

Walter Russell and The New York Times

This is an attempt to pull together all the articles, letters and responses posted in response to Walter Russell's Two Way cosmogeny.

78 years ago, July 21, 1930: Artist challenges Newtonian Theory, Revising Other Scientific Principles -PRESENT IDEAS "PRIMITIVE"

ARTIST CHALLENGES NEWTONIAN THEORY

Head of Society of Arts and Sciences Writing Book Revising Other Scientific Principles.

PRESENT IDEAS "PRIMITIVE"

Walter Russell Promised to Disprove in Series of Pamphlets Many Accepted Beliefs.

Walter Russell, artist and president of the Society of Arts and Sciences, announces yesterday the publication by him at his own expense of the first of a series of sixteen pamphlets to embody his speculations about the universe and the constitution of matter, which, he says, differ radically from many commonly accepted scientific beliefs. He further announced that he intends to send the first pamphlet, dealing with the "cyclic theory of continuous motion, or the Russell genero-radiative concept," to "leading scientists throughout the world."

According to Mr. Russell, "the fundamentals of science are so hopelessly wrong and so contrary to nature that nothing but a major surgical operation upon the present primitive beliefs can ever put them in line for a workable cosmogenic synthesis."

Newton's mathematically proved principle that if the orbital motions of the planets were stopped they would fall into the sun is among those challenged by Mr. Russell, who claims that an experiment conducted by him with a "miniature model of the solar system" convinces him that no such thing would happen.

Mr. Russell denies the universally accepted law that "like charges repel and opposite charges attract each other." "If this were true," he asks, "why is it that positive and negative poles of a bar magnet are at its opposite ends as far as they can get away from each other, instead of being together in the middle, as they should be logically if the law were true?"

Mr. Russell launches into further speculation which he promises to "prove" in his succeeding fifteen pamphlets. "Many new metals," he writes, "of great value to industry can be secured by understanding nature's simple but hitherto unknown principles. An ocean steamship like the Leviathan could produce her own fuel at negligible cost from sea water in a machine no larger than a newspaper printing press. Carbon metal could be developed with a tensile strength double that of Bessemer steel. Silicon steel will become an ideal structural steel, with more than double its present strength, and very much cheaper, because of the unlimited supply of sand, than iron ore."

Several years ago Mr. Russell figured in the news by writing to Henry Ford to work isolating

"luminon" from coal, a substance that, Russell said, would "make Ford rich and women beautiful." In 1926, he printed privately "The Universal One," embodying his present theories, which scientists looked upon with disfavor.

August 03, 1930: Scientist and Artist Dispute Newton and Kepler Findings

SCIENTIST AND ARTIST DISPUTE NEWTON AND KEPLER FINDINGS

Dr. Jackson Sees Something Profane in Mr. Russell's Attack on Laws of Science

To the Editor of The New York Times

The Times of July 21 contains an article stating that Walter Russell challenges the Newtonian theory of gravitation.

This artist, who is admittedly not a scientist, goes on to say that "the fundamentals of science are so hopelessly wrong and so contrary to nature, that nothing but a major surgical operation upon the present primitive beliefs can ever put them in line for a workable cosmogenetic synthesis." Disregarding all his other claims it seems to me that it would be more fitting for an artist of Mr. Russell's acknowledged distinction in his own field, to remain in it and not go trespassing on "ground which even angels fear to tread."

For nearly three hundred years no one, not even a scientist, has had the temerity to question Newton's laws of gravitation. Such an act on the part of a scientist would be akin to blasphemy, and for an artist to commit such an absurdity is, to treat it kindly, an evidence of either misguidance or crass ignorance of the enormity of his act.

The Perfect Laws.

There are some things which we, in our profession, hold sacred and believe to be unalterable fundamentals, because they are the whole truth, to which nothing can be added nor subtracted from.

The Newtonian laws of gravitation and Kepler's three immortal laws are considered perfect laws. The Times article states that in his book "The Russell Genero-Radiative Concept," now just issued, and in fifteen more to follow, he is going down the line and rip the other immutable laws up the back. Newton gets his first; then, I presume, he will have the temerity to have a go at Kepler.

I will pass over the other promised reforms, such as his attempt to change the fundamental law of electro-dynamics from "like charges repel" to just the opposite. They are not worthy of serious thought, so let him tear at them uselessly to his heart's content. No one will in the least mind or take notice, but when it comes to our sacred laws I say "hands off."

JOHN E. JACKSON

New York, July 28, 1930.

Mr. Russell Replies.

To the Editor of The New York Times:

Dr. John E. Jackson's letter to you, a copy of which he graciously sent to me, is a perfectly natural letter of resentment for which I do not blame him in the least.

It is true that I have challenged the accuracy or completeness of the Newtonian laws of

gravitation and will just as vigorously attack the other "sacred laws" of Kepler, and any others, either ancient or modern, that need modifying or rewriting to fit the needs of a civilization whose onward march is held back by the untruths, or half truths, of those who rely upon the deceptive evidence of what their eyes think they see.

I am sorry that an artist had to do it, but Sir Oliver Lodge said that no scientist could make the supreme discovery of the one thing for which science is looking and hoping. He said that such a discovery would have to be the "supreme inspiration of some poet, painter, philosopher or saint."

Supplying Needed Imagination.

In other words, science sorely needs the imagination of an artist or poet to synthesize her heterogeneous complexities, and put her on the path of simplicity and truth; for nature is very simple in her causes. She is complex only in her repetitive effects.

I have not said that Newton's laws were wrong, for they are right as far as they go. They are only half truths, though. Kepler's first law is not only a half truth, but the half that is stated is inaccurately stated. Science should be exact, not approximate or inferential.

Just as Newton left out all consideration of the equal and opposite reaction to the attraction of gravitation, which is the repulsion of radiation, so does Kepler leave the other focus of his ellipses out of his consideration. "The sun is one of the foci of planetary elliptical paths," he says; but how about the other one? My friendly critics will of course admit that there are two foci to any elliptical orbit. If one of these foci is important, why is not the other equally so?

What is the cause of elliptical orbits if not that some doubly acting force, concentrated at two foci, is exerting its opposite influences on both masses, not on one. For this reason also it is inaccurate, because untrue, to say that the sun is at one of its foci. That informs that the sun's centre is one of its foci, which is not true. The true focus, which only happens to be within the sun, because of the sun's huge bulk, is the mutual gravitative centre of both sun and planet, or earth and moon.

Law Merely Local.

If a planet happened to be a big fellow, the focus referred to would be a long way outside of the sun. For this reason, the law is purely a local one, limited to a solar system, and would not apply to two solar systems or to two bodies of approximately equal mass revolving around each other, as a universal law should apply.

The neglected focus is the mutual centre of repulsion which is the lowest point in the pressure gradient between any two masses. These two oppositely acting foci are the controls which determine the orbits of both masses around each other instead of one mass around the other, which was the apparent limit of Kepler's consideration.

Perhaps Dr. Jackson will explain to me why Kepler and Newton, and all who have followed since then, have shirked this other necessary focus and have given us only the perfectly obvious one.

If Newton had watched that apple compose itself from low potential gases and liquids to high potential solids, saw it fall, and still remained on his job watching it decompose back again into low potential gases and vapors as it arose, we might have had a complete law of gravitation which would have been a great aid in putting a much-needed foundation under the feet of science during these intervening centuries.

Fair Treatment Asked.

I am offering again my contribution to what seems to me the unstable foundation beneath the feet of science. Einstein and others have already been respectfully credited for the same ideas which, when published by me, had formerly brought me ridicule. All I ask is a consideration of my ideas and fair treatment.

I have begun to correct the Eddington idea of a running-down universe, by supplying the other half of Newton's laws and Kepler's neglected focus, which makes the universe a continuing one. This must be followed up by correcting many other things, such as the structure of the atom, the supposed nature of the electron and kindred fantasies, illusions, cosmogonies and hypotheses, which have succeeded each other for three hundred years, none of which survive the test of five years' trial without becoming as ephemeral as Laplace's nebular hypothesis or as old fashioned as a 1927 model of the atom.

If Dr. Jackson thinks academic science is advancing, he is wrong. Industrial science is leaping ahead on restricted lines, but the theorists who draw fantastic conclusions from their experiments have "gone cubist." The "jumping electron" atom, and all other atomic models, with the exception of Rutherford's, for which so many Nobel prizes have been given, have no more relation to nature than green cheese has to the moon. And as for the little wire cages studded with marbles, which are supposed to show how the atoms determine crystallization -- they are just funny.

WALTER RUSSELL.

New York, July 28, 1930

August 10, 1930: Views of Both Dr. Jackson and Mr. Russell Are Borne Out by Einstein's "Unalterable Can Be Altered" statement

EINSTEIN SEEMS TO SAY THAT UNALTERABLE CAN BE ALTERED Therefore, One Holds, Views of Both Dr. Jackson and Mr. Russell Are Borne Out

To the Editor of The New York Times:

The letters of Dr. John E. Jackson and Walter Russell in The Times of Aug. 3 contain, respectively, "For nearly 300 years no one, not even a scientist, has had the temerity to question Newton's laws of gravitation," and, "science needs the imagination of an artist or poet to synthesize her heterogeneous complexities. * * *" both of which statements seem to be representative of academic static and dynamic thought, for the contributions of science to art and art to science are relative with respect to the analysis and synthesis of primitive symbolism. The questioning of Newton's laws and Kepler's extensions is a timely and healthy inquiry directed at contemporary cosmogenetics. The assimilation of knowledge within an individual experience, therefore, can be regarded rightly as either static or dynamic, can be applied as a simple correlation of established facts, or can be accepted as a means for concentrating on and contributing to progressive thought.

In the latter instance it is clear that a metaphysical perspective upon the collective result of recent scientific research is causing many to refer to earlier basic laws. For the most part this reversion seems to extend as far as Newton and from thence is carried forward again, in general, through

Faraday and Maxwell, Eddington, Compton, Heisenberg and Einstein. The net result permits a repostulation of the laws of gravitation linked with the electromagnetic theory and tied to the cosmic continuum by means of a conception or reconception of time, space and matter.

The Artistic "Centre."

In supporting Mr. Russell's request for fair treatment, it may be added that the abstractions of science, along with the reality of art, present a fundamental intellectual and physical process to which the effort and production of the individual is irrevocably linked. The binder is found in the symbolism of primitive form.

Just as the mathematician frees his mind from the concrete by conceiving modern zero to be infinity, and from it working out or back to his problem by means of symbolic devices in common usage within his field, so the metaphysician accepts the assumption of a point as the centre for induction, and the scientist regards it as the beginning for all deduction and correlation.

If the laws of gravitation be considered as contributory rather than final, and if the electromagnetic theory of a "field" be accepted as local rather than inferential, then it is evident that the Russell genero-radiative concept of foci postulates an inert but not a natural centre -- the "centre" used by the artist, poet, philosopher and scientist alike as a point for departure for all creative work. This "centre," however, seems to serve an additional purpose, for it defines and subordinates the orbit of Newton and the ellipses of Kepler -- both of which are in elaboration of the Cartesian and Pythagorean theorems and axioms of coordinates.

Must Assume Foci.

But in assuming the existence of "centres" (foci) as purely scientific abstractions within the cosmic structure (the recognition of the actuality of coordinate systems of reference in relation to infinite solar and planetary systems), we are able to differentiate within our mind the idea of force, acceleration, rotation and speed (time and distance), and to minimize the zero of the mathematician along with the esthetic and spiritual significance of the circle. The hypothesis then possible to establish provides a mental perspective on the metrics and geometries of both physical and cosmic space, and we find that Newton's laws contribute rather than define, and space itself resolves and evolves into a measurable unit in terms of physical content and direction. It remains to articulate and delineate our current knowledge from an inert point, which we can place into abstract, real or natural movement within our particular field as a true centre -- the pure symbolism of which is evident because of the simplicity of the concept. If we do just that, and no more, we find that we must introduce the basic elements that form our individual opinion or experience with the laws of centripetal and centrifugal force. The application of these elements in logical or structural sequence (elements drawn from the contemporary research field of pure and applied science) provides a simple "tool" for effecting abstract, physical and social deduction so that we can bring any inert point into continuous movement, the direction of which is horizontal or vertical, with respect to the laws of gravitation, and the delineation of which forms a true and natural centre.

Newton's Laws Questioned.

To aid and abet an escape from academic finality by means of such generalities is admittedly the essence of temerity, but Newton's laws have been repeatedly, consistently and profitably questioned by applied science since their inception. They are rightly finite in analysis, so why

not let them provide for the infinite in synthesis?

In The Times of June 29 the pioneer achievement of Frank Lloyd Wright, in the field of architectural form, design and the adaptation of materials, was outlined in a comprehensive article illustrating not only the functional relation of the engineer, the architect and the draftsman within the creative accomplishments of an individual, but also including contributions to modern architectural practice which may be attributed almost entirely to an understanding of Newton's dynamics. The catalogue of the Harvard Society for Contemporary Art states that Buckminster Fuller's dymaxion house is "the first complete attempt in architectural design to acquire a symbolism of the fourth dimension, as the designing method is literally from the 'inside out' on a radionic, time, space and quantum basis." Mr. Fuller's approach to his problem is through spherical geometry and the application of simple dynamics to the evolution and introduction of new materials in a logical relation to height, bulk and weight requirements.

"Roadtown" of Edgar Chambless, a practical conception of continuous structure within which is integrated all ways of communication, and the utilities of service, along with a balanced social system, constitutes a recognized application of the laws of centripetal and centrifugal social force (the centralization and decentralization of population) and is based upon social dynamics.

My adaptation of historical and chronological time (the "inverted" or "coreless" pie-chart outlined in a letter to The Times of June 29 last) delivers a "linear scale," the simple graphics of which postulate the inert foci of Mr. Russell and give natural movement and direction to real and abstract deduction, the dynamics of which is based upon the articulation of multiple correlations carried along at one time in logical integrated and continuous sequence.

Recent correspondence from Geneva published in The Times leads us to believe that Dr. Einstein has the temerity to extend the pure symbolism of his mathematical abstractions to include a world application to child education -- an indication which seems to bear out the viewpoint of Dr. Jackson and Mr. Russell that the future is behind us, is common property, and that any one, even a scientist, is privileged to alter the unalterable.

G.P. HERSEY

Ridgefield, Conn., Aug 6, 1930.

August 17, 1930: Mr. Russell Finds Scientists Too Ready to Accept Theory - His Attempt at Reformation not Based on Metaphysics

New York Times, August 17, 1930, Sunday

Section: Educational, Page 46, 6020 words

MR. RUSSELL FINDS SCIENTISTS TOO READY TO ACCEPT THEORY

His Attempt at reformation
not Based on Metaphysics, He Declares

To the Editor of The New York Times:

Since the publication in The Times of my statement that modern science is without a foundation

and needs a major surgical operation to put it in line for a logical cosmogenetic synthesis, I have been bombarded by telephone and by letters questioning this statement and others made in my book "The Russell Genero-Radiative Concept," recently published.

May I tell those people who think I have a superficial, metaphysical concept which I am trying to inject into practical science for its reformation that I am as thoroughly prepared to carry out my program with dynamic answers, not metaphysical ones, as Copernicus was when he upset an equally obstinate world of thoroughly satisfied Ptolemyites? Also I am as thoroughly aware of the difficulties of uprooting established ideas as he was.

I am also thoroughly conversant not only with every experiment that has given science its present unstable state, but also with the wrongful deductions which have resulted from those experiments.

Knows Scientists' Theories.

I am as familiar with the experiments and observations of Newton and Kepler as I am of those of Faraday, Cavendish, Rutherford, Bohr or Millikan, and I also am as familiar with the things which these great men did not see in their own experiments as those which they did see, and even then misinterpreted.

An observation of an effect of Nature is equal to an experiment and a proper deduction from either is more important than either.

Newton, for example, would have solved the other half of the gravitational problem if he had found out how that apple and the tree upon which it grew got up in the air before the apple fell.

I challenge the world of science to correctly and completely answer that question. Let your readers qualify for the right to subject me to their criticism as an impractical visionary by first giving a dynamic answer to this by no means simple question.

Therefore I say to all my critics who wonder why I do not go into the laboratory and "perform experiments" that I do perform experiments in physical laboratories and make profound observations in Nature's vast laboratory that have fitted me to make new and logical deductions from old experiments which have no inconsistencies and no exceptions.

Effects of Motion Illusions.

To illustrate: Suppose a man experimented with the moon running behind the trees as he ran, then set down his conclusions from the "facts," as he saw them, such as the correspondence of acceleration and

deceleration to his speed, we could easily point out the error of such a deduction because we are familiar with the illusions of perspective.

Science has never considered the fact that in this universe of motion, all effects of motion are illusions. Illusions are not limited to perspective but to every electrical, chemical and astronomical relation.

Nature is the supreme deceiver, the champion "poker bluffer," who, with a simple hand, makes you think she has much.

Nature is simple. She has but one force (which she divides into two), one form (which she divides into many), and seven patterns (which she complexes by repeating them in such marvelous systems of wave periodicities that it needs imagination, rather than eyesight, to coordinate them).

Nature can be beautifully described by that child's toy of hexagonal mirrors which makes the most exquisite and complex patterns in color and form out of a bit of feather, some chips of

colored glass, a toothpick and other odds and ends.

Every one knows how those simple things are not only complexed but glorified by such a treatment.

Nature's Simple Principles.

My humble contribution to science is to point out these simple principles of Nature which would, if known, have prevented one untruth to pile up on top of another until, even with the aid of experimentation, a theory which can survive five years is exceptional.

I will warrant that the dinner coat which Sir Oliver Lodge wore in New York when he delivered his lecture on energy and atomic structure is still presentable, but Sir Oliver himself would under no consideration repeat that lecture today.

The entire modern theory of atomic structure is so utterly without parallel or precedent in Nature that fantasy only mildly expresses it. It is to be regretted that the profound thinking of profound men is thus being wasted on conclusions which cannot possibly endure.

Scientists ignore Nature when they choose, or when mathematical formulae work out in accordance with preconceived premises. Scientists then become inventors and work out wonders which Nature never thought of. I can cite hundreds of such inventions born of supposedly observed facts of experiment.

La Place's Mistakes.

Mathematics are useless if the premises they start with are wrong. La Place, the greatest mathematician of his day, "proved" many things which have since been disproved. He even went so far as to prove that the outer edges of his rings moved faster than their inner surfaces, and his contemporaries accepted that impossibility as Niels Bohr's "jumping electron" was accepted by his contemporaries.

Nature hasn't one separate series of laws for big mass and another series for small mass. She has one law for both, but science unhesitatingly invents a series of laws for little mass that outdoes the reliance of the Arthurian sages upon a credulous public.

The moons of Jupiter and the planets of the sun pursue their courses around their primaries in an orderly periodic fashion, in strict obedience to the two forces which command and control them from two foci.

It would be the most astounding claim imaginable to state that this earth could suddenly jump to the orbit of Mars without consuming one-millionth of a second of time, yet that invention is the utterly fantastic and completely unfounded belief of modern science regarding the planets of the atom.

I could write volumes based upon modern electrical experimental data to prove that such a happening is not in Nature's scheme.

Science attributes this deduction to a "brilliant young Dane, Niels Bohr," who, working under Rutherford, proved it by experiment, backed by Rydberg's constant, Coulomb's law, mathematics and the evidence of the spectroscope.

Of what use is Bohr's mathematical equation regarding the hydrogen spectrum, for example, if the four admittedly assumed premises upon which it is based are not in accord with Nature's plan of motion?

Wrong Basic Conclusions.

Of what value also is the spectroscopic evidence if the presumption that band-spectra are caused

by molecules and line spectra by atoms is found to be a wrong one? In respect to this I am prepared to offer consistent reasons why band and line spectra have another and more logical cause.

I can cite wrong premise after wrong premise which has caused science to form wrong basic conclusions, such as that there are separate negative and positive charges instead of doubly charged masses, also that positive and negative "charges" attract each other when the evidence in its favor is the simplest of Nature's illusions and there is an overwhelming amount of evidence against such a law. Take only one example: How does science explain the fact that in all decomposing compounds like charges seek like charges and repel all others? If this law were true the universe which we know could not hold itself together, for all similar substances and atoms of substances would be explosive, and a pound of any one substance would be impossible.

WALTER RUSSELL

New York, Aug. 12, 1930

August 31, 1930: Shaking Science's Foundations

New York Times, August 31, 1930, Sunday
Section: Educational, Page E2, 1866 words

SHAKING SCIENCE'S FOUNDATIONS

To the Editor of The New York Times:

Several of my contemporaries in the electrical field seem to be particularly incensed because of a statement made by Walter Russell in The Times that "all modern theories of atomic structure have no more relation to nature than green cheese."

Their rancor is based upon the fact that great scientists, such as Milliken, Bohr, Rutherford, Langmuir and others of great prominence have proved their theories by experiment, and Russell, who seems to have obtained most of his knowledge by close observation of nature rather than in the laboratory, tells these men that their conclusions are wrong because their fundamental premises are wrong.

Personally I find it hard to accept Bohr's "jumping electron", as Russell calls it, and I find many others equally skeptical. John Langdon Davies in his recent book, "Man and His Universe," criticized this belief severely, ending as follows: "Now, if scientists seem to believe these two things are true, it means that the universe is essentially meaningless."

Russell claims that all conclusions of scientists in regard to things electric are based upon the assumption that all masses are "charged" either positively or negatively. This, he says, is fundamentally wrong, for all masses are doubly charged, each one being preponderantly one or the other just as male and female are known to be so.

Russell has set up such a very strong and convincing argument in support of his claim that my traditional electrical training is severely shaken even if I am not a 100 per cent convert as yet. If, however, Russell succeeds in establishing this one claim alone he will have shaken the very foundations of science, for every textbook on electrical practice, physics and astronomy will have to be rewritten and another mass of mathematical formulae will have to be relegated to the waste basket to keep company with much that has gone that way before.

GEORGE SOULE.
New York, Aug. 27, 1930.

November 02, 1930: Mr. Russell Upholds Theory of a "Two-Way" Universe - Proton Is Not A "Hole," He Declares

New York Times, November 2, 1930, Sunday
Section: Editorial, Page E2, 5965 words
Letters From Times Readers On Topics in the News;
MR. RUSSELL UPHOLDS THEORY OF A "TWO-WAY" UNIVERSE
Proton Is Not a "Hole," He Declares, Merely Because It Acts Like One

To the Editor of The New York Times:

The Times Editorial "This Month's Atom" has so filled these intervening days with answering questions as to whether Dr. Dirac's theory was in line with my cosmogony that I am constrained to answer it. Also, I might as well include the question so often asked regarding the comparative relationship of Dr. Robert Andrews Millikan's statement published some time ago, also in The Times, for both are interrelated.

The editorial says that "when an electron disappears the vacancy left behaves mathematically like a proton."

A hen seeing her duckling brood taking to water could not be more surprised than modern scientists in seeing this "hole" act like a proton. The proton is not a hole, however, as Dr. Dirac concludes, just as a duckling is not a chicken because it acts like one in respect to the hen. The hole is the vacuous force which acts as an expansion pressure force exerted against an equal compression pressure force which is located in mass and culminates at its centres.

Neither is the proton a hole because it acts like one in all respects save direction, more than an inward explosion toward a vacuum is like an outward explosion because it also acts like one in all respects save direction.

A Complete Cycle of Motion.

Modern science does not recognize the vacuous force in nature, due to the incomplete Newtonian concept which has given us a "one-way" universe instead of the "two-way" universe of my cosmogony. If Newton had completed his gravitational observations and Kepler had been as curious about unmentioned vacuous focus as he was regarding the focus he did mention, science would now understand what this newly discovered negative "hole which acts like a proton" really is and I would not be in the position of being disliked by my scientific friends for playing the part of Copernicus to their Ptolemy.

The following is a brief explanation of the complete cycle of motion which will explain what Dirac found, what he has not yet found and what he and Lodge and others say they do not understand regarding that which he has found.

The electron is a doubly charged mass. The action of integrating any mass is a generative or

condensive one which is called the attraction of gravitation. This causes mass to appear around a common centre of high compression pressure and gives rise to the commonly believed error that matter attracts matter, which is not true to nature. The reaction to this action of compression is the expansion of the field which has been rendered vacuous by thus being drawn upon by the gravitative, in-drawing, endothermic action of condensation. The expansion of the residual volume, or field surrounding the mass, is a vacuity which is as equally minus the original equilibrium of the total volumes as the centre of the mass is plus that equilibrium.

Source of an Error.

The force represented by that vacuity is an expansion pressure which is the equal and opposite of the gravitative compression pressure and gives rise to that commonly believed error of light repulsion which is not true of nature.

The "hole" that Dirac describes is the vacuous force of the expansion stroke of the universal pump. This force is correctly described as negative electricity, negative discharge, radiation, radio-activity or by any other name which results in the dis-appearance of mass into its surrounding tenuous field.

On the contrary, the high pressure point of dense mass is the condensive force which is the compression stroke of the universal pump. This force is correctly described as positive electricity, positive charge, gravitation, condensation or by any other name which results in the appearance of mass into solidity.

These two opposing actions and reactions constitute the electro-magnetic oscillations, or compression-expansion sequences, which are present in every mass and which constitute the mechanistic or life principle of the universe. These sequences have a periodicity of preponderances which are first preponderantly generative and then preponderantly degenerative, which we know of as the phenomena of growth.

We have now completed the cycle of appearance and disappearance of mass through the series of endothermic, inbreathing, positive oscillations of compression pressure and exothermic, outbreathing, negative oscillations of expansion pressure which is the dual characteristic of electricity; but we have one more characteristic of nature as a result of these action and reaction sequences.

This one other attribute of nature is the reproductive or regenerative force which is set up solely by the resistance of each expression of force against the other.

Dual Character of Force.

This characteristic attribute of nature to repeat herself, and to do so in waves or striations of periodicities, is because of the dual character of force to express itself always in equal opposition of force.

Every effect of motion thus results in the production of the opposite effect, therefore the negative reaction which results in the disappearance of the electron is accompanied by its equal and opposite action which causes the reappearance of the mass by the reverse action of the "hole." Hence there can be no such thing as a positively charged mass or a negatively charged mass. All charging masses are simultaneously dis-charging and all discharging masses are simultaneously recharging other masses in this two-way universe of motion. Energy is kept continually moving between the high-pressure hot points of gravitative centres and the low-pressure cold areas of the

evacuated fields which surround all masses.

This constant interchange is the cause of the motion of force which moves only for one purpose, and that is to find an equilibrium position for which it is ever in search of and never finds, for that position is itself always in motion.

While in search of this ever-moving position the work of the universe, and of man, is performed. There is no other way that work can be performed than by the oscillations of this dually acting electric force as it surges back and forth between the two polar dead centres of force, the gravitative focus and the vacuous focus.

It matters not whether this two-way interchange of potential is between the poles of a battery, which we call electric current, or between dynamos or solenoids, which we call lines of force, or between the high and low barometric pressure position of the weather map, which we call winds, or between the sun and planets, which we call radiant energy, or between elements, which we call radio-activity -- all are the same. All are seeking an ever-changing equilibrium position and kept continually on the go and producing that thing which we call energy.

Every mass in the universe is a complete pump oscillating between two equilibrium dead centres of opposed force. Every two masses are reciprocating, collaborating and co-ordinating their respective energies, each in accordance with its respective and comparative potential. Each mass in the universe is revolving around every other mass in elliptical orbits determined by their mutual ever-moving compression and expansion foci.

All masses, whether electrons in hot suns or electrons in cold space, are simultaneously integrating by their generative oscillation, and disintegrating by their opposed radiative one. This is the complete cycle of the motion of force toward which Dirac has made a step in the right direction.

Dr. Millikan's Statements.

Robert Andrews Millikan is the only other man who, to my knowledge, has begun to divine nature's secret of the duality of force and the continuity of creation in cycles. Dr. Millikan declares: "In the hot stars and the sun, matter is being disintegrated into energy or radiation; in the unimaginably cold expanse of infinite space, radiation or energy is being reintegrated into matter."

If Dr. Millikan had written that all mass, whether in hot suns or cold space, is integrating by its contractive oscillation (which is caused by the cold of its preceding expansive one) and that it is disintegrating by the heat of its preceding contractive one, he would have been right.

To say, however, that matter is disintegrating in hot masses and integrating in cold space is not in keeping with nature's method of creation, for it would not account for the integration of mass in hot suns except by miracles or by "divine ordainment," as they said in the Middle Ages, nor would it account for the disintegration of mass in cold space except by the same method.

In order for that principle to work, Dr. Millikan would have to find a critical point of temperature below which all matter integrated and above which it all disintegrated. This is impossible, for all matter has different melting points, according to its pressures or densities, these points rising as pressures rise.

We know that above these critical points at which all elements melt the solids disintegrate into liquids, then into vapors and then into gases. But the very act of disintegrating by radiation causes a relatively cold reaction to take place which reintegrates. Both processes are therefore taking place above and below the melting point, and this is as true along the trail of a comet, which is luminous and relatively hot in its contractive oscillations at 240 degrees below zero as it

is true in Vega's heart which is relatively cold in its expansive oscillations at 300,000 degrees or more.

WALTER RUSSELL.
New York, Oct. 29, 1930.

November 09, 1930: Mr. Russell May Be Right

New York Times, November 9, 1930, Sunday
Section: Editorial, Page E2, 5899 words

MR. RUSSELL MAY BE RIGHT

Dr. Jackson Withdraws Criticism of "Two-Way" Universe and Seeks Proof

To the Editor of The New York Times:

Some time ago The Times published a letter of mine severely criticizing Walter Russell for presuming to attack the "laws" of Kepler and Newton. Obviously, as a scientist, I resented the sweeping claim of a non-scientist "that science needed a major surgical operation to put it in line for a logical, cosmogenetic synthesis." I felt that it was ridiculous for anybody to criticize such laws, and especially anybody without recognized scientific standing to attempt such surgery. I now wish to modify my statements and criticisms, for, since writing that letter, my viewpoint has somewhat changed from scathing to one of expectation. What I considered the over-night inspiration of that revolutionary type of man we call a "crank" might be, instead, the result of an intelligent and prolonged study of Nature.

Coordination of Units.

Mr. Russell has evidently approached his solution to the greatest riddle from the point of view opposite to that of the scientist. He has considered the universe as a whole and offers explanations for the workings of its units as they fit into the whole, while we scientists study the separate parts but as yet cannot fit them together perfectly.

Who is to say that Russell's method of approach is not as valuable as our own, especially when it is carried on by so keen an observer? Let us give him a chance for a proof. The future will tell. I believe we should welcome such a mind, with its freedom from the traditions by which our minds are bound to the extent that we sometimes forget to question. I, for one, do not want to be "set" and invincible.

I am not yet prepared to say that I thoroughly accept Mr. Russell's "two-way" principle, but I am immensely intrigued by it, for it gives this universe of motion a meaning to me that it did not have before. In fact, our universe is rather meaningless even to ourselves; we know very little of the why of anything and many researchers have practically ceased trying to fathom it. In our experiments we see the effects, but do not always find a satisfactory explanation of the cause. If it "works" we are thankful, so we do not always worry about the "why."

Open to Conviction

Mr. Russell's theory may be the method of understanding the nature of electricity, the generation and degeneration of mass and the universal mechanistic principles, through his "two-way" swing of the universal pendulum. In this defending his principles I again repeat that I am only weighing them in my mind at present, but I think the entire scientific world should also seriously weigh them, for, if Russell is right -- and he surely thinks he is right -- his claim that science needs "a major surgical operation" is justifiable.

A few outstanding and seemingly irrefutable facts stand in favor of the "two-way" principle. First of all, the compression-expansion sequence constitutes a cycle of motion which is mechanistic; it conforms with the known oscillating character of all electrical force. It makes matter comprehensible when each mass is known to be a compression-expansion "pump," or storage battery of polarized force doing the work of the universe.

Russell says that every effect of motion gives birth to its opposite effect, that our degenerative, radiant energy which is wasting away our universe becomes generative energy simply through its gravitational change of direction toward mass instead of away from it. The same radiation which degenerates our sun regenerates this planet as light. Let us give him a chance to prove that and see what the outcome is.

Our "positive" and "negative" are admittedly meaningless words. Russell's dual principle gives them a rational and reasonable meaning which may be mechanically comprehensible. He says that "positive" is plus an equilibrium of a quantum of energy, and that "negative" is minus that equilibrium. In other words, a vacuous condition is created in a given quantum of energy by pumping some of it out of one part (the surrounding field) and into the other part (the central mass). How simple it is to understand an electrical short circuit, or a chemical reaction, when thus explained, or to understand the motion of energy as force seeking an equilibrium.

I remember when we used to think that the current in a battery flowed only in one direction. We now admit its flow in both directions. If nature expresses itself universally by a flow in both directions, instead of in isolated instances, it is well to know it even though we old-timers have to adjust our practice to it.

Kepler's Law Not Infallible.

I was especially vituperative toward Russell because he dared to tamper with the Kepler law. I can now see that Kepler's mention of a single focus, and his failure to mention the other, coupled with Newton's single attribute of matter to attract matter without mentioning its equally apparent power to repel, deprived science of a possible solution of the universal riddle.

The second focus of Russell's is physically and mathematically necessary to an elliptical orbit. Why did not some scientist think of this instead of waiting 300 years for an artist to tell us about it?

I am anxious to see that other focus proved as the seat of the vacuous force of negative electricity that Russell claims for it. When his present experiments with lines of force are completed, by means of which he expects to prove his contention, and are found to substantiate his claim experimentally, we shall then know that positive electricity is that which is flowing inward, accumulatively, toward a point of compression (which is one of the dead centres of force in the universal machine) and that negative electricity is that which is flowing outward, dissipatively, toward a vacuous field (which is the other dead centre of force).

We shall then be convinced that Russell's contention that matter does not attract nor repel matter

is probably true and that attraction and repulsion are but the sequences of compression-expansion oscillations with which we have long been familiar in electrical practice, but did not connect up with gravitation or radiation.

I invite the collaboration and criticism of my fellow scientists at large to join me in this, because, should Russell be able to prove his claims, we should all give him due credit, and if he fails, it will then be time to add his theory to the long list of dreams. He is in earnest and at least deserves our support.

JOHN E. JACKSON.
New York, Nov. 4, 1930.

October 26, 1930: Russell's Remark on Theory of Atomic Structure Upheld

New York Times, October 26, 1930

Section: Editorial, Page E2, 5833 words

RUSSELL'S REMARK ON THEORY OF ATOMIC STRUCTURE UPHELD; His "Green Cheese" Statement Is Declared to Have Considerable Justification

To the Editor of The New York Times:

Wallace Russell's statement "all modern theories of atomic structure have no more relation to nature than green cheese" should not offend George Soule's friends, for that point of view is held by many of the scholars who tentatively accept the modern theories in lieu of more satisfactory theories, because more satisfactory theories have not appeared. To Einstein himself, the theory of relativity is tentative, and Einstein knows that the theory falls if one deduction does not find experimental check. The Bohr theory was purely tentative, and Bohr himself knew full well that his assumptions were arbitrary and unreasonable, and only to be justified in case the deductions from them gave better approximations to observation than had previously been obtained.

As a matter of fact, the equations of Schrodinger, which so far rest on a purely artificial set of assumptions, have replaced the Bohr concept very largely, for they have "explained" in mathematical language phenomena which could not be obtained from the concept of Bohr.

Less Emphasis Desirable.

Mr. Russell should, perhaps, be slightly less emphatic and leave some room for the possibility that some of the present pictures are actually true, but substantially his criticism is correct. Einstein himself, when he said that "space is eating up matter" meant merely that we have been obliged to attribute in greater and greater measure properties to space in order to justify our equations. Whenever we attribute properties to space, the presumption exists that the phenomena are not understood. The mere increase in this tendency is an indication of the probably departure of modern pictures of nature further and further from the truth. Einstein's theory of relativity did away with the motion of the physical existence of the ether, established originally by the properties which theory required to be given to space, only to replace it in larger measure with other properties.

I wish to criticize the statement "Millikan, Bohr, Rutherford, Langmuir and others of great

prominence have proved their theories by experiment", for it gives a serious misconception of the actual state of affairs. Certain definitions must be kept in mind or my objections may be misunderstood. A theory is a mental picture of the universe, or a part thereof, which best accounts and satisfactorily accounts for the known phenomena. To test a theory, we make all the deductions possible from the theory and make experiments to see whether the deductions find a counterpart in nature. The ether-wave theory of light held sway for over a hundred years. From the time of Clerk Maxwell onward it so satisfactorily accounted for phenomena and had so unexpectedly deduced so many unsuspected relationships in physics that it was regarded as an established fact, a true picture of the universe. Yet today very few of the leading physicists believe in an ether at all.

Theories Widely Divergent.

It must be remembered that there are often several sets of assumptions which will yield the same, or indistinguishable, equations for a given set of phenomena. Yet the theories based on these assumptions may give widely divergent pictures of the universe. Bohr's theory gave the spectrum of the hydrogen atom admirably, but never gave a really satisfactory picture of that for any other substance, though several of the deductions were close. Schrodinger's equations, based on quite a different picture of the universe, give the hydrogen spectrum and many others with a wealth of detail. Yet it would be a rash man who would claim that the final picture had been drawn. The theory of relativity is erected upon the necessity of including in any picture of the universe one stubborn fact. Observations upon bodies in motion, corrected for the motion of the "messenger" upon the ether wave theory of light (which is denied by the theory of relativity), yield quantities which must be transformed according to the Lorentz transformation in passing from a system of coordinates fixed with regard to one observer, to a system of coordinates fixed with regard to another observer in motion relative to the first. A certain set of assumptions has been set up by Einstein, and accepted by others, to account for the existence of the Lorentz transformation. The set of assumptions which appeared most reasonable to Einstein happens to be quite repugnant to the intuitive common sense of mankind. The experimental check of deductions from the theory of relativity, then, do not necessarily prove the truth of the assumptions, as is commonly believed, even by men who should know better, but merely that the fact introduced into the picture of the universe is of more widespread significance than had been previously believed.

As to Light Velocity.

Now I pointed out in a previous letter that the Lorentz transformation is a necessary consequence of any attempt to allow for the velocity of the messenger (for example, light) on the wave theory (fixed ether) if the velocity of light were really to require measurement with regard to the source. If we measure light velocity with regard to the source and not with regard to a fixed ether, we shall obtain different corrected values for our observations and said new corrected observations would transform from one set of coordinates to another set in motion relative thereto by the usual Newtonian transformation.

I pointed out that mathematically one theory was equivalent, in many respects, to the other, but that the picture of the universe was entirely changed. I also pointed out that the choice between Einstein's set of assumptions and mine rests entirely on the outcome of experiments on the

velocity of light from moving bodies, and further showed that the assumption of Einstein and others that the velocity of light relative to the observer, assumed to be always observed as constant, irrespective of the motion of the source, was not justified by a critical examination of the experimental data. The velocity of light from a moving source has never been measured. One more comment. Einstein, Edlington (?), Heyl, DeSitter and possibly others have all developed general theories of relativity. Usually we think only of Einstein's theory as the theory of relativity. Yet Sir James Jeans and other astronomers incline to DeSitter's form of the theory because certain deductions from it fit certain observations on distant nebulae, and such deductions are not obtainable from Einstein's form of the theory. So you see there is considerable justification for that particular remark of Russell's on "green cheese."
EDWARD ADAMS RICHARDSON, Bethlehem, Pa., Oct. 21, 1930.

(EDWARD ADAMS RICHARDSON)