



Sympathetic Vibratory Physics

Doom of Steam

or

The Coming Force

O. M. Babcock

“My system, in every part and detail, both in the developing of this power and in every branch of its utilization, is based and founded on *sympathetic vibration*. In no other way would it be possible to awaken or develop this force, and equally impossible would it be to operate my engine upon any other principle.”

John Keely, 1888

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The Doom of Steam
or
The Coming Force
An
Advance Lecture on the Principles and Prospects
of

THE KEELY MOTOR
And Its Relation to Human Affairs

O. M. Babcock

FRAUD! FORCE!! FACTS!!!

A Synoptical Exposition of the Character and Quality of the Elements in Operation
to Help or to Hinder the Enterprise

KEELY MOTOR

Financial, Mechanical, Philosophical,
Historical, Actual, Prospective.

O. M. Babcock
June, 1881

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"Nothing is sublimer in the history of mind than the lonely struggles which precede and generate success. Every predestined hero will have to demonstrate his superior worth by counteracting and overcoming the most undeserved obstructions. Long before an effective foothold is obtained, he will have suffered most from unexpected quarters, and been more aroused by neglect than by timely aid. Misfortune is a fire that melts weak hearts, but renders the firm purer and stronger."

republished, 2000
Delta Spectrum Research

REQUEST.

Philadelphia, PA., June 7, 1881

O. M. BABCOCK, Esq.

Dear Sir: — Being able to hear only the first of like Series of Lectures on the Keely Motor enterprise recently delivered by you in Chickering Hall, New York, I would suggest that you publish the series in pamphlet form for distribution amongst the stockholders of the Keely Motor Co.

I make this suggestion the more readily, because I believe the present evidences of progress made by Mr. Keely justify any one who is thoroughly acquainted with the condition of affairs, in so presenting the facts that present or prospective stockholders need not be under the necessity of acting altogether in the dark; and if in the presentation thus suggested you remove the veil of mystery which is popularly supposed to surround the enterprise, you will, in my opinion, do much to leseen the effects of real or supposed mistakes by the managers thereof - mistakes which are natural to all enterprises, and more particularly such as invite the operations of a speculative management, which is eminently the case with the Keely Motor Co.

The suggested publication is also the more desirable because of the success attending the alleged efforts of interested parties in suppressing the notice of your lectures in the regular news columns of the "daily press."

Yours Truly,

JOHN H. LORIMER

INTRODUCTION.

The foregoing letter, emanating from an active member of the Board, is evidently written in view of the general situation, which perhaps calls for a compliance with the request contained therein, although not essential to the end for which the lectures were given. As was shown early in the first lecture, it was not especially desired to carry criticisms upon the Company's management beyond the stockholders, and those who were likely to become such. Hence reports by the press were not sought after, although, if published, it was desired that they be correct.

The suppressing of such reports, by interested parties was a proceeding not unlooked for, as strenuous efforts had been made to prevent the lectures from being given. Failing in this, they were expected to do what else they could in the same direction.

Strangely enough, these effects were not successful in a well-understood venal quarter, from which has gone forth gross misrepresentations of the lectures. Their publication in form therefore, may be ealled for as a duty to papers outsidess of New York, and to their scientific readers. It is thought better to give a synopsis of the three lectures at present, and await developments for their publication in full.

In addition to the reasons given above, it may be proper to state, that, for the main object in view, it is not deemed expedient to wait until public demonstrations by the inventor have extorted recognition from scientists and others, when there will be no need of any written defense *on the score of success*, and when it will be difficult to command proper attention to the principal facts which follow on the first pages herein.

It is not enough that the excitement over a signal triumph by Mr. Keely will cause the rumors against his integrity to be disregarded. *They must be disbelieved* - through an exposure of the facts, before opinions have settled into convictions, and these have become prejudices, difficult to combat.

Like others, an inventor is not free from the envy of rivals; and the cynics who have publicly committed themselves to his disparagement, will not hesitate to keep alive any sort of prejudice against the man, by

taunting his adherents with the fact that certain derogatory statements against his character remain undenied, and hence must be true.

This being historical verity, is therefore prudent forecast. That it forcibly applies to the present case, needs no better proof than is afforded by the occasion which calls for these pages.

EXPOSITORY.

For several years the public mind has been considerably perturbed, and very much abused, by persistent efforts through the press to propagate a belief that the Keely Motor is a delusion, its author a swindler, and their adherents dupes of his ingenious artifice.

The extensive notoriety which thus has been thrust upon this invention in advance of its advent — albeit against the inventor's wish - gives the world, upon which it has been obtruded, a right to some immunity from the errors of judgment to which it is exposed by the silence of Mr. Keely and his friends when assailed by his enemies; whether these be public accusers to rob him of reputation, or private impostors who fleece him of the fruits of his genius and toil. During more than five years of unprovoked abuse, he has never prompted an action in his own defense, by publication or otherwise; but with a patience which betrays the most exalted dignity, his course is a crucial test of that immortal proverb enunciated by Washington: "To persevere in one's duty and be silent, is the best answer to calumny." While no motive can be assigned for these public assaults, it is noticeable that they have chiefly sprung from sources professedly scientific, and so done much to influence popular opinion. Consequently between the believers who know something about it, and the doubters who do not, there exists in regard to the Motor an unpleasant and injurious suspense, which, so far as may be, it is my purpose here to relieve, by showing through the most efficient medium of intelligence wherein the public has been misled and the inventor misrepresented. The prevailing impression that "Mr. Keely has been a long time about his Motor," is due to the publicity which it received at early and inopportune stages of its development, while it was incipient as an invention, and long before it should have been brought into public notice at all. This was the outcome of ambition coupled with inexperience on the part of those who unfortunately have had charge of the company's business affairs.

Anxious to raise the stock in public estimation for speculative purposes, they undertook, among other maladroitness measures, to obtain the endorsement of two or three professional "experts," who took the opposite course from what they were expected, and in a labored effort to lay bare the "deceptions" of Mr. Keely, exposed their own ignorance of the principles they professed to teach, besides committing the egregious blunder of attempting to criticise what they knew nothing about. They represented institutions with high-sounding names, which caused their adverse criticisms to influence the press, and so satisfy the public that Mr. Keely was an impostor, and his Motor a "deception." They attributed his wonderful power to compressed air.

This was an attribution of ingenuity greater than was possessed by the whole scientific world; for air never had been compressed to one-half the extent necessary to the display of energy witnessed by these "experts."

Their ignorance was illustrated by their intimation that a hydraulic screw pump, which Mr. Keely had used for testing the density and strength of metals, might be employed for working up a compression of air to ten thousand pounds — an idea most absurd in the simplest novice, to say nothing of professors in physics and dynamical engineering.

Although Mr. Keely permitted the investigations, he was very much opposed to them, knowing the inability of these self-styled "experts" to pass intelligent judgment upon his operations, which are even beyond the books; besides, the ultimate results, although clear to him, could not be made so to others without demonstrations requiring perfected apparatus.

In preparing for, and giving exhibitions at various times, considerable money was spent, and probably more than a year of time lost; and the advanced stage which the Motor has now reached is due to the

firm stand taken by the inventor, after becoming disgusted with the financial management, which was more like the ambition of boys than the judgment of men.

This decision has proved to be of the utmost importance in advancing the work, although it has kept matters so comparatively quiet that the public excitement of a few years ago had, for a time, well nigh subsided into a conviction that, after all, the critics were correct, and the Motor was a myth.

Cupidity and incompetency would at different times, have made shipwreck of the Company, but for the fidelity and firmness in emergencies, of the otherwise most flexible and indulgent of men.

By yielding to the schemes and whims of others, the inventor has exposed himself to much unjust censure, and incurred a vast amount of opprobrium, besides suffering many pecuniary losses.

He has many times and in various ways, sacrificed large interests, as the easiest way to free himself from entanglements into-which he had been drawn by graceless financiers, when the infamy of the transactions would have fully justified him in refusing compliance with their conditions.

Mr. Keely's hesitation to assert his rights, and especially to maintain them by litigation at the cost of precious time; or even to endure the annoyance of disputes, has on several occasions made him the victim of nefarious transactions entered into with little or no money consideration. Claims upon him which would not have stood an hour in any court were recognized and paid from a morbidly high sense of personal honor. Unfortunately this "is not business," and therefore meets with precious little sympathy, while it has allowed his harpies to practice their tricks with impunity, although it couples their deceptions with cowardice and divests them of even the merit of shrewdness, since they are undertaken only in view of this generous loop-hole of escape.

The contempt of honesty shown by some persons in their dealings with him, however surprising, is scarcely more so than some acts of the Board of Directors in sanctioning settlements which were sequels to these transactions, and which were simply compromises on terms to fleece the inventor. That some of them were directly interested in these outrages, and others indirectly derived large benefits from them, accounts for this otherwise curious action.

As a director, there is no attempt here to excuse Mr. Keely from fault in tolerating these abuses. But as he is the chief loser by them, he cannot be suspected of complicity in them; and those who blame him for allowing himself or the Company to be defrauded, should bear in mind that his peculiar province *is not finance*, but invention, of which he has the whole burden to carry, and with which he is too busy to be constantly on his guard against the tricks and mistakes of others in business matters, when there are twelve in the Board whose especial duty it is to take care of that department.

It is not difficult for a mind possessing the most ordinary sagacity, to perceive that complications, inseparable from such proceedings, with their numerous disagreements and inevitable dissatisfaction, may have caused, serious delays and consequent depreciations in value of the stock, for which others in the Company, more than the inventor, should be held accountable; for, every swindling transaction which defrauds and discourages him, or otherwise delays and endangers his success, is a robbery upon stockholders; and it is doubly dishonorable when officers and directors take advantage of their position, and thus abuse the trust reposed in them as guardians of the inventor's rights and the Company's interests.

Of the entire amount stock issued, representing three important inventions, (the Motor induded), Mr. Keely has not retained one-fiftieth, nor has he anything of considerable value to show as an equivalent for the rest, (except some rights to use his own inventions recently purchased of the Company, or, what means the same thing, taken by him in lieu of promised cash payments,) while not less than half a dozen others have made an average of more than fifty thousand dollars each from the enterprise.

Although Mr. Keely has been the principal sufferer, the stockholders have lost severely, while the Company has also been directly embarrassed by the manipulation of these managers, to which the Board

submitted with remarkable obedience, considering that only a portion of them received the benefits.

MONEY SQUANDERED

High salaries and other profligate ways of distributing the money and diverting it from the proper channel, have depleted the treasury, detained the work, and so disappointed the stockholders. From the organization of the Company, its active "financiers" have generally appeared to estimate the invention's value by its availability as a means to personal ends, regardless of its ultimate success as a public benefit, or as an achievement in "the advancement of science." Their ideas are so far below the inventor's that his aim overshoots their actions, and before their motives are discovered he is undermined, and recovers himself, only at enormous cost. It is anything but encouraging to see the fruit of his energy swept away before it ripens; and by those who have betrayed his confidence or abused his generosity.

When the Company's interests are trifled with by its trustees, when its officers conduct its affairs as if its only worth was that of a temporary speculation, how can it be expected that those who have no other criterion for their judgment will have any confidence in it as a meritorious enterprise ?

CAUSE OF LOW PRICE STOCK.

When the Company was organized, instead of selling the stock, or, still better holding it as the reserve, for either himself or the treasury, it was divided among certain parties (virtually given away by Mr. Keely) according to a plan as ill-advised and unjust, as it was avaricious on the part of those who received it; and ruinous to the credit of the Company, as it was expensive to the inventor; for both Company and inventor afterwards needed money which the stock, if held in reserve, would have readily brought at good prices. As it turned out, a number of the recipients of these favors, elated over their unwonted wealth, determined to reap the first fruits, and so make sure of a speedy fortune.

Accordingly they sold out in a market which at the time was too limited to carry large amounts without becoming depressed. Hence, while they realized what might have been a competency if properly used, others were embarrassed and the Company disgraced; for, not only did it suffer from the moral effect of a fall in the price of stock, but some of the improvident, and consequently ungrateful objects of the inventor's bounty, became the vulgar authors of his defamation.

Money, which for carrying forward the work, should have been raised by sales of stock from time to time as needed, was obtained by selling territorial rights in advance of the patents.

Lately, as before, depreciations are due to quantities of the stock which have been thrown into the market from large lots obtained in ways already indicated, either for nothing or for trifling considerations — and chiefly from the inventor. The incidents of these transactions are too numerous and complex to be given in detail at present. The general facts must suffice and will be found in the statements which shortly follow.

Obviously a policy has been pursued at times to keep both the inventor and the company in a necessitous condition, for purposes of speculation. The so-called consolidation was evidently hurried through under the pressure of like motives. This act added to the property of the Company two other inventions, known as the Vapor Gun and the Automatic Waterlift. The former is shown to have several times the projectile force of gunpowder, while for the latter it is claimed that water can be raised to any height without the application of extraneous power.

These two inventions were believed to be so valuable that if possessed by the Company it would be justified in largely increasing its capital stock. As it was in a very depressed condition financially, Mr. Keely came to the rescue and acceded to the following scheme: Rights to the two inventions were conveyed to the Company, and the capital stock increased from 20,000 to 100,000 shares. Of the 80,000 new shares 40,000 went to pay for the inventions, 20,000 to the treasury of the Company, and 20,000 were divided among the stockholders, share for share of what they already held.

Of the 40,000 shares which should have gone to Mr. Keely, not 5000 ever reached his hands. Nearly if not quite 34,000 went to satisfy fraudulent claims held by three men separately against the inventor; and lots of less amount to other persons to whom he had made advance sales at great sacrifice, in order to get money for carrying forward the work. Several of the directors therefore were deeply interested in urging through the "consolidation," with its great injustice to the inventor.

The largest of these frauds was in the case of a transaction where one man, acting as an agent or attorney for Mr. Keely, disposed of two-thirds of the Gun and of the Water-lift and did not make the proper returns. The transferee came in for two-thirds of the 40,000 shares set apart to pay for the inventions.

The other two claims, although for less amounts, were equally unjust.

It was the throwing of this stock upon the market, little more than a year ago, that broke the prices down to a nominal rate, and discouraged many holders who had obtained their stock by fair purchase.

AT WHOSE EXPENSE ?

Avoiding particulars, the general facts here to be shown are as follows: As Mr. Keely capitalized and stocked the Company in the first place by the sale of interests exclusively his, and putting the money into the treasury, \$50,000 as a gift and \$50,000 more as a loan, and then distributed three-fourths of the stock to non-payers therefor; so he furnished the 80,000 shares of increase in the second place; for no money was either paid or promised to him in the consolidation.

Money for carrying forward the work and defraying other expenses of the Company, is now raised entirely by selling the *Treasury stock, which is wholly* A GIFT from Mr. Keely, and the rioters upon this benefit are taunted as dupes for being "milked of their money. "

Of the entire 100,000 shares, less than 15,000 remain in the treasury while of the other 85,000, not one-fourth was fairly paid for by first holders.

By his own imprudence, and the advantage taken of it by others, the costs have been incurred, as well as the work done, by Mr. Keely, who seems to care for nothing but success, regardless of pecuniary benefits. He has often submitted to the most outrageous terms when funds were not forthcoming in the proper way, and with him any sacrifice was better than suspense. Had intelligent devotion to the enterprise equal to that displayed in the mechanical department characterized its financial management, the world might long ago have been reaping the fruits of this unprecedented discovery.

MR. KEELY'S TRAITS.

The proverb, that every man, even the ablest, is afflicted with some unfortunate proclivity or besetting weakness, finds no exception in the case of Mr. Keely, although the traits are somewhat anomalous. His trouble is misplacement of confidence, complicated with a sort of indiscriminate generosity, manifested in what might with some propriety be termed excessive honesty. The disease, although constitutional, should be cured by this time, if there is any virtue in bleeding and leeching. A man of great physical strength, a hard worker with his own hands, and remarkable for energy, activity and industry, Mr. Keely is also a close observer, a comprehensive, liberal thinker, and bold experimenter. With him no risk or sacrifice is too great, if it elicits a truth, discovers a principle, or proves a theory. This ruling propensity makes him seem extravagant, and at times, reckless of money or obligations.

HIS CREDIT.

Mr. Keely's credit is unquestioned, especially when he deals independent of associates and upon his own responsibility.

A native of Philadelphia, he has transacted business with several of its largest firms, and employed a

good many working men. His reputation for punctuality and liberality is acknowledged by them all. (Letters substantiating this statement are in hand, and may be published at another time.)

It is believed by those who know him best, that he would rather give a hundred dollars than to gain one by cheating.

WHO MADE THE COMPANY ?

Not wholly, but principally, it is his money, his time, and his genius, that has founded and furnished the Company, while others have tortured it into the various shapes which have brought upon it an unenviable reputation. Besides,

HE TAKES ALL THE RISKS

incident to hazardous experiments, and the chances of disgrace in case of disaster. He has suffered from several severe physical injuries and had many narrow escapes. An account of them would make an interesting chapter of accidents, as bodily scars, mutilated walls, splintered doors, and perforated ceilings abundantly testify.

Antagonism is an evidence of force in the thing resisted. If it be a measure also, then has the Keely Motor abundant proof of its vitality. The inventor's conflict with persistent attacks from without, and constant interferences within, should give every high-minded man a bias in his favor. With mind at a tension under the pressure of high resolves, and hampered by hindrances on every side, even to having his work obstructed for the sake of greater gains by those who are most deeply interested in his success, the wonder is, not that "he has been so long at it," but that he has accomplished so much in so short a time. He has made rapid strides with his inventions, considering their vast importance and the prodigious work attending their development.

TIME AND PROGRESS OF THE WORK.

True, the discovery was made some seven or eight years ago; but this time is very short in proportion to the amount of work accomplished, and the end to be achieved.

Morse was twelve years in reaching results which proved the success of his telegraph; and he was only adapting an old agent to a new use. Mr. Keely discovers a new agent, and invents means for applying it to many uses. Comparisons generally with inventions and inventors would make a still better showing in his favor.

MR. KEELY'S DIFFICULTIES.

He has had to use tons of metal where others required only pounds. He has had to guard against disaster while dealing with a force greater than that of gunpowder; even of unknown extent and character. His temporary safeguards and devices for researching the qualities of this force, are all of his invention. They have cost large sums of money, and had they all been presented, would make an interesting museum of mechanical curiosities.

Many tons of these have been sold from time to time as old iron, brass and copper. One apparatus thus disposed of weighed twenty-two tons. Several similar ones, though somewhat lighter, have likewise gone to the scrap-heap. From this source money has often been raised by the inventor when a little was absolutely necessary, and those who had betrayed his confidence or preyed upon his generosity, would not offer a dollar for his relief or to advance the work. He has toiled through periods of almost destitution, while the papers, religious, secular and scientific, were ignorantly asserting or intimating that he was fraudulently growing rich on a "baseless bubble."

When his own capital with other moneys became exhausted in the work, he used his salary. This also was reduced and finally discontinued. He then sold one after another of his personal effects, among

which were costly scientific instruments; and even threatened to sacrifice his household furniture, in order to buy materials and pay mechanics — anything rather than allow the work to stop.

Such were the seasons of stringency when schemers came to offer a little relief; not with what was due to him or the Company, but for new sacrifices of valuable interests; showing thereby motives which may sometimes be at the bottom of acts, under a guise of ostensible magnanimity.

Some of the directors and others have also made small advances in a few instances, but all have been repaid except the inventor, who is now the Company's creditor for more than \$50,000 cash advanced by him to prosecute the work. This does not look like a want of confidence in his own inventions. But he is in a fair way to be rewarded — by a large share in the common lot of great benefactor — of knowing that he has enriched others, and acquired for himself — a name. If peradventure more, by late precautions, albeit untimely, good men everywhere will rejoice at his escape.

By his genius, and through this discovery, civilization is about to make the greatest advance of history.

COMPREHENSIVE POWER.

The principle of this power is vastly more comprehensive than any now in use, is limitless as that of the lever, is universal in application, and reaches to so many results not yet attained, that human comprehension is inadequate to grasp its possibilities for power, for prosperity, and for peace. It includes all that relates mechanically to travel, transportation, manufacture, mining, engineering and warfare; and with these a change in many scientific theories. *It is iconoclastic.* Mr. Keely has discovered a new world; and, although a wilderness unexplored and of untold wealth lies beyond, he is treading firmly its border, which daily widens, as with deepening interest he pushes his explorations, and amplifies the expanse between the marches of science and his advancing frontier. He has passed the shadowy realm where physicists are groping. His researches are beyond the scintillating horizon of molecular physics and radiant matter, in the open field of elemental force, where gravity, cohesion, inertia and momentum are disturbed in their haunts and diverted to use; — where from unity of origin emanates infinite energy in diversified forms, and with manifold expression responds to the earnest invocations of man; — and where, as elsewhere, plastic nature will accommodate herself to the requirements of art, when genius makes the proper appeal.

THE MOTOR

is only one among several features of Mr. Keely's discovery; but being the chief subject of comment and discussion, our attention here must be mainly occupied with it, in relation to its machinery, — the *generator* and the *engine*.

These two mechanisms, together with the *force* produced by the one and used by the other, make up what are comprehensively spoken of as the Keely motor; just as we say locomotive, or steam engine; meaning the fire-box, the boiler, the engine and the steam. As in this case the motor is an energy called expansion or pressure; using vaporized water as its body or medium; so, in a *definite* sense, the Keely vapor is the body or medium of the force which it carries, and which is properly called *the motor*.

WHAT IS IT ?

Steam and Keal (or Keely vapor), however, must not be regarded as in any sense the same, or even similar. As they are opposite in origin, so are they different in action. Their properties are manifestly unlike. One is derived from heat or combustion, and so, may be said to have a chemical origin. The other is a production of mechanical action, or force — spontaneous force. The latter, therefore, is more natural than the former, since less of effort and appliance are necessary to produce it.

The hypothesis that heat and force are equivalents, alternates, and interchanging properties of matter, leads logically to the conclusion that energy may be evolved from water as an effect of the latter, as well as a product of the former; — and perhaps energy which may be transformed and utilized with vastly

greater facility and economy. If so, then efficiency only remains to be considered. Practically these are all settled by Mr. Keely in favor of the force theory.

MECHANICAL versus CHEMICAL FORCE.

The mechanical forces of nature are as abundant and spontaneous as the chemical affinities. If not more admirable or essential, they are more stupendous and sublime. They are the macrocosmic agencies of the universe by which its colossal operations are carried on; while the chemical or microcosmic activities, although equally efficient, are less majestic in operation. The chemical creates; the mechanical controls.

* * * * *

A little reflection will enable the average mind to see in the times a tendency to movements on a grander scale.

The expanding energies and activities of man are demanding

LARGER FIELDS OF OPERATION.

For this development, new systems must supervene upon the present. Coal is limited. Chemicals are costly. Power and speed have well-nigh reached their maximum under the agency of steam, while ordnance and iron-clads are vying with each other in the overstrained arts of war, and the question is already mooted of returning to simpler methods.

THE MECHANICAL

or physical is supervening upon the chemical and the animal, in many operations, as nature's laws are better understood, and advantages being taken thereof to accomplish great ends.

By directing energies already at work, rivers are made to deepen their beds and change their banks, while hydraulic mining adds its evidences of the power of liquids over solids. These are crude illustrations of the finer controlling the coarser, and are but little above the base of great ascents, upon which we have just started. The telephone begins to supplant the telegraph, and is among the beginnings of vibro-dynamics. These are the pointed shadows of events which are approaching with startling rapidity — of industrial, commercial and martial revolutions exceeding those of the past century by vaster strides under higher forces than combustion or chemical action. By spontaneous force we mean gravity, elasticity, etc. Vibration, whether considered as a force or a motion, is an inherent property, or concomitant of matter, and therefore spontaneous.

EXPLANATION DIFFICULT.

Mr. Keely's method of producing and using power is so entirely original, and the character of the energy evolved and employed is so unlike any other, that an attempt to describe the process or the product, or to explain the principle, must be made with hesitation and attended with difficulty; as there is nothing in the annals of experience or the facts of science to afford a starting-point for the understanding. To explain the nature of electricity, its origin and effects, would be equally difficult, if that were a newly discovered force. It is nearly so even now. The force under consideration and the mechanical means by which it is educed and economized, are as occult and unique as those which belong to electricity. Yet they are no more like electricity or any of its apparatus, than these are like steam and its machinery. To fully describe the motor would require some illustrations.

The Generator is undoubtedly the strongest mechanism in the world. It weighs about three tons, will stand freely in a space five feet long and high by two feet wide. It contains small spherical chambers, mathematically differentiated in size, connected vertically by tubular processes of iron, and irregularly by smaller ones of copper. One quart of water fills all the chambers and tubes intended to be filled.

This apparatus is upright in position, and has five distinct parts or columns; called the central column, two side columns, the front and back stand-tubes. These stand-tubes are similar in appearance, but are opposite in action. The two side columns are alike. The central or main column is larger than the other four combined, and more complex in structure. Neither heat, electricity, or chemicals are employed. Compressed air forms no part of the product, as supercilious "critics" called scientists, have supposed. Air is water-locked in some of the chambers and tubes, where, by its elasticity, introductory impulses are given to the water when equilibrium is disturbed. This disturbance is effected by the movement of an outside lever operating a four-way valve within. There are no other metallic movements inside, except the working of three independent valves. The apparatus, therefore, is practically without wear, and not liable to get out of order.

MAKING THE VAPOR.

Under a tendency to descend, and the high activity of air, at light and opposing tensions; water is expelled in minute globules through fixed, and strong, but delicately adjusted devices, which successively separate it into multiplying tenuities, until it reaches a form finer than can be produced by any practicable degree of heat. Then it is dispersed into an adjacent chamber where conditions are suitably arranged for still higher rarefaction, and consequent augmentation of energy, by vibratory action, producing molecular separation until it becomes much finer and lighter than hydrogen gas.

CHARACTER OF THE VAPOR.

It is retainable like a fixed gas, is independent of temperature, but is instantly condensible by mechanical means from an enormous pressure to a very high vacuum. It will remain in a chamber for months without sensible depreciation. It has been held at a pressure of more than fifty thousand pounds per square inch. Pressure, however, is not its

HIGHEST ATTRIBUTE.

It is eminently a medium of vibratory energy, and as such is used to the best advantage.

COST OF PRODUCTION.

With a substantial mechanism of iron and copper, fixed in all of its parts; and with water and air as the only materials consumed, it is readily seen how costless and exhaustless must be the materials for power thus derived. Smaller generators will be ample for ordinary purposes. This one is believed by the inventor to be capable of producing power sufficient for engines aggregating ten thousand horses. This, however, is on account of the character of his engine as adapted to the qualities of the force. The generator, the force, and the engine are unique in their kind, and marvellous in practicability and power.

THE ENGINE IS ROTARY

in its mode of working, and being moved by pulsations or wave motions, is properly called a vibratory engine. Three of these engines are now undergoing construction or completion. The smallest one stands within two feet square of space, and is estimated to be sufficient for ten or twelve horse power. The largest will stand within less than ten feet square of space, and be of twelve to fifteen hundred horse power. The one which is now undergoing graduation stands within four feet, and will have a capacity of perhaps forty or fifty horse power. This is the one upon which experiments are now being made for completing the scale, or formulae, which will enable any one to graduate and handle similar engines with readiness and ease. The graduation of this one is the graduating of all others of its kind. Being wholly experimental, it is a somewhat lengthy process, and necessarily requires a very uncertain amount of time.

These engines may be noiseless, or caused to emit agreeable sounds. The vapor does not escape when used, but collects in a receptacle provided for it.

A gallon reservoir may contain enough of the vapor to run a street car an entire day, and can be refilled in a second of time.

Instant stopping or reversing of these engines will be eminently practicable, — taking effect on the whole machinery with the quickness of gravity, acting upon every molecule at once, so that it can be instantly checked or changed in motion without friction brakes, or danger of braking. Another astonishing peculiarity, hitherto unknown in mechanical power, is shown in the running of this engine. Any given rate of speed at which it is set to run is maintained, irrespective of kind or amount of work done.

This is demonstrated by levers used as brakes; also by strong ropes or wires which are broken at quick or slow speed without checking the motion when they are straightened, or apparent acceleration when they give way. These seemingly extravagant statements are proven facts which will become familiar in a reasonably short time.

In Gunnery this force is found to be vastly superior to powder, on account of several qualities which will be made a subject for treatment hereafter in connection with other features of its economy.

NOT COURTING FOR CAPITAL.

With the Keely Motor enterprise as affording opportunities for investment, we have nothing here to do. That depends as much upon management in the Company, as merit in the invention. It is enough that we take the inventor's higher view; looking at it in the light of science enhanced by its advent, and speculate upon its possibilities as a means to greater ends than have hitherto been subjects of human contemplation. In this light, with such a view, and to these ends will its principles and prospects be further considered.

SUMMARY OF THE SITUATION.

The stage of advancement now reached by Mr. Keely may be briefly summarized as follows:

Generator mechanically completed three years ago. Not yet fully graduated, but far enough to prove it to be approximately perfect for producing the so-called vapor of all grades or qualities, from 0 to 54,000 lbs. of inch pressure. The control of this vapor may also be considered nearly perfect. It has been tested in all conceivable ways, and found to be superior to any other known medium for pressure, vacuum, elasticity, retention, and especially for the essential property of vibration. Even for telegraphing, it has been proved successful on 4,000 feet of wire.

For any of its applications it will not be brought into practical use until patents are obtained.

The plans for its application as motive power are perfected, and its efficiency pretty well known. The mechanical constructions of engine and gun are well-nigh completed.

The graduation of the engine is being pushed with all possible vigor consistent with safety, and a thorough knowledge of principles necessary to be understood and explained for others to use.

The mechanism must be perfectly adjusted, and the two forces (All force is dual - as electricity is both positive and negative.) harmonized in order to move with the maximum of speed and power, without danger, and with the best results. For this purpose, the process called graduation is carried on by steps, degrees, or lines, one hundred in number. Notes are being carefully taken under all the changes of mechanism, and of quality and degree, in the force applied. A proper understanding of these is necessary to a perfect system in handling before it can be safely brought into general use.

When Mr. Keely will get through it is impossible to say.

To so many uses can this new feature of force be applied, with the vast changes in machinery

necessitated by its introduction that, with a man of his enterprising spirit, invention will cease only when his activities end.

With regard to the engine and its demonstration as a practical success in motive power, this may be reasonably looked for within a few weeks, or a few months at the farthest.

Unforeseen accidents, or unwise management, may cause delay, or favoring circumstances may hasten success.

False reports of promises upon shorter time may again find their way into the papers, for which due allowances should be made.

FINANCIALLY,

the Keely Motor Company is in a good condition for all demands upon its resources, provided its affairs are properly conducted. The prospect for this has very much improved during the past year.

At the last election, in December, 1880, a new element was brought into the Board, which has developed more real business energy, activity and integrity than has been shown before since the Company was organized. This has given new courage to the inventor, and to stockholders generally who are acquainted with the situation.

IN POPULAR ESTIMATION

the Motor is growing rapidly. This is evinced by the increasing number of earnest inquiries and expressions from business and thinking men, as the inventor's progress enables him to give more satisfactory demonstrations. A few papers of high standing, which have always treated the invention and its author with fairness, are now speaking more strongly in their favor, while the satirists have grown more respectful, and sensational cynics have, for the most part, either sought obscurity in silence on the subject, or are making haste to redeem themselves by a change of attitude, and so avoid the necessity of retracting at a later day, under the pressure of public enthusiasm over the Motor's success.

This order is reversed in the case of the "American Machinist," which comes in at this late hour and puts itself on record as a skeptic. This it does on the opinion of one Charles H. Emery, D. Pd., of New York, who, upon witnessing one of Mr. Keely's recent exhibitions, like several other "experts," got compressed air on the brain.

Mr. Keely's refusal to suspend operations in the presence of twenty gentlemen (who did not desire it), to hear Mr. Emery deliver himself of his compressed air theory, and then to take the machinery apart and convince him of his error, started him on a hunt about the neighborhood for a steam engine that might be found working up compressed air for Mr. Keely's use.

The "Machinist" also took an affront, and showed its resentment by saying in a recent number, "We have somehow lost our interest in the Keely Motor since that exhibition."

Having been repeatedly asked, before and since the New York lectures, why that paper called the "Scientific American" has always and persistently antagonized the Keely Motor, it is presumable that the same query exists with others who have not a fair opportunity to seek an explanation. It may therefore, be in order here to give one, for the benefit of editors outside of New York, and others who are not acquainted with the proclivities of that journal. Instead of framing an answer, however, it will give better general satisfaction to state a few facts, and thus afford each one an opportunity to draw his own conclusions.

1. Mr. Keely has not placed the patenting of his inventions under the fostering care of Munn & Co.
2. He has never paid a dollar to the editor of that paper, either for a puff or a hush-money. (He has

treated all papers alike in this respect.)

3. He has never deigned to answer its scurrility, nor to publish any statements in its columns.

With these facts before the reader, he may safely be trusted to make his own comments.

In a recent issue of that paper there is a “confession that we do not know any more about the Motor than we did before the lectures were delivered.”

Barring the confession, this is precisely the result anticipated by the lecturer, after five minutes’ private conversation with its editor.

Fortunately, quite a number of intelligent gentlemen who heard these lectures, plainly showed by their questions and remarks, that they were not afflicted with the editor’s malady.