

RECIPROcity

Journal of the Society of Unified Science, Inc.

VOLUME XXV, NUMBER 1

SPRING, 1996

Is there anything outside (that is, independent of) the universe of motion?

The findings of the extension of the investigation of the physical universe into the non-physical region are much too voluminous to be included with the physical results, and will be described in a separate publication, but it would not be appropriate to conclude the discussion in this volume without calling attention to the manner in which the clarification of the properties of the physical universe sets the stage for a confirmation of the reality of existence outside that universe. The more complete understanding of physical existence opens the door to an exploration of existence as a whole, including those non-physical areas that have hitherto had to be left to religion and related branches of thought. It is now evident that our familiar material world is not the whole of existence, as modern science would have us believe. It is only a part--perhaps a very small part--of a greater whole.

-Dewey B. Larson

Table of Contents

The Space-Time Universe	K.V.K. Nehru	1
Finitude of the Physical	Frank H. Meyer	4
Sub Atomic Calculations	Bruce Perot	8

Reciprocity

Frank. H. Meyer, *Editor*

1103 15th Avenue S.E., Minneapolis, MN 55414

K.V.K. Nehru, *Associate Editor*

P.G. School, J.N.T. University, Hyderabad 500028, India

Daeron P.N. Meyer, *Associate Editor*

1103 15th Avenue S.E., Minneapolis, MN 55414

A publication of the **INTERNATIONAL SOCIETY OF UNIFIED
SCIENCE**

an organization devoted to advancing the Reciprocal System of Theory

President, Hoyt A. Stearns

4131 East Cannon Drive, Phoenix, AZ 85028

Executive Director, Rainer F. Huck

1680 East Atkin Avenue, Salt Lake City, UT 84106

Secretary, Lawrence E. Denslow

P.O. Box 1034, Highland City, FL 33846

Vice President / Executive Researcher, Ronald W. Satz

1 Oak Drive, Parkerford, PA 19457

ISUS BOARD OF TRUSTEES

Dr. Ronald Blackburn	Highland Ranch Colorado
Lawrence Denslow	Highland City, Florida
David Halprin	North Balwyn, Australia
Dr. Rainer Huck	Salt Lake City, Utah
Thomas Kirk	Walnut, California
Prof. Frank Meyer	Minneapolis, Minnesota
- Prof. William Mitchell	Detroit, Michigan
Dr. K.V.K. Nehru	Hyderabad, India
Edwin Navarro	Mill Valley, California
Phillip Porter	Denver, Colorado
Jan Sammer	Grafiká, Czech Republic
Dr. Ronald Satz	Parkerford, Pennsylvania
- Robin Sims	Penticton, British Columbia
Hoyt Stearns	Phoenix, Arizona

Copyright © 1996 The International Society of Unified Science
(ISSN 0276-4172) All rights reserved

THE SPACE-TIME UNIVERSE

K.V.K. Nehru

(Reprinted from the Theosophy-Science Group Bulletin, XX, 3, June,1981.This essay is an example of activity in India & the Far East , teaching the Reciprocal System of revalued physics,created by Dewey B. Larson, through Dr. K.V.K Nehru, Director, Institute of Post Graduate Studies and Research, Jawaharlal Nehru Technological University, Hyderabad. Dr. Nehru, an Editor of *Reciprocity* and a Director of ISUS,Inc will be with us at our 21st ISUS Conference 8/12-13, Denver.)

The last years of Einstein were spent in pursuing his cherished dream of evolving a general theory of the universe. He never succeeded. Nor anyone else did, so far. The body of knowledge which we call physical science is at present only a loose collection of numerous different theories, each constructed to explain a particular domain of facts and not applicable to another set of facts. There has not been a general theory covering all physical phenomena, from the microscopic to the macroscopic

Indeed the experts in the field-those who studied not only in depth but also in breadth-are beginning to realize that modern science reached the end of a blind alley(the nature of this blind alley will be explained later). The proliferation of concepts like the neutron stars, the black holes ,the gravitational waves, the vacuum interactions and quarks-Dr. Philips' *ESP of Quarks* is not the final word on *Occult Chemistry* and we must always have an open mind- are the results of frantic attempts to save the sinking boat of of modern science. Unfortunately, it is not recognized that all of these are pure speculations and are never observed.

The object of this article is to introduce to the general theory of the universe, now available by the researches of Dewey B. Larson and called the Reciprocal System of Theory, to outline its remarkable accomplishments and also to show how closely it resembles the occult view delineated in *The Secret Doctrine* . But first it is necessary to take a look at the pandemonium in modern science and to realize that all is not well with it.

Failures of Current Science

We will briefly trace some of the important short-comings of the prevalent world-view of the modern science-which, of course, does not mean to deny the fact of its impressive achievements.

1. *The nuclear atom and the electronic structure of matter.* From the fact that in certain atomic reactions, like radioactivity, beta rays(electrons) were found among the products, it is concluded that electrons are constituents of atoms. But the equally probable alternative of the electrons coming into existence *during* the process is overlooked For example, in atomic disintegration photons are also found in the products. However, the previous logic is not applied here: the photons are not taken to be parts of the atoms in the manner in which the electrons are supposed to be.

The postulated electron in the atom is then imputed with strange characteristics as compared to a free electron-such as the lack of definite location, jumping from one orbit to another without traversing the intervening space, etc.

As the atom itself is found to be electrically neutral, the negative charge of the electron is assumed to be neutralised by an equal amount of positive charge in the nucleus. But in actuality a negative and a positive charge brought into mutual contact do not merely neutralise each other: they *destroy* each other, as is amply demonstrated (by the same science) in the annihilation reactions between matter and anti-matter!

Further, the assumed positive charges of the protons in the nucleus are confined to extremely small dimensions, of the order of 10^{-13} cm. Therefore, the force of repulsion among these positive charges is tremendously large (due to the inverse square variation with distance) and the nucleus must come to pieces. To counteract this, therefore, it is assumed *ad hoc* that there is an attracting 'nuclear force' to hold the nucleus together. Since there is absolutely no observation support for the existence of this hypothetical nuclear force, it is further assumed that this force exists only in the nucleus.

Another fly in the sore is the case of neutron, which is also supposed to be a constituent part of the nucleus. It is a known fact that the free neutron is not a stable particle and spontaneously disintegrates with a half-life of about 13 minutes. However, since the atom itself is stable, the scientists are obliged to attribute strange characteristics to the neutron as part of atom.

It is assumed that the recalcitrant nature of the inert gases results from the occurrence of 8 electrons in the outer orbit, which is thought to be a stable configuration. In fact, the covalent bond, such as in CuCl, is thought to be the result of the respective atoms assuming this supposedly stable configuration of 8 electrons in their outermost orbits. If this is true, it is not clear why, for example, an atom like that of chlorine, having 7 electrons in its outer orbit, does not convert to a stabler structure and turn into 'inert chlorine', by absorbing an electron when placed in an environment of negative charges.

The view that electric current consists of a flow of negative charges cannot be true since the *observed* behavior of the flow of static negative charges is not the same as that of an electric current. For example, the current-carrying conductor is electrostatically neutral, which is not true in the case of accumulated static electric charges.

The property that distinguishes matter from antimatter is taken to be the charge conjugation. For example, the particle conjugated to electron with its negative electric charge is positron, which is an electron with positive electric charge. On this basis, it is hard to see what are the conjugate antiparticles of electrically neutral particles, like neutrons. Indeed, it is contended that this particle itself is its conjugate.

Then there is the proliferation of the elementary particles. Their number grew from the original three of electron, proton and neutron to more than a hundred now. It is evident that they can no more be treated as elementary. In addition, there is no explanation of the electric charge itself. It is simply taken to be one more of the given items of Nature, as irreducible and as incomprehensible as gravity. We must realize that having lived with these irreducibles, the given items of physical knowledge, for generations has lulled us into the false belief that they do not require explanation or that no explanation is ever possible.

The final blow, however, to the concept of the fundamental role of matter comes from the interconvertibility of matter and radiation. There should, therefore, be an entity more fundamental to both-the common denominator, as it were.

2. *Relativity, gravitation and the macrocosmos* The mathematics of the Relativity theory, like the Lorenz transformations, the Riemannian geometry, etc., far antedate the Relativity theory. While its mathematics proved to be correct, the Relativity theory is not internally consistent in its conceptual foundations. One of these logical inconsistencies is the clock paradox. According to Relativity a moving clock runs slow. But since (again according to Relativity), motion is relative, if you consider the case of two clocks in relative motion, each clock runs slower than the other. This paradox has never been resolved, except by resorting to arguments which automatically confute Einstein's views.

Einstein's dictum that c , the velocity of light is the highest speed that is possible in the universe has no real observational support. It may be recalled that the experimental situation which led him to reach this conclusion is the observed decrease in the acceleration of electrically accelerated charged particles at high speeds. Since from Newton's law, $\text{Force} = \text{mass} \times \text{acceleration}$, Einstein concluded that for this to happen, the mass must increase with velocity. His formula predicts, in fact, that the mass increases and approaches infinity as its speed approaches c . But the theory is silent as to any increase in the gravitation pertinent to this increasing mass.

Obviously, Einstein overlooked other alternatives, equally valid mathematically, which explain the decrease in acceleration with increase in speed. One alternative, for example, is that the effect of the apparently constant electric charge that is forcing the acceleration may decrease with speed. The equation, $\text{Force} = \text{mass} \times \text{acceleration}$, still holds good. If this is true, as Larson points out, there will never be infinite mass and consequently there will not be any upper limit to the speed attainable to the mass. The speed, then, is limited only by the capabilities of the process. Indeed there is visible evidence-like the quasar red shifts-that point to these ultralimit speeds; but unfortunately, the evidence is being misinterpreted because of the unquestioned servitude to Einstein's authority.

Einstein's concepts in the General Relativity too are equally questionable. Larson points out: "gravitational energy is purely an energy of position *But energy of position in space cannot be propagated in space.*" (Beyond Newton, p.23, 1964). Thus gravitation can never be propagated. In fact, astronomers disregard Einstein here and make their calculations as though gravitational action is instantaneous in order to arrive at correct results.

In short, one finds that there has been no understanding of many important cosmological phenomena like gravity or its relation to nuclear and electromagnetic forces, quasars, pulsars, origin of cosmic waves, the 2.7 K background radiation, the 'constants' of nature, etc. except with the use of ad hoc hypotheses. That there has not been a general theory hitherto explaining all the realms of the physical universe is no surprise since the individual theories of modern science each applicable to only a limited range of physical phenomena, themselves are either unsound or not self-consistent or are replete with hypotheses bolstered up for the occasion [TO BE CONTINUED]

FINITUDE OF THE PHYSICAL

Frank H.Meyer

(This paper was presented to the Spring, 1996 Meeting of the Minnesota Area Association of Physic Teachers, April 27 at Hamline University, St.Paul, MN.)

We are hurt in physics not so much by what we don't know as by what we know that isn't so. Until quite recently professional natural philosophers and/or physicists preferred to take for granted without examination that the physical universe is an all-inclusive continuous infinite whole, a universe of continuous matter and energy in a continuous space and time.

The mistaken guess that the physical universe must constitute an infinite whole ensued historically from the unproved assumption that matter and energy, motion, space and time are all infinite *in the sense* of all being infinitely divisible. According to Aristotle⁵ motion is supposed to belong to the class of things which are continuous and *the infinite presents itself first in the continuous* . From assuming that motion and time are continuous, Aristotle went on to postulate that matter and the *universe of matter are continuous* . Aristotle also believed the physical world to be finite in the sense of being bounded.

For more than twenty centuries the proposition that matter is quantised, not simply continuous, was dismissed without examination by the consensus of the scientific profession. It was not that nobody thought about the alternative. During the fourth century B.C, the scientist Aristotle disputed the proposition of Leucippus and Democritus earlier in the fifth century B.C. that matter is quantised. They named the finitely divisible particles 'atoms' or 'atomos'. The word 'atomos' comes from the Greek, 'a' meaning *not* and 'tomos' meaning *cut* . For more than twenty centuries most natural philosophers and their descendants knew with Aristotle that matter and light, motion, space and time must be continuous or infinitely divisible; they could not possibly be quantised or finitely divisible.

As late as the middle of the nineteenth century the physics profession of Europe as a whole, believed what most of their predecessors taught: that matter and energy must be continuous or infinitely divisible *rather than* discontinuous or quantised (finitely divisible.) particles of matter and energy.

The possibility that Nature or Nature's God, S(he), would permit both alternatives was ruled out as illogical and unreasonable. In order to silence a few dissidents, including the dead Issac Newton, the profession agreed on an *experiment* to decide where the truth lay. Newton believed that even if space and time had to be continuous, **light** might not be continuous or infinitely divisible. The rival theorists agreed that if light sped faster through air than through water, then this would prove that light must be continuous, not finitely divisible. However, if light sped faster through water than through air, then this would prove that light is finitely divisible, not continuous. Actually light appears to speed faster through

air than through water. Therefore, it was concluded that since light appeared to be a continuous wave motion, it could not be a quantised particle motion. If the experiment had turned out differently, the consensus probably would have been that since light appears quantised, light could not be a continuous wave motion. During 1905 Einstein published a paper about the photoelectric effect which showed evidence that each party of physicists was correct in what he affirmed, but **not** in what he denied: light evidently can behave like a wave & also like a particle motion.

In the history of physics a long time after the word 'atomos' was invented atoms were **out** of everyday physics, even long after the stationary flat earth 'truths' were dismissed. To-day atoms and quantum mechanics are **in**. This result is partly due to Albert Einstein's 1905 papers on the photoelectric effect and on Brownian motion and also to Dewey Larson's 1959 publication, *The Structure of the Physical Universe* .

Instead of the space-time continuum postulate of relativity theory, Larson **teaches** that matter and light are, in fact , finitely divisible, **because** space, time and motion also are quantised or finitely divisible.

As a consequence, Larson **teaches** that infinity is excluded from the physical universe, **because** all motion is a relation between a time magnitude and a space magnitude and *the quantity of motion is finite*.

Hence Larson's reciprocal system of physics predicts that neither absolute infinite speed nor absolute rest (absolute zero speed) does or can occur within the physical universe, **because** excluded by the *finitude* of the physical. Therefore, a better choice for speed unit than zero speed is **unit speed**, whose magnitude is the *speed of light in vacuo*. Unit speed can & does occur in the physical universe.

Larson also **teaches** that motion is prior to matter. while matter and motion are, like space and time, inseparable. Matter in the reciprocal system theory is inseparable from motion, **because** matter is only one of many forms of **motion** and **because** space and time are inseparable from **motion**.

Dewey Larson newly defines **motion** as nothing more nor less than the *relation* between two uniformly progressing reciprocal quantities, space and time.

Motion, as defined is **measured** in terms of *speed* , the scalar magnitude of the relation between space and time. HERE LET US PAUSE A MOMENT to recognize that Larson does not seek and find the fundamental postulate of the physical universe of motion in the wild blue yonder beyond space and time, but *extrapolates* it from the everyday close-to-hand traditional well established routine of measuring motion as *speed*, disclosing that motion is the reciprocal relation between space and time *in practice as well as theory* .

By reason of the postulated reciprocal relation between space and time, each *individual unit of motion* is a relation between one unit of space and one unit of time, *motion at unit speed* .

The universal primary motion is the outward, uniform, scalar space progression with time progression, at unit speed. All physical nature is composed entirely of one component, **motion**, existing in three dimensions and in *discrete units*. Since all physical phenomena are manifestations of motion and displacements from unit speed, they all are measured in terms of $1/n$ and $n/1$, when n is finite (but never zero). No infinities are possible.

As previously mentioned, the Larson reciprocal system of physics identifies unit speed with the speed of light. Larson agrees in practice with what conventional modern physics means by "the speed of light", but **not** in theory. The speed of light is **not** the translative speed of a photon through a stationary space-time continuum, but is rather the translation rate of its **physical location**, in which the photon stays from its origin. Larson rejects the mistaken idea of Einstein² that motion does not apply to space. Einstein appears to have borrowed this unproved guess from a scholium of Newton³, which postulates that absolute space remains always the same and is immovable. Newton probably fixed on absolute space to stay put for calculating in an heliocentric cosmology as a substitute for a postulated immovable earth located at the center of the geocentric cosmology, recently overthrown by Copernicus. Larson also rejects the misguided idea of Issac Barrow⁴, the contemporary mentor of Newton, that the idea of motion is inapplicable to time. Aristotle⁵ was ahead of Barrow in recognizing that time is an aspect of motion.

Larson builds on Einstein's and Minkowski's attempted correction of Newton's mistaken notion that **no** relation exists between space and time. Their proposed correction is a purely mathematical correction, premised on the arbitrary assumption that space-time is continuous, & the corollary that space-time is a four-dimensional continuum, through which all photons translate with the same uniform speed. How? Einstein and Minkowski do not say, although Minkowski⁶ does suggest the possibility of space progression. Einstein¹ eventually did not know how and says so in this report:

"Our only way out seems to be to take for granted the fact that space has the the physical property of transmitting electromagnetic waves, and not to bother too much about the meaning of this statement."

In the reciprocal system neither continuous nor quantised space by itself is called upon to transmit electromagnetic waves. Rather quantised units of motion, involving both space & time, in the ratio of one unit of space ($=4.5563352671 \times 10^{-6} \text{cm}$) to one unit of time ($=1.5198298508 \times 10^{-16} \text{sec}$) transmit **physical locations**, whether or not occupied with photons, at this 1/1 ratio, called by Larson 'unit speed'. This unit speed is an absolute constant $=299,792,458$ meters per second equal to the best measured translative speed of light..

All photons are assemblies of these same units of motion. Thus, every photon is a compound motion unit with at least two speeds associated with it :1.) a translative speed in vacuo, already reported, which it has in common with all other photons in vacuo, the speed of its *physical location*. Each photon remains throughout its existence in the *physical location* in which it originated. 2.) Every photon in vacuo

consists of more than the uniform translation of its physical location at unit speed. It has a second speed, a speed displacement from unit speed of its oscillatory motion, involving either n time units associated with one space unit or n space units associated with one time unit. To distinguish its oscillatory speed from the translative speed, the oscillatory speed is called its *frequency*.

All physical entities from photons to atoms of matter and "anti-matter"(reciprocal or cosmic matter) are compound motion products of speed displacements from unit speed.

Verification of the finitude of the physical, including the finite divisibility and quantisation of motion, space and time, by the reciprocal system of physics, is now sufficiently evidenced to use as a reliable criterion to rule out the correctness of a number of established ancient as well as modern theories of physics.

Dr. Richard Feynman⁷ has questioned the infinite divisibility of space:

"I believe that the theory that space is continuous is wrong, because we get these infinities and other difficulties, and we are left with questions as to what determines the size of all particles. I rather suspect that the simple ideas of geometry, extended down into infinitely small space are wrong."

Dr. Albert Einstein⁸, creator of the space-time continuum postulate of relativity theory has questioned during his later years the whole idea of a continuous field:

"One can give good reasons why reality cannot at all be represented by a continuous field. From the quantum phenomenon it appears to follow with certainty that a finite energy can be completely described by a finite set of numbers(quantum numbers). This does not seem to be in accord with a continuum theory and must lead to an attempt to find a purely algebraic theory for a description of reality. But nobody knows how to obtain the theory." Nobody?

References

- 1.)Einstein,A. &Infeld, L. *Evolution of Physics* Simon & Schuster, 1938, p.153.
- 2.)Einstein, A. *Sidelights on Relativity* Dover, 1983, p.24
- 3.)Newton, I *Principia* 1729,1946.p.6
- 4.)Barrow, I. *Geometric Lectures* Open Court,, 1916, pp 35-37
- 5) Aristotle *Physics* , Book III, p.278, Univ. of Chicago, Great Books, 1952.
- 6.) Minkowski,H.Space and Time in*The Principle of Relativity* pp 75-76 Dover,1913
- 7.) Feynman, R. *The Character of Physical Law* M.I.T. Press, 1990, pp166-167.
- 8.) Einstein, A. *The Meaning of Relativity*. Princeton University Press,1955, p.165.

Subatomic Mass Recalculated Update

Bruce M. Peret

Correction to Muon Neutrino Mass

In my paper, "Subatomic Mass Recalculated" (*Reciprocity XXIV*, Number 1), in the last paragraph on page 13:

"The mass of the muon neutrino is inferred from measurements of muon momentum in the decay of a π^+ particle, and results in a mass of 105.658389 MeV (0.11342891388 u)."

The value listed is for the muon, not the muon *neutrino*. The correct value is <0.27 MeV, or 0.00028985683 u. Tables 2 and 4 also require these corrections, which are supplied.

Rethinking Neutrinos

Considering how close Larson's calculated values are to the observed values for subatomic particles, it seems incongruous that both the muon and electron neutrinos should have such enormous error. In checking into the mass measurement procedure, I found that the observed values for both neutrinos *should* be correct, and concluded that there may be conceptual problems in Larson's interpretation of mass for these two particles.

Muon Neutrino (massless neutron) Mass

The logic Larson uses to determine mass is, "The massless neutron [muon neutrino], the $M \frac{1}{2}-\frac{1}{2}-0$ combination, has no effective rotation in the third dimension, but no rotation from the natural standpoint is rotation at unit speed from the standpoint of a fixed reference system. This rotational combination therefore has an initial unit of electric rotation, with a potential mass of 0.00057850, in addition to the mass of the two-dimensional basic rotation, ...".¹

As I understood the convention, a displacement of zero means a scalar value of unity--uniform motion, the natural datum. If "no rotation from the natural standpoint" is "rotation at unit speed" with potential mass, then every location not occupied by matter should exhibit a mass of "e", that of the electron or positron. This is not observed, and I submit that no rotation in any dimension is exactly that, no rotation, and no potential mass. Thus, since the muon neutrino has no rotation in the 3rd dimension, it contributes no mass to the particle.

Secondly, when Larson adapts the $\frac{1}{2}-\frac{1}{2}$ convention over the 1-0 convention for the description of the massless neutron, he states, "If the addition to the rotational base is a magnetic unit rather than an electric unit, ..." and "...half units do not exist, but a unit of two-dimensional rotation obviously occupies both dimensions."²

This makes the massless neutron, or muon neutrino, the two-dimensional version of a positron, having a single two-dimensional temporal rotation instead of a single one-dimensional temporal rotation, not necessarily occupying both dimensions, but distributed over both

dimensions, and resulting in the appropriate $\frac{1}{2}-\frac{1}{2}-0$ notation.

Since $1^2 = 1$, the applicable mass is "e", not "p+m." And because the mass is distributed over two dimensions, the potential mass for the muon neutrino is $e/2$.

The new calculated mass is therefore $e/2$ times the conversion factor of natural units to unified atomic mass units (nu \rightarrow u):³

$$\begin{aligned} & e / 2 * (\text{nu}\rightarrow\text{u}) \\ & = 0.00057870 / 2 * 0.999706441403 \\ & = 0.00028926691 \text{ u} \end{aligned}$$

Or, approximately 0.26945 MeV. Comparing to the observed value of "less than 0.27 MeV (CL = 90%)," is as close to perfect as can be expected, given the uncertainty of the observed value.

Electron Neutrino Mass

The electron neutrino, $\frac{1}{2}-\frac{1}{2}-(1)$, is the muon neutrino with an additional 1-D spatial (electric) rotation. This gives the particle no net motion, and hence no potential mass. Larson indicates, "But since the electric mass is independent of the basic rotation, and has its own initial unit, the neutrino has the same potential mass as the uncharged electron or positron, 0.00057870."¹

I disagree with this statement for the neutrino. It may be true for the "p+m" mass conditions, but here we have "e-e", akin to a stable positron-electron combination due to the additional rotation in time on the positron component, and hence is massless.

But, the electron neutrino *does* have an observed mass of 5.1 eV. The measurement process deals primarily with charged particles, and I believe this observed mass is the mass due to the interaction of a charge on the neutrino with the charge on the atoms of the detector.

The charged neutrino has a mass of "c", the normal electron charge. The charge of atoms in the detector have a mass of "C", the mass of normal charge. Their interaction will be "C+c" (where "c" is positive, because we are on the same side of the unit boundary)⁴.

Because charge is an effect of a "third region"⁵, the charge needs to be brought across the unit boundary to measure the mass effect. This is a relation similar to "equivalent space", and results in the effect being the square of the value, "(C+c)²".

The observed electron neutrino mass, due to charge interaction, is:

$$\begin{aligned} & (C+c)^2 * (\text{nu}\rightarrow\text{u}) \\ & = (0.00004494+0.00002996)^2 * 0.999706 \\ & = 0.00000000560 \end{aligned}$$

Or, approximately 5.21 eV. The observed value is 5.1 eV, again, extremely close to the *calculated* value.

* Full article in
Next issue.

(To be continued)

D 25.1-9