—mere ignition does not answer. The elements forced out of the combustible, as combustion proceeds, cover the orifice of the tube, and intercept the general pressure, notwithstanding they are under the general pressure. By such minus-pressure means is the equilibrium destroyed, and by the unaltered pressure on the water outside the lower orifice of the tube, the water is forced upwards. So is it that the water of the sea is raised to the minus-pressure, elementary matter descending from a cloud in the shape of an inverted cone, and known as the water-spout. Astronomers can best say whether the sun and moon be not minus-pressure means in promoting the rise of the ocean, productive of the tides; a miniature representation of which is effected by holding a charged jar over a surface of water, to which the water rises in a small cone,—which cone follows every motion of the jar, and falls when the

jar is discharged. Capillary ascent is promoted by the interposed minus-pressure electric matter which fills the caliber of the tube: the same matter prevents the horizontal flow of water through such tubes; but when the tubes are de-electrised, the flow is free and constant: boiling water, or fire de-electrises all such tubes. The electric matter on a bar of iron is a hinderance to water running down, but when removed by means of fire, the water runs down the bar freely. The atmosphere is a minus-pressure medium to the earth, and on the general principle that *interposed elementary matter renders discontinuous* the medium of pressure, which is the medium of space.

Minus-pressure means exist in other than the elementary form, as in blotting-paper, candle-wick, pledgets of lint. Within the cupping-glass, which is empty of air only, it is the minus-pressure matter obtained from flame which promotes the rise of blister. Within the vessels of the vascular system, as mucilaginous lining, minus-pressure matter assists the circulation of fluids, on the foregoing capillary principle. The slime on deep-water fish, seems provided to lessen the pressure of the water on the inhabitants of those seas. Minus-pressure matter on one side only of a body, destroys the equilibrium, and promotes the motion of the body; and generally, the partial action, implied by motion, of the medium of space on bodies or their parts, is promoted by interposed minus-pressure matter in every instance of physical change. Only in minus-pressure means, which serve as a partial vacuum in some cases, to

disturb the equilibrium of pressure, is motion, or change of place of the elements of bodies, or of bodies themselves promoted: without such means there is nothing to promote the blowing of a wind, or to put the medium of space into action. Cause being given, the *General Pressure* in the production of every physical effect, the sole province of philosophy consists in tracing out the minus-pressure means which promote the occasional and partial action of the medium of pressure.

FIRE.

Fire is not hot, although it burns the flesh and promotes pain. Matter, which is unalterable, cannot be made hot or cold, neither is there anything to make it so. If a limb be made rigid, or the nerves of sensation be removed, or the function of the nervous fluid be obstructed, the limb may be burned off unconsciously. Heat is a sensation effected through excitement of the brain; out of the brain there is neither excitement nor heat. The fire does not excite the brain, but the nervous fluid; and although the sensation is not hot, it is imagined that the cause must be hot, which is false reasoning. The chymist finds heat creviced in all things, even those which he admits are destroyed by heat—gunpowder and ice. How can flame be hot, when just obtained from the gases of decomposed ice water? or, if hot, *sui generis*, it must have been hot frozen flame in the original ice.

Modern philosophy adopts different kinds of heat,—*animal, culinary, and latent heat.* The first

is our own feeling excited by means of fire in the sensitive centre, the brain; also by exercise and disease, in the absence of fire. How is the spark from the flint or from the steel to saturate a bushel of coal with heat? How, again, does "heat come to an equilibrium in all surrounding bodies," when some portion of the coal may be black cold, and others red hot—using the popular terms—in the fire-place, at the same time, and while the air in the chamber is indexing zero? *Latent heat* is of the philosopher's own peculiar making; and on the "*great discovery*" the most unbounded praise is still bestowed. Latent heat, "which all bodies possess without being heated," which, "heats nothing," and is not hot, is cold heat, and should be nomenclatured such, or, absurd heat. Are not Instructors less than half-reasoners and unnatural philosophers, who abide by and teach such consummate nonsense: on a par with which is the discovery of "latent dark light"—"of black being formed by the intermixture of two luminous rays at the point of intersection in the spectrum," which is the same as feelable darkness; after which, there only remains for "*new discovery*," latent sound, for inking on, thence vibrating from, a sheet of music-paper; and latent motion, to keep a stone at rest, the quantity of motion in the world having been already ascertained arithmetically to a fraction; the last-day discovery, the quantity of right reason, is the small remaining trifle to be discovered. Radiation of heat and cold by fire and ice, being inconsistent with the *inertia*

of *matter*, is an erroneous and greatly-misleading assumption, although proved through the nicest experiments, according to the experimenter's ideas.

Instead of fire communicating anything to bodies, *fire promotes loss to everything* in its neighbourhood. The bars of stoves, iron pokers, steam-boilers; all culinary vessels; coal, wood, candles, paper, linen, all suffer loss by means of fire; cinders, charcoal, tinder, are but remains: to which it is no exception that some bodies acquire substance and weight in becoming oxydes; because, previous to acquiring oxygen from the air, they must have lost elementary matter to the fire to make spaces for the oxygen to enter, otherwise the open air should oxydize equally, in the absence of fire.

The loss, or matter of loss which fire promotes to fluids, appears as air-beads on the sides and bottom within the vessel on the fire, before the water comes to ebullition: these beads cannot be made to rise in the water by any manner of agitation, which is proof they have not come from the fire, and through the rigid bottom, or ascent and escape are inevitable. When the bottom has been sufficiently de-electrised by the fire, they are pressed through it to the fire; or if the vessel be removed and placed on the ground, they become dispersed through the water insensibly. The like spherules collect on an egg while boiling, which cannot be anything issued from the fire to the surface of the water, then precipitated on the egg. On the bottom of a glass-retort suspended over a lamp, the like

spherules collect, from which it is supposed that water never touches the bottom of any containing vessel; it must touch that which it wets.

That air suffers loss to fire, is made evident by the air being deprived of, or losing its oxygen during combustion; and from both fire and flame becoming extinguished in a limited quantity of respirable air, in consequence of having lost its oxygen to the combustible, while in the state of fire.

Solids, as polished metals and glass, when they experience no change of weight, lose to the fire imponderable elementary matter only. So is it when the hand is presented to the fire, it loses electric matter, and the loss it suffers promotes the sensation of heat: when the hand afterwards touches a body, supposed to be cold, it acquires elementary matter from that which is touched. In every instance the body, solid or fluid, supposed to be *heating*, is losing elementary matter; and that which is said to be *cooling*, is acquiring the like matter; the hand *loses* to the former and *receives* from the latter electric matter.

THE MEDIUM OF FIRE.

A peculiar medium is formed within a fire, towards the composition of which the fuel contributes more or less of its elements; which is made manifest in a piece of wood or paper when held within the fire, being brought to the state of combustion, and without touching the fuel, (heat, be it remembered, is no more physical than shadow.) The like medium is formed from the elements contributed by flame, and

whatever of elementary matter the atmosphere may contribute beside. High above the flame of a lamp combustion and fusion are effected the same as within, or in contact with the flame. Between the cupped hands this medium is receivable, and may be carried from the flame of a candle to the wick of a different candle just blown out, which it re-illumines. There being little or none of the medium of fire attendant on a detached ignited body, favours the conjecture that the fuel during combustion contributes somewhat of its elements towards the formation of the medium of fire. Hence, although not included in the nomenclature of chymistry or any other, the medium of fire should have place on the list of realities.

As all bodies include more or less of free elementary matter, which excludes its equal in volume of the medium of space, so to admit medium of space in order to cause change in the constitution of a body, the body must undergo previous de-electrisation: the law is general.

The medium of space being the expanding and decomposing cause, by means of its centrifugal pressure within bodies, to prevent its being in excess and effecting such changes spontaneously, productive of the decomposition of all things, all bodies are protected or retained in their present condition by the electric matter within them, which excludes the decomposing cause.

Within the medium of fire all kinds of bodies become de-electrised; all suffer loss of electric matter, which is succeeded by influent medium of

space, the centrifugal pressure of which affects the several changes to which bodies are liable previous to ultimate dissolution into the elementary state. In promoting the de-electrisation of every kind of body, and to the extreme, which no other individual medium or menstruum can effect, consists the universal utility of the medium of fire.

EXPANSION.

The theory of expansion is of easy comprehension; it consists in previous de-electrisation, succeeded by influent medium of space, which, by acting with centrifugal pressure, produces the phenomenon of expansion. The general pressure is the expanding cause, by reason of the portion of medium of space within all bodies being continuous with the medium of pressure in general space.

A bar of iron placed within the medium of fire suffers de-electrisation; then acquires medium of space, by which the bar is expanded. When taken from the fire, it acquires electric matter similar to that of which it had suffered loss, which displaces the expanding medium, and now becomes contracted by external pressure. The olden philosophy has no contracting cause, the imputed attraction having been destroyed by the imputed heat of the fire, as the same philosophy states of the imputed attraction of magnets being destroyed by the heat of fire, which leaves the bar to contract itself.

A piece of lead on the fire becomes de-electrised and expanded. The portion of medium of space it has acquired separates the atoms of the lead by

which the state of solidity is subverted; it remains as one of the constituents of the lead, and is as a menstruum to the metal, and the atoms of the metal may be said to swim in it as the globules of blood in the serum. Further de-electrisation and additional increments of medium of space are productive of complete dispersion of the atoms of the metal, and of a kind of efflorescent result, which is a subsequent formation. The air in a corked bottle before the fire loses electric matter to the medium of fire; and by the medium of space which enters the vacated interstices, the cork is exploded. In the partially exhausted air-pump receiver, that decrease in the quantity of air should increase the expansive power of the remainder, and that the atoms should fly asunder with exploding force, is most unreasonable and impossible. The physical fact is, the more the air is reduced, the greater is the quantity of influent medium of space, consequently of expanding and exploding force. In the condensing of air, as is the expression, by the piston of the syringe, the quantity is reduced from being forced out through the pores of the syringe; and pressure on the bottom of the piston springs it up when the depressing power is removed. Under the general pressure the atoms of air must be in contact; and the volume being reduced, implies reduction of quantity: hard unalterable atoms are incompressible beyond contact; and as to their being elastic, it is physically impossible; medium of space being forced out and re-entering, is what makes the air be considered elastic. Let the syringe be worked

under water, and the matter displaced appears escaping as air-bubbles, and as air-beads on the outside of the syringe.

OXYGEN AIR.

All airs are compounds. Medium of space is the most voluminous constituent of every acriform body, which accounts for an air or gas and steam being of so much greater volume than that from which it had been obtained; steam has fifteen hundred times the volume of the water it was produced from.

Oxygen air is decomposed in converting it with hydrogen to water: there is no oxygen or hydrogen air in water; their *elements* are the constituents of water. Oxygen is decomposed by respiration; when inspired, it is not expired, but nitrogen, which must have been one of its constituents, and from there being nothing to constitute the expiration but the previous inspiration the proposition is proved.

The constituents of oxygen are—nitrogen, *a highly rare imponderable element* and medium of space. The first is the most ponderable element of nitrogen air; its atoms are the largest of all others of the elements of matter, and, it may be said, they constitute the substance of the framework of all ponderable or gross formations. Davy says, "the properties of nitrogen are altogether negative;" the same applies to every other kind of air, all being constituted of *inert* atomic substance, consequently of inactive essence; and all being alike in every respect but in the size of their atoms. The

imponderable element being highly evanescent, is never found alone, and is always connected with nitrogen; hence simple nitrogen is obtainable only from bodies, or by deoxygenating atmospheric air. Atmospheric air is nitrogen, plus the imponderable element; and when the nitrogen is saturated with the same element, the air is oxygen: hence, whichever is inspired, nitrogen is expired.

From nitrogen being evolved copiously from water in vacuo, and from ice being convertible to nitrogen, according to Priestley, so is nitrogen a constituent of water, also of the gases into which water is decomposable; but as it cannot belong to the hydrogen, owing to its superior levity, it must to the oxygen; which is confirmation of the above, that nitrogen is a constituent of oxygen air or gas.

THE USE OF OXYGEN IN PROMOTING COMBUSTION.

How oxygen supports combustion no Elementary Treatise explains; but leaves it to be imagined, that oxygen is somewhat of a burnable nature, or that it generates heat when blown into a fire. The fact is, it supports combustion only mechanically. The centrifugal pressure, by the medium of space, decomposes the fuel; electric matter, entering the ignited fuel, displaces medium of space, and the fire goes out; oxygen prevents the entrance of electric matter, and permits the medium of space to enter the fuel freely, the pressure from without gives centrifugal force. In this two-fold manner of service oxygen promotes the continuance of the kind of

decomposition known as combustion. A live coal is greatly *deficient* of electric matter; when just fallen from the fire it is said to be red and hot, after a few minutes black and cold; all of which are but mental effects. On the hearth the coal acquires electric matter from the air, which displaces medium of space, and becomes extinguished; so would the fire were there no oxygen in the surrounding air. Hence it would seem, that the interstices of oxygen are too diminutive for electric matter to enter, but are sufficiently large for those of the medium of space to pass through, thence into the fuel. Should the utility of the nitrogen of oxygen in combustion be questioned, because nitrogen alone puts an end to the combustion of a candle; it may be answered, that, as the imponderable element of oxygen air, from being highly evanescent, is not obtainable without the nitrogen, and as by the service of both together combustion is increased, so may both be considered supporters of combustion; the grosser element serving as a carrier to the minor, and, as it were, giving it momentum sufficient to penetrate beyond the surface of the half-decomposed, or previously ignited fuel.

COMBUSTION.

A piece of wood, like everything else when placed within the medium of fire, suffers de-electrisation and acquiries medium of space: this twofold procedure continuing, the wood becomes split or burst asunder, and its elements gradually forced out by

the centrifugal pressure; some of which are precipitated, some contribute to the medium of fire, others are recombined differently and exist for a short space of time as flame, and others, with matter from the air, form soot. Such is the most rational theory of combustion, consistent with the *inertia* of matter and the absence of heat.

Friction rubs away electric matter, percussion forces it out, combustion and ignition follow, and without being promoted by either heat or fire. The kindling matter of a coal-laid fire requires the de-electrising spark at first, and the de-electrised kindling de-electrises the coal; the wood fire, effected by means of friction, is independent of even the spark of fire for its commencement, from having been otherwise de-electrised at first. Within the fire, one part de-electrises another, and the centrifugal pressure decomposes the whole.

Animal combustion is consequent on the internal organs and flesh being de-electrised, the stomach first, by means of spirituous liquors, which, like fire in so doing, promote the sensation of heat. The stomach and adjacent organs, from being thus de-electrised, are prepared to receive the decomposing medium; and from oxygen, to exclude electric matter, being absent, the flesh is brought to the state of smothered combustion and charred: it may now be considered in the light of a *mortuum caput.*

The spontaneous combustion of greasy clothes, damp hay and other things, is promoted by the limited quantity of air in which such articles are confined. To the hand the air seems warm before

combustion has commenced, which indicates deficiency of electric matter, but which, in time, the air acquires from greasy clothes, and from damp hay, the removal of which is succeeded by the destroying medium, by which the elements of the combustible become separated, set free, and dispersed.

In summer, when the atmosphere is greatly deficient of what may be termed winter electric matter, all woodwork is in a desiccated condition; and the slight friction of limb against limb is sufficient to make space for medium of space to enter in excess, and convert to fire, tree after tree, the whole of a forest.

The combustion of a candle is well worthy the philosopher's attention. The candle while burning, comprises a series of the simplest operations, and far beyond the powers of art to effect or otherwise imitate; yet from indifference to the familiar, and the paucity of skill required in the construction, there is nothing less noticed with philosophic acumen. The mechanism and materials to be wrought are the same; which consist in a slender, compact, portable cylinder of tallow, within which is included an equal length of wick. The various operations of de-electrising, fluidifying, and gas-making, are performed in silent, regular succession, unretarded by friction and unincumbered with containing vessels, Nature furnishes the power. The wick answers the purpose of service-pipes, through which the half-wrought materials are conveyed in a gaseous form to the refining fire, within which they remain as in a gasometer of supply, to be gradually

diffused through the surrounding flame, and there receive the finishing lustrous polish. The new formation is now a refinery to the work in progress, and is curiously situated over the materials where only it could serve the numerous requisite purposes. Nor does the gradual consumption of the machinery derange the order of operation, work and wear being carried on simultaneously to the end. The many-coloured tissue wrought, of starlight shine and of expanded base, is tastefully tapered as if to please in appearance, as well as lighten our darkness. Thus by natural means, operating on almost uncostly materials, mankind are supplied with that by which darkness is turned to day—the candle flame.

All combustion is on the same principle, previous de-electrisation the commencement, and, by the same cause continued, the centrifugal pressure, which is on the increase from being derived from the general pressure. Flame, or the electric spark, de-electrises the gases, oxygen and hydrogen, before their conversion to water takes place; compression effects the same. The inflammable air in mines becomes exploded from the de-electrising consequence of flame, when inadvertently exposed; and at times the de-electrisation is effected by the atmosphere, as in spontaneous combustion. The mine explosion, promoted by the atmosphere, is a case of spontaneous detonation, if not combustion, which, from sad experience taught, should be anticipated by the application of a rocket fired by a train. The foul air should be got rid of timely, not

left to accumulate, and the weather dictates when. "The Davy" may be said to insulate the flame of the lamp from the electric matter of the air within the mine. The flame, when exposed, de-electrises the foul air, and in fluent medium of space causes the explosion.

WATER.

Water is the most compound of fluids, although when pure it promotes little or no sensation, which is owing to the certain proportion of its elements to each other. It seems to have, as constituents, a portion of each of the general elements; of which, when any are in excess or deficiency, the fluid differs from common pure water, but still is an aqueous fluid. All aqueous fluids which differ from pure water, do so from elementary disproportion in their constitution. Ancient philosophers considered water the parent of all things, because it contributes matter of substance and increase, they said, to all kinds of bodies, and because there is nothing elementary belonging to bodies which is not obtainable, by one means or other, from water or its productions. It contributes increase to the whole of the vegetable kingdom, and through vegetable matter to the increase of animal flesh. From the vegetable world are obtainable, by means of art, earths, metals, salts, acids, alkalies, even flame; the primitives of which are of the same kind as the initials of water; also of the atmosphere, which is convertible to water, but is not water, by reason of not only elementary disproportion, but the enor-

mous excess of medium of space in which its elements are involved.

The constitution of water being unknown, and supposed to consist of only the gases, hydropathy is condemned, like mesmerism, through the ignorance and intolerance of professionals, themselves falsely educated at best. As alimentary, water is the most wholesome drink under heaven; as medicinal, far beyond comparison with extracts from metals and minerals, from which deduct the water, the remainder kills. The hydropathic perspiration cleanses the flesh from head to foot; physic, the intestines and stomach only. Water is the elixir of both body and mind; witness the persons who are teetotallers. A patient declared to the present writer, he would rather have run naked into the street, were he not bound up by the wet sheets, than endure the fog and stench from his body by the cold water perspiration. Yet doctors insist that hydropathy is not medicinal or curative, or why not adopt the practice?

Water is formed by detonating the gases, oxygen and hydrogen, by which their *elements* become combined in the form of water; which is the only formative mode pursued in the laboratory of art; whereas, in that of nature, it is variously formed: the number of elements determines the number of modes. Suppose six the number of the natural elements, then any five and the remaining one, any four and the remaining two, or any three and the other three, met and compressed within the atmosphere, the product is water. On the meeting of

certain clouds, where *the gases* could not have equal elevation, water is formed; and on walls and wainscots, under cover, in humid weather, it is formed from the electric matter on their surface and the complement of elements contributed by the atmosphere: the same walls, in the same weather, would have no water, if kept de-electrised by stoves. It is formed similarly on furs, woollens, and the spider's web, all of which are retainers of electric matter; and on the leaves of plants as *dew*, but on the side only which is covered with the like electric matter. Dew-water is neither a precipitation nor exhalation, but a formation on that where it is found.

Water is formed on glass and metallic vessels, however closely covered, as long and no longer than the included water gives out electric matter through the pores of the vessel. In the air of the tropics, the dew or water running down the outside of covered and uncovered vessels, cannot be considered humidity of the air condensed by cold. In proof of the foregoing, the hitherto unexplained experiment is opportune.

A plate of glass, covered on one side with tin foil, has much dew on the naked side when uppermost, and none, when the covered side is uppermost, of equal dewy nights. The foil acquires electric matter from the ground, which the glass or naked upper side receives and retains; but when the naked side is next the ground, the portion of electric matter it acquires is conducted off by the foil at top; and as where there is no electric matter

there is no dew, the upper coated side is dry, and under circumstances which would have left much dew on the glass side if uppermost.

Within the animal system various aqueous fluids and humidities are formed, and, as in the former instances, without oxygen and hydrogen being present; namely, hydrocephalus, the stomach juices, liquor pericardium, water of blister, milk, tears: to these add the juices of fruit, the chymists' aqueous fluids, together with the variety of formative modes, and the complex constitution of water remains unquestionable. Lavoisier's experiments proved the same, by the endless variety in the residue and product, from decomposing and recomposing the same water several times. Davy states, that, when experimenting on different substances, water frequently appeared, when there was nothing sensibly present to which it could be attributed, if not to nitrogen, which disappeared simultaneously with the water appearing: electric matter is everywhere present, although not sensibly discoverable.

From which it is obvious that the alchymists of old mistook the road to *El Dorado*. Instead of aiming at turning the grosser metals into gold, they should have alchymised on water, taking its elements as the money-changer does those of the numeration table, and by the rules of transposition made the valueless stand in the place of most value.

Water in the boiler loses electric matter to the fire beneath, and is expanded by influent medium of space; the excess of the latter throws out the elements of the superior stratum, which, with an

enormous influx of medium of space, are the constituents of steam and the power of steam. The so-acquired medium of space, by the pressure from without which it is under, is the cause of the elasticity and force of steam. Steam is not water, nor is it ever condensed by "cold." It consists in the elements of water, less that which the water lost to the fire: both, with a reduced or proportional quantity of medium of space, make the original stratum of water. What but electric matter can steam receive from the pipes it may be passed through, and is discharged from as water? Insulated, "centrifugally repellant heat," without fulcrum, is a most inconsiderable substitute for *the pressure of nature* by the all-pervading medium of space, and but a shadowy substitute in accounting for the powerful effects of steam. There is no repellant force in the flame of a candle; and what but influent medium of space can make a pint of water fill and overflow a quart vessel.

Water loses its fluidity and is made solid or congealed, upon losing the imponderable oxygenating element. Priestley through his experiments made the discovery, that, "air, purer than atmospheric, is given out by water at the instant of congelation,"—which must be oxygen air. From which we learn, that oxygen is the natural hinderance against the waters of the globe being solid; with which experimental practice and experience agree, it being well known that oxygen added to a freezing solution, retards congelation; and that, to facilitate the freezing of water, a smart tap is given to the side

of the vessel, hitherto unknown why, but seems as if to shake out the oxygen. The following observed circumstances exhibit the congelation of water throughout all its stages. The air in a chamber being favourable for the reception of oxygen from water, the water in a cylindrical earthen pitcher became frozen; a plate of ice was formed, which equalled the area of the vessel, and firmly fixed to the sides one full inch higher than the water had been at first. The bottom of the vessel was blown out, the sides remained whole, and the ice not broken or moved.

The circumstances of the case admits of the following illustration. Medium of space, by its pressure, forced out the oxygen; additional increments of the same medium entered, collapsed the elements of the deoxydated stratum of water, and so forcibly expanded the rest of the water as to make it explode the bottom of the vessel, all at the same instant. As all excess of medium of space retired from the water, the latter sunk to the original height; and had not the water escaped, it would have been an inch separate from the plate of ice. A river thus frozen, flows freely beneath the ice from the same circumstances. The bomb-shell at Hudson Bay was exploded by the expanded water, not by the newly-formed ice; or else the sides, not the bottom of the earthen vessel, would have been exploded.

Ice is deoxygenated water, and abounds with electric matter, hence it floats; and ice-water is at the minimum of density from being deficient of

oxygen. Ice, in a Florence flask, hung over a lamp, yields abundance of electric matter, towards the formation of lamp-black on the outside of the bottom of the flask, which, to the miniature painter may be preferable, from being the freest of grit. In all cases of combustion, the elements of lamp-black are present; so that, in combustion of the diamond, the same kind of soot being formed, affords no information of the constituents of this highly-prized crystal. With more reason than that of pure carbon, (which is but another name for the electric matter which is the principal constituent of ice, and lamp-black) being the base of diamond, it may be assumed, that, diamond is a crystalized oxyde of water. The electrician's opposite characteristics of the two, diamond and ice, accord with the suggestion.

SOLVENCY.

The menstruum is supposed to *act* by "chymical attraction," from having "chymical affinity" on the involved "chymical solid," which enables it to draw out the elementary atoms of the solid: whereas the *inert* menstruum does nothing; it is but an interstitial recipient for the atoms to be forced into, as they become centrifugally forced out of the solid. And because the atoms of a body are of different sizes, some make novel interstices, and thus expedite the dissolution. Only by increasing the number and kind of interstices, can diluting a menstruum with water increase what is imagined to be its solvency. Neither chymical properties, nor chymical strength of a fluid, if it had any such,

could be increased by dilution, and the stronger should dissolve that which the weaker is said to dissolve. The contrary supposes that the force which breaks a stone is too strong to break a nut-shell. Mechanical dissolution by the centrifugal pressure is independent of *chymicalities*.

Gastric solution is effected similarly: the juice has none of the chymical properties of Liebig, nor does ingestion stand in need of the living principle of Coombe; the former are imaginary, the latter is denied from gastric solution taking place in a tea-cup. The gastric juice i an interstitial receiver of the elements of the pulp, when forced out by the centrifugal pressure into the gastric menstruum, as those of soap into water. The pulp and its *striæ* are disunited, mechanically decomposed, not abraded: some of its elements escape into the air within the stomach, which, by disturbing the equilibrium within, promote irregularity of pressure on the outside of the sac, which causes the *pliæ* to be in the peristaltic motion, supposed to be caused by the stomach stimulating itself. The same circumstances take place within and without the intestines. The whole process of digestion is dynamic, in which the only stimulant is pressure.

Of the various conjectures on the origin of the gastric juice, there cannot be any more unreasonable than that which considers it a fluid *sui generis*, and as having origin out of the stomach. All fluids are compounds; and those belonging to the body may be said to be formed out of, or by commixture with others. To suppose for an instant, that a fluid,

which is *destructive of all flesh*, should have existence out of the stomach, and remain harmless in some *fleshy* vessel as long as the stomach is empty of food, or until food is required to "stimulate" its flow from without through the *papillæ* of the villous lining into the stomach, is a most strange physiologic oversight. Why not rather conclude at once, that the flesh-destroying juice exists only where it is required and for immediate service, and where only there are preventive means, the peristaltic motion, against it proving injurious to the flesh of the stomach; and to the vessels of secretion it would be injurious, hence, not as the juice but chyme it is passed out of the stomach into the system. Under such circumstances, the suggestion is nothing unreasonable, that, *there is no gastric juice out of the stomach, nor within, but while there is food present to contribute one or more of its elements to the other juices, including the saliva, towards effecting its completion as a fit interstitial gastric menstruum, for receiving the elementary constituents of the pulp under mechanical decomposition by the centripetally disuniting pressure of the medium of space.* Like the all de-electrising medium of fire, which exists only where and while it is being formed, the gastric juice should be looked upon as if *designed to be of difficult formation;* made more so by depending on the food for its completion, which is not a matter of "observation" within the stomach, or in the teacup: neither is the perfect juice, which may be sponged or syringed from the bottom of the stomach, any proof that as such precisely it came

from the *papillæ*, as some suppose. As to the papillary flow being *stimulated* by the food, with as bad philosophy it might be said, charmed; or that clockwork is *stimulated* by the weights. The flow is promoted by the pulp, as were the latter a piece of sponge. And that the papillary flow is but a constituent, not the flesh-destroying juice, in promoting ingestion, is evident from the hunger pain it promotes while harmlessly accumulating out of the stomach, indicating the stomach being empty; and the relief experienced at its source when discharged into the stomach, it is, which has given rise to the idea, that certain organs *sympathise* with the stomach.

Such metaphorical expressions may pass for the poetry of pathology, but hitherto have stood in the way of deep research. Ingestion is expedited by sleep, in consequence of the accumulation of minus pressure-matter in the gastric region and stomach at the time; and sleep is promoted by imperfect mastication causing a deficiency of saliva in the stomach which is compensated by minus pressure-matter of the thus provoked comatose flow. The pollparrot masticates but little, if at all, and sleeps regularly after breakfast.

USE OF THE INSPIRED OXYGEN WITHIN THE SYSTEM.

There is none of the inspired oxygen returned to the lungs by the circulation. What becomes of it, or what its use within the system, has not been written for our learning. It is not retained in the

blood, nor is it animalised; nothing yields less oxygen than animal matter. To convey "carbon" out of the system, and somehow purify the blood, is the supposed service; but if so, should it not be included in every expiration and of the inspiration quantity? but which is not the case.

Harvey proved that the blood circulates, but left undiscovered what keeps in motion the *inert* fluid, except the systole, which the *inert* heart cannot effect on itself. No organ can do anything of itself, the whole being composed of inert substance, and nothing else; even the life of the body, whatever it may be, leaves the function of every organ, not excepting that of the brain, dependent on the general pressure.

By the general pressure the air is forced into, but not through or beyond the lungs which it inflates, and inflates nothing else. Within the blood-vessels it would prove fatal; and although from it the blood derives that by which it becomes arterialised, yet the blood and air do not come in contact, extravasation and pulmonary rupture must happen, did the lungs permit the blood and air coming together, or in immediate contact. Of the air of an inspiration, the oxygenating imponderable element only can permeate the pulmonary tissue. This element it is which imponderably arterialises the blood; the nitrogen of the inspiration constitutes the immediate succeeding exspiration.

The oxygenating element promotes the circulation on the same principle that it promotes combustion; its diminutive interstices exclude electric

matter, which coagulates, and admits the propelling force, medium of space, which is the only cause of motion, to enter the blood. The oxygenated blood being propelled, or pressed, by the medium of space it includes, from the lungs into the ventricle, the collapse, or systole, takes place, and the blood is forced out of the ventricle, through the auricle, into the aorta, thence through the several branches of the arterial system, to and through the capillaries, into the veins. Thus, from the medium of space within the blood being continuous with the medium of space generally, it is manifest that the blood is circulated not by the systole, but by the general pressure. To produce the systole, there is nothing but the normal pressure on the outside surface of the heart; nor, to lessen the normal pressure on the parietes of the ventricle, is there anything but the arterialising, minus pressure, imponderable element of the blood just received into the ventricle.

Throughout the entire of the arterial flow, the blood is losing the arterialising minus pressure matter to the different organs, as the means by which the functional action of each is promoted. Without such means, there is nothing to disturb the equilibrium of pressure on an organ to produce organic motion, action, or function. Hence, it appears, that the use of the inspired oxygen consists in promoting the circulation of the blood and the functional motion or action of the different organs within the frame.

Before entering the veins the blood is fully

deoxygenated; within them it acquires gradually electric matter, productive of the livid or coagulating appearance; at the same time the blood-propelling medium is lessening in quantity; but which is compensated in the mucilaginous lining of the veins, which assists the venous flow on the minus pressure capillary principle; capillary attraction would collapse the vessels. The electric matter collected by the venous blood is got rid of in the lungs, and expired with the nitrogen and a remnant of the oxygenating element of the last inspiration; hence the small portion of carbonic acid gas obtained from the expiration.

After all organic service, the arterialising minus-pressure matter is insensibly transpired, which is inferable from the supply being continued through respiration; which, although constant, yet, from being intermitting, might, perhaps, cause corresponding stoppings in the round of organic action; hence it would seem that, against such intervals or interruptions taking place, the liver has been designed to collect for casual distribution a portion of the same minus-pressure matter. The great surface of the liver may stand comparison with the plate, or cylinder, of the electrifying machine, and the organs as jars which receive electric matter from it, as each stands in need.

The SPLEEN, from being an organ common to the human frame, must have an allotted service to supply; although considered useless by some, to all of unknown utility, it may be *a lateral channel of arterial blood direct from the heart, to supply the*

vessels lying in a portion of the body not traversed by the arteries belonging to the great arterial system; those of the diaphragm first; thence through the umbilical cord to the fetus, in which the circulation is indispensable, from being the only means of conveying and dispersing throughout the body, in the absence of respiration, the minus-pressure matter which the organism of the fetus requires to promote the several functions, without which life would become extinct if commenced. In this supply of motion promoting elementary matter, consists all that can be considered *aeration* of the blood, and all that the blood of both the fetus and the *adult* requires, or can possibly receive. In the chirping chick, while within the yet unbroken shell, aeration is *prevented* by incubation of the mother bird; but the arterialising elementary matter is amply provided within the larger, apparently empty, end of the shell. To keep out electric matter, which would exclude the blood-moving medium, is the object of the hen sitting on the eggs, and oven-hatching is effected on the same principle.

The *diaphragm* cannot rise of itself, and has no self-acting, self-lifting nerves or muscles, all flesh being composed of *inert* atoms. The rise is proof positive that pressure is greater on the posterior than anterior surface of the membrane, and the unchanged normal pressure beneath indicates reduced pressure above; the latter is promoted by minus-pressure matter imparted by the splenic blood to the diaphragm, while passing through the

vessels of the diaphragm. This arterialising matter being highly evanescent, escapes from the diaphragm and upwards, and during the escape mitigates the pressure, intercepts it in some degree from the superior surface; then, by the normal pressure beneath, the rise of the diaphragm is effected. As the escape, or separation, is becoming complete, the equilibrium is being restored, and the diaphragm depressed to the normal level. If this be not the rationale of diaphragmatic motion, it will be little improved by the substitution of muscular energy, leverage, or muscular vitality, while leaving out *muscular inertia*, which should not be omitted, but included, in accounting for every muscular action and motion.

CORRELATIVE ELEMENTS.

Any pair of the general elements, the interstices of one of which are the only interstices for receiving and retaining the atoms of the other, or that can be occupied by the atoms of any other of the general elements, such elements are correlatives.

Elementary co-relation is conspicuous in the opposite polarities of the loadstone, magnet, and crystals, and all bodies subject to polarization, which includes the animal frame. Similar co-relation is evinced between the galvanic fluids, those of the pile, and those named electricity; likewise between oxygen and hydrogen, the oxygenating element and nitrogen, acids and alkalies and all mutually neutralizing substances. Still it is not meant that all

the general elements are so paired; doubtless, there are several ratios of size between the atoms of the different elements, for the purpose of multiplying variety among formations, the substance of which is of the same species throughout. Possibly the correlative principle gave rise to the ideal scale of *chymical affinities*, subsequently refined to *affections of matter*. Naturally, correlative elements will be found together, as are nitrogen and the imponderable element; also the magnetic fluids common to iron.

MAGNETISM.

Were attraction a property of the atomic substance of the loadstone, it could be neither transferable, receivable, nor liable to be destroyed by fire. A magnet is a work of art, the substance is inert, it can no more attract than think. Magnetism is an accident of matter; it consists in the correlatives of an iron bar having become separated, and drawn one to each end of the bar: separation and transition to the extremities of the bar, are what the rubbing on the poles of the loadstone effects.

Two paving-stones hanging a short distance asunder and touched by nothing but the tranquil air, remain at rest; but should attract each other had "every atom in creation" the property. Were a vacuum, partial vacuum or air much rarer than atmospheric, now placed between the suspended stones, each would be in motion towards the other the same instant. Here both *causes*, the general pressure, and the minus-pressure, or motion *pro-*

moting means, are given; the latter are sensibly present, and the absence of attraction is as evident as the inutility of anything of the kind to effect the mutual approach of the two bodies. Not so is the approach of two magnets understood, because the intermediate minus-pressure means *present* are not sensible. That iron magnets do not move together by attraction, or that attraction is not the cause of the phenomena imputed to it, is proved in the case of iron-filings dropping from a bar, when the connection of the bar with the galvanic battery is broken; and it will not be contended that the galvanic current is attraction.

In order to arrive at a knowledge of wherein consists the means which subvert the equilibrium between two suspended magnets, reference has to be made to the artizan's mode of operating in converting the unmagnetised bar to a magnet. He holds the bar in the middle, and draws one half along the pole of a loadstone; then draws the other half along the other pole, and after a few such alternate *rubbings* against the poles, the bar is a polarized magnet. From which it was formerly supposed, that iron contains a magnetic fluid which the loadstone rubbings divide, and draw half to each end of the bar. But were such the fact, the ends or poles should be *equals*, whereas they are magnetic opposites. Now, with more reason, it is considered that iron includes two different, removable elements, (correlatives,) which, by the manipulation on the loadstone, are drawn one to each end of the bar, and there remain as polar atmospheres,

and constitute what are termed the polarities, or opposite polarities of the bar; the latter opinion is somewhat confirmed by the corresponding manner in which iron filings, while being scattered on a sheet of paper, become arranged round the poles of a magnet lying under the paper.

The magnetic relation, which the polar atmospheres of any iron magnet bear to those of every iron magnet, being the same as exists between the polar atmospheres of every individual magnet, makes manifest, that a certain pair of correlative elements is common to all magnetisable iron; but without concluding that, by the same kind of correlatives, the polarities are produced in bodies not ferruginous, which, if the physical fact, so may the animal correlatives be different in some instances. From which it follows, that no one mesmeriser can affect mesmerically every person, nor any one person be so affected by all mesmerisers. Neither are all persons "nervous" alike, which should moderate the war cry against mesmerism generally because of failure in some cases; and should awaken the philosophic mesmeriser, willing to make perfect the science, to investigate the cause of exceptions and difficulties.

Now, as respects the interposed minus-pressure means or matter, which, by destroying the equilibrium, promote the approaching motion of two suspended magnets; there is nothing whatever to refer to, but the magnets themselves, that is, their polar atmospheres, which, together or facing one another, make a rare or minus-pressure medium between the proximate ends, into which both magnets are moved

by the greater pressure on their remotest ends. It lies with the previously-instructed patient, while clairvoyant, through questioning by the mesmeriser, to make close observation, and report all circumstances respecting the magnetic lights; also, those attached to and proceeding from the mesmeriser, towards elucidating this most of all recondite subjects — magnetism, in the philosophy of physics. The mesmeriser should hold in mind, that, probably the air between the facing ends of two magnets is magnetically affected, that is, made a magnet in the series by the other two; which seems to be the case when the patient is magnetised at a distance from the mesmeriser by means of the pointed finger, and by the *effect* of will at a much greater distance.

NATURAL SLEEP.

That sleep is not at the command of will is certain, or why undergo the tedium of a restless night? Before the state of sleep can obtain, the body has to experience an *electro-physico* change, by which the extremities are left polarised and the body an animal or living magnet. That the extremities are polarised during sleep, is admitted by all physiologists; for the effecting of which there must be a pair of correlative elements concerned. While the elementary transfer, productive of the polarities, is taking place, so is drowsiness; when sleep has obtained, the natural magnetising procedure has terminated; hence from the degree of polarity, the

mesmeriser can determine the stage to which the patient has been brought between the comatose and clairvoyant states, and know the capability of his patient for being made clairvoyant or not; this polar index should be well noticed.

It must have been observed by many persons while dozing and the body in a sitting or leaning posture, that an agreeable warm glow arises in the chest, which increases while passing sensibly through the pectoral towards the gastric region, and which terminates, insensibly, in the consummation of sleep; from the feet upwards a similar, but less perceptible, flow takes place. Of this twofold *comatose flow*, the immediate consequence is polarisation of the extremities; sleep is a remote, but not the remotest consequence, when effects similar to those by the flow are mesmerically effected. Thus it appears that the theory of sleep and magnetism is the same. The magnetising procedure, however, has this difference; the magnetic correlatives are drawn from the middle to and out of the extremities of the bar; those of the body of the patient recede from the extremities to the central region, leaving one, the correlative of the other, at each extremity, in both cases.

The foregoing theory of sleep is described from immediate personal observation. While leaning over a table, the doze heavy, the comatose flow distinctly felt in its agreeable downward progress through the chest, when, just at the instant of forgetfulness, the violent slam of a door drove away all chance of sleep under the following circum-

stances: a sensible and sudden revulsion upwards, a few seconds of giddiness, and a smart painful stroke on the stomach took place, all in quick succession; which may be accounted for thus: the slam prevented the correlative fluids from the opposite extremities meeting centrally; each gushed irregularly back, and depolarized its extremity, the suddenness of which caused the giddiness. The stroke is the true electric shock, inflicted by the medium of space suddenly rushing or falling on the stomach, from which the matter of the comatose flow had been as suddenly displaced. Taking all circumstances into consideration, it is manifest that the state of sleep is the result of a natural magnetizing operation.

Before the fire, while reading, the superior extremity loses electric matter to the fire, which leaves it polarized and promotes the comatose flow. The lower extremity becomes polarized simultaneously with the upper as a correlative consequence. Sleep is supposed to be expedited by heat; hence the afternoon's nap is seconded by a silk handkerchief thrown over the head, but which is only a hindrance to electric matter, similar to that of the comatose flow entering from the air and depolarizing the extremity. The handkerchief, from being a non-conductor, only prevents the coming sleep being retarded; it could neither generate nor multiply heat.

Naturally it might be questioned, why the body should become somnolent daily; and, by what means the comatose flow is naturally effected;—of itself

it could not take place. The languor removed, and renovation of muscular strength through sleep, may satisfy in the first instance. Next, it would seem, that, as the functions of the several organs depend on the presence of minus-pressure matter for unequalising the pressure on each organ, so must there be waste, loss, and daily deficit of minus-pressure matter; which, from being made good by means of sleep, leaves it inferable, that the daily quantity derived from respiration may be little more than sufficient for the continuance of animation under the minimum of bodily exercise; but as man is necessitated to follow laborious avocations, so is it designed, that the loss by service and waste shall be the means whereby the necessary re-supply is to be furnished. The loss leaves the extremities polarized; and as greater waste towards total exhaustion approaches, the matter of the comatose flow becomes needed and is employed in prolonging the functions of the different organs, and before exhaustion is complete the body is in the state of sleep; during which, from every inspiration being far more lengthy than ordinary, the body is re-supplied to repletion with the respirable minus-pressure matter, by which the extremities are depolarized, and the sleeper is awake, refreshed and invigorated. From which it may be said, that a man toils himself to sleep, and sleeps himself awake; and that, not "balmy sleep," but respiration, is "tired Nature's sweet restorer."

Mesmeric sleep may be considered forced sleep. It is effected with little or no comatose flow, which

renders replenishing by long breathing unnecessary; and the patient, on being awakened by demagnetising the extremities, is rather debilitated than refreshed.

Every finger of the mesmeriser is a magnet to the magnetic correlatives within the extremities of the patient; and the passes polarize after the manner of the comatose flow in the case of natural sleep. From there being no mesmerically-effected comatose flow, there is reason to infer, that *the contents of the nerves of sensation only are what the passes polarize* and what only are polarized in natural sleep, although expressed by the word, *extremities.*

Repetition of the passes separates, or de-electrises more completely the nerves of the extremities, than for the production of natural sleep is requisite. Hence it may be said, that the body of the *mesmerised* patient is in magnetic advance, and hence the series of surprising consequences which bring to light more and more the wonders of the economy.

The passes should be conducted on magnetising principles; that is, from the extremities to the gastric region to bring on somnolency, and from the same region to the head and feet or extremes to awaken; from head to foot is unscientific, and might be prejudicial; the central region of the body should be considered *the mesmeric insuperable line.* Cross passes having been found efficient are not anomalous, by reason of the nerves and branches lying in all directions.

VISION.

According to the popular opinion, which governs the philosopher, and with which the established philosophy agrees, vision is an act performed by the eye, which is said to be endowed with the faculty of sight, by which it is enabled to look into, through space, and see external bodies made visible when covered with solar or day light; nothing of which is true. The eyeball is not possessed of sight; to see is not the function of the sense; externals are not visible; there is no material light; light is a sensible or mental effect consequent on the chromatic organ of the brain being excited by the fluid of the optic nerve. All we know by means of the optic sense, consists in the sensation of light or coloured light, accompanied with the idea of form. The object which promotes the sensation being, seemingly, the place of the sensation, all imagine the sensation is the colour of the object to which the eye is directed, and hence, that the object or body is seen by the eyes. These general mistakes are made evident and stand corrected by reference to the sense itself, its physiology and function, as previously stated and advised.

The medium of space is the visual medium; not, however, for looking through, as is supposed, but by reason of it forming the link or intermediate means by which the object is connected with the sense. Now, as the medium of space is present everywhere, and as it promotes visual or optic perception, the question naturally arises, why do we

not see in the night as well as day, in all places and at all times; in a word, why do we not see in the dark? The clairvoyant does "see" in the dark.

The nervous fluid excites the sensation of colour; the medium of space connects mediately the object with the nervous fluid, which fluid acts on the optic cerebral organ by pressure and degrees of pressure. The nervous fluid, nor anything else, acts essentially, that is, by means of properties and qualities; and its acting on the brain is caused by external agency, the fluid itself being *inert*. It may well be supposed that the exquisite construction of the brain, from being competent to produce psychologic effects, although excited by material agency, requires but the most simple means, such as a simple impulse or impression, to be actuated into excitement; and as the portion or line of the medium of space which is continuous from the external object, through the pupil, to the nervous fluid within the retina, is that which puts the nervous fluid into functional action on the brain, it is fairly assumable that only by pressure, degrees, and changes of pressure, the nervous fluid can by possibility act on and excite the brain; which equally applies to the nervous fluid of all the senses. Taking, then, the maximum of optic pressure as productive of no sensation; so, from there being no object to perceive, it is imagined we are surrounded with darkness; and taking the minimum as exciting the sensation recognised as luminous, light, or white, to intermediate degrees of cerebral pressure are to be attributed the sensations of red, yellow,

blue and of colours generally. According to these terms of the colorific scale, all optically-excited perceptions are consequent on the cerebral pressure being in degrees on the scale of descent from the maximum.

For the reduction of optic pressure, there are different minus-pressure means, namely, the sun, flame, electricity, phosphoric substances; and the daily electric matter, which is constant in the atmosphere at the eastern hemisphere of the globe, and which keeps pace with the sun; because the rarest elements of the atmosphere will be in greater quantity on the side facing the sun. As this daily electric matter emerges before the sun is above the horiozn, the general optic pressure excites the sensation supposed to be the light of day-break; and while following, after sunset, the sensation is known as twilight. Any such minus-pressure matter lying in the visual direction, shortens the visual line, and intercepts the continuity of that line of the medium of space which makes one with the axis of the eye, and thus effects the reduction of optic pressure.

Note.—The terms here made use of, from being unknown in the olden philosophy, need explanation.—*Axis line:* that line of the medium of space which is as the axis of the eye produced to, and terminated by the external object. *Visual line,* the same. *Visual continuity;* the line which is continuous *angularly* with the termination of the axis line. From the termination of this *continuous* line, there may be another angular continuity or *line,* as from mirror to mirror. All lines continuous from

the axis line and terminated by *the object* supposed to be seen, and however irregular, are *lines* of *vision:* the angular point, *the point of* (first, second, or third) *continuity.* The reader should make a diagram for each case as he proceeds.

Within the window-closed room, a lighted candle is supposed to fill the entire space with light radiated from the flame: the perception is named light, and is thus wise excited. When the axis line is terminated by the flame, the pressure on the nervous fluid is lessened to the degree which promotes the sensation of luminousness, which seems to be the physical appearance of the flame itself. Again; when, in the same room, the eye is directed to a mirror the like perception is excited, because the visual line is continuous from the point of continuity, or termination of the axis line, to the flame as before. When the axis line is terminated by a piece of furniture, the point of continuity being imperfect and the visual continuity thence to the flame irregular or indirect, the optic pressure on the brain by the axis line excites the sensation of colour, which is imputed to the object, chair, or table.

In the celebrated Optics, the visual lines are mistaken for rays of light radiated from the flame, and reflected from the other objects; which rays are supposed to enter the eye, and (as if possessed of intelligence) arrange themselves on the back of the eye or on the retina, in the precise form, but of a different size, of the object to which the eyes are directed, as the means by which externals are seen

before the face. In cases wherein the visual line is indirect, as when lying through media of unequal density, the supposed rays are said to be refracted: and, because the curtained iris excludes the visual medium, except through the pinhole pupil, thence along the axis through the lenses of the eyeball, the *optics* inculcate, that the eye has been formed to see only in straight lines. Finally, by Dr. Reed it is taught, that the use of the sensation and of the image on the *back* of the eye, is to make the external object *opposite the face* be seen; all which has to be rejected and forgotten in being guided by the natural, real function of the sense, against which there is no appeal. There are no rays concerned; the medium of vision is quiescent; there can be neither radiation, reflection, nor refraction effected by passive inert bodies; there is no image on any part of the eye or retina; and externals could not be made visible, or seen by their images. Such absurdities, all of which are maintained in modern philosophy, have prevented, more than any thing else, the science and phenomena of Mesmerism being understood.

According to the interstitial composition of the surface of a body, so is the point of visual continuity at or beneath the surface; which determines the degree of pressure on the axis line; which determines what shall be the resulting sensation, or apparent colour of the surface of the object to which the pupil of the eyeball is directed. Through a pane of glass, or through the clear atmosphere, the axis line may be said to be uninterruptedly continuous, and the perception is as if the glass were away.

Through an ignited sheet of iron the visual continuity is imperfect, and may be said to be continuous only halfway through the sheet. An ignited bar, at first, is said to be brown, then ignited to redness: colours are sensations. Within the bar the axis line is continuous in zig-zag order, which causes the optic pressure to excite the sensation of red: it is a prismatic case. The *spectra*, by means of the prism, are only in the sensorium; the skreen itself is unseen. When the direct axis line terminates at the apparent red on the skreen, the continuity thence is maintained through some particular part of the prism; when terminated by the yellow, through a different part; when by the blue, through another different part; and through each part the continuity is somewhat curvilinear, hence the pressures and perceptions are different. Through the air, when the perception is of the many-coloured rainbow, the visual continuity is as through the prism: there is no coloured bow out of the sensorium.

Where there are no minus-pressure means for lessening the optic pressure, as in mines, caves, and window-closed rooms, there can be no perceptions of light and colour. From the sensation ceasing the same instant the last window-shutter is closed, it would seem, that, the *daily* minus-pressure matter is in constant flow eastward through the globe. The rheumatic sufferer fears sun-down, as if the daily matter enters and protects the nerves from the nightly. The meteorologist has to resolve the problem for the philosopher in tracing the magnetic meridian.

The objection is unfounded against pressure being the cerebral exciting cause. It is objected, that, from two stars equally distant, one considered red, the other blue, the pressure cannot be changed along the visual lines in the small space of time the eye takes to direct itself from one to the other star. There is no changing of pressure on either line. The existing pressure on the sense by each is different, and what it is, depends on the constitution of the external object, as in every other instance, and just as on that of the ignited bar already stated. The imputed colours of the stars being different, so is the continuity of axis line beneath the surface of the atmosphere of each star, also the degree of pressure and the sensitive result.

Neither is it maintainable that the medium of space cannot be the medium of vision, because "from being all-pervading, it should excite vision through all kinds of bodies, as through a block of rock crystal, but does not through so thin a substance as a leaf of blotting-paper." By clairvoyance it is proved that the visual continuity is maintained through stone walls; and by reason of the *visual and auditory* medium being the same, that is, medium of space, the "hearing" through stone walls, makes the "seeing" possible. The bell must be connected mediately with the auditory sense, as is the object with the visual sense; and through stone walls there is nothing continuous but the medium of space. Sound is no more a transmissible object than colour; neither belongs to the external object. In all such cases of sensations which are different, although the

promoting means are the same for all the senses, that the organs of sense may not be equally susceptible, or capable of being put into functional service by the same degree of cerebral pressure, should be held in mind, or else it might be asked why all the senses are not excited at the same time.

TRANSPARENCY.

A transparent body, is one through which the visual line is uninterruptedly continuous from an object to the sense. The materials for glass-making are opaque, and the natural opacity of their elementary atoms is unalterable. Hence in some novel arrangement of the atoms towards promoting the direct continuity of the medium of space through them, consists the object of vitrifying and principle of transparency.

OPACITY.

The principal obstacle to transparency is interposed electric matter. In the earliest stages of glass-making an immense volume of electric matter is got rid of by means of the furnace fire, which becomes sooty smoke while ascending and passing through the furnace funnel; and to prevent all return of the like, it is, that solid oxygen is added to the materials when fused, the interstices of which, in the vitrified mass, secure the direct continuity of the visual medium. Priestley made black wax and brass filings transparent, by only removing all interposed electric matter. The body of a living

man, by being de-electrised, has been made transparent. In these instances the transparency is of short continuance, and the opacity is restored by returning electric matter. Fire, in de-electrising gems and crystals, destroys all partial opacity. The clearest water is made cloudy on receiving the charge from the electrifying jar; by uncustomary electric matter, the atmosphere is made foggy, and is transparent again when the electric matter becomes a constituent of rain-water. These instances show, that, electric matter lying in the way of the medium of space and vision, interrupts its regular continuity, consequently, its direct pressure; yet not wholly,—clairvoyance and sound make manifest that the continuity is maintained through the most opaque bodies. The principle bears strongly on the physiology of clairvoyance.

THE NERVOUS FLUID.

Were there a distinct fluid belonging to the nerves of sensation, and insulated, it could not be affected by external circumstances, nor its cerebral excitement be productive in the least of any knowledge, relative or inferential of external bodies. Were the fluid not insulated, it should be subject to waste like the lachrymal fluid, and must excite the brain differently at different times, even under equal circumstances; which must make it impossible to identify the same body after its removal out of the axis-of-vision direction.

A distinct fluid, not insulated, has to be in con-

tact with the line of medium of space which the external object terminates, which adds to the difficulty of waste, in the possibility of the nerves becoming flooded with an abnormal fluid, medium of space. Much more likely is it, that, *the cerebral exciting fluid, of the nerves generally, consists in medium of space*, received from without through the cuticular insertions and orifices of the nerves as streamlets from the great ocean of space, subject to neither ebb nor flow, and liable to change of pressure occasioned by external agency. According to this idea, the object and brain are the terms of the visual line; and medium of space, continuous from the object through the nerves to the brain, is the connecting link.

Further; although medium of space is the nervous fluid and immediate cerebral exciting cause, (which entitles it to be named the TRUE *nervous fluid*,) there are strong grounds for concluding that, with the true fluid, the nerves include a pair of correlative elements. Because of the mesmeric effected polarities being without the comatose flow, which leaves nothing to look to for the polarizing means but the contents of the nerves. Next, as clairvoyance is a cerebral effect, something connected with the nervous fluid must be concerned in its production, or why not clairvoyance take place without the magnetic passes. Finally, the true fluid, or any single fluid, is incapable of being polarized; and the true fluid might be rendered immovable at times, were there no electric or minus-pressure matter within the nerves, also to prevent

its increase, and to retain the normal quantity of the true fluid. All extremes being prevented, and the polarities of the extremities productive of increased lucidity, are consistent with idea of the nerves including magnetising correlatives, which, beside, serve as an elastic break against the fluid exciting the brain indistinctly, irregularly, or exquisitely; and only, as it were, muffled, to prevent the sensibility of the cerebral organs being worn out prematurely.

Another object may be attained by the included electric correlatives, namely, restricting the exciting pressure to certain degrees, so that the sensation shall be defined and directing, but otherwise useless and misleading. Another may be, that of regulating the degrees of pressure on such a scale, as that, by the same senses, sensations shall be excited as different from each other as those of red, yellow, and blue by the optic sense, heat and cold by the feeling sense, sweet and bitter by the gustory sense. To which the conjecture may be added, for the purpose of anatomic and physiologic inquiry, that, as not even an elementary interstice is without design, so may the orifices of the retina be of regulated diameters, to ensure such definite degrees of pressure on the brain as shall excite the sensations recognised as primitive colours.

On the principle that the nervous fluid is derived from without, the question is decided as to the cuticular termination of the nerves, which is objected to by some, in consequence of a few of the nerves being observed to have "inward bending." And is it not a matter of common observation, that

"feeling is most sensible at the tips of the fingers" or apparent place of the sensation.

CLAIRVOYANCE.

All mesmerically-produced phenomena are the consequence of the passes. The immediate effect of the passes is de-electrisation of the nerves, that is, of their contents, which leaves them polarised (as is the case in natural sleep), but more intensely than is effected by the comatose flow. In the ordinary condition, the contents of the nerves may be likened to milky water in a barometer tube; in natural sleep, to the same, with a less degree of milkiness—the latter subsiding from the ends to the middle portion of the water; and in the clairvoyant condition of the nerves, to the milkiness having so completely subsided as to leave the water above and below the middle of the tube transparent. In the ordinary condition, the nervous fluid is clogged, as it were, with intermixed electric matter, which, by marring the regular continuity of the fluid from without to the brain, reduces in some degree the exciting pressure on the brain, which prevents the function of the fluid being employed to its utmost. In this encumbered state, the fluid may be said to act on the brain, as the clapper when muffled on a bell. Still the excited pressure is sufficiently strong, and the mental result sufficiently distinct for all human purposes. When to the clairvoyant degree the nerves have been denuded of impeding electric matter, the nervous fluid is enabled to act on the

brain as if unmuffled; and as its continuity from the orifices of the retina through space is not in any manner altered, so, to the altered electric condition, mesmerically effected, on the contents of the nerves between their orifices and the brain, we must attribute all mesmerically produced phenomena; and without supposing that the brain is quickened into a higher degree of sensibility, or that any one of its various organs has acquired some exalted degree of psychologic ability.

That *long vision* and *opaque vision* should be consequences of cleansing, as it were, the nerves of intercepting minus-pressure matter, is nothing surprising, it is as removing dust from the window to better our vision: the physiology is traceable, and the psychology not more incomprehensible than its hourly occurrence in a minor degree, to which, as sensible effects, we are indebted for all we know, and by which we abide, without inquiry into their nature or origin; so perfect is the design of Nature in our make for supplying all that is requisite to the comfort and enjoyment of man in his present state of existence.

Long vision, during the clairvoyant state, or the recognition of objects greatly remote by the sensation each promotes, has its wonder much more in the *nature of the medium of space* than in the familiar mental effect. The optically promoted sensation is proof that the external object, were it at the antipodes, is in mediate connection with not only the nervous fluid of the retina, but the brain. Long and ordinary vision have the same theory: in

both states the same chromatic cerebral organ is excited by the nervous fluid; in both the nervous fluid is continuous from the brain to the external body; and in both the object perceived is the sensation of colour. That the eye-ball lenses are concerned in long and opaque, as in short vision, however in the two former, the eyes may be bandaged (to satisfy the desire of spectators, otherwise useless, if not worse,) is obvious, from the knowledge of form being connected with the sensation, as in every instance of optically-excited perception.

By the passes, the nervous fluid is freed from the visual intercepting electric matter; which matter, like the colouring matter in stained glass, renders the continuity of the visual medium or fluid within the optic nerve impaired.

To account for the phenomenon of much longer than ordinary vision, there is nothing in the mesmeric case to effect the difference, or refer to, but the de-electrised condition of the nervous fluid. From which it would seem that the visual line from the most remote object, is always as continuous to the brain as from one within arm's length before the face; and that the degree of cerebral exciting pressure on the longer line is rendered equally efficacious, *now*, that the electric impediment has been removed from the nervous fluid; hence, that the normal intermixed quantity of electric matter with the nervous fluid prevents us being clairvoyant at all times, is reasonable to conclude.

Opaque vision, or the "seeing through opaque bodies," is not the absurdity so generally imagined

when judged and reasoned on according to the true principles of visual perception: the facts of clairvoyance place the absurdity on the denier.

As the medium of space furnishes all the nerves with the true and only cerebral exciting fluid, which is necessarily all-pervading, and proved to be so by the auditory sense, or "hearing through stone walls," the possibility of seeing through such bodies is made manifest, and *clairvoyantly*, has been proved. Misled by the idea that the eye-balls look through solid glass, yet cannot look through a stone, to doubt and deny is pardonable; yet nothing else is requisite, than that the visual medium shall be continuous from the object to the brain, no matter how many opaque objects lie between, for the perception being excited, and promoted by the remote object: the object perceived is the sensation of this or that colour, as in transparent vision. It is no ordinary circumstance, that of "seeing through opaque bodies;" neither is it an ordinary circumstance, the extreme de-electrised condition of the nervous fluid, *on which the extra-ordinary of the phenomenon depends*. In removing the partial opacity of a crystal by means of fire, the hindrance to the visual continuity, electric matter, is displaced; but as no such electric displacement from a stone wall is effected or practicable, while to the clairvoyant the continuity is as were there no electric impediment in the wall, is proof additional that the medium of space, the common cerebral exciting cause, pervades all things, the human body included, and hence the being in *Report*.

Now that mesmeric practice and proof have stifled all open opposition, by the influential ignorant, to the surprising truths of the science, that all persons cannot be mesmerised to the clairvoyant stage, is in nowise prejudicial to mesmerism, or to the SCIENCE OF THE ECONOMY being intimately connected with medical practice; neither are occasional failures by the clairvoyant, especially in trial tests, some of which exhibit samples of complicated confusion, as if for the purpose of suppression, instead of laudably exalting the all-important science of mesmerism. Had the very liberal offer of a hundred pounds been under less complicated conditions, the bank-note most certainly would have been deciphered and changed hands. Had the note been spread open, while enclosed between two plates of sheet-iron, and then read by the clairvoyant, the test would have been sufficient to convince the most steady, sturdy, staunch unbeliever, and the *dénouement* affirmative to every dispassionate observer. But from being folded line upon line, letter on letter, at least three deep, the misarrangement destroyed most effectually all reading order. A Newtonian would say, that, "the commixed rays proceeding from the several overlaid typographic characters, and from the lines placed tier over tier, could never form the image of even a single letter on the retina, with anything resembling legible clearness;" therefore the trial must fail most inevitably.

RIGIDITY.

None deny that rigidity of the limbs can be effected mesmerically; but all mistake who impute the phenomenon to muscular ability, irritability, or energy. All flesh is *inert;* all muscular fibrine is flexible, bends from its own weight when held horizontally, and over it the will has neither power nor influence. Then, how is a muscle or nerve to stiffen itself, and where is the mechanical arrangement within for such purpose? The power is derived from without, and consists in medium of space. The de-electrising passes make entrance-room for influent medium of space, which is the cause of the limbs becoming rigid. As in Bramah's pump, water serves the purpose of an iron piston, so, within the nerves and muscles, medium of space in excess and under the general pressure, is an equally rigid piston, and the cause of all muscular strength and of rigidity. The depolarizing passes bring back electric matter, which displaces all excess of medium of space, and with it the physical cause of rigidity.

PAIN.

Pain is not removed but prevented by means of the passes. It is not excited in the mesmerised patient during severe surgical operations, because the movements of the brain, as is said of a watch with the finger on a wheel, are stopped.

General insensibility being effected by pressure

of the surgeon's finger on the brain of a fractured skull, so is it mesmerically effected by the nervous fluid, which has suffered increase as the nerves have been de-electrised by the passes.

The curative principle of mesmerism seems to consist in correcting occasional irregularities in the *electric circulation.* By the passes, electric matter in excess is removed, which, from being noxious to the part, might contribute to the formation of mucus to become concrete, or otherwise injurious to the flesh: or, the passes may transfer the excess to supply deficiency elsewhere,—as in the case of gout, a disease of the sufferer's own making, from excess of de-electrising food and drink, which uncoats and unlines the nerves, and thus leaves the nervous fluid, from casual circumstances, to almost lacerate the brain. Stomach coating aliment, not denuding physic, is the cure: as electric matter may become a constituent of the humidities of the different organs, so may it of the serous fluid, which is indispensable to wholesome flesh. In all such cases mesmerism is curative.

From inhaled *ethers*, producing insensibility without rigidity, it would seem that they contribute a kind of electric matter to the interior of the nerves, but which, from being uncongenial, is happily soon displaced. All excess being the more prejudicial, the quicker the displacement the better. Any ether imparted to the fluids of the nerves, may effect reduction in the quantity of the true fluid through the cuticle orifices; or make breaks in what is left, so as to leave the nervous fluid incompetent to

produce excitement of the brain; hence the insensibility of the patient, if that can be considered insensibility, when there is nothing of pain of which to be insensible.

Etherising by external application, but which may not amount to mesmerizing, is nothing new. A Dublin apothecary, sixty years since, cured the poor daily of nervous complaints, headaches especially, by pressing a folded handkerchief on the forehead, taken from a wide-mouth jar, concealed with professional delicacy, behind the counter, but long since discontinued; the learned in the laws of life and living, considering that short-hand work is a forbidden practice,—that something newest in the last *Pharmacopœia* is better than the best, for all parties. Tobacco-smoking brings on a degree of insensibility, and mesmerically conduces to sleep, which exertion frustrates. The smoke of the fire in London stayed the plague in the year 1666. The subject is worthy of consideration by the mesmerizing physician, in case of epidemics especially.

REPORT.

The being in report one with another, the mesmerised with the mesmeriser, is proved possible, and from being effected by the passes is proved also to be natural,—not satanic or supernatural, the weakest of all ideas. Within Nature there can be nothing supernatural; nor out of Nature, or of the other worlds, anything in the power of living man or poor human nature to command or imitate. How-

ever, as believers are not reasoners, except in the arithmetic of funds, to the reformer *Time*, must be left the conversion to Reason.

Throughout the whole of Nature there is nothing insulated, not even an atom. Involved in a universal medium of pressure, all things must be in contact, mediate or immediate. The atmosphere is a universal connecting link. As by the sea the most distantly-situated islands are in mediate connection, so are all mankind by means of the atmosphere. Still this atmospheric connection is limited to margin with margin, surface with surface. By the all-pervading medium of space, the interior of all living beings is in mediate connection, equally as the interior of submerged sponges by the water. As "light" would pervade and connect our bodies were they glass, so does the medium of space. But were mankind so left, it is difficult to conceive how the organic functions could possibly take place, and impossible to say how personal individuality could be, as at present, an independent animal privilege.

Although the medium of space is continuous through all bodies, the regular continuity is impaired by the elements of the atmosphere between each. The atmosphere not only protects all living bodies against the maximum and all excess of pressure, but in some considerable degree insulates the bodies of persons from each other, just as fog and small snow intercept the visual continuity and would render "rays of light" interruptedly continuous; so do the intermixed atoms of the atmosphere the regular continuity of the medium of space between

person and person, as respects surfaces. Within the body, insulation is still more complete: here, electric matter and air abound to the exclusion of all excess of medium of space; by which the different organs remain, in a manner disconnected, or so far, as that the functional action of each organ has its distinct period, instead of the action of the whole being simultaneously performed. Beside these means and degrees of insulation, the non-conducting coating and lining of the nerves insulate more completely their elementary contents, by which the nerves are not only tubes of separation but insulation, and are direct conducting channels of the nervous fluid through the body from its external source to the brain.

Although man is thus isolated from man, the isolating means do not prevent the medium of space being continuous through all, and from one to another; which is manifested by the clairvoyant, who has the like of the sensation excited in the brain of the mesmeriser repeated or excited in his own brain; as when the mesmeriser masticates and the sensation of the same flavour is known by the mesmerised. The sensation is nothing transferable; taste is not by the tongue; hence, by the sensation being excited in succession in the brain of each person, is the only conceivable mode, in reason, why the second should know what the first is masticating. The nervous fluid of the two may be supposed to be derived from the medium of space between them; then, by the medium of space lying between, the nervous fluids of the two are rendered

continuous one with the other, and is so at all times, but only when the nervous fluid is mesmerically de-electrised is it productive of clairvoyant perceptions. Community of sensation, or the *same* sensation being perceived by different persons, is an impossibility. The first sensation is only where it has been excited, in the brain of the mesmeriser; and supposing the matter of the nervous fluid continuous direct from his brain to that of the patient, in it, what has the latter to perceive?—nothing; neither is perception separable in idea from the result of cerebral excitement. It is to be hoped that the desultory ideas here advanced may tend to a better knowledge on this singular mesmeric discovery. Even the foregoing may be objected to with apparent reason, on consideration of what is termed "community of thought," wherein there is no previous sensation to be repeated. To account for which requires more cerebral information than has as yet been brought to light; when satisfactorily known it may show, whether or not community in dreaming may be effected. Report would be impossible were there not intimate connection of brain with brain.

VOLUNTARY DE-ELECTRISATION.

Every motion of the limbs being effected by pressure, to promote the local change minus-pressure matter has to be displaced. That the assent of will is indispensable is evident, inasmuch as there is no *ordinary* limb motion, if not previously assented to by the will. Yet will is no mechanical power,

nor anything having a distinct existence. Will seems to be, the mutual accordance of the cerebral organs to act together so as to effect, or rather assist, the accomplishing of a present intention. The act may be likened to that of suction, voluntarily performed by the brain to de-electrise itself, in order to make room for and receive that which lies in the way of the desired object being effected. The voluntary act by the brain cannot be on anything far away, or not in contact with the brain, and that which is acted on must be continuous to the place of the removable impediment. If, then, the brain does de-electrise itself, and that by so doing it receives electric matter from the nerves which are continuous from the limb to the brain, such removal of electric matter is effected within the nerves of the limb, as makes space for medium of space to enter in the requisite quantity to move the limb according to the required velocity. It is not to be overlooked, that, previous to the self de-electrisation of the brain, thought may be concerned in promoting the cerebral de-electrising act. So far as the foregoing may be true, the like circumstances take place when the mesmeriser wills into report with himself the far-off patient, the electric matter in the space between being affected with as much facility, as the transfer of similar matter from the trough to the utmost extent of the galvanic wire, which may be considered instantaneous, considering the hundreds of miles distance between.

The power of effecting, voluntarily, the transfer of electric matter from one part of the interior of the

body to a different, seems to belong, in some necessary degree, to all bodies possessed of life. The object is to make space for medium of space to enter, and by its pressure to put the animal in a state of locomotion. The snake, worm, and snail do so to be pressed onward along the ground; the oyster, to have the shells firmly collapsed; the limpit, to be pressed against the rock; and each, cerebrally wills the replacement of electric matter to displace the cause of pressure, medium of space, for the grovelling reptile to be at rest—the oyster, that the shells may be opened; the limpit, when willing to fall into the water. The fly, lizard, and walrus, so de-electrise the body, as to reverse the direction of what is supposed to be their natural weight, by which means each becomes pressed upwards, and walks with the back downwards—which, to be consistent with the established philosophy, should be considered *repellent gravitation.* The goat voluntarily de-electrises his body to have it pressed with double force against the slippery rock; the lynx, to have mesmeric long vision; the cat, to have opaque vision, or "see through the dark;" the fire-fly, to effect reduction of the optic pressure productive of sensations of colour. The carrier-pigeon effects self de-electrisation to the clairvoyant degree, by which the external object, the turret at Constantinople, promotes the sensation which indicates at once the shortest direction of flight from London to the birth-place of the bird. The eagle de-electrises itself inwardly, the same as if by the mesmeric passes, to promote olfactory lucidity, by

which to ascertain the presence of carrion on the ground. Fishes effect internal de-electrisation, somehow by means of the contents of the swim, for influent medium of space to propel the body with a velocity superior to the power of the short, flexible fins. The flight of birds is not effected by wing motion, or wing powers. The crow, eagle, and kite sail in all directions on extended motionless wing, and the odd wing-flap now and then given, is only to assist in keeping the body in the necessary electric condition. The swallow is darted most rapidly through the air with closed wing, and changes acutely, without way, the direction of flight, by changing instantaneously the direction of impulse. With the greatest wing-agitation the hawk remains at times stationary in the air. The fish, bird, and bullet are impelled by the same cause, pressure, by the medium of space on the de-electrised rear.

The cow and goat voluntarily de-electrise the cud, for medium of space to enter and press it upwards through the food-passage which the cud presses against, instead of being raised by nerves or muscles of the esophagus. In parturition also, and the discharge of the feces, the same principles are maintained. The "throes of Nature" are consequent on the natural pressure being made intermitting, by electric matter returning to and escaping from the birth at intervals. The physiologist may refer to muscular action; but where are the delivery muscles? The stage-dancer makes de-electrising efforts to receive medium of space, by which to be lifted above the boards and supported a few seconds in

the air. Muscles at full stretch in opposite directions, and the fulcrum, if any, being carried by them, is out of all dynamic rule. All persons make a de-electrising effort previous to the leap-spring, and while continuing to stand or run and tiptoe, without being aware of the reason; and the fatigue is not muscular, but in keeping the body fittingly de-electrised.

The *gymnotus electricus* kills the distant prey instantaneously, which receives nothing whatever of missile from the enemy; nor could the latter be accessary to the death-stroke, were there nothing between to connect one with the other: nothing passing and no connecting means, no outstretched arm or instrument touching that which is to be acted on, is a mechanical absurdity, and is attributing an effect to that which, it may be said, is an absent cause. The eel voluntarily performs the cerebral operation on the electric matter which is continuous from itself through the air to the marked prey, which effects instantaneous removal of the same matter from the prey; which permits medium of space at the same instant to give the de-electrised part the death-blow.

APPLICATION OF MESMERISM.

First. A National Asylum, to be named, THE BRITISH MESMERIC INSTITUTION, should be founded and endowed. England should take the lead. A Professorship of Magnetism should be founded. All Sanatory Asylums to be obliged to furnish their

experience periodically, and be under control of the Institution, which should be possessed of power to undiploma the medical practitioner who refuses to mesmerise. Self-mesmerising to Clairvoyance, to be taught, which is as teachable as ventriloquism; the principle is the same of both,—the theory is that of sound.

Through self-mesmerising, the blind and eyeless would be extricated occasionally from the shadow leading to the valley of death and be enabled to follow some useful calling. Some blind, illiterate clairvoyant, may have superior *connoisseurship*, entitling him to fill the academic chair. Through mesmerism the resuscitating process can be brought under rules of science. Through clairvoyance the geography of the globe may yet be improved; the northern passage discovered; the astronomer assisted in his stellar speculations beyond the possibility of mere telescopic discovery. On ship-board, the voluntary clairvoyant may make discovery of the haze-hidden lighthouse and wave-hidden shoal. In the hands of the clairvoyant the telescope and microscope, will, in time, make us acquainted with other worlds, other beings, and other of the wonderful works of the GREAT GOD OF NATURE!

The Seeker after God from the book of God's own composing, the holy volume of his own works, through voluntary clairvoyance, will feel himself in the enjoyment of a second nature, the fit inhabitant of an intellectual world, in which the powers of thought are without limits. And who can say what discovery of abstract truths may not be elicited

from the conversation of two or more clairvoyants in mutual report, all of exalted talent and superior education? Other worlds, ere this be past, may open to our view, and their inhabitants become clairvoyantly familiar to human observation. The idea is pregnant with hope; it presumes that we are not inhabitants of only the earth, but the universe; which may be considered a natural, *never*-dying hope. Why, then, should the science be opposed which has already been so beneficial to our species, and promises to make known the never yet discovered wonders of the animal economy? Surely they will be yet ashamed of having done those things, the fruit of which is the bitterness of remorse.

CONTINUOUS MOTION.

The motion which continues after the body has ceased to be in contact with the *sensible* impelling cause, is named continuous motion. The body impelled receives neither force nor motion from the impelling cause: neither force nor motion is anything transferrable or anything communicable; forcible velocity and change of place are but accidents of matter, and but local, casual circumstances of bodies. Being *inert*, the body cannot move itself. Motion, therefore, is but a physical effect, and must have a cause equal to the duration of the effect: motion after impulse has ceased, would be effect without cause—which is an absurdity and impossibility; therefore impulse is constant as motion, however insensible the impelling cause. These dynamic

principles cannot be too frequently brought to mind, considering the general erroneous opinion on the subject which maintains, that "a body continues in motion because it cannot stop itself;" which is effect without its equal of cause.

A body in motion is under unequal pressure on opposite sides, greater on the rear than front. The air in front resists, that in the rear may be said to recede from the body; therefore neither impels the projectile. Under such circumstances there remains but the alternative, that of the electric constitution of the body being changed by the previous impulse, by which medium of space accumulates on one side, or decreases on the opposite. The phenomenon admits of being thus illustrated:

The first, previous or sensible impulse, effects de-electrisation of the body on the rear or side of impulse; influent medium of space immediately occupies the vacated rear, and by its pressure impels the body through the air. The velocity of the previous impulse, gives momentum to the body greater than the included freely-removable elementary matter can obtain; of consequence the latter is left behind in the air, and the pressure of the acquired medium of space in the rear, is the continuous impelling cause. Thus is the mistake of Dugald Stuart made evident, that "motion is the immediate and only effect of impulse."

It is not the air's resistance which makes the motion of a projectile decline and end. Taking impulse as ten, resistance four, there remains six degrees of unresisted impulse, which should impel

the body for ever through the atmosphere. The decline and cessation of impulse is that which brings the projectile to rest.

From the instant the body has ceased to be in contact with the sensible impelling cause, electric matter is re-entering the rear, which displaces gradually the impelling medium; and as are the increments of the former, so are the decrements of the latter, and so is the decline of motion.

Ascending and Descending Motion.—The rear of the vertically-impelled body becomes vacated of minus-pressure matter, and replaced with medium of space; by the latter, and general pressure, the body is forced upwards as a cork by water. While ascending, the rear is acquiring electric matter and losing the impelling medium,—the velocity of course declines; and when at the highest, the body is at rest in the air for an instant, then is precipitated to the ground. During the entire of the descent, electric matter is vacating the rear and medium of space entering, consequently the fall is accelerated. Now as the body cannot fall of itself; as descending motion is of increasing velocity, while motion in every other direction is retarded; and, because all descent has the same *centripetal* direction, so should there be some distinct cause to produce these conspicuous effects, which, to trace, suggest the following hypothesis:

Centripetal Flow.—The different motions of the globe affect all bodies on its surface, so as to appear to the inhabitants as if the whole were at rest; supposing thence, that the centre of the earth

is the centre of motion, the following may be considered probable consequences:—The general pressure being less at the centre and axis than on the surface of the earth, obliges the medium of space to flow through the atmosphere and entire surface, *centripetally*, to the centre, thence along the axis, carrying with it electric matter, and has exit at the poles, which polarizes the globe and produces the boreales. The centripetal flow retains the atmosphere to the earth; precipitates bodies from the air in a centripetal direction; accelerates the descent; and retards all motion not in its own direction: it prevents vertical ascent being equal to impulse, the difference being employed in bearing against the flow. The flow makes bodies ponderate or have weight, causes the dip and direction of the compass-needle.

FORMATION OF A PLANET.

That cannot be considered a chaotic state from which the eternal order sprung; nor that a created body, the substance of which previously existed, which was and is common to all bodies. Hence it may be concluded that a planet is a natural production, equally as the instantly-formed ponderous atmospheric aërolite, supposed to have come from the moon.

From the elementary to the aëriform, thence the aqueous state, seems the simplest and primeval order of atomic combination. Hence it is conceivable, that, were an immense volume of the general

elements collected together in the regions of space, and subjected to extreme pressure, the result would be an aqueous sphere, with an attached residue of the same elements to serve as a primeval atmosphere to receive increase from future mists and exhalations. While aqueous and with one side only of the sphere facing the sun, the elements of the water cannot avoid being in a state of constant disturbance and transfer, productive of combinations, formations, and precipitations until the equilibrium has obtained, leaving ultimately the solid masses so formed, as they would now appear were the ocean away: the original water, from having contributed the elements of the newly-formed solids, being reduced in quantity and changed in quality, is left as the ocean is at present, saline. During the intermediate plastic state, and as induration increased, the endowed fertility may have produced *kinds*, many of which have become extinct.

It may be further assumed, that deep within the planet the elements abound in neither kind nor quantity as at the surface and in the atmosphere; and if the imponderable oxygen element be absent, an immense mass of ice would form the nucleus of the earth, the occasional melting at the surface of which, in the neighbourhood of sulphurous and ferruginous masses, may cause those volcanic eruptions from which no region of the earth is free. Thus it would seem that a planet may be the natural formation of an instant, requiring time for completion, and may be an everyday circumstance in space.

The strict inquirer into terrestrial magnetism has to ascertain, whether the non-conducting central ice be not the means, some how, of separating the correlative fluids which the centripetal flow carries with it along the axis through the Poles, and which make the Poles magnetic opposites; or, whether, of these fluids, one only is transmissible through ice.

A planet may be subject to wear and the fertility to decrease, thence to be uninhabitable, as Herschel describes the very probable condition of the moon, owing to the rapid motion through space, solar effects and cultivation. The idea is neither gloomy nor a threatened dread. Man was born to leave this world, and live where GOD has pleased. Some anticipate the night, when we shall see "our God in terror, and our world on fire!"—"undoing all, as all had never been," or made in vain. But HE who blessed and never cursed his works, whose mercy and goodness endureth for ever, and who will "save both man and beast," is not a God of terror!

Why the planets are moved round the sun, all in the same direction, excites speculation in the absence of demonstration. Let it be supposed that the inequalities in a newly-formed planet prevent the body being at rest under the general pressure; in which case the planet is put into its primeval motion, and in the direction of the strongest impulsive pressure. But as the like inequalities precisely, cannot present in every new planet, neither could the motion of all be in the same direction, which gives room for conceiving the probability that the

portion of the medium, however extensive, in which the solar system is involved, revolves round the sun, or round the orbit of the sun, and that its motion is promoted by the sun in the solar orbit, —which orbit may probably be promoted by the rarity of the elements in the solar regions. The medium of space so revolving, determines the direction of all the planets, which by the hypothesis must be the same as that of the revolving medium.

By some such means only is it conceivable how solar matter can arrive at Neptune, the Earth, or even Mercury,—the *inert* sun being incapable of radiating anything from itself, and solar atoms requiring a physical impelling cause, in motion, and acting on the rear of each from the sun to the extreme of planetary space. A circulating medium of constantly-increasing radius, appears indispensably necessary for the purpose of conveying solar matter through the regions of space, and for the maintaining all planetary motion in the same uniform direction. The subject is open to all, and worthy of notice: what is now advanced will be passed over, from having no mathematical appendage, but which, makes even false causes pass for the demonstrated truth. The mathematical science has not to this day demonstrated the cause of planetary motion,—a subject wholly indifferent to modern astronomy, in which the false, self-gravitation, in connection with *inertia*, satisfies all as long as the astronomer remains self-satisfied.

A *Comet* may have been a planet by formation, and impelled, before completion, immeasurably far

beyond the sun. The tail is probably the primitive atmosphere, left behind and pressed after the body as towards a sheltering wall; the *coma* may be electric matter collected on the front, and subject to increase, which, by lessening pressure on the side facing the direction of motion, and without increased pressure on the opposite side, may cause the velocity of the planet to be subject to acceleration, or prevent the motion being equitable: the reticulated tail may serve to collect all redundant solar matter in space, after planetary use, for deposit in the solar regions, or the sun as the heart of the system, for future circulation. Were the tail to approach the earth sufficiently near, the waters of the sea would be pressed upwards as towards an immense water-spout; in which case the rivers must become drained; and as the Comet recedes from the earth, the fall of the immense column would produce *another general deluge* over one hemisphere, at least, of the globe! The deposits from a comet's tail may occasion those nebulocities named solar spots.

THE END.

Tyler and Reed, Printers, Bolt-court, London.