This document contains excerpts from the book "Keely and His Discoveries" by Mrs. Bloomfield Moore, 1893. Errata

xvi

Huxley tells us that science prospers exactly in proportion as it is religious, and that religion flourishes in exact proportion to the scientific depth and firmness of its basis.

Colquhoun, commenting upon Buffon's statement, says that far too little attention has been paid to the spiritual nature of man,

xix

There is in Professor Crookes's "Genesis of the Elements" an hypothesis of great interest,—a projectment of philosophical truth which brings him nearer than any known living scientist to the ground held by Keely. Davy defines hypothesis as the scaffolding of science, useful to build up true knowledge, but capable of being put up or taken down

xx

at pleasure, without injuring the edifice of philosophy. When we find men in different parts of the world constructing the same kind of scaffolding, we may feel fairly sure that they have an edifice to build. The scaffolding may prove to be insecure, but it can be flung away and another constructed. It is the edifice that is all-important,—the philosophy not the hypotheses. The science of learning, says Professor Lesley, and the science of knowledge are not quite identical; and learning has too often, in the case of individuals, overwhelmed and smothered to death knowledge. It is a familiar fact that great discoveries come at long intervals, brought by specially-commissioned and highly-endowed messengers; while a perpetual procession of humble servants of nature arrive with gifts of lesser moment, but equally genuine, curious, and interesting novelties. From what unknown land does all this wealth of information come? who are these bearers of it? and who intrusted each with his particular burden, which he carries aloft as if it deserved exclusive admiration? Why do those who bring the best things walk so seriously and modestly along as if they were in the performance of a sacred duty, for which they scarcely esteem themselves worthy?

The Bishop of Carlisle, in his paper on "The Uniformity of Nature," suggests the answer to all who are prepared to approach the abyss which has hitherto divided physical science from spiritual science,—an abyss which is soon to be illumined by the sunlight of demonstration and spanned by the bridge of knowledge. To quote from the paper of the Bishop of Carlisle, "There are matters of the highest moment which manifestly do lie outside the domain of physical science. The possibility of the continuance of human existence in a spiritual form after the termination of physical life is, beyond contradiction, one of the grandest and most momentous of possibilities, but in the nature of things it lies outside physics. Yet there is nothing absolutely absurd, nothing which contradicts any human instinct, in the supposition of such possibility; consequently, the student of physical science, even if he cannot find time or inclination to look into such matters himself, may well have patience with those who can. And he may easily afford to be generous: the field of physical science is grand enough

xxi

for any ambition, and there is room enough in the wide world both for physical and for psychical research."

xxiv

No systematic distinction between philosophical, religious, and scientific ideas can be maintained. All the three run into one another with the most perfect legitimacy.

xxvii

There is a very general impression all over the world, says Marie Correlli, that the time is ripe for a clearer revelation of God and "the hidden things of God" than we have ever had before.

6

He evolved, almost instantaneously, according to the united report of those who were present, a substance having an elastic energy varying from 10,000 to 20,000 pounds per square inch, and instantly discharged or liberated it into the atmosphere, without the evolution of heat in its production, or of cold on its sudden liberation.

10

During this period, Keely's discovery was only thought of in reference to its commercial value, and for a decade he made no progress: but, after his researches led up to the conviction that he was on the road to another and infinitely more important discovery, namely, the source of life and the connecting link between intelligent will and matter, his progress has been almost uninterrupted.

12

August 5th, 1885, the *New York Home Journal* announced that Keely had imprisoned the ether; and, as was then wrongly supposed, that the unknown force was the ether itself; not the medium of the force, as it is now known to be.

13
The hypothetical ether conceived of by scientists, to account for the transmission of light, is not hypothetical to this discoverer. He knows its nature and its power. By the operation of an instrument of his own invention, he can release it at will from the suspension in which it is always held in our atmosphere. It is so liberated, by an almost instantaneous process of intense vibratory action, and passed through a tube the opening of which is no larger than a pin's head, furnishing sufficient power to run a one hundred horse-power engine.
14
A compilation of Macvicar's "Sketch of a Philosophy," entitled "Ether the true Protoplasm," was sent to Mr. Keely; and shortly after, Mrs. Hughes' book on the evolution of tones
15
and colours.
29
Although Macvicar and Keely differ in their theories of molecular morphology, they agree entirely in calling the cosmical law of sympathetic association or assimilation the watchword and the law of creation.
32
to *Aerial Navigation*, for I have the only true system to make it an entire success in the vibratory lift and the vibratory push-process."
35
"*July* 15*th*.—My researches teach me that electricity is but a certain condensed form of atomic vibration, a form showing only the introductory features which precede the etheric vibratory condition.
36
The Vibratory Etheric tree has many branches, and electricity is but one of them.
37
When the ether flows from a tube, its negative centre represents molecular sub-division, carrying interstitially (or between its molecules) the lowest order of liberated ozone. This is the first order of ozone and is wonderfully refreshing and vitalizing to those who breathe it. The second order, or atomic separation, releases a much higher grade of ozone; in fact, too pure for inhalation, as it produces insensibility. The third order, or etheric, is the one that has been (though attended with much danger to the operator) utilized by Keely in his carbon register to produce the circuit of high vibration that breaks up the molecular magnetism which is recognized as cohesion.

The acceleration of these orders is governed by the introductory impulse on a certain combination of vibratory chords, arranged for this purpose in the instrument, with which Keely dissociates the elements of water; and which he calls a liberator.

In molecular dissociation one fork of 620 is used, setting the chords on the first octave.

In atomic separation, two forks: one of 620 and one of 630 per second; setting the chords on the second octave.

In the etheric three forks: one of 620, one of 630, and one of 12,000, setting the chords on the third octave.

Keely's Three Systems.

My first system is the one which requires introductory mediums of differential gravities, air and water, to induce disturbance of equilibrium on the liberation of vapour, which only reached the inter-atomic position and was held there by the submersion of the molecular and atomic leads in the 'generator' I then used. It was impossible with these mediums to go beyond the atomic with this instrument; and I could not dispense with the water until my liberator was invented, nor reach the maximum of the full line of vibration. My first system embraces liberator engine and gun.

"My second system of dissociation I consider complete, as far as the liberation of the ether is concerned, but not
38
sufficiently complete, as yet, in its devices for indicating and governing the vibratory etheric circuit, to make it a safe medium.

"My third system embraces aerial and sub-marine navigation. The experimental sphere intended to test the combination of the positive and negative rotation is nearly completed.

The safety arrangements which I am having attached to my liberator will greatly improve it. Its operation will now be conducted with a gum bulb instead of a violin bow, the pressure of which gives the introductory chord of impulse that vitalizes the whole machine. The chords will all be set in progressive sympathy from the first octave to the fortieth. . . .
39
"*December* 17*th*, 1885.—The setting up of the circles for computing the different lines of etheric chords, in setting

the vibratory conditions for continuity, requires close study. I feel convinced that a perfect solution of my difficulties will follow when this part of the work has been completed; and that, before many weeks have passed, a revelation will be unfolded that will startle the world; a revelation, so simple in its character, that the physicists will stand aghast, and perhaps feel humiliated by the nature of their efforts in the past to solve certain problems. . . . I find my chief trouble in chording up the masses of the different parts composing the negative centres. The negative centre is included in the one-third volume of shell or sphere, starting from the neutral axis or point of suspension. This point of suspension only becomes perfect when the rotation is established on the sphere. One hundred revolutions per minute is all the velocity required to neutralize the gravity of the central third with the velocity of the vibratory circuit at one hundred thousand per second. Taking all matters into consideration associated with the mechanical part of the enterprise, the month of January ought to find all completed, ready for sympathetic graduation.

40

The journals had ceased to ridicule, and some of them were giving serious attention to the possibilities lying hidden in the discovery of an unknown force. In 1886, Mr. William Walsh, editor of "Lippincott's Magazine," accepted a paper on the subject, publishing it in the September number. It was entitled *Keely's Etheric Force*.

44

It is, then, the facts, and not the opinions of the ignorant or the prejudiced, which are of chief importance here, as in all other questions of moment.

45

Every man who has passed the mere threshold of science ought to be aware that it is quite possible to be in possession of a series of facts, long before he is capable of giving a rational and satisfactory explanation of them; in short, before he is enabled to discover their causes.

46

It does not answer to disturb the calmness of views now held by our most eminent physicists, who seem to expect that nature will always accommodate her operations to their preconceived notions of possibility, and adapt her phenomena to their arbitrary systems of philosophy.

48

Béclard almost completely demonstrated the truth of Roget's hypothesis concerning the action of "the nervous fluid" by cutting a nerve of considerable size, adjoining a muscle, which induced paralysis in this part. Perceiving the contractile action reappear, when he approached the two ends of the nerve to the distance of three lines, he became convinced that an imponderable substance, a fluid of some kind, traversed the interval of separation, in order to restore the muscular action. By another experiment he demonstrated its striking analogy to galvanic electricity. The late Pro-

49

fessor Keil, of Jena, also made some very interesting experiments of the same character, one of which tends to demonstrate the susceptibility of the nervous system to the magnetic influence, and the efficacy of the magnet in the cure of certain infirmities.

The effects of the law of sympathetic association, which Mr. Keely demonstrates as the governing medium of the universe, find illustrations in inanimate nature. What else is the influence which one string of a lute has upon a string of another lute when a stroke upon it causes a proportionable motion and sound in the sympathizing consort, which is distant from it, and not perceptibly touched? It has been found that, in a watchmaker's shop, the timepieces, or clocks, connected with the same wall or shelf, have such a sympathetic effect in keeping time, that they stop those which beat in irregular time; and, if any are at rest, set those going which beat accurately.

50

Keely's experimental research in this province has shown him that it is neither the electric nor the magnetic flow, but the etheric, which sends its current along our nerves;

51

that the etheric flow is of a tenuity coincident to the condition governing the seventh subdivision of matter—a condition of subtlety that readily and instantaneously permeates all forms of aggregated matter, from air to solid hammered steel—the velocity of the permeation being the same with the one as with the other: that the tenuity of the etheric flow is so infinitely fine that any magnifying glass, the power of which would enlarge the smallest grain of sand to the size of the sun, brought to bear upon it, would not make it visible to us; that light, traversing at the speed of 200,000 miles per second a

distance requiring a thousand centuries to reach, would be traversed by the etheric flow in an indefinite fragment of a second.

55

Johnson tells us that the first care of the builder of a new system is to demolish the fabrics that are standing. But the cobwebs of age cannot be disturbed without rousing the bats, to whom daylight is death.

56

Here is a power sustaining the same relations to electricity that the trunk of a tree does to its branches,—

Partly from the mismanagement of a prematurely-organized Keely Motor Company, and partly because men competent to judge for themselves have preferred to take the opinion of others not competent, instead of investigating each for himself.

Attempts to interest scientists in the marvellous mechanism by which etheric force is evolved from the atmosphere have failed, even as Galileo failed at Padua to persuade the principal professor of philosophy there to look at the moon and planets through his glasses. The professor pertinaciously refused, as wrote Galileo to his friend Kepler. Mankind hate truth, said Lady Mary Montague: she should have said, mankind hate new truths. The most simple and rational advances in medical science have been received with scorn and derision, or with stupid censure. Harvey was nicknamed "the circulator"[1] after his discovery of the circulation of the

[1]In Latin "circulator" means "quack."

57

blood,—which discovery was ridiculed by his colleagues and compeers. The same reception awaited Jenner's introduction of vaccination.

The revelation of new truths is compared to the upheaval of rocks which reveal deeply-hidden strata. Stolid conservatism dislikes and avoids such facts, because they involve new thinking and disturb old theories. The leaden weight of scepticism drags down the minds of many, paralyzing their power of reasoning upon facts which reveal truth, from another standpoint than their own, with new simplicity and grandeur in the divine laws of the universe. Others there are, embracing the majority of mankind, according to Hazlitt, who stick to an opinion that they have long supported, and that *supports* them. But whenever a discovery or invention has made its way so well by itself as to achieve reputation, most people assert that they always believed in it from the first; and so will it be with Keely's inventions, in time.

58

The *Home Journal* of October 20th, 1886, contained a paper which possesses some interest as having been written at the time Mr. Keely was using what he called a "Liberator," which enabled him to dispense with the use of water; but he was obliged to return to his former method soon after.

61

Gravity he defines as transmittive inter-etheric force under immense etheric vibration.

The idea of getting a power as tenuous as this under such control as to make it useful in mechanics is scouted by all physicists. And no wonder that it is so. But when the character of the velocity of etheric force, even in a molecule, is understood, the mind that comprehends it must succumb to its philosophy. To move suddenly a square inch of air, at the velocity of this vibratory circuit, on full line of graduation, and at a vibration only of 2,750,000 per second, would require a force at least of twenty-five times that of gunpowder. Taking the expansive force of gunpowder at 21,000 lbs. per square inch, it would be 525,000 lbs. per square inch. This is incomprehensible. The explosion of nitroglycerine, which has two and a half times less vibrations per second, when placed on the surface of a solid rock, will tear up the rock before disturbing the equilibrium of the air above it. The disturbance takes place after the explosion. To induce an action on a weight of only twenty grains, the weight of a small bird-shot, with a range of motion of but one inch, giving it an action of one million per second, would require the actual force of two and a half tons per second; or, in other words, ten-horse power per minute. Etheric vibration would move tons at the same velocity when submitted to the vibratory circuit. Thus, the finer the substance the greater the power and the velocity under such vibration.

The vapour from the liberator, registered at 20,000 pounds per square inch, has a range of atomic motion of 1333 1/3 the

62

diameter of the atmospheric molecule, with constant rotary vibratory action. At 10,000 pounds, 666 2/3; at 5000, 333 1/3; at 2500, 166 2/3; at 1250, 83 1/3; at 625, 41 2/3. The higher the range of atomic motion the greater is its tenuity, and the range is according to the registered pressure. This rule cannot be applied to any other vapour or gas at present known to scientists. The very evolution on the negative shows a

vacuum of a much higher order than was ever produced before, thus confounding, to perfect blindness, all theories that have been brought to bear upon the situation, in its analysis. The highest vacuum known is 17 999999-1000000 pounds, or not quite 30 inches; but by this process etheric vacuums have been repeatedly produced of 50 to 57 inches; ranging down to 30 inches, or 15 pounds. All operations of nature have for their sensitizing centres of introductory action, triple vacuum evolutions. These evolutions are centred in what I call atomic triple revolutions, highly radiaphonic in their character, and thoroughly independent of all outside forces in their spheres of action. In fact, no conceivable power, however great, can break up their independent centres. So infinitely minute are they in their position that, within a circle that would enclose the smallest grain of sand, hundreds of billions of them perform, with infinite mathematical precision, their continuous vibratory revolution of inconceivable velocity.

These triple centres are the very foundation of the universe, and the great Creator has, in His majestic designs, fixed them indissolubly in their position. Mathematically considered, the respective and relative motion of these atomic triplets, gravitating to and revolving around each other, is about one and one-third of their circumference. The problem of this action, when reduced to a mathematical analysis (presupposing taking it as the quadrature of the circle) would baffle the highest order of mathematical science known to bring it to a numerical equation.

63

Every revolving body is impressed by nature with certain laws making it susceptible of the operation of force which, being applied, impels motion.

64

Mrs. F. J. Hughes, writing upon "Tones and Colours," advances theories of her own, which correspond with those demonstrated by Keely. She writes, in a private letter: "I firmly believe that exactly the same laws as those which develop sound keep the heavenly bodies in their order. You can even trace the poles in sound. My great desire is for some philosophical mind to take up my views,

74

Lange, with prophetic tongue, says that this age of materialism may prove to be but the stillness before the storm which bursts from unknown gulfs to give a new shape to the world.

75

Up to 1888 Keely was still pursuing the wrong line of research, still trying to construct an engine which could hold the ether in "a rotating circle of etheric force;" still ignorant of the impossibility of ever reaching commercial success on that line.

77

"After testing the pressure by several small weights, added to that of the lever itself, in order to determine how much power had already been accumulated in the receiver, the maximum test was made by placing an iron weight of 580 pounds, by means of a differential pulley, on the extreme end of the long arm of the lever. To lift this weight, without that of the lever supporting it, would require a pressure against the piston of 18,900 pounds to the square inch, counting the difference in the length of the two arms and the area of the piston, which we, as well as several others present, accurately calculated. When all was ready, and the crowded gathering had formed as well as possible to see the test, Keely turned the valve-wheel leading from the receiver to the flexible tube, and through it into the steel cylinder beneath the piston, and simultaneously with the motion of his hand the weighted lever shot up against its stop, a distance of several inches, as if the great mass of iron had been only cork. Then, in order to assure ourselves of the full 25,000 pounds to the square inch claimed, we added most of our weight to the arm of the lever without forcing the piston back again.

"After repeating this experiment till all expressed themselves satisfied, Keely diverted his etheric gas to the exciting work of firing a cannon, into which he placed a leaden bullet about an inch in diameter. He conveyed the force from the receiver by the same kind of flexible copper tube, attaching one end of it to the breech of the gun. When all was again in readiness he gave a quick turn to the inlet valve, and a report like that of a small cannon followed, the ball passing through an inch board and flattening itself out to about three inches in diameter, showing the marvellous power and instantaneous action of this strange vapour."

The difficulty encountered by Keely in his old generator of etheric force grew out of the fact, in part, that the vaporic

78

power produced was so humid that he could not, when he attempted to utilize it, obtain its theoretical value in work. This difficulty has been entirely overcome by dispensing with the water which he used in liberating etheric force, by his old generator; and, by this departure, he has attained a

success beyond that which was anticipated by himself, when he abandoned his original line of experiment.[1]

[1]Keely was obliged to return to his former method soon after, for in overcoming one difficulty he found a more obstinate one to contend with.

81

It was then, in 1887, that a "bridge of mist" formed itself before him, connecting the laws which govern physical science with the laws which govern spiritual science, and year by year this bridge of mist has solidified, until now he is in a position to stand upon it, and proclaim that its abutments have a solid foundation—one resting in the material and visible world, and the other in the spiritual and

82

unseen world; or, rather, that no bridge is needed to connect the two worlds, one law governing both in its needed modifications.

83

We will, then, imagine a molecule magnified to the size of a billiard ball, and the atomic triplet magnified to the size of three marbles, in the triangular position, within that molecule, at its centre; unless acted upon by electricity, when the molecule, the billiard ball, becomes oblate, and the three atoms are ranged in a line within, unless broken up by the mighty force of vibratory action. Nature never gives us a vacuum; consequently, the space within the molecule not occupied by the atomic triplet must be filled with something. This is where the Geni—"the all-pervading ether"—has made its secret abode through untold æons,

85

"In considering the operation of my engine, the visitor, in order to have even an approximate conception of its *modus operandi*, must discard all thought of engines that are

86

operated upon the principle of pressure and exhaustion, by the expansion of steam or other analogous gas which impinges upon an abutment, such as the piston of a steam-engine. My engine has neither piston nor eccentrics, nor is there one grain of pressure exerted in the engine, whatever may be the size or capacity of it.

"All that remains to be done is to secure a uniform speed under different velocities and control reversions. That I shall accomplish this is absolutely certain. Some few years ago, I contemplated using a wire as a connective link between two sympathetic mediums, to evolve this power as also to operate my machinery—instead of tubular connections as heretofore employed—I have only recently succeeded in accomplishing successfully such change. This, however, is the true system; and henceforth all my operations will be conducted in this manner—that is to say, the power will be generated, my engines run, my cannon operated, through a wire.

87

When Keely obtained continuity of motion (for a time) in his engine he thought that his last difficulty had been overcome: but, up to the present time, he has not succeeded in governing its speed nor in controlling reversions. He has, however, again reduced in size the instrument with which he produces the force. From 1882 to 1884 the "Generator" was a structure six feet long and correspondingly wide and high; but, failing in his attempt to make an automatic arrangement upon which its usefulness in mechanics depended, Keely found a new standard for research in an experiment often made by himself, but never before successful, which resulted in the production of a machine in 1885 which he named a "Liberator"—not so large as a lady's small round work-table. Continuing his labour of evolution Keely within one year made such astonishing progress, from experiments with this beautiful piece of vibratory mechanism, as to combine the production of the power, and the operation of his cannon, his engine and his disintegrator in a machine no larger than a dinner plate, and only three or four inches in thickness. This instrument was completed in 1886, up to which time his experiments had been conducted upon a principle of sympathetic vibration, for the purpose of liberating a vapoury or etheric product. His later experiments have been confined to another modification of vibratory sympathy; and the size of the instrument used now, '88, for the same purposes is no larger than an old-fashioned silver watch, such as we see in Museum collections. The raising of a lever with an apparent uplifting expansive force of between 20,000 and 30,000 pounds to the square inch, the running of the engine, the firing of the cannon, are conducted without one ounce of pressure in any part of the apparatus, and without the production or presence of what has been known as Keely's ether. The force is now transmitted along a wire (of platinum and silver), and when

88

the lever is lowered there is no exhaustion, into the atmosphere of the room, of any up-lifting vapour, as was always the case when the ether was used in this experiment; nor is there any vapour impinging upon the piston under the lever to raise it.

93

Everybody knows that a note struck upon an instrument will produce sound in a correspondingly attuned instrument in its vicinity. If connected with a tuning fork, it will produce a corresponding sound in the latter; and if connected with a thousand such tuning forks, it will make all the thousand sound, and produce a noise far greater than the original sound, without the latter becoming any weaker for it. Here, then, is an augmentation or multiplication of power. If we had any means to transform sound again into mechanical motion, we would have a thousand-fold multiplication of mechanical motion.

97

Keely estimates that, after the introductory impulse is given on the harmonic thirds, molecular vibration is increased from 20,000 per second to 100,000,000.

On the enharmonic sixths, that the vibration of the inter-molecule is increased to 300,000,000.

On the diatonic ninths, that atomic vibration reaches 900,000,000; on the dominant etheric sixths, 8,100,000,000; and on the inter-etheric ninths, 24,300,000,000; all of which can be demonstrated by sound colours.

98

According to Keely's theories it is that form of energy known as magnetism—*not* electricity—which is to be the curative agent of the future, thus reviving a mode of treatment handed down from the time of the earliest records, and made known to the Royal Society of London more than fifty years since by Professor Keil, of Jena, who demonstrated the susceptibility of the nervous system to the influence of the natural magnet, and its efficacy in the cure of certain infirmities.

104

The world has hardly ever recognized its benefactors until it has become time to raise a statue to their memory, 'in order to beautify the town.' Jealousy, stupidity, the malignity which is born of conscious inferiority, are at this moment putting in Keely's road every impediment which law and injustice can manufacture. Two hundred years ago he would have been burned, a century since he would have probably been mobbed to death; but thank God we are too civilized, too humane now to burn or mob to death those who make great discoveries, who wish to benefit their fellow-men, or whose ideas are in advance of their age—we only break their hearts with slander, ridicule, and neglect, and when that fails to drive them to suicide, we bring to bear upon them the ponderous pressure of the law, and heap upon them the '*peine forte et dure*' of injunctions, and orders, and suits, to crush them out of a world they have had the impertinence to try to improve, and the folly to imagine they could save from suffering, without paying in their own persons the inevitable penalty.

106

"While Major Ricarde-Seaver, F.R.S.,[1] was in Philadelphia, Keely, by means of a belt and certain appliances which he wore upon his person, moved single-handed, a 500 horse-power vibratory engine from one part of his shop to another. There was not a scratch on the floor, and astounded engineers declared that they could not have moved it without a derrick, the operation of which would have required the removal of the roof of the shop. Of course it is but a step in advance of this to construct a machine which, when polarized with a 'negative attraction,' will rise from the earth and move under the influence of an etheric current at the rate of 500 miles an hour, in any given direction. This is, in fact, Keely's 'air ship.'

[1] By his advocacy of Keely's claims, as a discoverer, Major Ricarde-Seaver had reason to fear that he would lose his election to membership of the Athenæum Club in London; as he was notified by Sir William Thomson (who had proposed him for membership in or about the year 1873) that such would probably be the case. The members however, rallied in force and, led by one of the Major's oldest friends Prince Lucien Buonaparte, he was elected by an overwhelming majority.

122

In demonstrating what seems to be *the overcoming of gravity*

123

for aerial navigation, Mr. Keely used a model of an air-ship, weighing about eight pounds, which, when the differentiated wire of silver and platinum was attached to it, communicating with the sympathetic transmitter, rose, descended, or remained stationary midway, the motion as gentle as that of thistledown floating in the air.

The experiment illustrating "chord of mass" sympathy was repeated, using a glass chamber, forty inches in height, filled with water, standing on a slab of glass. Three metal spheres, weighing about six ounces each, rested on the glass floor of the chamber. The chord of mass of these spheres was B flat first octave; E flat second octave, and B flat third octave. Upon sounding the note B flat on the sympathetic transmitter, the sphere having that chord of mass rose slowly to the top of the chamber; the positive end of the wire having

been attached, which connected the covered jar with the transmitter. The same result followed the sound of the note in sympathy with the chord of mass of the other spheres, all of which descended as gently as they rose, upon changing the positive to the negative.

124

and to Mrs. F. J. Hughes (not Mrs. Watts Hughes), for the suggestions in her work on *Harmonies of Tones and Colours Developed by Evolution,* which led him into the line of experiment that will enable him to show on a disc the various colours of sound, each note having its colour,

126

AERIAL NAVIGATION.

The instrument devised by Mr. Keely for bringing the air-ship under control in its ascent and descent, consists of a row of bars, like the keys of a piano, representing the enharmonic and the diatonic conditions. These bars range from 0 to 100. At 50 Mr. Keely thinks the progress of the vessel ought to be about 500 miles an hour. At 100 gravity resumes its control. If pushed to that speed it would descend like a rifle-ball to the earth. There is no force known so safe to use as the polar flow if, as Mr. Keely thinks, that, when the conditions are once set up, they remain for ever, with perpetual molecular action as the result, until the machinery wears out. In the event of meeting a cyclone, the course of the vessel, he teaches, can be guided so as to ascend above the cyclone by simply dampening a certain proportion of these vibratory bars.

The instrument for guiding the ship has nothing to do with the propelling of it, which is a distinct feature of itself, acting by molecular bombardment; moving the molecules in the same order as in the suspension process, but transversely. After the molecular mass of the vessel is sensitized, or made concordant with the celestial and terrestrial streams, the control

127

of it in all particulars is easy and simple. In ascending the positive force is used, or the celestial, as Keely has named it, and in descending the negative or terrestrial. Passing through a cyclone the air-ship would not be affected by it.

The breaking up of cyclones will open a field for future research, if any way can be discovered for obtaining the chord of mass of the cyclone. To differentiate the chord of its thirds would destroy it; but to those who know nothing of the underlying principle, on which Keely has based his system, all such assertions are the merest "rubbish."

146

In his researches, Mr. Keely, who is dealing entirely with VIBRATORY SYMPATHETIC and POLAR flows, is hopeless in regard to convincing the scientific world of the value of his discoveries until he has compelled its attention by commercial success. To the question, "What does the supply cost in dollars and cents, per horse-power developed?" he answers, "It costs nothing more after the machinery is made, than the vibratory concordant impulse which associates it with the polar stream." The twanging of a taut string, the agitation of a tuning-fork, as associated with the resonating condition of the sympathetic transmitter, is all that is necessary to induce the connective link, and to produce this "costless motive power." As long as the transmitter is in sympathy with the sympathetic current of the triune polar stream, the action of the sympathetic instrument or engine continues.

Macvicar said that "if extreme vicissitudes of belief on the part of men of science are evidences of uncertainty, it may be affirmed that of all kinds of knowledge none is more uncertain than science; "but slow as mankind is in the progress of discoveries bearing upon unknown laws of nature, men of science are still slower in recognizing truths after they have been discovered and demonstrated. Two centuries elapsed between the discoveries of Pythagoras and their revival by Copernicus. Tycho Brahe opposed the Pythagorean system until his death; Galileo, adopting it and demonstrating it in all its purity, suffered for his support of it at the hands of

147

bigots. And so history now repeats itself.

151

3rd. He has proved by demonstration that the subdivision of matter under different orders of progressive vibration evolves by such subdivision entirely new and distinct elements, too multiple to enumerate. He has systematized the proper vibratory chords, progressively, from the introductory molecular to the inter-etheric, embracing seven distinct orders of triple subdivision. He has elaborated a system of inducing sympathetic negative attraction on metallic masses, with great range of motion, and instant depolarization of the same, by vibratory change of their neutral centres. Keely controls the transmission of these sympathetic streams by a medium of high molecular density, viz., drawn wires of differentiated metals, gold, silver, platinum, German silver, etc. In some recent experiments he took apart, for inspection of its interior construction, the instrument which he has invented for the production of the force, cutting the wires

with which he had operated in sympathetic attraction and
152
propulsion, and distributing the fragments to those who were present, among whom was Professor Leidy, to whom the Geological Society of London has awarded the Lyell Medal, and the Academy of Sciences of France the Cuvier Prize.

4th. Keely has discovered that all sympathetic streams, cerebellic, gravital, magnetic, and electric, are composed of triple flows; this fact governing all the terrestrial and celestial orders of positive and negative radiation. In gravity it would be more correct to speak of triple connective links, as there is no flow of gravity.

5th. Keely has discovered and was the first to demonstrate that electricity has never been handled; that it is in principle as material as is water; that it is not merely a force or a form of energy,—that it is matter; and that what we call electricity, and have diverted for commercial use in electric lighting, is but one of the triune currents, harmonic, enharmonic, and diatonic, which are united in pure electricity; that the enharmonic current seems to be sympathetically and mysteriously associated with the dominant current; and that the dominant current can no more be brought under control than can the lightning itself. The diversion of the dominant current would mean destruction to any mechanical medium used for that purpose, and death to the operator. The intense heat evolved by the electric stream Keely attributes to the velocity of the triple subdivision at the point of dispersion, as each triple seeks its medium of affinity. Sudden unition induces the same effect; but demonstration shows that the concentration of this triple force is as free of percussion as is the breath of an infant against the atmosphere; for the three currents flow together as in one stream, in the mildest sympathetic way, while their discharge after concentration is, in comparison to their accumulation, as the tornado's force to the waft of the butterfly's wing. The enharmonic current of this triple stream, Keely thinks, carries with it the power of propulsion that induces disturbance of negative equilibrium; which disturbance is essential to the co-ordination of its flow, in completing the triune stream of electricity. When this fluid is discharged from the clouds, each triplet or third seeks its terrestrial concordant, there to
153
remain until that supreme law which governs disturbance of equilibrium again induces sympathetic concordant concentration, continuing to pass through its evolutions, positively and negatively, until the solar forces are expended.

"My researches have proved to me," writes Keely, "the subtle and pure conditions of the power of negative attraction and positive propulsion."

6th. These same researches have enabled Keely to pronounce definitely as to the nature of what is recognized as gravity, an ever-existing, eternal force, coexistent with the compound etheric, or high luminous, entering into all forms of aggregated matter at their birth. Keely thinks that gravity is the source from which all visible matter springs, and that the sympathetic or neutral centre of such aggregation becomes at birth a connective concordant link to all neutral centres that have preceded it and to all that may succeed it, and that disturbance of equilibrium, like gravity, is an ever-existing force. His researches in the vibratory subdivision of matter have revealed to him some of the mysteries of the hidden sympathetic world, teaching that "the visible world," as Coleridge wrote, "is but the clothing of the invisible world;" that "true philosophy," as Professor George Bush said, "when reached will conduct us into the realm of the spiritual as the true region of causes, disclosing new and unthought-of relations between the world of matter and of mind."

All planetary masses Keely calls terrestrial, showing in his writings that the beauty of the celestial concordant chords of sympathy forming the harmonious connective link, in what may be denominated "the music of the spheres," is seen in the alternate oscillating range of motion between the plane-
154
tary systems; for at a certain range of the greater distance, harmony is established, and the attractive forces are brought into action, under the command, "Thus far shalt thou go, and no further." Then in the return towards the neutral centres, when at the nearest point to each other, the opposite or propulsive force is brought into play; and "thus near shalt thou come, and no nearer;" advancing and receding under the celestial law of etheric compensation and restoration, as originally established by the Great Creator.

8th. He has discovered that the range of molecular motion in all quiescent masses is equal to one-third of their diameters, and that all extended range is induced by sound-force, set at chords of the thirds which are antagonistic to the combined chords of the mass of the neutral centres that they represent, no two masses being alike, and that at a certain increased
155
range of molecular motion, induced by the proper acoustic force, the molecules become repellent, and that when the

sympathetic centres are influenced by a vibration concordant to the one that exists in themselves, the molecules become attractive; that the repellent condition seems to take place at a distance of about ten of the diameters of the molecules, this distance representing the neutral line of their attractive force, or the dividing line between the attractive and the repellent. Beyond this line, perfect triple separation takes place; inside of it, perfect attractive association is the result.

The force which Mr. Keely uses in running machinery is the sympathetic attractive,—the force which, according to his theories, draws the planets together; while in his system of aërial navigation, should he live to perfect it, he will use a negation of this force,—the same that regulates the motion of the planets in their recession from each other. It is the sympathetic attractive force which keeps the planets subservient to a certain range of motion, between their oscillations. If this condition were broken up, the rotation of planets would cease; if destroyed at a given point of recession, all planets would become wanderers, like the comets; if destroyed at another given point, assimilation would take place, as two bullets fired through the air, meeting, would fuse into one mass. Nature has established her sympathetic concordants from the birth of the neutral centres of the planets, in a manner known only to the Infinite One. This is gravity.

"The music of the spheres" is a reality. "The finer the power the greater the force." Thus, the inaudible atomic, etheric, and inter-etheric sounds, which control and direct the harmony of the movements of the celestial universe, are the most powerful of all sounds. If our faculty of hearing were a hundred billions of times intensified, we might be able to hear the streams of light as plainly as we now hear the sighings of the wind.

156

10th. He has written three treatises to explain his system, the titles of which are as follows:—

I. Theoretical Exposé or Philosophical Analysis of Vibro-Molecular, Vibro-Atomic, and Sympathetic Vibro-Etheric Forces, as applied to induce Mechanical Rotation by Negative Sympathetic Attraction.

II. Explanatory Analysis of Vibro-Acoustic Mechanism in all its Different Groupings or Combinations to induce Propulsion and Attraction (sympathetically) by the Power of Sound-Force; as also the Different Conditions of Intensity,

157

both Positive and Negative, on the Progressive Octaves to Ozonic Liberation and Luminosity.

III. The Determining Principle of Matter, or the Connective Link between the Finite and the Infinite, progressively considered from the Crude Molecular to the Compound Inter-Etheric; showing the Control of Spirit over Matter in all the Variations of Mass-Chords and Molecular Groupings, both Physical and Mechanical.

"Every branch of science, every doctrine of extensive application, has had its alphabet, its rudiments, its grammar: at each fresh step in the path of discovery the researcher has had to work out by experiment the unknown laws which govern his discovery."

160

It is easier, as has been said, to accuse a man of fraud than to account for unknown phenomena.

"We must not decide that a thing is impossible," says Lebrun, "because of the common belief that it cannot exist; for the opinion of man cannot set limits to the operations of Nature, nor to the power of the Almighty. He who attempts to hold up to contempt a scientific subject of which he is profoundly ignorant has but small pretensions to the character of a philosopher."

162

Take, for example, his last experience with his preliminary commercial engine, to which, before he had completed his graduation, he was induced, in November 1889, to apply a brake, to show what resistance the vibratory current could bear under powerful friction. A force sufficient to stop a train of cars, it was estimated, did not interfere with its running; but under additional strain a "thud" was heard, and the shaft of the engine was twisted.

165

"Keely may be on the right track, after all," remarked an English scientist, after Prof. Hertz had made known his researches on the structure of ether; "for if we have imprisoned the ether without knowing it, why may not Keely know what he has got a hold of?"

Norman Lockyer, in his "Chemistry of the Sun," confirms Keely's theories when he writes, "The law which connects radiation with absorption and at once enables us to read the riddle set by the sun and stars is, then, simply the law of 'sympathetic vibration.'"

"It is remarkable," says Horace W. Smith, "that in countries far distant from each other, different men have fallen into the same tracks of science, and have made similar and correspondent discoveries, at the same period of time, without the least communication with each other."

167

We seem to be approaching a theory as to the construction of ether. Hertz has produced vibrations, vibrating in ore than one hundred million times per second. He made use of the principle of resonance. You all understand how, by a succession of well-timed small impulses, a large vibration may be set up.—PROF. FITZGERALD.

Scientific men reject all theories in physics in which there is not an equal proportion of science and mathematics, excluding all questions of pure metaphysics.

169

In order to subdivide the atoms in the atomic triplet, the molecular ether, liberated from the molecule, is absolutely necessary to effect the rupture of the atoms; and so on, progressively, in each order of ether, molecular, inter-molecular, atomic, inter-atomic, etheric, inter-etheric, the other liberated in each successive division is essential to the next subdivision.

The keynote of Mr. Keely's researches is that the movements of elastic elements are rhythmical, and before he had reached his present stage in producing vibrations, on the principle of resonance, he has had problems to solve which needed the full measure of inspiration or apperception that he has received.

Hertz has produced vibrations about one metre long, vibrating more than one hundred million times a second. Keely has produced, using an atmospheric medium alone, 519,655,633 vibrations per second; but, interposing pure hydrogen gas between soap films and using it as a medium of acceleration, he asserts that on the enharmonic third a rate of vibration may be induced which could not be set down in figures, and could only be represented in sound colours. *He has invented instruments which demonstrate in many variations the colours of sound, registering the number of necessary vibrations to produce each variation.* The transmissive sympathetic chord of B flat, third octave, when passing into inaudibility,

170

would induce billions of billions of vibrations, represented by sound colour on a screen illuminated from a solar ray. But this experiment is one of infinite difficulty, from the almost utter impossibility of holding the hydrogen between the two films long enough to conduct the experiment. Keely made over 1200 trials before succeeding once in inducing the intense blue field necessary, covering a space of six weeks, four hours at a time daily; and should he ever succeed in his present efforts to produce a film that will stand, he anticipates being able to register the range of motion in all metallic mediums. On this subject Keely writes:—The highest range of vibration I ever induced was in the one experiment that I made in liberating ozone by molecular percussion, which induced luminosity, and registered a percussive molecular force of 110,000 lbs. per square inch, as registered on a lever constructed for the purpose. The vibrations induced by this experiment reached over 700,000,000 per second, unshipping the apparatus, thus making it insecure for a repetition of the experiments. The decarbonized steel compressors of said apparatus moved as if composed of putty. Volume of sphere, 15 cubic inches; weight of surrounding metal, 316 lbs.

Recently some questions, propounded to Mr. Keely by a scientist, elicited answers which the man of science admitted were clear and definite, but no physicist could accept Keely's assertion that incalculable amounts of latent force exist in the molecular spaces, for the simple reason that science asserts that molecular aggregation is attended with dissipation of energy instead of its absorption. The questions asked were:—

I. "In disintegrating water, how many foot-pounds of energy have you to expend in order to produce or induce the vibratory energy in your acoustical apparatus?"

Answer.—"No foot-pounds at all. The force necessary to excite disintegration when the instrument is sensitized, both in sensitization and developments, would not be sufficient to wind up a watch."

II. "What is the amount of energy that you get out of that initial amount of water, say twelve drops, when decomposed into ether?"

171

Answer.—"From twelve drops of water a force can be developed that will fill a chamber of seven pint volume no loss than six times with a pressure of ten tons to the square inch."

III. "In other words, if you put so many pounds of energy into vibratory motion, how many foot-pounds do you get out of this?"

Answer.—"All molecular masses of metal represent in their interstitial molecular spaces incalculable amounts of latent force, which, if awakened and brought into intense vibratory action by the medium of sympathetic liberation, would result in thousands of billions more power in foot-pounds than that

necessary to awaken it. The resultant development of any and all forces is only accomplished by conditions that awaken the latent energy they have carried with them during molecular aggregation. If the latent force that exists in a pound of water could be sympathetically evolved or liberated up to the seventh subdivision or compound inter-etheric, and could be stored free of rotation, it would be in my estimation sufficient to run the power of the world for a century."

This statement gives another of Keely's discoveries to the world, viz., that molecular dissociation does not create energy, as men have asserted Keely has claimed, but supplies it in unlimited quantities, as the product of the latent energy accumulated in molecular aggregation.

173

THEORY AND FORMULA OF AQUEOUS DISINTEGRATION.

The peculiar conditions as associated with the gaseous elements of which water is composed, as regards the differential volume and gravity of its gases, make it a ready and fit subject of vibratory research. In submitting water to the influence of vibratory transmission, even on simple thirds, the high action induced on the hydrogen as contrasted with the one on the oxygen (under the same vibratory stream), causes the antagonism between these elements that induces dissociation. The differential antagonistic range of motion, so favouring the antagonistic thirds as to become thoroughly repellent. The gaseous element thus induced and registered, shows thousands of times much greater force as regards tenuity and volume than that induced by the chemical disintegration of heat, on the same medium. In all molecular dissociation or disintegration of both simple or compound elements, whether gaseous or solid, a stream of vibratory antagonistic thirds, sixths, or ninths, on their chord mass will compel progressive subdivisions. In the disintegration of water the instrument is set on thirds, sixths, and ninths, to get the best effects.

174

First, thirds: Molecular dissociation resolving the water into a gaseous compound of hydrogen and oxygen. Second, sixths: resolving the hydrogen and oxygen into a new element by second order of dissociation, producing what I call, low atomic ether. Third, ninths: The low atomic ether resolved into a new element, which I denominate high or second atomic harmonic. All these transmissions being simultaneous on the disturbance of sympathetic equilibrium by said negative accelerator.

Example:—Taking the chord mass of the disintegrator B flat, or any chord mass that may be represented by the combined association of all the mechanical parts of its structure (no two structures being alike in their chord masses), taking B flat, the resonators of said structure are set at B flat first octave, B flat third octave, and B flat ninth octave, by drawing out the caps of resonators until the harmony of thirds, sixths, and ninths are reached; which a simple movement of the fingers on the diatonic scale, at the head, will determine by the tremulous action which is highly sensible to the touch, on said caps. The caps are then rigidly fixed in

175

their different positions by set screws. The focalization to the neutral centre is then established by dampening the steel rods, on the scale at the back, representing the thirds, sixths, and ninths, drawing a piece of small gum tube over them, which establishes harmony to the chord mass of the instrument. Concordance is thus effected between the disintegrator and the ninths of the scale at base of transmitters with telephonic head.

This scale has a permanent sympathetic one, set on the ninth of any mass chord that may be represented, on any and all the multiple variations of mechanical combinations. In fact, permanently set for universal accommodation.

The next step is to establish pure harmony between the transmitter and the disintegrator, which is done by spinning the syren disk, then waiting until the sympathetic note is reached, as the syren chord, decreasing in velocity, descends the scale. At this juncture, the negative accelerator must be immediately and rapidly rotated, inducing high disturbance of equilibrium between the transmitter and the disintegrator by triple negative evolution, with the result that a force of from five to ten, fifteen, twenty, and thirty thousand pounds to the square inch is evolved by the focalization of this triple negative stream on the disintegrating cell, or chamber, whether there be one, two, three, five, or ten drops of water enclosed within it.

177

Bells rang in vacuo liberate the same number of corpuscules, at the same velocity as those surrounded by a normal atmosphere; and hence the same acoustic force attending them, but they are inaudible from the fact that, in vacuo, the molecular volume is reduced. Every gaseous molecule is a resonator of itself, and is sensitive to any and all sounds induced, whether accordant or discordant.

178

The sound vibrations of themselves have no power whatever to induce

dissociation, even in its lowest form. Certain differential, dual, triple and quadruple, chords give introductory impulses which excite an action on molecular masses, liquid and gaseous, that increase their range of molecular motion and put them in that receptive state for sympathetic vibratory interchange which favours molecular disintegration; then, as I have shown, the diatonic enharmonic is brought into play, which further increases the molecular range of motion beyond fifty per cent, of their diameters, when molecular separation takes place, giving the tenuous substance that is necessary to induce progressive subdivision. This molecular gaseous substance, during its evolution, assumes a condition of high rotation in the sphere or tube in which it has been generated, and becomes itself the medium, with the proper exciters, for further progressive dissociation. The exciters include an illuminated revolving prism, condenser, and coloured lenses, with a capped glass tube strong enough to carry a pressure of at least one thousand pounds per square inch. To one of these caps a sectional wire of platinum and silver is attached; the other cap is attached to the tube, so screwed to the chamber as to allow it to lead to the neutral centre of said chamber.

179

Quoting from Keely's writings,—"The human ear cannot detect the triple chord of any vibration, or sounding note, but every sound that is induced of any range, high or low, is governed by the same laws, as regards triple action of such, that govern every sympathetic flow in Nature.

180

Theory of the Induction of Sympathetic Chords to excite rotation, by vibrophonic trajection to and from centres of neutrality, as induced and shown to Professor Leidy, Dr. Willcox, and others, on revolving globe.

All hollow spheres, of certain diameters, represent, as per diameters and their volume of molecular mass, pure, unadulterated, sympathetic resonation towards the enharmonic and diatonic thirds of any, and in fact all, concordant sounds. In tubes it is adversely different, requiring a definite number of them so graduated as to represent a confliction by thirds, sixths, and ninths, as towards the harmonic scale. When the conditions are established, the acoustic result of this combination, when focalized, represents concordant harmony, as between the chord mass of the instrument to be operated and chord mass of the tubes of resonation. Therefore the shortest way towards establishing pure concordance, between any number of resonating mediums, is by the position that Nature herself assumes in her multitudinous arrangements of the varied forms and volumes of matter—the spherical. The great difficulty to overcome, in order to get a revolution of the said sphere, exists in equating the interior adjuncts of same. In other words, the differentiation induced must be so

181

equated as to harmonize and make their conditions purely concordant to the molecular mass of the sphere. Example: Suppose the chord of the sphere mass represents B flat, or any other chord, and the internal adjuncts by displacement of atmospheric volume differentiates the volume one-twentieth; this displacement in the shell's atmospheric volume would represent an antagonistic twentieth against the shell's mass concordance, to equate which it would be necessary to so graduate the shell's internal adjuncts as to get at the same chord;—an octave or any number of octaves that comes nearest to the concordance of the shell's atmospheric volume. No intermediates between the octaves would ever reach sympathetic union.

We will now take up the mechanical routine as associated with adjuncts of interference, and follow the system for chording the mechanical aggregation in its different parts, in order to induce the transmissive sympathy necessary to perfect evolution, and to produce revolution of the sphere or shell.

Example.—Suppose that we had just received from the machine shop a spun shell of twelve inches internal diameter, 1·32 of an inch thick, which represents an atmospheric volume of 904·77 cubic inches. On determination by research we find the shell to be on its resonating volume B flat, and the molecular volume of the metal that the sphere is composed of, B natural. This or any other antagonistic chord, as between the chord mass of the shell and its atmospheric volume, would not interfere but would come under subservience. We now pass a steel shaft through its centre, ½ inch in diameter, which represents its axial rest. This shaft subjects the atmospheric volume of the shell to a certain displacement or reduction, to correct which we first register the chord note of its mass, and find it to be antagonistic to the chord mass of the shell, a certain portion of an octave. This must be corrected. The molecular volume of the shaft must be reduced in volume, either by filing or turning, so as to represent the first B flat chord that is reached by such reduction. When this is done the first line of interference is neutralized, and the condition of sympathy is as pure between the parts as it was when the globe was minus its axis. There is now introduced on its axis

182

a ring which has seven tubes or graduating resonators, the ring being two-thirds the diameter of the globe, the resonators three inches long and ¾ inch diameter, each one to be set on the chord of B flat, which is done by sliding the small diaphragm in the tube to a point that will indicate B flat. This setting then controls the metallic displacement of the metallic combination, as also of the arms necessary to hold the ring and resonators on shaft or axis. Thus the second equation is established, both on resonation and displacement. We are now ready to introduce the diatonic scale ring of three octaves which is set at two-thirds of the scale antagonistic to the chord mass of the globe itself. This is done by graduating every third pin of its scale to B flat, thirds, which represent antagonistic thirds to the shell's molecular mass. This antagonism must be thoroughly sensitive to the chord mass of one of the hemispheres of which the globe is composed. The axis of the scale ring must rotate loosely on the globe's shaft without revolving with the globe itself; which it is prevented from doing by being weighted on one side of the ring by a small hollow brass ball, holding about two ounces of lead. The remaining work on the device is finished by painting the interior of the globe, one hemisphere black and one white, and attaching a rubber bulb such as is used to spray perfume, to the hollow end of the shaft. This bulb equates vibratory undulations, thus preventing an equation of molecular bombardment on its dark side when sympathetically influenced. It is now in condition to denote the sympathetic concordance between living physical organisms, or the receptive transmittive concordance necessary to induce rotation.

Philosophy of Transmission and Rotation of Musical Sphere.

The only two vibratory conditions that can be so associated as to excite high sympathetic affinity, as between two physical organisms, are:—Etheric chord of B flat, 3rd octave, and on etheric sympathetic chords transmission B flat on the scale 3rd, 6ths, and 9ths; octaves harmonic; having the 3rd dominant; the 6th enharmonic, and the 9th diatonic.

183

The chord mass representing the musical sphere, being the sympathetic etheric chord of B flat third octave, indicated by the focalization of its interior mechanical combination, as against the neutral sevenths of its atmospheric volume, makes the shell highly sensitive to the reception of pure sympathetic concordance, whether it be physical, mechanical, or a combination of both. Taking the chord mass of the different mechanical parts of the sphere and its adjuncts, as previously explained, when associated and focalized to represent pure concordance, as between its atmospheric volume and sphere mass, which means the pure unit of concordance, we have the highest position that can be established in relation to its sympathetic susceptiveness to negative antagonism. The beauty of the perfection of the laws that govern the action of Nature's sympathetic flows is here demonstrated in all the purity of its workings, actually requiring antagonistic chords to move and accelerate. The dark side of the shell, which represents fifty per cent. of its full area of pure concordant harmony, is the receptive area for the influence of the negative transmissive chords of the thirds, sixths and ninths to bombard upon; which bombardment disturbs the equilibrium of said sphere, and induces rotation. The rotation can be accelerated or retarded, according as the antagonistic chords of the acoustic forces are transmitted in greater or lesser volume. The action induced by the mouth organ, transmitted at a distance from the sphere without any connection of wire, demonstrates the purity of the principle of sympathetic transmission, as negatized or disturbed by discordants; which, focalizing on the resonating sevenths of resonators, or tubes attached to ring, the sympathetic flow is by this means transmitted to the focalizing centre, or centre of neutrality, to be re-distributed at each revolution of sphere, keeping intact the sympathetic volume during sensitization, thus preventing the equation or stoppage of its rotation.

196

Joseph Cook affirms that as science progresses it draws nearer in all its forms to the proof of the spiritual origin of force—

Keely's discoveries

prove that the doctrine of the Trinity should be set down as an established canon of science—the Trinity of force. All nature's sympathetic streams—cerebellic, gravital, electric and magnetic—are made up of triple currents.

200

Mr. Keely illustrates his idea of "*a neutral centre*" in this way:—We will imagine that, after an accumulation of a planet of any diameter—say, 20,000 miles more or less, for the size has nothing to do with the problem—there should be a displacement of all the material, with the exception of a crust 5000 miles thick, leaving an intervening void between this crust and a centre of the size of an ordinary billiard ball, it would then require a force as great to move this small central mass as it would to move the shell of 5000 miles thickness. Moreover, this small central mass would

carry the load of this crust for ever, keeping it equi-distant; and there could be no opposing power, however great, that could bring them together. The imagination staggers in contemplating the immense load which bears upon this point of centre, where weight ceases. This is what we understand by a neutral centre.

201

Again, Mr. Keely, in explanation of the working of his engine, writes:—In the conception of any machine heretofore constructed, the medium for inducing a neutral centre has never been found. If it had, the difficulties of perpetual-motion seekers would have ended, and this problem would have become an established and operating fact. It would only require an introductory impulse of a few pounds, on such a device, to cause it to run for centuries. In the conception of my vibratory engine, I did not seek to attain perpetual motion; but a circuit is formed that actually has a neutral centre, which is in a condition to be vivified by my vibratory ether, and while under operation, by said substance, is really a machine that is virtually independent of the mass (or globe), and it is the wonderful velocity of the vibratory circuit which makes it so. Still, with all its perfection, it requires to be fed with the vibratory ether to make it an independent motor. . . .

202

I assume that sound, like odour, is a real substance of unknown and wonderful tenuity, emanating from a body

203

where it has been induced by percussion, and throwing out absolute corpuscles of matter—inter-atomic particles—with a velocity of 1120 feet per second, in vacuo 20,000. The substance which is thus disseminated is a part and parcel of the mass agitated, and if kept under this agitation continuously would, in the course of a certain cycle of time, become thoroughly absorbed by the atmosphere; or, more truly, would pass through the atmosphere to an elevated point of tenuity corresponding to the condition of subdivision that governs its liberation, from its parent body. The sounds from vibratory forks, set so as to produce etheric chords, while disseminating their compound tones permeate most thoroughly all substances that come under the range of their atomic bombardment. The clapping of a bell in vacuo liberates these atoms with the same velocity and volume as one in the open air; and were the agitation of the bell kept up continuously for a few millions of centuries, it would thoroughly return to its primitive element. If the chamber were hermetically sealed, and strong enough, the vacuous volume surrounding the bell would be brought to a pressure of many thousands of pounds to the square inch, by the tenuous substance evolved. In my estimation, *sound truly defined is the disturbance of atomic equilibrium, rupturing actual atomic corpuscles; and the substance thus liberated must certainly be a certain order of etheric flow*. Under these conditions is it unreasonable to suppose that, if this flow were kept up, and the body thus robbed of its element, it would in time disappear entirely? All bodies are formed primitively from this high tenuous ether, animal, vegetable and mineral, and they only return to their high gaseous condition when brought under a state of differential equilibrium.

205

Thus it is seen that Keely is not the only man of science who is trying to effect a passage over the untrodden wild lying between acoustics and music: "that Serbonian bog where whole armies of scientific musicians and musical men of science have sunk, without filling it up." Helmholtz, it is said, has, by a series of daring strides, made a passage for himself: while Keely stands alone in seeking to build a solid causeway; over which all the nations of the earth may pass in safety, to the "new order of things," that lies in this "land of promise."

209

All the forces of nature, writes Keely, proceed from the one governing force; the source of all life, of all energy. These sympathetic flows, or streams of force, each consists of

210

three currents, harmonic, enharmonic, and dominant; this classification governing all orders of positive and negative radiation.

Professor Olive Lodge, in his address before the British Association, at Cardiff, said: "Let me try to state what this field is, the exploration of which is regarded as so dangerous. I might call it the borderland of physics and psychology. I might call it the connection between life and energy; or the connection between mind and matter. It is an intermediate region, bounded on the north by psychology, on the south by physics, on the east by physiology, and on the west by pathology and medicine. An occasional psychologist has groped down into it and become a metaphysician. An occasional physicist has wandered up into it and lost his base, to the horror of his quondam brethren. Biologists mostly look at it askance, or deny its existence. A few medical practitioners, after long maintenance of a similar attitude,

have begun to annex a portion of its western frontier. . . . Why not leave it to the metaphysicians? I say it has been
211
left to them long enough. They have explored it with insufficient equipment. Their methods are not our methods; they are unsatisfactory to us, as physicists. We prefer to creep slowly from our base of physical knowledge; to engineer carefully as we go, establishing forts, constructing roads, and thoroughly exploring the country, making a progress very slow but very lasting. The psychologists from their side may meet us. I hope they will; but one or the other of us ought to begin. . . ."

214

It is a canon of science that molecular aggregation generally *involves dissipation of energy*. On the contrary, for more than fifteen years Keely has demonstrated that *all molecular aggregation is attended with an absorption of energy;*

215

This, Keely establishes in the one experiment of disintegration of water, releasing from three drops the latent energy carried, during and from the time of molecular aggregation, and showing a pressure of fifteen tons to the square inch.

216

1st. *Light and heat are not evolved until the force of the vibratory sympathetic stream, from the neutral centre of the sun, comes into atomic percussive action against the molecular atmosphere or envelope of our planet.* The visibility of the planets can only be accounted for in this way, some in a great degree, some in less. Innumerable thousands, it may be, remain invisible to us by not having the conditions surrounding them, and associated with them, which favour the atomic and molecular antagonistic friction necessary to make them visible.

220

Taking into consideration even the introductory conditions of the etheric stage, etheric vibration has proved to me that the higher the velocity of its rotating stream the greater is its tendency towards the neutral centre or centre of sympathetic
221
coincidence. Were it otherwise, how could there ever be any planetary formations or the building up of visible structures? If a billiard ball were rotated to a certain velocity, it would separate in pieces, and the pieces would fly off in a tangent; but if it were a ball of ether, the higher the velocity of rotation the stronger would be the tendency of its corpuscules to seek its centre of neutrality, and to hold together.

239

Tizeau found that the speed of light is increased in water which moves in the same direction as the light. This result must be due either to the motion of matter through the medium, or to the fact that moving matter carries the ether with it. The whole question of matter and motion as a medium is a vital one, and we shall hardly make any serious advance *before experiment has found a new opening*.—PROFESSOR SCHUSTER.

250

Gross material agencies, such as drugs, will be replaced by the finer forces of nature: light, as taught by the late Dr. Pancoast of our city, and magnetism, as experimented with by the late Professor Keil of Jena, showing the efficacy of the ordinary magnet in the cure of certain infirmities,—

253

Had Faraday lived long enough to pursue his researches, from his starting point of conjecture, he would have been, without doubt, instead of Keely, the discoverer of the latent or hidden potencies existing in all forms of matter, visible and invisible. But the physicists of his time looked upon his speculations as contrary to the received dogmas of science, and preferred their own errors to his speculations. They saw the signpost, but took the road directly opposite to the one Faraday had pointed out.

256

This introductory impulse is given at forty-two thousand eight hundred vibrations,

260

However, at Dr. Brinton's suggestion, Mr. Keely took up a line of research that was new to him, and succeeded in making a needle of the three metals, gold, silver and platinum, rotate by differential molecular action; induced by negative attractive outreach, which is as free of magnetic force as a cork.

263

[1] Mr. Keely explains the energy he is handling to be a condition of sympathetic vibration, associated with the Polar stream of our planet, positively and negatively.

265

Each of the molecules composing a mass of matter is in a state of incessant oscillation, and these movements can be so much changed by means of musical vibration that the matter will be disintegrated, its constituent molecules fly apart, and a

266
propulsive force be generated similar to that which is evolved by the touching of a match to a single grain of powder stored in a magazine. He holds that matter is nothing but forces held in equilibrium, and that if the equilibrium be once destroyed the most tremendous consequences will ensue.

According to the report, he proved to the satisfaction of more than one member of the club that he has already discovered the means of calling out this force, and is able to partially control it. In their presence he caused a heavy sphere to rotate rapidly or slowly, according to the notes given by the instrument on which he played. The sphere was so isolated as to prove that it could not be acted on by electricity or in any other way than by the sound waves. He disintegrated water into what he calls "etheric vapour" by means of a tuning fork and a zither. The disintegration of only four drops of water produced a pressure of 27,000 pounds to the square inch, and three drops of the harmless liquid fired off a cannon "with a tremendous roar."

272
What is Gravity?—Gravity is an eternal existing condition in etheric space, from which all visible forms are condensed. Consequently, it is inherent in all forms of matter, visible and invisible. It is not subject to time nor space. It is an established connective link between all forms of matter from their birth, or aggregation. Time is annihilated by it, as it has already traversed space when the neutral centres of the molecules were established.

Gravity, then, is nothing more than an attractive, sympathetic stream, flowing towards the neutral centre of the earth, emanating from molecular centres of neutrality; concordant with the earth's centre of neutrality, and seeking its medium of affinity with a power corresponding to the character of the molecular mass.

What is Cohesion?—Cohesion is sympathetic negative attraction. It is the negative, vibratory assimilation, or aggregation, of the molecules, acting according to the density or compactness of the molecular groupings on their structures. The differing character of molecular densities, or molecular range of motion, represents differing powers of attraction. The lower the range of motions on the molecular vibrations of these structures, the greater is the attractive force that holds them together; and *vice versâ*.

What is Heat? Heat may be classed as a vibro-atomic element, not exceeding 14,000 vibrations per second at its greatest intensity, latent in all conditions of matter both visible and invisible. The velocity of the sympathetic flows
273
which emanate from our solar world, the sun, coming into contact with our atmospheric medium, liberates this element in all the different degrees of intensity that give warmth to our earth. Light is another resultant; the different intensities of which are produced according to the different angles of this sympathetic projectment.

The light that emanates from a glow-worm is the resultant of the action of the sympathetic medium of the insect itself on a centre of phosphorescent matter, which is included in its structure. The resultant of the two conditions are quite different, but they are governed by the same laws of sympathetic percussion.

And if there is a gap in our knowledge between the conscious idea of a motion and the liberation of muscular energy needed to accomplish it, how do we know that a body may not be moved without ordinary material contact by an act of will? "These questions were asked by Professor Lodge in his paper on "Time;" and as Keely contends that all metallic substances after having been subjected to a certain order of vibration may be so moved, let us see how he would answer these questions. When Faraday endeavoured to elaborate some of his "unscientific notions in regard to force and matter," men of science then said that Faraday's writings were not translatable into scientific language. The same has been said of Keely's writings.

275
It must be remembered that Keely claims to have demonstrated the *subdivision of matter in seven distinct orders: molecular, intermolecular, atomic, inter-atomic, etheric, inter-etheric, reaching the compound inter-etheric in the seventh order*. In commenting further upon the experimental researches of men of science to show whether ether in contact with moving matter is affected by the motion of such matter, Keely writes: "The motion of any matter of less tenuity than the ether cannot affect it any more than atmospheric air could be held under pressure in a perforated chamber. The tenuous flow of a magnet cannot be waived aside by a plate of heavy glass, and yet the magnetic flow is only of an inter-atomic character and far more crude than the introductory etheric. The etheric element would remain perfectly static under the travel of the most furious cyclone; it would pass through the molecular interstices of any moving projectile with the same facility that atmospheric air would pass though a coarse sieve. Ether

could not be affected by the motion of less tenuous matter, but if the matter were of the same tenuous condition it would sympathetically associate itself with it; consequently there would be no motion any more than motion accompanies gravity.

276

There are three kinds of electricity, the harmonic and enharmonic, which, with their leader, the dominant, form the first triple. Their sympathetic associations evolve the energy of matter. The dominant is electricity luminous, or propulsive positive. The harmonic, or the magnetic, which is the attractive, with its wonderful sympathetic outreach, is the negative current of the triune stream. The enharmonic, or high neutral, acts as the assimilative towards the reinstatement of sympathetic disturbance. In electric lighting, the velocity of the dynamos accumulates only the harmonic current—by atomic and inter-atomic conflict—transferring one two hundred thousandth of the light that the dominant current would give, if it were possible to construct a device whereby it could be concentrated and dispersed. But this supreme portion can never be handled by any finite mode. Each of these currents has its triple flow, representing the true lines of the sympathetic forces that are constantly assimilating with the polar terrestrial envelope. The rotation of the earth is one of the exciters that disturbs the equilibrium of these sensitive streams. The alternate light and darkness induced by this motion helps to keep up the ac-

277

tivity of these streams, and the consequent assimilation and dissimilation. The light zone being ever followed by the dark zone, holds the sympathetic polar wave constant in its fluctuations. This fact may be looked upon as the foundation of the fable that the world rests upon a tortoise. The rotation of the earth is controlled and continued by the action of the positive and negative sympathetic celestial streams. Its pure and steady motion, so free from intermitting impulses, is governed to the most minute mathematical nicety by the mobility of the aqueous portion of its structure, *i.e.*, its oceans and ocean's anastomosis. There is said to be a grain of truth in the wildest fable, and herein we have the elephant that the tortoise stands on. The fixed gravital centres of neutrality, the sympathetic concordants to the celestial outreach, that exist in the inter-atomic position, are the connective sympathetic links whereby the terrestrial is held in independent suspension. We cannot say that this corresponds to what the elephant stands upon, but we can say, "This is the power whereby the elephant is sympathetically suspended."

277

The magnitude of the molecule, as compared to the inter-atom, is about on the same ratio as a billiard ball to a grain of sand; the billiard ball being the domain wherein the triple inter-molecules rotate, the inter-molecules again being the field wherein the atomic triplets sympathetically act, and again progressively, in the inter-atomic field, the first order of the etheric triplets begins to show its sympathetic inreach for the centres of neutral focalization.

278

Silver represents the 3rd, gold the 6th, and platina the 9th, in their links of association, one to the other, in the molecular range of their motions, when submitted to vibratory impulses.

If an introductory impulse, representing the sympathetic chord of transmission, say B flat, or any other chord, be given to a sectional transmitting wire, the molecular triple, that is carried sympathetically along the path of such transmitter by the differentiation induced, excites high sympathy with the

279

polar terrestrial stream. The polar terrestrial, being triune in its character, requires a triune sympathizer to meet its differential requirements: silver the harmonic, gold the enharmonic, and platina the dominant. When this triple metallic condition is properly sensitized, by any chord on the dominant, combined molecular, differentiated action is induced; showing a condition approaching magnetism in its development of related sympathy, without having the conditions that are truly magnetic, as this term (magnetic) is understood by all physicists.

280

The word "attenuated" admits that hydrogen is a compound. I contend that hydrogen is composed of three elements, with a metallic base, and comes under the order of the second atomic, both in vibration and sympathetic outreach.

Hydrogen exists only where planetary conditions exist: there it is always present, but never in uninterfered space.

If atmospheric air is subdivided, by atomic vibration, it merely dissociates the hydrogen from the oxygen; neither of which, though disunited, passes from the intermolecular state; and not until hydrogen is sympathetically subdivided in its inter-molecular structure by inter-atomic vibrations can it assimilate with the introductory etheric element.

282

All those who had the privilege of witnessing Keely's researching experiments, in the spring of 1890, when he first succeeded in raising the metal weight, and who were sufficiently acquainted with the laws of physics to understand the conditions under which the weight was raised, pronounced the force by which it was affected to be an unknown force. Had the weight been but a nail or a feather, lifted under such conditions, physicists know that, after he has gained as perfect control of it as we now have of steam, air-ships weighing thousands of tons can be raised to any height in our atmosphere, and the seemingly untraversable highways of the air opened to commerce.

This force is not, like steam or electricity, fraught with danger in certain states to those who use it; for, after the molecular mass of the vessel has been fitted to the conditions required, its control becomes of such a nature that seemingly

283

a star might as soon go astray, and be lost to the universe, as for the aerial ship to meet with an accident, unless its speed was pushed to that point where gravity resumes its control. In fact, Keely asserts that there is no known force so safe to use as the polar terrestrial force, for when the celestial and terrestrial conditions are once set up, they remain for ever; perpetual molecular action the result.

In using the word *celestial*, Keely refers to the *air*, in the same sense that *terrestrial* refers to the *earth*.

[1] The universal physical law of molecular vibration is finely illustrated in the carbon pencils of the electric arc light used in some of the largest lighthouses. The molecular stir set up in the armatures of the dynamo machines by rapid magnetization and demagnetization is transmitted to the carbon points of the lantern, and reappears as a distinct musical tone.

289

The Chinese are supposed to have invented, centuries before the birth of Christ, the explosive compound gunpowder, which requires that order of vibration known as heat to bring about a rupture of the molecules of the nitre, sulphur, and charcoal, of which it is composed. Dynamite requires another order of vibration—concussion—to release the latent force held in the molecular embrace of its constituents.

292

Those men of science who have refused to countenance this great work, even by witnessing experiments made to prove the discovery of an unknown force, are men who attempt no explanation of the miracles of nature by which we are surrounded, assuming that no explanation can be given; but, as Bacon has said, he is a bad mariner, who concludes, when all is sea around him, that there is no land beyond.

296

When this has been demonstrated, to their entire satisfaction, they will acknowledge that Faraday's speculations on the nature of force and matter pointed the way to Keely's discoveries.

297

To such men, possessing entire scientific and intellectual liberty of thought, with that love of justice and truth which keeps its possessor from self-conceit, arrogance and intolerance, the world owes all that we now possess of scientific advance, since the days when men believed the thunder and lightning to be the artillery of the gods.

299

[1] There are some paradoxical conditions shown up in the disintegration of water which require further research to get at the solution. In disintegrating, say five drops of water in a steel bulb of two cubic inches volume of atmospheric air, the force generated by the triple order of vibration, when weighed on a lever, shows ten tons pressure per square inch. In using the same number of drops in the same bulb, and associating it with a tube of two hundred cubic inches, the result is the same in the force developed per square inch as is shown on the volume of the one of two cubic inches. The solution of this problem seems to rest in the fact that the gaseous element thereby induced even in minute quantities, must possess the property of exciting atmospheric air to that extent as to force it to give up, to quite an extended degree, the latent energy that is held in its corpuscular depths. This introductory medium seems to act on the air in the same manner that a spark of fire acts on a magazine of gunpowder.

304

If the predominance be given to the celestial, to a certain degree, on a mass of metal, it will ascend from the earth's surface, towards the etheric field, with a velocity as according to the dominant concentration that is brought to bear on the negative thirds of its mass chords, by inducing high radiation from their neutral centres, in combination with the power of the celestial attractive.

As far as my researches have gone, I find that there is but one condition approaching reliability; and that is in computing the intermittent periodic disturbances along a

305

nodal vibratory transmitter—the nodes of gold, silver and platina—a fixed number placed at such different distances, along its line, as to take up and equalize (by a certain order of vibratory transmissions) the chord masses of the nodal interferences between the triple metals of which the nodes

are composed, and also the acoustic introductory impulse of whatever chord is set. This will determine the rate of their accelerated molecular oscillation, so induced beyond their normal standard, and give us some definite figures in the computing of vibrations, thousands of billions of times more than those of light.

Light is induced by electro-magnetic percussion emanating from the ether, and in its action represents the plane of magnetism. In fact it is the plane of magnetism when under polarization.[1] Some scientific theories of the past have taught us that electricity and magnetism are one and the same thing. Sympathetic vibratory philosophy teaches that they are two distinct forces of one of the triune sympathetic family.

I will try to make comprehensible the computation of the number (even to infinity) of the corpuscular oscillations, induced on the introductory ninths, over their normal standard. The molecules of all visible masses, when not influenced by surrounding acoustic vibratory impulses, move at a rate of 20,000 oscillations per second, one third of their diameters. We have before us one of these masses; either a silver dollar, a pound weight, a horse-shoe, or any other metallic medium, which I associate to one of my nodal transmitters, the other end of which is attached to the clustered thirds (or third octave) of my focalizing neutral concentrator. Another transmitter, of gold, silver and platina sections, is attached to the sixth cluster of same disk, the other end of which is con-

[1] Platina wires the thickness of a fine hair associated with each of the nine nodal beads, and concentrated towards a general centre of localization, attaching the other end of the wires to the focal centre, will determine, by the magnetic conduction, the number of corpuscular oscillations per second induced by a thought, either positive or negative, in the central centres. These are the only conditions—those of magnetic conduction—whereby the evolution of a thought can be computed in regard to its force under propagation, as against the amount of latent energy set free to act as induced by such thought on the physical organism.

306

nected to resonating sphere on my compound instrument: all of which must be brought to a state of complete rest. Then, a slight tap, with a vulcanite rubber hammer on the chladna resonating disk, will accelerate the 20,000 molecular oscillations to 180,000 per second,—an increase of nine times the normal number. The nine nodes each touching the extreme end, next the mass operated upon, in this arrangement; silver, gold, platina, make up the nine. When I associate the seventh, I start with gold and end with platina; always on the triplets. Silver represents the lowest introductory third, gold the next, and platina the highest. If we start with a gold node, the multiplication on oscillation will be nine times nine, or 81 times the 20,000; which is 1,620,000 per second. Each node represents one wave length of a certain number of vibrations when shifted along the transmitter, over the section representing its opposite metal. The shifting of the gold one over the silver extreme section will hold the corpuscular range of the mass velocity at 1,620,000 per second: the introductory chord being set at B, third octave. It requires an accelerated oscillation on the molecules of a soft steel mass, at that chord, of a transmissive multiplication of the full nine, in order to induce a rotary action on the neutral centre indicator of focalizing disk; which by computation, means, per second, 156,057,552,198,220,000 corpuscular intermittent oscillations to move the disk 110 revolutions per second. This only represents the multiplication on the first nodal dissociator of the ninth. The second transition, on same, would mean this number multiplied by itself, and the residue of each multiplication by itself 81 times progressively. This throws us infinitely far beyond computation, leaving us only on the second of the full ninth, towards reaching the sympathetic corpuscular velocity attending the high luminiferous. I have induced rotation up to 123 revolutions per second on a neutral indicator that required billions of vibrations per second to accomplish; but even this vibration represents only a minute fraction of the conditions governing the sympathetic vitality which exists in the far luminous centres.

The interposition of hydrogen gas between soap-film, of

307

the differential diameters of thirds, illuminated by a solar ray in whose focus a quiescent prism is set posteriorly—the prism to be adjusted at the proper distance and angle, to throw the seven colours through the film enclosing the hydrogen in a way that will give the bow an arch of three feet—will register deep down, inaudible tones or sounds, and indicate their different conditions by the dissolving and re-dissolving of certain of the colours of such arch. To conduct such experiments properly necessitates, first, a location as nearly isolated from all extraneous audible sounds as is possible to get; and second, a pedestal of the lowest vibrating material, the base of it set deep in the earth, to arrange the instruments upon; and third, a room of the highest resonating qualities to enclose them. Under such conditions the inaudible sounds emanating from the operator, would have to be neutralized by a negative device to get at the proper conditions while under

his manipulation. Thus the hidden inaudible world of sounds could be shown up, as the microscope shows up to the eye the hidden invisible forms of nature.

308

Maxwell's theory is correct that the plane of polarized light is the plane of the magnetic force. The sympathetic vibrations associated with polarized light constitute the pure coincident of the plane of magnetism. Therefore, they both tend to the same path, for both are inter-atomic, assimilating sympathetically, in a given time, to continue the race together; although one precedes the other at the time of experimental evolution. The time is approaching when electro-magnetic waves with an outreach of two feet will be produced, having an energy equal to that now shown up on the magnet when it is about to kiss its keeper; and showing a radiating force too stupendous for actual measurement.

I have already shown, to a certain point, the power of this radiation, by breaking a rope that had a resisting strain of over two tons, which was attached to the periphery of a steel disk, twelve inches in diameter, moving at the slow rate of one revolution in two minutes; its molecular structure vitalized with 42,800 vibrations per second. There was no retardation while breaking the rope, and no acceleration when it was broken. This experiment has been repeated scores of times, before scores of visitors who came to my laboratory for the purpose of seeing it.

A computation of the conditions, already shown up in part, proves conclusively that the power of an electro-magnetic wave at an outreach of ten inches would be, if properly developed, equal to a lifting force of 36,000 pounds on a disk but three inches in diameter. Ten of such on the periphery of a vibratory disk, 36 inches in diameter, would represent 360,000 pounds actual lift at one revolution per minute. Perfect depolarization at one hundred times per minute would represent 360,000,000 pounds, lifted twelve times per minute, or 1000 horse power in the same time. An excess of 100 extra revolutions, under the same condition, would mean 2000 horse power per minute.

By this new system, to perfect which I am now devoting all my time and my energies, dynamos will become a thing of the past, eventually; and electric lighting will be conducted by a polar negative disk, independent of extraneous power to run it, other than that of sympathetic polar attraction, as

309

simple in its construction, almost, as an ordinary type-writing machine.

311

I hold that the sympathetic neutral flow which exists in this remote region is the latent power that, under the disintegration of water, is liberated; showing immense volume and infinite pressure. The same condition of latent power exists in metallic masses and, paradoxical as it may seem, exerts its force, under the proper exciter, only in a negative attractive way, while in water in a positive one. In minerals under liberation this latent power seeks its medium of tenuous equilibrium, leaving behind an impalpable dust, that represents molecular dissociation.

312

The sympathetic acoustic exciters, or impulses, are: 1st. the third diatonic; 2nd. the harmonic sixths neutralizing affinity; 3rd. the enharmonic ninths—positive acceleration, which induces infinite trajective velocity from neutral centres; in other words, neutral radiation.

Every molecule in nature represents, without variation, the same chord. Variations that show up in the mass chord of different visible aggregations, are accounted for by the non-uniformity of their molecular groupings. If all were molecularly homogeneous, the chord masses of all structures would be perfectly alike in their resonant impulses.

315

The suspension and propelling of an atmospheric navigator of any number of tons weight, can be successfully accomplished by thus exciting the molecular mass of the metal it is constructed of; and the vibratory neutral negative attraction evolved, will bring it into perfect control, commer-

316

cially, by keeping it in sympathy with the earth's triune polar stream.

The velocity of the vibration governing the flow of the magnetic stream, comes under the head of the first inter-atomic, and ranges from 300,000 to 780,000 vibrations per second;

317

Gravity is nothing more than a concordant attractive sympathetic stream flowing towards the neutral centre of the earth. This force is inherent in all visible and invisible aggregated forms of matter, from the very birth of a planet, around whose centre the molecules cluster by the sympathetic affinity which is thus induced. If these conditions had always maintained a neutral position in etheric space, no planet would ever have been evolved. These conditions have been fixed by the Infinite. These rotating neutral centres,

set in celestial space, have been endowed with the power of rotation to become their own accumulators. It is through the action of these sympathetic forces of the Infinite etheric realm that planets are born, and their volume of matter augmented.

If we pick up an object, we feel a resisting power in it which physicists call gravity; but they do not explain what gravity is. It is simply a sympathetic flow, proceeding from the molecular centres of neutrality; which flow is concordant with the earth's neutral centre of same, seeking this medium of its affinity with a power corresponding to the character of its molecular mass. There is no actual weight in the molecules of the mass of which the earth is composed. If the sympathetic negative polar stream that flows towards the neutral centre of the earth were cut off from it, the earth's molecular mass would become independent, and would float away into space as would a soap-bubble filled with warm air.

The gravital flow comes, in this system, under the order of the sympathetic concordant of the 9ths, and belongs to that third of the triune combination called polar propulsive.

318

Magnetism is polar attraction.

Gravity is polar propulsion.

Both magnetism and gravity can be accelerated by the proper medium of sympathetic vibratory influences.

319

It has been said that there is nothing more sublime in the history of mind than the lonely struggles which generate and precede success.

322

In 1885, before Keely's scientific explorations had taught him that no engine can ever be constructed by which the ether can be used and controlled, as we now use and control steam, he wrote, in a letter to a friend, "I shall not forestall an unproved conclusion, but fight step by step the dark paths I am exploring, knowing that, should I succeed in proving one single fact in science heretofore unknown, I shall in so doing be rewarded in the highest degree. In whatever direction the human mind travels it comes quickly to a boundary line which it cannot pass. There is a knowable field of research, bordered by an unknown tract. My experience teaches me how narrow is the strip of territory which belongs to the knowable, how very small the portion that has been traversed and taken possession of. The further we traverse this unknown territory, the stronger will become our faith in the immovable order of the world; for,

323

at each advancing step, we find fresh fruits of the immutable laws that reign over all things,—from the falling apple, up to the thoughts, the words, the deeds, the will of man: and we find these laws irreversible and eternal, order and method reigning throughout the universe. Some details of this universal method have been worked up, and we know them by the names of 'gravitation,' 'chemical affinity,' 'nerve-power,' &c. These material certainties are as sacred as moral certainties. . . . The nearest approach to a certainty is made through harmony with nature's laws. The surest media are those which nature has laid out in her wonderful workings. The man who deviates from these paths will suffer the penalty of a defeat, as is seen in the record of 'perpetual motion' seekers. I have been classed with such dreamers; but I find consolation in the thought that it is only by those men who are utterly ignorant of the great and marvellous truths which I have devoted my life to demonstrate and to bring within reach of all. I believe the time is near at hand when the principles of etheric evolution will be established, and when the world will be eager to recognize and accept a system that will certainly create a revolution for the highest benefits of mankind, inaugurating an era undreamed of by those who are now ignorant of the existence of this etheric force."

327

Discovery and invention are walking side by side in our age, the glorious scientific age of the world. Never before have they so linked themselves together, working for humanity; and it is but natural that those *savants* who have seen no demonstrations of the force Keely is handling should regard with apathy claims, which, if established, would sweep away like chaff before a whirlwind, some of the canons of their schools. In fact, this apathy is a great improvement upon the active persecution of the learned men who hurried Copernicus and Galileo to prison, and established the Inquisition to deal with heretics in science as well as heretics in religion. Commerce rushed Keely into a dungeon; science looking on in approval; notwithstanding that conjectures of the most celebrated modern member of its school supported Keely's teachings. Galileo was brought before the Inquisition; the tribunal pronounced him a deluded teacher and a lying heretic. They intended to subject him to the severest torture and death. Galileo was old, and felt that he could not endure such a terrible death. He knelt on the

crucifix, with one hand on the Bible, and renounced all. When he arose, however, it is reported that he whispered to one of the attendants, "The earth does move for all that." Sir Isaac Newton has written of the possibility of discovering unknown forms of energy, in Nature, in these strong words: "For it is well known that bodies act upon one another by the attractions of gravity, magnetism and electricity, and these instances show the tenor and course of nature and make it not improbable that there may be more powers of attraction
328
than these. For Nature is very consonant and conformable to herself."

All progress of whatever kind would be put back, if it were in the power of bigots to arrest its triumphal march, as they have done in the past, but the evolution of the human race remains in the hands of the Infinite One, who never fails to open up new paths when the farther development of humanity requires it. All systems may be said to have descended from previous ones. "The ideas of one generation are the mysterious progenitors of those in the next. Each age is the dawn of its successor; and in the eternal advance of truth,

'There always is a rising sun,
The day is ever but begun.'"

329

"Again, there are times—if the experiences and observations of sensitive minds have any worth—when a general spirit of expectancy seems to be awakened, as if the world were on the eve of some new and epoch-making revelation of science, or some new enthusiasm of regenerative impulse. Are we not now, at this hour, in this mood of silent expectancy, thrilled with an indefinable awe of what the brooding life of the world
330
is maturing for the sons of men?

332

A wave of unrest seems to be passing over the world. Uneasiness prevails on every side. We walk gingerly as though on the edge of a precipice. Discontent is spreading everywhere. The struggle between capital and labour threatens to reach unheard-of proportions. . . . . What is the meaning of the general restlessness? What are its causes? Is the world growing old and effete? Is the human race worn out? Is this generation incapable of the great achievements of the past? Does its materialism clog its powers and prevent its progress? Is the world going wrong for want of an ideal? A people which does not believe in its lofty mission will never accomplish it. Science has made gigantic strides in our days; but have its discoveries added much to the sum of human happiness? It has contributed to our material comfort in various ways, but it has not done much for the federation of the world. The great growth of luxury is not a good, but an evil, if it rob us of our belief in our great destiny and if it weaken our endeavour. If "the time is out of joint," is it not possible that worship of wealth is responsible for it? "He who makes haste to be rich shall not be innocent." Ours is emphatically the age in which men "make haste to be rich," without much regard to the means.

336

At a critical juncture, Mrs. J. F. Hughes (a grand-niece of Charles Darwin), hearing of Keely's researches, became interested in his work; and her book on "The Evolution of Tones and Colours" was sent to Mr. Keely. An expression used by Mrs. Hughes in that work, brought a suggestion to Mr. Keely. The veil of darkness was rent asunder which had enveloped him in what he called "Egyptian blackness," and from that time he worked no longer in the dark.

344

In looking for one thing one may stumble upon another; in the pursuit of a mere vision, one may hit upon a magnificent reality."

Sir Robert Ball, LL.D., F.R.S., in commenting upon this important and most interesting addition to our knowledge of the properties of oxygen, says:—"Seeing that
345
water, which is so largely composed of oxygen, is not attracted by a magnet, it might certainly have seemed unlikely that a liquid which was nothing but pure oxygen should be affected to any noteworthy degree. I suspect, however, that Professor Dewar must have had some sagacious reason for anticipating that the magnet would treat liquid oxygen with much more attention than it bestowed on water. At all events, whether he expected it or not, the result as described was of the most extraordinary character. The liquid oxygen was vehemently attracted by the great magnet; it seems to have leaped from the vessel, to have clung round the poles, and continued to adhere to them until it had all evaporated and resumed the form of gas. The appreciation of this discovery will be shared not alone by chemists, but by all who are interested in the great truths of nature."

349

I cannot understand how the opulent man can fully enjoy his happiness while he is obliged to veil his face in presence of the misery of a portion of his fellow-creatures.

351

but the object of life, the aim of society, should be the greatest possible perfecting of all.

352

These are the advanced views of Ernest Renan, who still sees nothing before us but a fresh cataclysm, a general upheaval and chaos, terrible disturbances when human intelligence will be checkmated, thrown off the rails so to speak, by events as yet unparalleled. We have not yet suffered sufficiently, he says, to see the kingdom of heaven. When a few millions of men have died of hunger, when thousands have devoured one another, when the brains of the others, carried off their balance by these darksome scenes, have plunged into extravagancies of one kind and another, then life will begin anew. Suffering has been for man the mistress and the revealer of great things.

353

by giving all men a share in the delights of education; thus widening the basis of the brotherhood of humanity, and making room for all at the banqueting-table of knowledge,

359

The essential differences give rise to three modes of vibration:—

I. The Radiating: called also the "Dispersing," the "Propulsive," the "Positive," and the "Enharmonic."

II. The Focalizing: called also the "Negative," the "Negative Attractive," the "Polarizing," and the "Harmonic."

III. The Dominant: called also the "Etheric," or the "Celestial."

These, it will be noted, correspond to the three laws of being. It is not to be understood that any one of these three modes of vibration can exist independently. Each by itself is called a "current," and all three must be present in every "stream" or "flow" of force. The relations of the currents in every flow are expressible in thirds, and it is experimentally demonstrable that the relation of the three are in the order named: as 33 1/3: 66 2/3: 100.

The evolution of what is called "matter" from the different

360

modes of vibration is through the action of the second law, that of focalization, or "negative attraction," or "negative affinity."

Where the vibrations under this mode meet, and are maintained in a state of mutual affinity or equilibrium, there is established what is called a "neutral centre," or, as otherwise expressed, "a centre of sympathetic coincidence."

The terms "neutral attraction," "neutral affinity," "negative attraction," or "polar negative attraction," are employed to express the property of a mode of vibration to direct its components towards such centre.

As no current or flow of force can be composed of one mode of vibration only, but must always be composed of three modes uniting in varying thirds, we have 1 x 2 x 3 = 6 as the total possible forms of sympathetic coincidence, or, to speak in ordinary terms, there can be six; and six only, possible forms of individualized being. These are what Keely calls the six orders of atomic subdivision, or orders of vibratory motion, and he names them as follows:

I. Molecular.
II. Inter-molecular.
III. Atomic.
IV. Inter-atomic.
V. Etheric.
VI. Inter-etheric.

In this list the forms of matter are arranged in the mathematical sequence of the rapidity of the oscillations of their constituent members; the proportion being proved by experiment to be as follows : for the molecular orders:

1 : 3 : 9 : 27 : 81 : 243.

This arithmetical progression changes in the atomic orders to a geometrical progression as follows:

3 : 9 : 81 : 6561 : 43046721, etc.

This same method of progression is believed to hold in all the orders of vibrations above the molecular, and soon passes into mathematical infinity.

Actually, however, all matter of which we are capable of

361

cognition through the medium of our senses is in one of three forms of aggregation:

I. Molecular.
II. Atomic.
III. Etheric:

in each of which the controlling mode of vibration is respectively,

I. The Enharmonic.
II. The Harmonic.
III. The Dominant.

But it must be understood that each of these modes is a positive and real constituent of every atom and molecule.

It will be seen that as every form of material aggregation is to be considered as a "neutral centre of attraction," where the vibratory force of all three orders are held in "sympathetic coincidence," that is, in balanced activity or harmonized motion, and not by any means cancelled or mutually

destroyed, there is no diminution of force, but only temporary suspension of its radiating or propulsive activity or expression.

This is the foundation of Keely's doctrine of "latent force," and of the indefinite power which can be obtained by breaking up the harmonious balance or equation of forces of every mode, which exists in every "neutral centre," that is to say in every mass of matter.

Insomuch as every mass of matter consists thus, in fact, of vibrations in harmonic equilibrium, related by simple proportions of thirds, it follows that every mass of every description stands in harmonic relation to every other mass. This is, in part, what is meant by the sympathy of all forms of matter and of motion; and it is through the study of the methods of increasing or diminishing this sympathy that we reach practical results in this field of research. At present this is best accomplished by resonance; that is, through the harmonic vibrations created by musical instruments, bringing out the acoustic world as the microscope reveals the hidden visual world.

362

Every visible or tangible mass of matter must be regarded as an aggregation of molecules; the molecules being the true centres of the equated forces of "neutralized attraction."[1]

These molecules have been experimentally proved by Keely to be formed of all three modes of vibration; the proof being that they respond to all three modes when subjected to the tests of compound concordant impulses.

When in that state of neutral aggregation which we know as matter, each molecule is in perpetual oscillation, the range of the oscillation being one-third of the molecule, and its rapidity 20,000 oscillations in a second.

It is through the disturbance of this oscillatory equilibrium, by means of resonant impulses, that Keely alters the relations of the vibratory impulses which constitute matter. This he does by striking the same chord in three octaves, representing the *third, sixth*, and *ninth* of the scale.

Of these, the sixth reduces the range of molecular vibrations or oscillations; and, by thus bringing nearer to each other the neutral centres, increases solidification.

The ninth extends the range of molecular oscillation, and thus tends to give greater tenuity to the mass. It induces "trajectile velocity" from neutral centres, or "neutral radiation." Experiment shows that molecular dissociation does not take place until the molecule attains an oscillation approaching, if not fully reaching two-thirds of its diameter. This can be effected by means of the action of the "enharmonic" or "radiating" current applied to the mass, after its molecules have once been disturbed by an "introductory impulse;" that is, by the musical note above mentioned.

The third represents the "dominant," and when brought under control of a harmonic resonant impulse induces a complete rearrangement of the modes of vibration and oscillation; in other words, will transform the mass either into its component initial forces, or into some other form of matter.

It is the study of the dominant to which Keely has devoted his recent researches. He aims to control the power he evolves by altering the dominant or etheric mode of vibration in the triplicate flows of force.

363

As all molecules and masses are mere centres of harmonized vibrations, temporarily held in suspension by simple laws identical with those of resonance, it follows that these centres can be broken up or divided by certain orders of vibration impinging upon and disturbing them.

It is a familiar fact that a cord in vibration tends to produce a similar vibration in a cord placed near it. This property belongs to all vibrations, whether resonant or not, and they exert it in proportion to the "order" to which they belong. The distance in space to which this power extends, or can be extended, is what is called "the sympathetic outreach" of the current or flow.

In this manner we have "sympathetic negative attraction," and "sympathetic positive propulsion," with reference to the "outreach" of the third or dominant current of the stream, which is allied to the order of etheric vibrations.

Each molecule of a given mass of matter represents the same harmonic chord or note in its oscillatory motion. The "chord of the mass" is, therefore, the chord of every molecule of the mass.

But as the condition of absolutely stable equilibrium is theoretical only, and does not exist in nature, the chord of the mass is constantly changing. Yet we must learn to control this "chord of the mass" by resonant induction, if we would gain command of the molecular forces.

Keely believes he has solved this problem, by the invention of a mechanical device which brings the chords of all masses within the conditions of a few simple acoustic tests.

The range of molecular oscillation is affected differently in different substances when submitted to the same vibratory impulse, and these ranges can be measured.

In the three metals, silver, gold, and platina, we obtain the proportions———3 : 6 : 9 : — As this is the primary relation of the modes of vibration, a wire made of these three metals is peculiarly adapted to transmit concordant impulses: and nodes made of these substances placed upon a wire, transmitting resonant vibrations, indicate, by the different orders of vibration induced in them, the rate of oscillations of the atomic constituents.

364

The phenomenon of rotation arises from the harmonic interaction of the dominant and enharmonic elements of the flow: in other words, the first and third, the third and ninth, etc.; those whose vibrations bear the proportions to each other 33 1/3: 100.

A practical example of rotation is a wheel in revolution on its axis. This is force in its commercial or economic aspect. To accomplish this result by molecular vibratory action, we must gain control of the "negative attractive" or "enharmonic" current of the triple flow, and the problem is then solved up to any limit of power.

365

Sympathetic physics teaches that light is an etheric evolution, propagated by sympathetic conflict between celestial and terrestrial outflows: solar tensions as against terrestrial condensation. True luminosity cannot be induced in any other way. The high order of triple vibration, that induces (progressively) molecular and intermolecular separation, shows luminous results which, when thus mechanically produced, are virtually on a small scale, a fac-simile of nature's operations. "All such experiments that I have made," writes Keely, "resulted in vortex motion invariably, both sympathetically and otherwise. Vortex motion follows nature in all corpuscular action.

"The undulatory theory, regarding light, I have not been

366

able to reconcile myself to, as anything but hypothetical. The conditions which govern electro-magnetic radiation, disprove the theory in many particulars. The vortex action induced in space, by the differential conflict between the low and high tenuous, shows up results that harmonize with the conditions accompanying the dissociation of hydrogen and oxygen, in disintegrating water: viz., vortex action of the highest order, but peripheral only. If it were not so, the ether could not be held in suspension, neither in the molecular nor atomic envelopes. Undulatory effects are produced by certain conditions of sound; and by other conditions quite opposite effects. In organ pipes, of a certain calibre, very sensitive waves occur at intervals; as according to the character of the sound evolved; but on a combination of resonators composed of brass tubes of more than nine in number, a wave of sound, induced by certain chords passing over them, produces high vortex action of the air enclosed in them. The vibration of tuning forks induces alternate conditions of the air that surrounds them, if in open atmosphere; but quite a different action presents itself when the forks are exercised in resonating tubes, set to thirds of the mass chord they represent. Then high vortex action is the instant result. Vibrators cannot be set promiscuously in tubes, and get such results, any more than a musician can render a musical composition on the violin before tuning it. The conditions under which light is evolved negatize whatever is associated with undulation, as this word is understood by physicists. Aqueous undulations there are, but not etheric undulations.

368

Tesla has reached out *almost* to the crest of the harmonic wave, leaving all electrical explorers far behind him.

370

APPENDIX III.

SOME faint idea of the infinite patience which the nature of Keely's work requires may be gained by a knowledge of his process of converting straight tubes into resonating rings. The tubes, in sections long enough to form a semicircle, are passed between triple rollers, which are set to give them a slight bend. They are then fastened to a bed-plate, and a steel ball, the exact diameter of the interior of the tube, is passed into it and forced through it. It is then passed between the rollers again; which are set so as to slightly increase the curvature, and again the interior of the tube is corrected by the steel ball. This process is intermittently continued until the semicircle is reached. Each process of bending and correcting requires over two hours. Eighty bends are sometimes necessary for the completion of the full circle. When the two semicircles, which form the circle, are finished, they are placed in a steel mould and kept under hydraulic pressure for two or three days, to correct any lateral deflection which has taken place in bending them. They are then taken out of the moulds and screwed rigidly to

a face-plate, and joined together by a solder of refined brass and silver. Next they are placed in a hot sand bath of sufficient volume to require seventy-two hours to cool down. This corrects the differentiation in their molecular groupings. They are then submitted to a vibratory flow from the sympathetic negative transmitter, until their intonation, by percussion, represents a pure unmixed chord. The indicator, attached to the rings, denotes when this condition is attained. They are then centred on a steel shaft and rotated at the rate of 2000 revolutions per minute, surrounded by the triple

circuit ring. If the indicator, on the circuit ring, should vary five degrees on a subdivision of 8000, the process for correcting has to be repeated until the variations are reduced to three; which is near enough to be considered perfect, inasmuch as the circular resonator will then hold the neutral focalization intact during the graduation of the fall ninths, or triple triplets, for sympathetic association to polar negative attraction.