

RX THE LIFE ATOM

KEY TO NATURE

New Direct Explanations

Radio, Gravitation, Magnetism, Electricity, Light,
Sound, Nervous Force, Molecule,

Refuting

Einstein's Relativity Confirmations

Using New Discoveries

of the

Earth, Mercury, Moon, Volcanoes, Etc.'

CALVIN SAMUEL PAGE

Author

Science Physical Phenomena

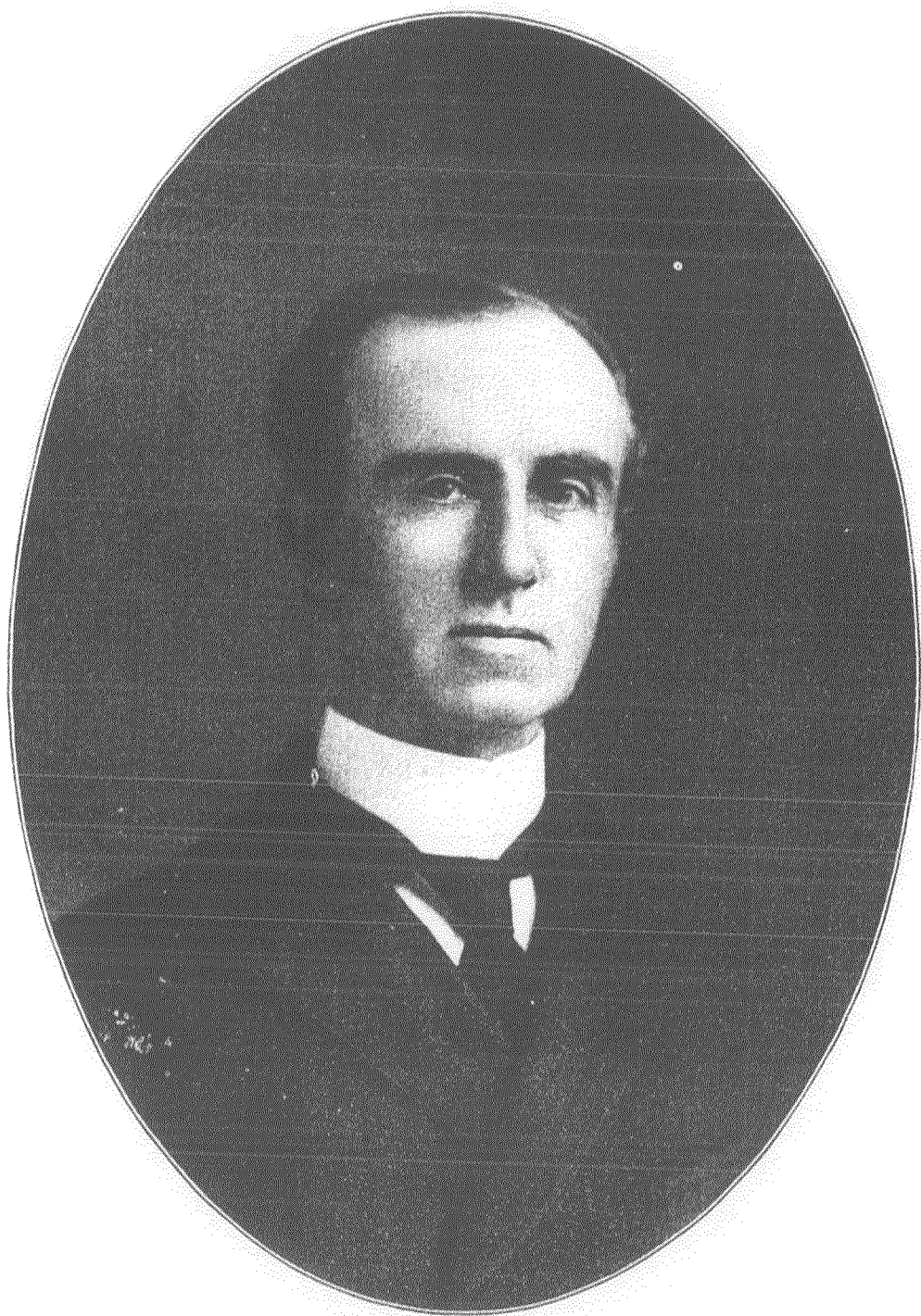
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Calvin Samuel Page.

Dedicated
to the
Progress of Science
for the Welfare of Humanity

AUTHOR'S PREFACE

I am impelled to voice my gratitude to Divine Providence that I have been permitted to discover the exceedingly beneficent atomic matter Rx.

CALVIN SAMUEL PAGE.

EDITOR'S PREFACE

WHEN a man calmly overthrows as false the whole working system of present physical philosophy that has required the last few centuries to evolve, that he personally labored years to acquire and that he once believed, taught and loved, and sets up a complete and completely new physics of his own discovery and perfection, as Calvin Samuel Page has done, surely a word as to his qualifications and integrity will at the outset, be of interest to his readers.

He is amply qualified by honesty of purpose, sober judgment, experience and education and is actuated only by a desire for facts and for a provable science. His new physics is radically different from the present, but it is not radical. The author assures us that he has used no hypotheses in the construction of his new physics.

In Professor Page's first book "The New Philosophy," published 1913, is a masterly treatise against what he terms the impossible, luminiferous ether theory. More than thirty years ago he publicly lectured against this theory and he is glad that others are now seeing its impossibility.

The author shows that light is a material thing—an atom—and in no way an ether wave or the product of an ether wave. His crowning achievement is his discovery of this atom and he has named it Rx (pronounced rex). I believe that the discovery of Rx and its attributes is an intellectual achievement destined sooner or

later to emblazon the name of its discoverer on the top-most mast of the scientific world.

Rx supplants the luminiferous ether theory, disproves the kinetic-molecular theory, and defines all other hitherto inexplicable phenomena in nature.

I am of the opinion that the deduction of Rx and its attributes has enabled the author to evolve the most lucid, logical and sublime physical philosophy ever promulgated by man.

Chapters II and III of this book are devoted to refuting the Albert Einstein theory of relativity and the so-called confirmations of his theory that gave it wide publicity.

I agreed to act as editor of this book upon two conditions: First, that I be authorized to say just what I pleased in my Editor's Preface, and, second, that if a perusal of the manuscript suggested what I believed to be a suitable title I then be allowed to name the book. I have exercised both privileges.

FRANCIS JEREMIAH CASEY.

Wilmette, Ill.

ACKNOWLEDGMENTS

I desire to renew and intensify my thanks to the Knoxville, Iowa, friends for their assistance in producing my "Science of Physical Phenomena" to which this work is a supplement; to include Messrs. Francis J. Casey and Stuart S. Crippen for their aid in advancing this book, and Professor Albert Einstein, Viscount Haldane, Editor J. Malcom Bird, Mr. Lyndon Bolton

and Rev. George Henry Dole for their works that have furnished the occasion for controversial discussion which has added variety of subjects and treatment in confirmation of the reality and importance of Rx.

CALVIN SAMUEL PAGE.

Chicago, Ill.

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INTRODUCTION

EPITOME OF THE PAGE PHILOSOPHY

TRINITY PHYSICAL LAWS

FIRST LAW. ENERGY

Energy is the inherent life of the atoms of matter and the source of all Force.

SECOND LAW. COHESION

Between Rx atoms and each kind and combination of all other atoms there is a different and constant strength of Cohesive affinity.

THIRD LAW. REPULSION

Rx repels its own atoms and the strength and velocity of repulsion is governed by the cohesive affinity of the substance from which they are repelled.

FUNDAMENTALS

1. Matter is the only objective thing known.
2. Atoms are the smallest natural, indivisible divisions of each kind of matter in which resides the capacity, energy or life of matter.
3. Energy is the capacity of the rx atom to repel itself or cohere to other atoms: Is unalterable and indestructible.
4. Force is the product of the action of Energy: Is productive, transferable and destructible.
5. Rx repels its own atoms and is the only repellent energy known.
6. All atoms cohere with rx with a different strength of cohesion which produces all the varying atomic weights and conductivity.

(NOTE.—Some 80 of the probably 300 new facts, physical, mathematical and astronomical laws of the new physics; to which others will add many more.)

7. Energy acts and Force is transferred only by actual *contact* of matter.

8. To cohere or repel are the only inherent attributes or properties of matter; all other given properties of matter are only the conditions produced by these two attributes.

9. Momentum is the force of moving matter and was produced somewhere by the action of the Energy of matter.

10. All forces except Cohesion are the names of action forces, and are Light, Electricity, Gravitation, Magnetism, Capillary Attraction, Chemical Affinity and Momentum.

11. Cohesion is at first an action force becoming stationary with continuous contact.

12. Therefore forces are actions and not things.

13. Heat is not a thing, entity nor force but merely the measure of the relative quantities of rx in masses of matter.

14. There is no universal ether.

15. Matter occupies space and is only a mere fraction of endless space.

SPACE, DURATION, TIME

16. Space is merely occupied or unoccupied extension, formless, endless and eternal.

17. Duration is continuous marked or unmeasured existence, changeless, eternal.

18. Time is the measure and comparisons of the existence of things in portions of duration.

19. Events are the actions of things recorded in duration by the measures of time.

20. Duration has one dimension with three time unalterable divisions, past, present and future.

21. Therefore, matter and events are comprehended by space and duration with space and time measures.

22. Inter planetary and stellar space is a vacuum without pressure.

STATES OF MATTER

23. Mass matter has enough rx to maintain the atoms or molecules in stationary cohesion.

24. Liquids have too much rx on their molecules for stationary cohesion and they yield to any force.

25. Gases are atoms or molecules so full of or surrounded by rx that they are kept suspended by the bombardment of free rx, and in confined gases or still air the molecules are stationary and geometrically arranged.

26. Electrons are molecules of a gas. (See Chap. VI.)

27. Radiant matter is rx as light and in its capacity of sustaining gases. (Chap. IV.)

PHYSICAL FORCES

LIGHT AND COLOR

28. Light is individual rx atoms with 140,000 to 190,000 miles per second velocity. (Chap. IV.) 186,000 miles velocity given, is the measure after one reflection.

29. Color determines the velocity, white light having the greatest and dull black the slowest velocity that affect the human retina.

30. Light and color are synonymous, and since light is not affected by gravitation it traverses empty space without loss of velocity.

31. Color is altered, reduced by reflections.

32. The rainbow is produced by reflection from raindrops and not by refraction.

33. All light travels in vacuo, even through the air for it is only the rx that miss the molecules of the air that reach the eye; this is why objects become dim with distance.

34. The aurora are colors produced by the angles of reflection on the molecules of the air. The morning and evening displays of color are from the same principle.

35. It is the changes in the molecular tension that changes the green orange to yellow; and the same principle governs in the color of all objects.

36. The change in color by angles of reflection is proven by watered and changeable silks.

37. There are the two things physical and physiological light and color. (Chap. IV.)

38. It is quantity of light that determines distance more than angles of perspective. (Chap. IV.)

ELECTRICITY

39. Electricity is a continuous stream of rx flowing over conductors, or with a pressure to flow as in storage batteries.

40. Positive and negative merely indicate direction of current and quantity of rx, and positive and negativity electricity are one and the same and merely indicating more or less quantity.

41. Electricity is the wholesale commerce in rx and its phenomena are secured by utilizing this current.

42. Wireless telegraph and telephone messages are sent by electricity, but travel as light and produce electric currents in the receivers.

43. Rx separates all substances into their atoms and that is why electricity so quickly melts all substances.

44. Electricity is the Nervous Force.

45. There is only one electricity, rx in currents, kinds are merely differences in currents from the ways in which they are produced and travel over conductors.

GRAVITATION AND MAGNETISM

46. Gravitation is the pulling stress between rx and the atoms of mass as rx enters matter as light or with a slower velocity, from any source. (See Chap. V.)

47. The armature of a motor is revolved by the gravitational force of rx electricity.

48. Weight is the strength of gravitational action and since it varies with each kind of matter all atoms have a different weight.

49. Acceleration is the uniform rate of gravitational

action, hence all bodies fall equally fast in vacuo, but the rate of acceleration decreases from 32.2 feet per second as the motion increases.

50. Magnetism is only special cases of gravitation due to the kinds of matter and methods of application; or matter leading rx into currents.

51. Gravitation varies with the kind and condition of the attracted bodies.

52. All orbits should be circular by the old law of Gravitation.

53. By my newly discovered Law of the Average Linear Velocity in orbits, orbits cannot be elliptical but are eccentric.

54. Gravitation decreases with distance slightly less than the inverse-square in the Solar System.

55. The variation of gravitation causes the eccentric orbit of the earth.

56. The variation in gravitational force has produced the inclination of the earth's axis $23\frac{1}{2}$ degrees. (See Chap. V.)

57. The inclination of the earth's axis causes the inclination of the moon's orbit to the ecliptic that prevent monthly eclipses of the sun and the moon.

58. The orbits in the Solar System, known from wonderfully accurate measurements, prove concretely the new physics.

CAPILLARY ATTRACTION

59. Capillary Attraction is the continuous cohesive and gravitational actions between rx and atoms in capillaries. There is no new energy or force involved.

60. It demonstrates the wonderful strength of cohesion.

CHEMICAL AFFINITY

61. Chemical Affinity is the destroying of a weak molecular cohesion by a stronger, and producing molecules of

a uniform cohesive tension. There is no new energy or force involved.

62. It is solely governed by the kinds of atoms and molecules and temperature which is merely the quantity of rx present.

MOMENTUM

63. Momentum is the storage of force in motion, and is the most common and universal method of storing and transferring force which is the direct product of Energy.

SOUND

64. It is an increase of the air velocity of rx and molecules of the air that produces sound.

65. Loudness of any sound depends upon the quantity of air put into sound motion.

66. Pitch in sound is the same as color in light, the greater the increase in the velocity of air rx the higher the pitch.

67. Quality of sound is the physiological effect of mixed velocities of sound-motion air which accounts for the endless kinds of sound.

68. The rx motion in sound is 900,000 times faster than the rate of propagation of 1120 feet per second, which proceeds from molecule to molecule.

69. The new physics shows a score of new causes that go to determine quality of sound and explains just why no two human voices are just alike.

70. Sound is more wonderful than light, the ear than the eye.

THE ATMOSPHERE

71. The Atmosphere is maintained by the rx from the earth, sun, stars and planets bombarding the molecules of the air. Were the rx supply withheld five minutes the air would disappear.

72. The blue and colored skies are the electron molecules

of the air and not dust as now explained. An electron is a gas molecule. (See Chap. VI.)

73. The air reveals space. (See Chap. IV.)

74. The atmosphere is stratified. (Chap. IV.)

75. Near the earth only $1/6000$ of the space is occupied by air molecules. At three and one-half miles only $1/12000$. That explains why cold increases with altitude.

76. The earth supplies our physical needs and the atmosphere our metaphysical.

77. It is the atmospheric tension that makes the radio phenomena possible.

78. To comprehend wireless transmission one must understand rx and the atmosphere. (Chap. IV.)

THE NERVOUS FORCE

79. The human body is a perfect electrical plant.

80. It is not oxygen but rx and the nerves that maintain the even temperature of the body of 98.6° throughout the earth and the seasons. (Chap. VI.)

81. The gray matter of the brain and body are the storage batteries of rx.

82. The gray matter of the medulla oblongata regulates the electrical tension of the lungs, hence of the body.

83. Sleep is essential for replenishing the storage batteries.

84. The mind uses rx to execute its physical and metaphysical orders.

CHAPTER I

UNIVERSAL AXIOMATIC LAW

Contact. There is no action of energy nor effect of forces without atomic, molecular or mass contact.

The importance of this law in this place is due to the fact that present physics attempts to explain phenomena without contact, as in the cases of the theories of heat and cohesion and the electron-atom.

NEW DEFINITIONS

Matter. Matter is entity, real substance. Whatever occupies space is matter.

Atoms. Atoms are the ultimate, smallest natural divisions or parts of each and every kind of matter in which reside its capacity and nature, its life. Their size, shape and form are unknown.

Energy. Energy is the capacity of the atom to act, and there are only two actions, to cohere or cling to one another, or to repel. These are the only two inherent actions of matter used in nature.

Cohering and Repelling. Cohering and repelling I call the attributes of the atom, so as to distinguish them from the word "property" which is now vaguely used to indicate what belongs to matter.

Energy. Energy is the capacity of the atom to cohere or repel. There is no other energy known or employed in nature. This is the first time energy was ever definitely located and defined. In the dictionary it is defined merely as power, strength, etc. The cohering and repelling of the atoms is the sole energy of nature. Atoms are indestructible and therefore energy cannot be altered or destroyed.

Force and Forces. When the energy of the atom acts it

produces force and certain actions are termed forces, as cohesion, gravitation, capillary forces. Therefore forces are the actions of the energy of atoms somewhere and sometime. Motion, momentum is the most familiar and abundant force commonly recognized, yet the force of cohesion is perhaps more abundant, but it is a stationary force after cohering and is never seen in action.

It is common now to speak of the energy of a cannon ball and a moving engine; while they are only force, the energy of each of these is the cohesion of the atoms of which they are composed.

Here has been the great trouble with the science of the past as force was largely considered something apart from matter. Even Newton said, "Matter is the plaything of force." Something outside of matter, while force is merely matter in motion and gets its force from the action of the energy of the atoms of matter.

As I look at physics now it is a metaphysical wonder that my discoveries have so long remained secrets, and that I believed the old order so long. It will be of help to most readers to examine this point right here.

First, take matter. It must occupy space even if it has forty other definitions. Otherwise it would be void, nothing. Second, take force (leaving out energy now because it is a modern word and has supplanted "force" used by all the old and original physicists). If it is not a part of known matter, but something outside of matter, it too must occupy space, otherwise it would be void; and right here was the trouble. They treated force, except visible motion and momentum, as something apart from matter yet acting upon matter, and therefore never allowed room or space for it to occupy. In truth, force has been a nonentity until my books appeared. To me now it is axiomatic that if the known matter does not act upon the known matter as a force, then some unknown matter as a force must act upon matter and we must account for the space it would occupy. Hence had they done this the old

physicists would have at once found out something was wrong and discovered just what it was, rx, material, and given a different name.

Modern physicists in looking into the philosophy of forces saw that cohesion, gravity and capillary forces were something far different from momentum, visible moving matter, and without reasoning about space (as I have just above) they substituted energy as a foundation. They saw that every kind of work done was a result of matter in motion, accepting motion while they should have sought the cause of the motion at hand.

Thus a school text before me, after analyzing a clock weight, one body doing work on another and matter in motion concludes: "Energy may be defined as the capacity of doing work."

Then followed, since all motion can do work, "motion is energy." And since there was the old law of "The Conservation of Forces," they changed it to "The Conservation of Energy." Now it is veritable truth that all motion can do work, but I have discovered that it is also a veritable truth that every foot of motion known is the *product* of energy and therefore cannot possibly be energy.

Therefore it is self evident that if the energy of the known atoms themselves does not make them cohere and repel, then there must be other atoms that occupy space that cohere and repel the known atoms, which is unscientific, unreasonable and contrary to all evidence and experiment. All this leads to the greatest topic in the book and the most luminous one fact in the new physics.

THE NEW MATTER RX

(Pronounced as rex.)

Rx is the name I have given to the new kind of matter I discovered in 1889 and it has turned out to be the most wonderful and important kind of matter known to man. There is a difference of importance in matter for while

there are about ninety kinds of matter only five predominate in the vegetable kingdom, Carbon, Hydrogen, Nitrogen, Oxygen and Rx.

The distinguishing characteristic of rx is that it repels its own atoms and coheres with varying strength with all other atoms. Hence it is found with all other atoms and never in a rx mass. This may be why it was not discovered long ago. I reasoned it out before I was able to prove its existence, while now I have more proof of its reality than can be found for any other atom. Above I have given my estimation of the importance of this new matter rx and for the reader to make his own estimation I submit the following experimentally proven facts.

Rx is the only repellent matter known.

Rx is in every cohesive contact.

Rx is heat, or Heat is the measure of rx in matter.

Rx is light.

Rex is the heat of matter.

Rx and other matter are electricity.

Rx and other matter produce sound.

Rx maintains the atmosphere.

Rx and matter are gravitation: produce the force.

Rx produces magnetism, special gravitation.

Rx and atoms produce capillary force.

Rx is the nervous force of all animal life.

Rx is itself not affected by gravitation hence it travels empty space as light and heat with unchecked velocities.

Now rx is not all these things at once, but under proper conditions with other atoms is all of these and more. It is in three conditions all the time in the human body. It is the cohesion with other atoms that maintains the structure, form and parts, the heat and nervous force of the body. Hence the body must not get too hot, and when we exercise the rx after acting on the muscles become heat in the body. Rx is the only self-evident cause for the uniform temperature of the blood of 98.6° throughout mankind, the Hottentot and Esquimo, winter and sum-

mer, varying only slightly from this temperature from the child to the aged grandfather.

RX AND THE ETHER

It is not sufficient just to say "*there is no such thing as the ether,*" because it is in all text books and scientific works and scientists are now using it erroneously to explain electricity, wireless telegraph and telephone. The ether must be disproven and that is easy for it is the most untenable hypothesis that ever secured such a foothold in science.

Rx as light is sweeping through space and takes the place of the ether, for space is and must be otherwise empty for known planet and cometary velocities as well as for rx to pass through without losing velocity. I have investigated for thirty-three years and I CAN PROVE THAT NOT ONE SINGLE PHENOMENON IS EXPLAINED BY THE ETHER WITHOUT BREAKING KNOWN LAWS AND COMMON EVERY DAY EXPERIENCE.

Since the wireless is so popular just now and explained by the ether I will first show the absurdity of the explanations. Science admits there is no affinity between the ether and matter and *cannot* be since it fills all space, for if it were there it would tear the atmosphere from the earth in a second. And some scientists to avoid this holocaust believe that the ether is so devoid of affinity that it sweeps clear through the earth like water through a sieve at 18.5 miles a second! Therefore, how *can* an instrument be affected by it? One cannot tune the light for the blind nor the violin for a deaf ear. Hence here are two dilemmas even were there such a thing as the ether, the sending and receiving. The logical, scientific, sense-attested explanation is as follows:

Rx is tension part of the sending and receiving instruments and rx travels as light in the day and with less velocity at night. The sending instrument sends rx as

the message as light and the instrument with a like tension of rx receives and magnifies it. It is just as clear as the voice sending the sound and the ear catching it. No laws are broken and it does not conflict with laws and experience. Just how this explanation is executed in detail cannot be given at this place, for the atmosphere must be explained, but when understood is as clear, self-evident and free from hypotheses as talking and hearing.

One more inconsistency: Light "waves" of the "Ether" are estimated from $1/33000$ to $1/66000$ of an inch, and electric "waves" up to many miles, while matter is estimated as vibrating only at 5000 to 18000 feet per second. Then how can it generate "waves" that travel 186,000 miles per second? But rx repels itself from incandescence, in empty space at that velocity, while in a dark room rx maintains the air at only about 75,000 miles per second. This velocity is a proven and the most sublime fact in all science. We cannot comprehend it but since we experimentally prove the fact it is comforting to know how it is produced, and it is proven in Chapter IV.

This sublime velocity is absolutely essential to an understanding of the phenomena of nature and it is unthinkable that evolution evolved it out of primordial matter.

I appreciate the fact that nine-tenths of the readers have believed in the ether all their lives because there was no other explanation and that they would like to get rid of the conviction if it is wrong, hence the problem of the billion boys will make it easy.

ONE OR A BILLION BOYS

With rx as light, a billion boys are required to pick up a billion beans in one second. The ether "waves" as light requires one boy to pick up the billion beans in a second.

The accompanying Fig. 1 represents the 40-inch Yerkes telescope lens receiving light from the sun. All the rays of light must pass the focal point F and the one small piece of ether there, the one boy, must "wave" a billion

times for a billion rays passing in one second. But with rx as light each ray is a boy and the billion merely pass that point in a second, each boy doing only one thing,

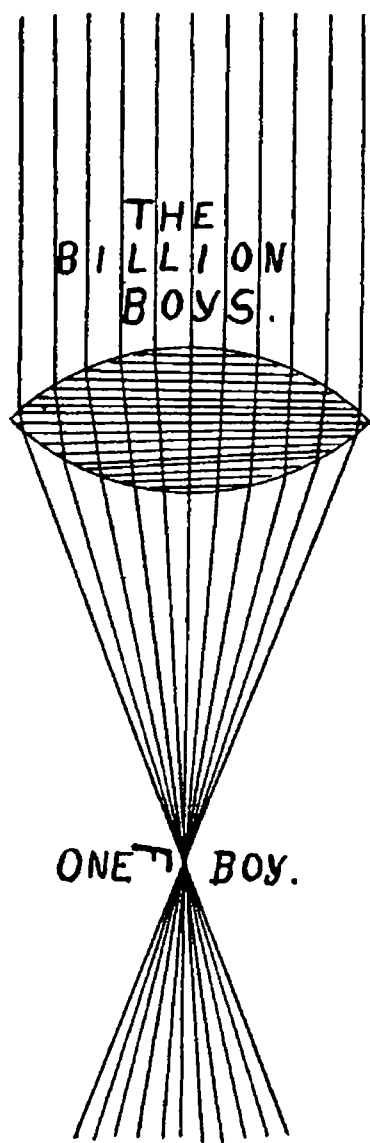


FIG. 1. PROBLEM OF THE BOYS

while with “waves” one boy must do a billion things in the same time.

Light travels 186,000 miles a second, and a line of rx 186,000 miles long would contain over a sextillion of rx and they could all pass through in one second. Hence

the problem is a billion times easier with rx while it surely is impossible with "waves." But whoever believes in "waves" must accept the one boy's impossible task.

But the point F proves besides that rx is heat, for every known substance will be melted instantly if placed at the point F. No astronomer's eye was ever at that point.

I could produce many pages on the inconsistencies of a universal ether but what I have given are sufficient for all who are anxious only for the truth and they will soon be, if not already, surprised that they ever could have believed in such an untenable hypothesis as the ether.

It was well enough to believe in the ether when nothing nearer the truth was offered. I should thank my good fortune as well as Descartes and all the physicists who have perpetuated the hypothesis, that they did not discover some of these inconsistencies for then they would not have left rx for me to discover.

My discovery of rx does not discredit the discoveries of Franklin, Grimaldi, Young, Alhazen, Faraday, Volta, Roemer, Hertz, Roentgen and hundreds that could be named but it does explain just what they did discover and really enhances their labors, and will enable others to make more discoveries to bless mankind. In truth one experimenter, Dr. George Starr White, who has accepted my new physics, has already made several discoveries that will bless the world and three of them will later be found in this book.

Therefore, the reader can now accept rx as a sublime reality, and when he has finished the study of this book he will know more about rx than all the other atoms combined, will see rx in every flower and gorgeous sunset and hear rx in every symphony of sound. Nay! Sublimier still! Whenever he looks at Polaris he will feel the actual touch and thrilling consciousness that a real inhabitant, a divine rx messenger has traveled for forty-four years from the Lighthouse of the northern skies through the interminable void of space to assure him of his faithful guardianship.

ANOTHER'S ATTACK

I have been reading from time to time of Dr. Charles P. Steinmetz's remarkable experiments with electricity and I have wondered if he had learned of "Rx." When lo! here in the July, 1922, Popular Radio Magazine he gives such support to the banishment of the "hypothetical ether" against which I have said so much in this book that I avail myself of the testimony of this eminent engineer.

It may be seen how persistent even an erroneous theory is when it gets into books. For Oct. 24, 1892, in the famous Central Music Hall, Chicago, where Marshall Field's great store now is, I gave the arguments against this groundless theory that are repeated in this book from my larger work and now reinforced by Doctor Steinmetz. Yet at this writing Prof. A. A. Michelson is on his way to Mt. Wilson to make tests on "hypothetical waves" in this "hypothetical ether."

Dr. George Starr White of Los Angeles, near where Professor Michelson will be, has experimentally proven the explanations of light and color as given in this book, and with many more experimental proofs, and if Michelson succeeds it will be still more proof of rx and cannot prove "waves" in an ether that does not exist. I wish to go on record now as predicting that science will soon eliminate this "hypothetical ether" from its books.

I would use more of Doctor Steinmetz's argument if I thought it necessary, because the ether is such an incubus to science. But I will merely give his own conclusions from his argument:

"In other words, the hypothetical ether (if it exists) is a solid with a very high rigidity—ininitely more rigid than the hardest steel. At the same time the ether must be of extremely great tenuity since all the cosmic bodies move through it at high velocities without meeting any friction . . . but the more it is studied the more unreasonable and untenable it becomes.

"Thus the hypothesis of the ether has been finally disproven and abandoned.

"There is no such thing as the ether. And light and wireless waves are not wave motion of the ether."

This is a final blow to Professor Michelson's "Interferometer" which is based on the interference of "waves" which I have shown in Chapter VI as impossible. Hence he will need to find another explanation for his experiment.

When Doctor Steinmetz becomes posted on rx as the truth of light, electricity, gravitation and magnetism, he will find that there are no waves of any kind and that the energy he is looking for is in the cohering and repelling capacity of the atoms of known tangible matter, and that Rx is the most wonderful atom known to mankind. We can now better consider the subjects in hand.

DEFINITIONS RESUMED

Energy and Force. Force is the resultant actions of the atomic energy of matter producing all cohesion of matter and called cohesive force, or the repulsion of those atoms that repel producing all gases. The first maintains the solid earth, and the second sustains the spacious, wondrous atmosphere. For the atmosphere is the most wonderful part of the earth which maintains our bodies, while the atmosphere sustains and entertains our minds. I have discovered over twenty new things pertaining to the atmosphere and the very latest, not even given in my larger work, "The Science of Physical Phenomena," will be found in Chapter IV, "Seeing Space."

Wherever a force is observed it can be shown to be the product of the cohesion or repulsion energy of the atoms of matter, and since every force is created by the energy of matter the force can be destroyed or transferred but cannot be transformed. But the energy of the atom cannot be altered or destroyed.

Motion. Motion is merely the continuous moving of a

body into adjoining space or spaces and gives momentum to the body.

This would be sufficient for motion were it not for the fact that the text-books teach that energy is matter in motion or that a body possesses energy by being in motion while it is solely force, momentum. Therefore for this error substitute the energy of the atom, at least while reading this book. This error led science into accepting the greater and really astounding error of "The Kinetic Molecular theory of heat," that overthrew the real reasonable theory of caloric, whose epitaph and memorial is now preserved in the word "calory."

Since my object is to spread the truth and banish the errors in physics, I must take note of these errors. And to be sure I am not misrepresenting science I have just reviewed two high school physics, and they say that energy is "transformed" and "molecules vibrate to produce heat." And one uses for explanation the pile driver which will soon be examined.

This "kinetic molecular theory" of heat requires that the atoms and molecules in iron or other matter do not touch, are in rapid motion and vibrate. How is it possible then for the iron to have any tenacity? It violates the law of "Contact" that I have given, for I agree with Newton "that action at a distance is unthinkable," and that is just the same as effect without contact.

All known energy is the capacity of atoms to act, cohere or repel, and all forces are the results of their action, and all known forces, except cohesion, are motion, moving forces; no energy nor forces whatever are "transformed," and no force even is transferred except momentum; and there is no energy nor force known outside of or apart from tangible matter. Even metaphysical force results from the energy of the material.

And one professor was so pleased to banish the "kinetic molecular theory," that he wrote to me, but he added that he was glad he gave up the "ether hypothesis" before he

read my book, "The Science of Physical Phenomena." Now the following will help every one to get a refreshing hold of truth from momentum and heat.

Momentum. Momentum is the product of mass, in pounds or tons, multiplied by its velocity per second, or rate of motion. If the force that hurls a bullet a mile were as quickly applied to a ton it would not move it but applied slowly would move the ton a little. Hence rate of motion is a large factor.

Therefore, a body in motion does not possess energy but force, the increase of the force of its mass is by velocity and its mass is one, unity when at rest. One pound moving five feet a second would represent five pounds of force. But there would be no change in the pound. If any change whatever takes place by a body in motion the change is due to its contact with some other matter and new action of energy.

Hence we may conceive momentum as the amount of motion in a body, the number of spaces occupied in the equal amount of time.

Heat. Heat is the measure of the quantity of rx in matter. It is not necessary to change the present use of the words heat, hot, cold, nor its use as to force, but there is no such thing, entity, as heat or the present concept, any more than running, walking, swimming, flying are things, but are actions and conditions of real things. So heat, cold, warm, hot, burning, combustion, are one and all merely and solely the action of the cohering and repelling ENERGY of the amount of rx atoms in matter.

Virtually rx is heat the concept, because its repulsion overcomes the cohesion of all other atoms. We speak of heat as a thing, why then is not cold also a thing? Heat, cold, hot, warm are only terms expressing the relation and quantity of rx in objects.

If it were possible to have a quart of rx it would merely dissolve every substance put into it but would not harm the atoms any more than water injures the salt put into

it. Just see how near the truth was Caloric, a fluid theory, which the really impossible "kinetic molecular hypothesis" theory overthrew 75 years ago. It is one of the qualities of rx, one that makes it a blessing in each place of need.

Likewise there is no such thing, entity, as electricity. For electricity in all its manifold kinds and uses is only the special ways of using rx. The reason electricity is so wonderful and perfect in its uses (and destructive) is because it is the commerce in rx.

Rx is the divine beauty of the lily, yet it may bury it in a shroud of ashes. Rx moulds its exquisite symmetry, clothes it in its immaculate color and reveals both of these perfect harmonies to the eye and to the soul.

Atoms and the essential and sublime phenomena of nature resulting from the two simple facts of their capacity to cohere and repel, and especially the special character of —rx, repelling its own atoms and cohering with all others, are so impelling that I do not seem able to just give a cold definition and let it go at that, for I crave to have all catch these new concepts (for I once taught the old that I score so harshly) and secure their enjoyment and inspiration. We see, know and enjoy the laws, forces and operations that, working together, make a great city, a state, a nation, and just so these new concepts open the understanding of the home and fireside, the vast and wondrously complex and variegated earth and the evolutions out in the depths of space, and perplexity and mystery give way to a satisfying and pleasing knowledge.

I admit that motion and momentum are naturally wonderful and mysterious and, perhaps more so, has been energy and for these reasons so deeply mysterious the belief prevailed that the simple thing of motion was created with matter, co-equal, but the stranger thing that it was "transformable"; that the mere motion of a hammer was transmuted into heat; that friction motion was "transformed," while one hundred times the same motion without friction would not produce any heat. It is the strange

thing that Count Rumford, the father of the "kinetic molecular hypothesis" did not investigate friction instead of motion in his experiments, for he secured heat only by producing more friction and not motion. Since the explanation of heat from friction is so simple, evident, illuminating, yes, and refreshing I will give it.

Rx and atoms are cohered and at rest in a piece of lead, but when it is pounded the cohesion is broken up and the rx is released as heat, and in the operation too, outside rx is forced into the lead. When an axle becomes hot it is because the pressure is breaking up cohesion and releasing rx. Hence no place in nature can be found where motion produces heat without contact and friction of matter.

As stated above, the problem of the cause of motion was so perplexing that they went back to "creation" to account for it. Therefore, since they furnish an answer to this question, I will give the two new laws of motion from my book, "The Science of Physical Phenomena," that I added to Newton's Three Laws of Motion.

Law IV. All motion is the product of the action of the energy of matter on matter at some time and place; and motion becomes the force of momentum of matter.

Law V. Every change in direction of the motion of matter, or loss or gains of motion is at the expense of other force; representing the creation or destruction of force.

The false doctrine that motion was created with matter and is indestructible but transformable, and when seemingly destroyed was merely "transformed into some other motion," caused me to work out and formulate these laws that are readily comprehended when energy and force are understood.

For example, here is one of the chief experiments to prove and support the false doctrine; the force to raise a pile driver 25 feet is not destroyed but merely "transformed" and becomes potential force in the elevated iron,

because when the driver falls it will generate the same amount of force. That does look well, but the high school student should run down the error, before he reads the explanation which verifies the new discoveries.

Steam force elevated the iron pile driver. The force of the steam overcame the force of gravity that was then acting. The force of the steam surely is destroyed for it was seen leaving the exhaust. Now too, the force of the steam is a repellent force. To "transform" a thing, it, the thing, must change into the "transformed" thing. But the steam was not changed.

Gravity will bring down the driver with the same force; but it is new gravity, and not that holding it down against the pull of the rope (which complicates the false doctrine but verifies the new). Suppose gravity stopped when the iron was released, then it would not fall. Or, suppose there is a powerful magnet at the top that could hold the driver by not quite touching it, then it would not fall.

Hence the doctrine of the "transmutation of force" is an error. Yet the learned and most highly honored President of my University expounded this law to my then susceptible brain, because it was the prevailing philosophy. There is no instance in nature of transmuted energy, force or matter. And how sophomoric I felt over my new knowledge.

Energy is the capacity of the atom.

Force is the action of the energy of atoms.

Inertia. There is no such thing or property of matter as "Inertia," but my dictionary says, "Inertia, inertness: the inherent property of matter by which it tends to remain forever at rest when still, and in motion when moving."

Hence the dictionary contradicts my statement, and also the fundamental propositions of this book, viz.: that cohesive and repellent energy are the only two things that inherently belong to matter, while this states that it is inert, and that "Inertia" is a property. All other prop-

erties of matter are conditions of matter produced by the energy of cohesion and repulsion.

This understanding of inertia has been the cause of more trouble to science than any other word. I ought to rejoice over it because it undoubtedly has made me a scientific author and led me perhaps into many of my discoveries. However, I am most anxious for the student to get the truth so that the errors will pass with the old scientists who perhaps cannot now change such long exploited convictions.

A body has momentum when moving and by Newton's first law of motion must keep moving in a straight line until something stops it. Hence there is no need of "Inertia." When a body is at rest it does not require any thing or property to hold or keep it at rest. Place some kinds of matter at rest out in empty space where there is no gravitation, would they not remain there at rest without any property? They would possess their energy, but that would not be holding them. They could not move, or what way would they move? For there is no "up" or "down" to space. Let us suppose we were there at rest holding them, if some force came along and put all in motion the way we are moving would be down. If the force had started us in the opposite direction then that would be down.

Therefore, consider inertia a synonym for momentum and it will simplify the understanding of phenomena.

Inertia with the proper understanding of its relation to momentum is a convenient and forceful word in literature. But I have treated it purely scientifically, for figures and metaphors are not factors in the science of material physics.

Property. The word property is so common in physics, and so misunderstood and applied that it is necessary to have it very definitely defined. In the first place conceive that the two attributes of the atom, Cohesion and Repulsion, produce every property of matter. That these

two are the only real and unalterable things of matter. For example, mass is considered a property, while cohesion makes it possible; elasticity is given as a property but cohesion makes a thing elastic or non-elastic, hence elasticity does not represent a nature of matter, it is more of a condition, for iron can be made elastic and non-elastic: the same may be said of hardness, ductility, malleability and all other properties. Therefore, consider that all properties now given of matter as merely conditions produced by the only two real properties, attributes, cohesion and repulsion.

It would require several pages to correct all the false notions of property, but above is the key by which all may construct their own understandings of property and all will agree. Properties are the states, conditions, qualities and appearances of visible matter produced by the energy of cohesion and repulsion of the atoms of matter. Cohesion and repulsion are the energy that produces these properties and all force is the action of the same energy.

They are fundamental and axiomatic in this book. Properties are acquired possessions of visible matter, not a nature.

Some may think and doubtless say, "He surely is mistaken as to color." But later it will be proven that the colors of all substances and atoms are the relations between the cohesion of the atoms and rx , and the repulsion of rx as light, and therefore variable properties and not a nature like cohering or repelling.

Cohesion. Cohesion is the capacity of the atoms to cohere. As illustrating what I have just said above, a textbook before me says, "Cohesion is the attraction between the molecules of matter." See what trouble that would create in the class if I were a pupil, for I would ask, "What is that 'attraction'? What is it like?" For to me it must be something like the atom or molecule, have form and occupy space. And it absolutely must have the identical capacity

to cohere to the molecules. Hence, why complicate our knowledge with imaginary forces without any gain?

If rx does not repel, then some other atom similar to rx must be present to do the same identical thing.

Therefore physics is so wondrously simplified by just knowing the truth that known atoms have the capacity to cohere in contact and that rx atoms touching repel each other.

We have been so long, long, long in using the term force without any concept of where or what it is that it cannot be over-emphasized to insist that whenever we use it that it is something like matter or contained in matter, otherwise it would be void, nothing.

We read in the books about atomic forces, molecular forces, cohesive forces, adhesive forces as though they were different things that affected the atom, molecule, etc., but without a concept, and they were plural. Now all these are just one, the inherent energy of each atom to cohere, hence they build themselves into molecules and masses and these different names are merely locating where the one force is acting.

Likewise of gravitational, magnetic, electric, capillary, electro-magnetic forces, plural, and not a concept of any one. Now the former are all stationary forces, they cohere and keep cohering. But all of the latter are the cohesive action with rx in motion, hence this class is motion forces; the electro-magnet holds only as long as a current of rx is moving and even in bar magnets there is a constant flow of rx, and they soon lose their force by the flow ceasing, and their strength depends on the quantity of rx flowing and temperature.

The air, steam, all gases and all explosions, gasoline, powder, dynamite, nitro-glycerine, light, sound and electricity, are all one and the same force, the repulsion of rx. They differ and vary only with the kinds and conditions of matter. The nervous force is included in these and is rx-electricity flowing over the nerve-wires of the body. It

even requires rx to think with and we have to sleep to have the repulsion of rx itself recharge the storage batteries of gray matter in the brain.

Gravitation. Gravitation or gravity is the force resulting from the passage of rx through masses of matter. It is virtually the cohesive action in continuity, which results from the unequal distribution of rx throughout the universe. Since Chapter V is solely concerned with this force a graphic description can be found there under the heading "Gravitation," if the reader desires the information now.

Space. Space is mere extension in three dimensions, is endless, self-existent, unalterable and eternal. This is a fertile topic in Chapter II where Einstein's concept is considered.

Duration. Duration is continuous existence, co-equal and universal with space, self-existent, unalterable, eternal.

Time. Time and times are measured portions of duration, independent of space, measured by events and instantaneous throughout all space. All events at the same instant of duration throughout the universe are simultaneous, or contemporaneous.

Since space, duration and time are the chief factors in the "Einstein Theory of Relativity," their fuller discussion is reserved for the Einstein Chapter, Chapter II.

Thanks to Professor Einstein for assisting the scientific world to disown the hypothetical Ether which has been used solely because no other better foundation was offered. For this cause science has made every possible experiment during the past 300 years to prove its reality, without a sign of success.

Spirit. Spirit, according to the accepted, undebatable definition of matter, must be matter, for if it does not occupy space it is void, nothing. It is so universally considered not matter that this may shock some. But why? It must be only a higher and more refined kind of matter. May spirit not be the indwelling life of matter? Its invis-

bility is the source of its mystery. But so also is matter at times. Some have tried to use spirit as a force in physics but science does not recognize this.

Religion. Religion pertains to life and is individual and has no part in the physical problems of nature, save as the individual makes use of the physical in his life. As working problems the scientist has been correct in his exclusion of religion, but that has passed.

For the scientist and the religionist touch inevitably at one vital point which defeats the scientist's demand for complete separation, and by this meeting point both have been greatly affected; hence it is proper if not essential to touch upon this point. The conflict comes from an historical consideration as to the origin of nature, the material universe as distinguished from the spiritual, immaterial as they each agree. I am dealing scientifically with the pure, orthodox, of each class.

The point and question is, from which one of two possible sources did the physical, material universe, Nature, have its origin? The religionist accepts his Creator, and the scientist his "primordial" matter. Since each can ask of the other the origin of the Creator and "primordial" matter with equal utter helplessness they compromise by going no farther back.

The scientist claims to produce his tangible evidence and rejects the religionist's because it involves the supernatural, although in the consideration of some forces, the scientist treats them as spiritual by using them as immaterial.

Science seemed to forge ahead by the refined interpretations of the apparent evidence of evolution whereby the scientist could apparently account for the origin of man by Nature. But this turns out to be merely a method of progress; and if true, most religionists find in it nothing inconsistent with the Creator. For, since Nature is wholly dominated by law, scientifically this would harmonize better than a creative fiat: and since Nature was given to man

as a problem to discover, his own origin would be a part of that problem.

While the scientist bases his position on law and evolution, the religionist bases his on revelation, the Bible, which bears out the condition stated just above, for it does not directly reveal anything, only incidentally, that man could otherwise find out.

I am a religionist and a scientist and from the standpoint of the latter I saw that the question resolved itself into a state of probabilities and the sanction of our own limited rationality. Hence, I surveyed the subject solely as a scientist, and found that, after using all sorts of unprovable hypotheses, I would be obliged to endow "primordial" matter with all the intelligence of a Creator, yet lacking in personality.

But I have a special reason besides what I have given, and that of Reverend Dole (noted in Chapter II), for bringing a religious consideration into the subject, which is, that I shall point out that from the scientist's own requirement it has a place in scientific matters.

The scientist places his position on the foundation of law that prevails and governs in nature, which he believes conflicts with the revelation to which the religionist subscribes, the Bible, even where he does not seem able to harmonize it with the laws of nature.

Here is a fact that science does not consider and the extreme religionist does not turn to his own advantage: In the case of evolution in all the stages of progress in both flora and fauna, the genera and species were as complete and perfect as at the present time. In other words, science has been looking for the "missing link" for man, while it has never found one of the missing links in any of the genera or species. And it is quite as formidable a fact that the end of evolution of both flora and fauna has been reached. Let the genius of all evolution picture or imagine any possible improvement in horse, ox, lion, giraffe, elephant, or conceive of any higher perfection of man him-

self, although some try to imagine human beings born with knowledge, that is as improbable as being born mature. This is a topic in Chapter VI.

The scientist must account for these facts before his "theory" of the "survival of the fittest" can be effective. I now come to the scientific reason for the scientist to accept the position of the religionist as the genesis of the universe.

The two Revelations, the "Laws of Nature" and the "Bible," have been held inharmonious and even contradictory by some scientists. But the first is gratuitous and merely so designated by the scientist, while the Creator proclaims the Bible as His revelation of Nature and Himself, which automatically and consistently the scientist must reject, because of his "supposed" conflict.

For fifty years, from its own internal evidence, I accepted the Bible as the Divine Revelation, besides the above scientific evidence that "primordial" matter required creative intelligence. The internal evidence is overwhelming, but for the scientist this one fact should turn his decision; the Bible presents Nature as a problem for man to work out and solve if possible, therefore we find that the Bible leaves that problem intact, and does not reveal anything of Nature that man otherwise could discover, or as merely incidental to the revelation of Himself. This should be comforting and effective to the religionist. Were it not for the Bible, that there is a Creator, would merely be a deduction of man himself.

We have now arrived at the point where the scientist's own formula supports the religionist. For the Creator, the Jesus Christ of the New Testament, the Jehovah of the Old Testament, has made His own exegesis of the Bible. It turns out that law rules in all realms, natural and spiritual.

From my personal position above related it is with wonderful pleasure that I am permitted and fortified to make this statement in a scientific book, for while the most

accurately scientific it confirms the revelation of a Creator above the power and intelligence I was obliged to ascribe to "primordial" matter. While man, without the Bible, (presuming it does not exist) to man, seems wholly physical and solely concerned with the tangible, physical universe, yet has a consciousness that he is above Nature, and in wisdom sees that there is something capable of a higher refinement than entertaining himself solely by appeasing and enjoying his physical senses. In like manner there is in the Creator something more than the display of His omnipotence.

Therefore this exegesis reveals the fact that whoever wrote or designed and executed the Bible must have originated all the names of the material things, titles of the Creator, astronomical, geographical, flora, fauna, empires, nations, tribes, families and individuals mentioned in the Word, because they all have three meanings, the literal, the spiritual and a celestial. (The Word is used as meaning that inspired portion of the whole Bible of which this may be said.)

For Jesus Christ appeared to Emanuel Swedenborg and commissioned him to write the spiritual meaning of the Bible, just as He appeared to St. John and revealed to him the Apocalypse.

Swedenborg was born in Stockholm, Sweden, in 1688, and died in London in 1774. He was the greatest scientist and philosopher of his age. Here I cannot write as a religionist, but as a scientist, of him and his work.

At the age of fifty-five he was the most noted man of Sweden for his scientific attainments and political eminence, having been elevated to the peerage. His scientific works were some seventy in number and included quite all branches of physics: mathematics, natural philosophy, astronomy, ontology, and even ventured far into inventions including the stove, and also leaving a description of a heavier-than-air flying machine which he declared would come with mechanical progress.

At fifty-five he states, "I have been called to a holy office by the Lord himself, who most graciously manifested Himself to me, His servant, in the year 1743."

He at once gave up his peerage and all scientific and political duties and devoted himself to producing in Latin the revelations that were given to him, and these, with his religious papers, are as extensive in amount as his scientific works.

This scientific evidence of the Creator is contained in his "Arcana Coelestia," and "The Apocalypse Revealed," and no scientist can reject the Bible until he is able to disprove the evidence they contain, for they prove that the Word is as far beyond the ability of man to produce as to produce a law of nature.

I will make but one quotation concerning him and then present the scientific evidence his "Revelation" has for mankind. The eminence of Ralph Waldo Emerson will even enhance the estimate he sets forth:

"Emanuel Swedenborg, who appeared to his contemporaries a visionary, no doubt led the most real life of any man then in the world. His moral insight, his correction of popular errors, his announcement of ethical laws, take him out of comparison with any modern writer, and entitle him to a place, vacant for some ages, among the lawgivers of mankind. One of the missouriums and mastodons of literature, he is not to be measured by whole colleges of ordinary scholars. . . . A colossal soul, he lies vast abroad upon his times, uncomprehended by them, and requires a long focal distance to be seen."

There is no occasion for argument or discussion, there is the Creator's Word, the Bible, with its literal and spiritual revelation and celestial still unrevealed. But the scientist and even his followers are asking, why has this latest Revelation by the Creator Himself had so minute an effect upon the world? I had to find scientific reasons for myself and I give them here, and I must handle them all too briefly because of the limited space of this book.

It all hinges around this fundamental fact: Bestowing liberty and rationality to man and reserving Nature for man's discovery, God was obliged to be impartial to every individual in every age, and this has been so widely misunderstood; as for example, the Jew has been considered a chosen, favored people, Abraham, David, St. Paul, St. John, while they were solely selected and necessary for the purposes of His Revelation given in the Bible.

But they were not in the least favored. For the Jew or any one to believe they are a chosen and favored people makes God a respecter of persons, which He explicitly declares He is not, and the Bible so proves. Now it turns out from His own exegesis that He rules by law in His spiritual universe as in the Natural, and only in that way could He be equal in justice and mercy. And God has suspended His law in only one instance, which is in the case of and for mankind; otherwise the human race would have been annihilated, or endowed with instinct as other animals. Of course, in His wisdom He foresaw this and His infinite Love provided for this one case that He might bestow liberty and rationality upon man and thereby permit man to create his own character with which to spend eternity.

Now the one Bible, Revelations, of Himself, and nothing of Nature, was prepared for all ages, with special methods of keeping its principle rightly understood in the world, and chief of these that there was no "primordial matter" but that He is the Creator, and now today that He is the Author of His Logos, the Word.

Hence as I view it, He saw that Evolution would be misunderstood by man in his conquest with Nature, and in this last Revelation through Emanuel Swedenborg, which He had provided for in the very construction of the Bible, He makes it equal for all mankind to have equal opportunity to know Him, and uninfluenced might equally employ his own liberty and rationality.

The different Dispensations of the Bible were for this

purpose, viz., for maintaining the equality of opportunity for all mankind. For with fifteen hundred years of prophetic history of Christ's advent and life, see how an enlightened world conjures sophisticated evidence against the reality of His Advent and Divinity. Now "Arcana Coelestia" should be considered as a final Dispensation for a like purpose.

Because of the character of his divine commission, Swedenborg was seemingly favored above any of the Seers of the Bible, unless Moses could be excepted; but none of the Seers of the Bible were specially favored save by Divine laws that apply to the humblest of His creatures, and these laws were made necessary by God making the exception in man's case to broken universal law of both the physical and spiritual universe. This exception is more definitely treated in the Appendix.

AXIOM OF REASON

If God's highest attribute is not Divine Love, He would not have given liberty and rationality to man, or He would have been indifferent to the consequences to mankind.

Therefore, the Bible is the Divine Science of the Creator, Jesus Christ.

In the Appendix it is shown that, The Bible is Scientific.