A MYSTIC HISTORY

IN LIGHT OF PHYSICS

BOB TICER

TABLE OF CONTENTS

FORWARD

When Shayla got off the school bus she laid down on the sidewalk with the neighbor kid. He was doing her homework for her.

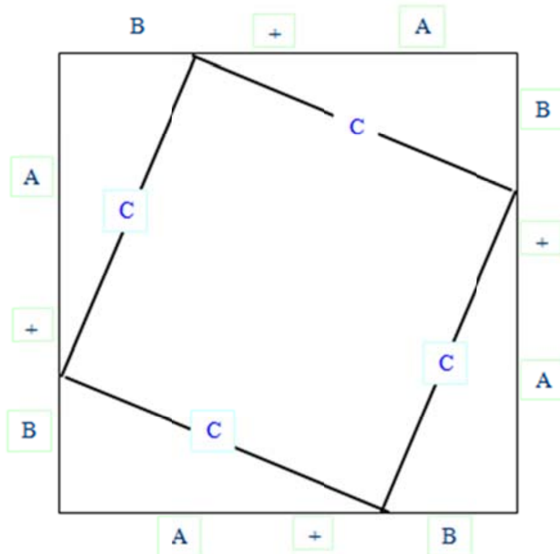
I had to convince Shayla that you learn by doing and that she was not learning by letting someone else do her homework.

As for the reason she did not do her homework, it was because she had a mental block with math. I told her math was a small step by step process and that taking each small step would lead to success, but that getting behind would result in a mental block.

She did not understand how to subtract 60 from 80, but she knew how to subtract 6 from 8. I told her she did not need to memorize each equation, as only ten essential numbers are added, subtracted, divided and multiplied. For instance, subtracting 6 from 13 is like subtracting 6 from 10 to get 4 and then adding 3 to get 7.

Physicists have said a supercomputer is needed to solve Einstein's general field equations, but computer programming is based on a binary code, a simple two number system.

Einstein suggested that the Pythagorean Theorem could be a helpful means of understanding the theory of relativity. I was introduced to this theorem in grade school, but I was not given its proof. At one time or another I wanted to be sure it was true, and I solved it according to the illustration below.



By the Pythagorean Theorem the length squared, say C^2, of the hypotenuse of a right triangle equals the sum of each length squared of the two other sides, say A and B. I discovered that an outward square can be formed by extending the lengths A and B. Within the square is an inner square that is surrounded by four right triangles. The sides of the inner square are equal length C. The sides of each right triangle are equal to lengths A, B and C.

I knew a right triangle is half a rectangle and the area of a rectangle is side A times side B. I therefore subtracted the area of four half rectangles as $4(\frac{1}{2}AB) = 2AB$ from the area of the outer square as $(A + B)^2 + (A + B)^2 = A^2 + 2AB + B^2$ and found out the resulting area to be equal to the area of the inner square: $A^2 + B^2$. The Pythagorean Theorem is thereby proved, as in the manner given below.

$$\boxed{\begin{aligned}&(A+B)^2-4(\tfrac{1}{2}AB)=C^2\\&A^2+2AB+B^2-2AB=C^2\\&A^2+B^2=C^2\end{aligned}}$$

Pythagoras discovered the Pythagorean Theorem twenty three centuries earlier and it was later proven by Euclid. It is not difficult to prove by anyone who is proficient in math and willing to make the effort, but the contributions of these earlier pioneers of thought are significant, as the step by step process of learning has been a combined effort too enormous for any one individual to achieve on their own. In truth we cheat. We share information, use calculators to solve math, rely on the accomplishments of others, and now have access to a tremendous accumulation of knowledge on the World Wide Web.

The progression of knowledge is thus a combined effort of individuals relying on the accomplishments of other individuals. However, the reliability of other accomplishments is often in doubt. I no longer doubt the Pythagorean Theorem but I am still not certain of ideas that mainstream physics now consider as firmly established.

Attending a community college in 1970 I learned Isaac Newton explained gravity by way of action at a distance, with which I was dissatisfied. I wanted to know if and how it is explainable by way of forces acting directly where the gravitational effect occurs. As I did with the Pythagorean Theorem, I endeavored to find my own solution and soon contrived a scheme I believed would work. It consisted of the absorption and emission of radiation.

To compare my scheme with already established ideas I enrolled in a class on special relativity theory. As usual I challenged every aspect of the theory until I could fully understand it or prove it wrong. I even wrote a paper assuming the absolute simultaneity of events is detectable along a sea line perpendicular to the direction of relative motion, but I soon came to the realization that direction as well as motion is relative. The velocity of the sea line is therefore unknown with regard to absolute rest such that the simultaneity of events along it is not absolute.

After becoming convinced that special relativity is an internally consistent theory also in agreement with observation, I took on general relativity theory. It, too, I challenged. As unique as I found special relativity to be, which entails the condition that matter can neither reach nor exceed light speed, I opposed the existence of black holes, as for an interpretation of the limiting condition of the escape velocity of a gravitational field in analogy to relative motion. I preferred to interpret the limit as a condition of the escape velocity whereby the black hole in non reachable.

Unlike my acceptance of special relativity I have not reconciled with the mainstream interpretation of general relativity and I have been more hostile to the cosmology (big bang theory) that is supported by that interpretation.

Contrary to big bang theory I believe the universe is not finite and expanding. Besides the mainstream interpretation of general relativity, big bang theory is predicated on the astronomical observation of the red shift in the spectrum of more distant starlight, which can either be caused by a recession between the light source and the observer or by a loss of light energy in intergalactic space. As with the latter, the universe is only finite observational-wise, and it does not need to be expanding.

Taking on the establishment is an enormous task, especially by someone who is only self-educated. For collaborative support I searched the World Wide Web to find out if anyone shared my view of the real cause of the red shift of more distant starlight. I hit on the site of Lyndon Ashmore, an advocate of 'tired light' theory

To question established ideas is to challenge their history, as for suggesting alternative ideas could have been overlooked, but such questioning is not without precedence. In formulating the theory of relativity, for instance, Einstein challenged Newton's assumption of space and time as self evident for describing the laws of motion. Today, outside the mainstream of theory, prominent physicists and cosmologists still challenge the establishment. Instead of an expanding universe that is finite, they propose an infinite one with more than 99% of it being a plasmatic state of matter that is electrical in nature. This plasma in intergalactic space absorbs light energy.

I am therefore not alone in my thinking.

Although I agree in part with plasma cosmology, and even though plasma cosmologists have founded their theories on experimental evidence in support of quantum principles, I further seek to harmonize the plasma universe with relativity theory. I thus review deeper into the history of ideas to better understand each step by step process from where we have been to where we are now, as for a more comprehensible path into the future.

Introduction

Rene Descartes philosophized, “I think, therefore I am . . . . If I am deceived of my existence, then I must at least be the Deceiver.” He therefore confirmed his existence by way of his own awareness of himself.

Am I alone?

Resistance to thought and action testifies there is an objective world extending beyond my control. I am not alone. We therefore exist.

I witness existence but do not seem to know how either existence or a state of consciousness is possible. I therefore merely assume we are parts of creation, as by a Supreme Being or from what already exist.

Can something exist without our awareness of it? Never mind. No matter. The mind-matter duality is of no concern, as this book is about the physical world inasmuch as our material existence is comprised of a substance of some sort that varies in shape, size and so forth. In this regard philosophers have attempted to explain everything that exists in the physical world as part of a primary substance that became referred to as aether.

Suppose all physical reality is indeed comprised of aether. What, then, can we determine with regard to its properties?

It would seem a primary substance of all physical reality can only move through space separating from and recombining with other substance in creating all the effects of reality. Being primary implies the aether has no internal mechanism to bond to itself except by pushing against other primary substance. It must thus be intrinsically elastic in order to maintain creation, as all interactions within it would otherwise cancel out.

Is it possible for primary substance reverse course within infinite space if it itself is only finite? It surely would separate into infinite space without any means of turning around to come back to interact with itself. For it to maintain continuous interaction, as by way of motion and its elastic quality, it therefore would be of infinite content even to partially fill infinite space.

Does aether fill all space as a plenum?

Descartes along with other philosophers assumed space consists of a plenum.

How, then, do various densities of matter exist if the aether is everywhere identical in composition?

A plenum does not even have wiggle room for a wave action to occur in the manner sound propagates through air as compressed states of air molecules. The aether as a plenum is thus contrary to the air medium for sound.

It is no wonder that early Greeks deep in thought regarded our world as illusionary. As for the plenum, they considered circular motion in it as possible. In a roundabout way motion is allowed by the complexity of circular paths.

Descartes also assumed aether moves circularly. He described it as evolving into a complex system of vortices of various sizes and rotational speeds. Total motion is conserved, as allowed by the movement of other aether. As for the complexity of motion, endless possibilities exist by way of the movement of vortices inside other vortices in creating various relationships. A number of like vortices in one region of space can thus be relatively denser than those in another region of space. However, since the density of this primary substance is everywhere the same, the world comes about by the exchange of motion between vortices.

All creation is thus already created out of what already exists ad infinitum.

Ways to Explain Nature

Some things seem unexplainable; other things we can explain we seem unable to prove. We cannot, for instance, explain the existence of the aether if there is indeed this primary substance from which all things form, but we can use it to explain how constant light speed is possible. A mathematical explanation of it, in fact, was given at the turn of the late 19th century by Hendrik Antoon Lorentz. His equations indicate there is a cancellation of effects whereby the absolute state of rest through which the aether moves is invisible to us.

As an alternative to explaining the null results of experiment, Albert Einstein merely postulated instead the constant nature of light speed as an experimental fact and he made no reference to the aether. He stated the concept of the aether was not needed to formulate theory; all that is needed is to describe the observable world in its functional manner, as to formulate laws of nature mathematically.

Einstein did formulate special relativity as a self consistent theory in agreement with observation, but physicists were still speculating on the true natures of light and matter. Max Planck had proposed in 1900 a quantum relation to thermal radiation. To explain the photoelectric effect Einstein proposed that an electron recoils from particle like radiation instead of the wave like properties that had previously been discovered of light. However, in 1924 Louis de Broglie discovered wave-like properties of matter. Niels Bohr proposed a model of the atom with particle-like electrons circling the nucleus, but Erwin Schrodinger countered with a Wave Mechanics whereby an electron cloud produces quantum effects.

In 1927 the top physicists of the time convened in Copenhagen, Germany to conclude a yearlong debate ending with the Copenhagen Doctrine. Schrodinger's wave equations predict events, but Max Born, Werner Heisenberg and Bohr argued that it is impossible to determine both exact position and exact momentum of a particle. They partly accepted Schrodinger's wave equations as agreeing with observation, but they also reinterpreted them as probability equations.

Although Einstein stated the aether is superfluous for the formulation of theory, he did suggest that it is useful for understanding theory by way of a historical perspective. There is as there should be, for instance, experiments attempting to determine the simultaneity of events, as contrary to SRT, but they could easier be misleading if they are without historical reference to the invisible aether at absolute rest. If the simultaneity of events is absolute instead of relative, for instance, it is then possible to determine the speed of light with respect to absolute rest, which is what really needs to be proven. Premature claims contrary to the history of special relativity therefore tend to confuse rather than benefit our understanding of theory.

Even though Einstein was highly respected for his opinion his suggestion was trumped by other leading physicists of the time. The decreed the concept of the aether is beyond objective science. As far as science is concerned what is unobservable does not exist. Since the aether had been determined to be invisible at best it was therefore proven not to exist in the real world.

Relating Theory

Stripped of historical and speculative explanation two significant theories came forth that are internally consistent and in agreement with the observation they apply to. These two theories are the theory of special relativity (STR) and quantum electrodynamics (QED). Theories have also emerged from the success of these two theories, but they remain controversial, as having less observational confirmation and are competitive with other theory.

Along with the success of SRT Einstein continued to formulate a more general theory of relativity (GRT) to include relativistic effects of gravity. In so doing, he postulated the principle of equivalence that assumes inertial mass and gravitational mass equate the same, as confirmed by experiment within an accuracy of one part in 10^{13} parts.

Einstein further assumed that an observer falling freely in a gravitational field is not internally aware of gravitational acceleration wherefore GRT space-time conditions are comparable to those of SRT. However, because gravity influences the path of light and tidal effects are internally detectable (as are the ocean tides resulting from the position of the moon) GRT is more complicated. SRT is thus only deemed valid inasmuch as internal effects of gravity are negligible in effect.

Although GRT is more complicated than SRT, it is successful in predicting the results of observation. For example, it predicts the observational displacement in the position of stars due to the bending of starlight as it passes by the sun towards Earth. Exactly how GRT applies to all of reality, however, is not as established. Einstein's first cosmological model of the universe, for instance, has not succeeded.

Einstein proposed the universe is finite and static, as having enough gravitational resistance to prevent it from collapsing in on its self. Alexander Friedmann examined Einstein's field equations, however, and he determined they did not indicate a static universe. It could instead be expanding or contracting according to a number of possible models.

Astronomers at this time were also examining the spectrum of starlight. Edward Hubbell, in particular, determined that on the average starlight from more distant sources is more shifted towards the red end of the spectrum. Moreover, the increase in the red shift appears to be in proportion to distance. This relation is now known as the Hubble Constant.

One possible explanation for the Hubble Constant is that stars recede from us at a present rate that is in proportion to distance. A recession between the light source and the observer results in light being received with less energy, as in analogy to a vehicle speeding away from a bullet. The bullet has little impact on the vehicle if they move at nearly the same velocity.

The Hubble Constant is also explainable as light energy partly absorbed while propagating through a medium in interstellar space, as according to a tired light theory. However, even though this theory also agrees with observation, it has not attained the favor of most mainstream physicists.

A recession of stars according to big bang theory is more popular. Expensive colliders, for instance, are built to detect the high energy particles that theories have claimed to exist. As for whatever usefulness the knowledge will be, a typical article quotes the aim of physicists as for discovering more of the origin of the universe within a split second after its creation. One article quoted a primary mission of the WMAP probe on its journey to the outer edge of the solar system as to gather empirical data for deciding between thirteen different versions of big bang theory. No other theory was considered in view of the article.

Pragmatism is a key part of accepting theory and big bang theory is pragmatic in providing a history of the universe. It assumes the universe expanded from a tiny volume of space about thirteen billion years ago such that astronomers can now see into the past from light now arriving at Earth that was emitted eons ago from distant stars.

Key also to the acceptance of big bang theory is its relation to other theory. It relates to general relativity, for instance, with regard to interpreting its origin as a singularity, and with a cosmological constant Einstein had added to his general field equations in an attempt to stabilize the universe. Although Einstein's objective was not successful the cosmological constant is now used by big bang theory as a repulsive force of dark energy that further expands the universe.

Big bang theory further links to quantum physics in theorizing how particles were initially formed. The universe was supposedly tiny and hot. It cooled as it expanded. During the process of cooling a microwave background radiation was created, as now detected to exist. Further cooling was followed by the formation of material particles, stars, galaxies and so on. The big bang thus further relates to particle creation.

Although not proclaimed as a scientific objective, big bang theory also connects with religion inasmuch as it assumes a process of creation, which is unknown to science. It was not created about six thousand years ago, as according to the strictest literary interpretation of the chronology in the Holy Bible, but it was created nonetheless.

Challenging Theory

Theories predict the outcome of events. They are thereby tested. New discoveries are made. The testing of theory is thus useful to discover more of the nature of our world as well as for predicting its outcome.

New discoveries are more apt to be made if more creative ways of testing them are devised. New ways to test theory are often brought about to verify theory in opposition to other theory. Challenging theory thus leads to a greater understanding of our world.

The challenge of established theory has occurred throughout the history of science. In a challenge to the established view of the 16th century that Earth rests at the center of the universe Copernicus put forward his idea of Earth orbiting the sun as a simpler scheme for describing the nature of the solar system. The scheme was advanced by Johannes Kepler. Galileo Galilei and by Isaac Newton then established laws of motion that reigned until Einstein challenged the assumption that absolute space and absolute time are a priori concepts intrinsic to our understanding of nature.

The scrutiny of theory continues to this day with the objective that the establishment of present theory might otherwise thwart our understanding of reality.

One way big bang theory could be a hindrance to scientific progress is with regard to the unification of gravitational and electromagnetic forces. Gravity is an extremely weak force compared to electromagnetism, as indicated by the equation

$$\frac{Gm_p m_e}{e^2} = 4.4 \times 10^{-44}$$

G is the gravitational constant of proportionality that determines the gravitational potential at any distance r from any mass m in the manner Gm/r. In contrast, e is an electronic unit of charge relating electromagnetic potential in the manner e^2/mr. The above equation is obtained by dividing the gravitational potential of say the proton mass m_p by the electromagnetic potential at the same distance of the electron mass m_e.

A numerical equivalent to this ratio is obtainable in relation to the Hubble Constant. Its value according to the data obtained by the WMAP space probe is H_0 = 70.5 ± 1.5 kilometers per second from a light source one hundred million parsecs from us. At a distance of $2r_n = 5.76 \text{ X } 10^{-12}$ centimeters, which is the diameter of the nucleus of the hydrogen atom, the velocity of the Hubble Constant is much smaller. Since one hundred million parsecs equal 3.09 X 10^{19} kilometers, dividing 70.9 kilometers per second by 3.09 X 10^{19} kilometers and multiplying it by 5.76 X 10^{-12} centimeters obtains a velocity of 1.32 centimeters per second. This velocity in ratio to light speed of c = 3 X 10^{10} centimeters per second is also 4.4 X 10^{-40}. Hence

$$\frac{H_o(2r_n)}{c} = \frac{Gm_pm_e}{e^2}$$

The velocity of the Hubble Constant at a distance that is equal to the diameter of the hydrogen nucleus thus equals the ratio of gravitational and electromagnetic potentials between the proton and electron masses.

The quantity $m_ec^2r_e$ also equals e^2, where r_e is the electron radius. Substituting $m_ec^2r_e$ for e^2 obtains

$$\frac{Gm_pm_e}{e^2} = \frac{Gm_pm_e}{m_ec^2r_e} = \frac{Gm_p}{r_ec^2}$$

$$\frac{H_0(2r_n)}{c} = \frac{Gm_p}{r_ec^2}$$

$$\frac{H_0(2r_e)}{c} = \frac{Gm_p}{r_nc^2}$$

There are three main ways to interpret the above equations: the Cosmic Coincidence; a modification of big bang theory; or considering another theory.

The Cosmic Coincidence provides no explanation for the above equalities except for its coincidence. The Hubble Constant according to big bang theory is only constant with distance and not with time. At any time in particular the rate of recession is distance constant, but the galactic distance between galaxies increases in time because of their recession. A greater distance for the same recessional velocity per distance means the Hubble Constant decreases. Since all the quantities in the equations above are established as fixed except for the Hubble Constant, it is thus nothing more than an extraordinary coincidence. However, it is still possible there could be a hidden variable, such as dark energy, that maintains the Hubble Constant in time.

Although the Hubble Constant ought to decrease as the recessional distance between galaxies increases, astronomical data from observation indicates the rate of recession is greater than it was in the past. In order to explain this increase, big bang theory is modified to allow the creation of dark energy, as according to the cosmological constant Einstein inserted in his general field equations. (The constant is part of the process of mathematical integration. It can have any numerical value including zero. Einstein interpreted its value as a repulsive force preventing the gravitational collapse of the universe.) It is only one more step in assuming this dark energy is continually added to the universe in maintaining the constancy of the Hubble Constant.

As for the consideration of other theory, the likely candidate is plasma cosmology along with tired light theory. According to this combined theory the Hubble Constant is the result of plasma in intergalactic space absorbing light energy. Because more distant sources of starlight fade out of view only the observable part of the universe is finite. The universe can therefore be infinite in extent with no need of a cosmic origin for creation and expansion.

In tired light theory the constancy of the Hubble Constant is according to how plasma in intergalactic space absorbs light energy. As a photon decreases in energy, the degree of red shift decreases as well. The total red shift is therefore neither constant in time nor distance.

Suppose the plasma absorbs the same amount of energy from all photons. The red shift is then constant with respect to time and distance, but it is contrary to the nature of red shifts occurring as a result of relative motion, which is in ratio to photon energy. However, it is also possible the absorption process of the plasma is more complicated. Various values of the cosmic red shift have been obtained by studies other than that of WMAP. However, the challenge for new theory is to provide more practical understanding of our world than does present theory allow. In order for tired light theory to compete with big bang theory, for instance, it needs to relate in practical ways to the historical development of established theory in general.

Maintaining Consistency

The success of new theory partly depends on how useful it is, but the usefulness of established theory is to be retained as well. Copernicus pointed out that the heliocentric system of the sun at the center of the solar system was a simpler means for calculating positions of celestial bodies, but it did not invalidate all the data collected in view of a complicated system of epicycles. In contrast, Einstein's GRT provides a more accurate description of the cosmos, but Newtonian Mechanics has provided a simpler mathematics that is adequate for space probes to explore the solar system.

For retaining the full usefulness of old theory the general development of theory needs to be consistent. In the development of relativity theory and quantum physics, for instance, physicists describe the nature of light as massless particles called photons. The reason for this description is that it is a convenient remedy in countering a condition of infinity. Since the equations of SRT indicate that matter increases in relative mass along with an increase in relative motion, whereby it would be of infinite of mass if it was able to accelerate to light speed, light as a massive particle that already moves at light speed was unexplained. Physicists thus chose to describe the nature of light as massless.

The description of light as massless particles does appear consistent with quantum physics with regard to the concepts of matter and antimatter interacting to annihilate each other, as to convert into pure energy, which is light. In other ways, however, the energy of light equates as mass. Light can change momentum of matter by reflection or absorption, which brings into question the law of conservation of momentum. There is also an exchange of mass between masses in elastic collision according to the law of conservation of mass. This same exchange of mass for conservation of mass is also required of elastic collision between matter and light.

In context, the massless light particles specifically referred to “rest mass”. Since light is not at rest, it can have mass, as contributable to the gravitational field according to GRT. However, such particles defined as massless as that of the neutrino were not included in the total count of mass in the universe until they were reconsidered to have mass.

A similar issue is with regard to gravity. How can it change momentum of mass in a particular direction if it consists of massless particles called gravitons? It is likely the gravitating process is more intricate with regard to an interaction with whatever the medium of space consists of, but if the action is observed only as the gravitational effect itself the casual explanation is then speculative at best.

How can we be sure?

In noting that the nature of black holes is contrary to thermodynamics Stephen Hawking proposed they evaporate in accordance with the quantum condition that there is the probability that any particle inside a black hole exists outside it. Hawking further assumed that the evaporation is a tunneling process that occurs between dimensions. Conservation of energy applies in that mass-energy that tunnels out of this dimension is compensated for because the same amount of mass-energy tunnels from another dimension into this one.

Hawking's proposal is consistent with theory, as with maintaining the established law of conservation of energy, but suppose black hole theory is modified further for it to describe the conditions of a black hole as constitutive of its own dimension. For observers of that dimension energy is decreased by evaporation in manner of violating conservation of energy unless the evaporation of energy is conditional to the absorption of it by way of gravity.

Modern theory is now dimensional. One version of string theory, for instance, explains gravity as leaks of energy to other dimensions. Could not the creation of the universe, as from a singularity, also be energy from another dimension along with the added supply of dark energy that adds to its rate of expansion? If it is, then the law of conservation of energy comes into play.

Perhaps gravity does occur according to an action at a distance principle, as in further accordance with a probability condition where energy leaks into another dimension. If it does, how can science confirm it if it is unscientific to explain cause and effect in the realm of unobservable possibilities? According to science there is evidence the universe has expanded from a possible creation from something. How it was created science cannot say, as no scientific explanation exists beyond observation.

Einstein preferred to explain the cause of gravity as a contiguous action that occurs in compliance with conservation of energy. Suppose it is indeed the result of a particular exchange of light energy in relation to the Hubble Constant. This casual explanation is only observable as the resulting effect of gravity itself. Any explanation of the actual cause of gravity is therefore scientifically invalid even if the explanation does not entail dimensions beyond the natural world viewable to our five senses.

When assumptions are refuted and replaced, the historical development of scientific theory is modified to comply in consistent manner. When the concepts of absolute space and absolute time were superseded by relative space-time, for instance, scientific theory was both modified and unified to comply.

Another established assumption possibly in need of replacement could be with regard to the definition of massless particles, such as the graviton. How does the existence of massless graviton result in gravity? If its action is only of itself causing a change in velocity of mass-energy in space, as a change in momentum in a particular direction, then the law of conservation of momentum in all directions is violated.

If an absorption and emission of a particular light energy in relation to the Hubble Constant is the cause of gravity, then it is likely the development of theory in general needs to be scrutinized for all of theory to be understood in consistent manner.

Historical Consistency

Theory is never proven. It evolves as it changes to describe the observable world more comprehensively. As it evolves it need to be consistent in order to retain the usefulness of theory it modifies. It thus has history with which it needs to be consistent.

The evolving of theory is complex with countless versions of theory contending to succeed others. For any contender to succeed it needs pragmatic support. The pragmatic support is with regard to how a theory relates to and is consistent with overall development of established theory.

The evolution of theory is thus a joint effort with a history of extreme complexity. In an effort to better grasp the significance of this history this book retains the concept of the aether as a tool for understanding theory.

The history here considered reaches as far back as the contributions of early Greek thought. For instance, from Aristotelian philosophy the concept of impetus emerged for allowing the motion of objects through a medium. Centuries later came the laws of motion and the particle-wave duality. Chemistry evolved by way of alchemy. Quantum physics followed. Wave theory along with the laws of motion evolved into relativity theory. Contending cosmologies are now the big bang and the electric universe.

Along with reviewing the historical development of theory is the elaboration of ideas. In the manner the constant nature of light speed has been explained by Antoon Lorentz in view of the aether an explanation of gravity is given in view of plasma cosmology, the electric universe and tired light theory. It is explained as a relativistic Doppler effect of matter and plasmatic space reflecting, or absorbing and emitting, light in a manner that is consistent with GRT in agreement with the conservation laws of energy and momentum. The explanation, however, merely shows it is possible to explain the intricate process of gravity in manner that is consistent with theory. It does not disprove the idea that conservation of energy could apply in manner of allowing energy to leak into other dimensions either in violation of conservation energy or in manner that the leakage allows dark energy to leak into our world.