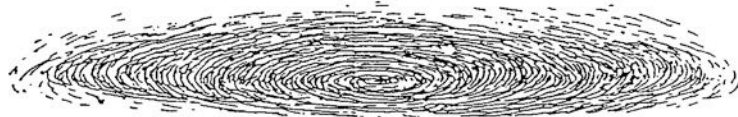


# FULCRUM<sup>©</sup>

The Science Journal of  
The University of Science and Philosophy

ENERGY IS CONCEIVED IN INERTIA, STORED  
IN MASS AND RECORDED IN PLANE

## EVOLUTION OF MASS FROM PLANE TO SPHERE



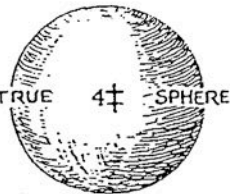
NEBULOUS 1+ PLANE



OVOID 2+ MASS



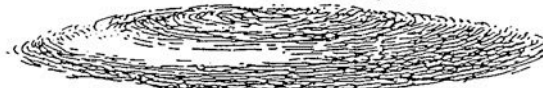
OBLATENESS 3+ DECREASES



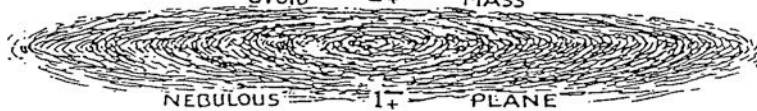
TRUE 4+ SPHERE



OBLATENESS 3+ INCREASES



OVOID 2+ MASS



NEBULOUS 1+ PLANE

### APPEARANCE

Centripetal force exerts its attractive pull toward the point of north in a common vortex from all directions, but preponderantly by the way of the poles.

The ultimate result must be a sphere



THE ROAD TO APPEARANCE OF FORM IN MASS MUST BE BY THE WAY OF PLANE



### DISAPPEARANCE

Centrifugal force exerts its repellent thrust away from a common vortex in all directions, but preponderantly from the plane of the equator.

The ultimate result must be the dissolution of spherical form

THE ROAD TO DISAPPEARANCE OF FORM IN MASS MUST BE BY THE WAY OF PLANE



©

MASS IS GENERATED INTO THE APPEARANCE OF FORM BY THE ATTRACTION OF GRAVITATION AND IS RADIATED INTO THE DISAPPEARANCE OF FORM BY THE REPULSION OF RADIATION

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Volume 4, Number 1

January 1996

This journal focuses on the science of creation as revealed to Walter Russell. Dr. Russell, artist/philosopher/illuminate, spent 35 years describing God's multidimensional creation processes to scientists and lay persons. Known as the Russell Cosmogony and published in several different written editions, the concepts revealed to Dr. Russell during his 39-day illumination in 1921 describe this three-dimensional world of light and matter as an extension of the One substance of God. More specifically, matter is described as light (patterned thoughts) spirally wound into vortices of motion, a recording of God's one idea of creation, and motion sustained by God's rhythmic Thinking.

The *Fulcrum* is designed as a quarterly forum in which scholars and students can interact to exchange insights and perspectives on the interpretation and application of the vortical principles of the Russell Cosmogony. We seek to fan the flames of creative thinking and to stimulate discussion, awareness, and understanding of God's two-way, creating/decreating electric universe. Without such knowledge, humankind will be forever in a scientific and philosophical paradigm of a universe dying a heat death; in such a universe energy only runs downhill, and everything moves toward greater disorder. Our present economic, social, psychological, medical, philosophical, political, and religious systems are patterned on entropic thinking and beliefs.

Our intent is to publish:

1. A dialogue concerning the Russell Cosmogony and literature. To this end, we invite questions from student, some of which will be published in

each issue. In the following issue we will publish selected responses from other students. These responses may or may not be definitive. Clarity may take time to unfold. The nature of a dialogue is that shared insights may or may not lead to similar conclusions. Our intent is that by sharing different perspectives, we may stimulate and inspire thought on the subject as our understanding evolves.

2. Research and articles relevant to the Russell Cosmogony. What insights do you have concerning this Cosmogony? Have any of you puzzled over, played with, built, modeled, or written about your studies of a two-way, invisible/visible physical Universe? What have other scientists or lay persons done in past or present studies? How are chemical, physical, medical, agricultural, biological, economic, and other systems viewed from this enlightened perspective? We are eager to review for possible publication your treatment of the Russell concepts.

3. Explanations of current experiments utilizing vortical principles and mechanics such as transmutation, energy production, and gravity simulation.

4. Applications of spiral/vortical/motion-in-opposition mechanics, science, and philosophy.

We are eager for both your input and feedback. Our vision of vortical science curricula, texts, data banks, and applications in every field of human endeavor is dependent upon the continued desire and action of all of us — desire taken into meditation and action inspired from the point of Stillness within each of us.

Editors: Dr. Timothy A. Binder, D.C., N.D., former President, University of Science & Philosophy  
Barbara J. Sims, MIA, EdD

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### Dialogue

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Visualizing Electric Forces	by Charles Yost, PhD	25

### DIALOGUE: Questions

1. Charles Yost states on page two of his article that a connection between electricity and gravity has never been established. By this I understand him to mean that establishment science has never demonstrated such a connection in a way satisfactory to the scientific community. Since Walter Russell's cosmogony postulates such a connection, how can this connection be demonstrated in a fashion that will satisfy establishment science?

2. On page two of his article, Charles suggests that gravity may be a totally different force from, or a side effect of, the electrodynamic atom model. Is gravity a distinct force different from the electrodynamic atomic forces, and, if so, how do they still relate to each other? If gravity is a side effect, how do they relate as one force?

3. On page 6 of his article, Charles asks three questions about the negative threadlike stream issuing from the electrode. What answers based on the Russell Cosmogony also relate to his other questions?  
**Timothy A. Binder**

### Farewell to Chester Hatstat

This issue of *Fulcrum* is the first I have had to publish without Chester's able assistance. The process has underscored the gratitude that I want to publicly express to Chester for having largely managed the production of this quarterly newsletter/magazine for the last four years.

Thanks, Chester, for all of your help. I look forward to your continued contributions to the quality and quantity of *Fulcrum* throughout the coming years.

# DIALOGUE: Responses to previous questions

## QUESTION ONE

The crest and trough of the octave wave of matter formation occur at the  $\pm 4$  carbon amplitude and the zero inert gas positions, respectively. At the amplitude position, matter is in a condition of maximum motion-in-opposition, balanced centripetal and centrifugal motion. The question concerns the term minimum motion-in-opposition. Is Russell referring to a balance of centripetal and centrifugal motion at the zero position with both being at a minimum, an imbalance of the two types of motion both at their minimum with their relative difference being at a minimum, or an imbalance of the two types of motion both at their minimum with their relative difference being at a maximum (here the minimum opposition is derived from the lesser force being a smaller percentage [or bite] of the greater force)?

Minimum motion-in-opposition refers to the inert gases. "They surround the zero from which motion springs and to which it returns." (SOL, p. 271) The inert gases are the cosmic elements, the "universal seeds" eternally present from which matter appears and into which all motion disappears. Seeds are nature's "hard disks" — always recording growth as it happens, ready to repeat patterns of growth on command. Seeds are only potential — potential for growth and decay. Growth and decay can be explained by centripetal and centrifugal motion. Seeds cannot. Therefore, minimum motion-in-opposition does not refer to either centripetal or centrifugal motion nor a balance or imbalance of either.

This is a good question and raises many points.

1. The trough of any wave is not the zero inert gas position. The crest and trough both extend from zero — the horizontal equator — in two opposite and opposing directions simultaneously.

2. Minimum and maximum motion-in-opposition really means low and high pressure. Pressure is created by the movement of the mass as a whole, not by the vibrational rate of the atoms making up the mass. Atomic vibration is reciprocal to pressure. More pressure equals more density and less atomic movement because the atoms are being squeezed together. Less pressure means more vacuity and more atomic spin or vibration. Elemental gases, like clouds, have maximum atomic vibration but little pressure within their nebulous form. They do have polarity — a positive or negative preponderate charge — and can combine with other elements.

The nine inert gases are also of low pressure and fast atomic motion. However, rather than being nebulous, they form as low low-pressure equators, rings within each other, together creating a flat concentric circle much like an old 33 RPM record. As "recording seeds," they are unique among the elements. They have no polarity. They will not combine with each other or other elements.

3. Other horizontal low-pressure equators of minimum motion-in-opposition and high potential which, upon impact, divide into crests and troughs:

the waters of a flat, calm lake or ocean which wind divides into waves;

the seeds lying on a farmer's field which sunlight divides into roots and leaves;

a taut guitar string, which impact divides into sound waves;

the static field of a magnet, which the fast movement of a metal wand divides into positive and negative waves of electricity; and

the inert gases which "thought" impacts to divide into elements.

4. Like climbing a steep mountain, all motion is motion-in-opposition, with minimum at the bottom and maximum at the top. Centering the bottom minimum and top maximum motion are zero points of rest, where you can lie or stand at rest. But each step of the climb requires effort which is resisted by gravity. The brink of the mountain's summit requires the greatest effort, the point of maximum motion-in-opposition. Once on top, you again can stand upright effortlessly at rest.

In nature, the mountain represents one octave or cycle. One male and one female climb the mountain from opposite sides in four increasingly powerful and shorter steps. By the fourth step, their power and thrust (not forward speed) are so great that, as they meet at the top, they fuse together. They each now become half of one whole, centered by the zero of the absolute top. Their name is carbon.

Larry Tiegs



## QUESTION TWO

**How are the conditions of centripetal and centrifugal motion changing and what are their relative strengths as an element ages from the zero, inert gas position through the +1 to  $\pm 4$  amplitude position and then from the  $\pm 4$  position to the -1 position to the zero position?**

There is no specific answer to this question. Speaking generally, as an element grows from zero to the mountaintop of maturity, centripetal motion is predominant, yet opposed and balanced by centrifugal motion. This motion-in-opposition prevents runaway fusion or implosion. As an element decays from amplitude to zero, centrifugal motion is predominant. The balancing centripetal motion-in-opposition prevents all the decaying forms in nature from becoming instantaneous explosions or fissions.

Growth, going uphill is hard. It's compressive. Decaying and dying is going downhill. It's easy, expansive and a returning to source. Living is hard. Dying is easy. As you die, you live a little. How much? How hard is up? How easy is down? What are the conditions and relative strengths of each step of any complete cycle?

There is no answer. It depends on how steep and tall the mountain, how strong the climber, and the intensity of desire. This question is like asking: How much fuel does it take to go 80 miles per hour? What gear ratio and RPM are required? The answer, of course, depends on whether you are talking about an automobile, a Mac truck, an airplane or a giant rocket lifting off. Everything is relative. In music, hundreds of different instruments can each create the vibration of middle C, including the vocal cords in your own throat as well as a very long piano string. But the qualities of the tones vary with

# Secret of Light References

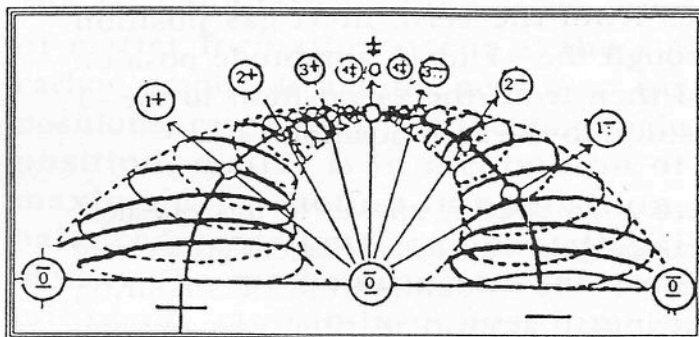


Figure 73.  
Cycle of the elements from rest to rest.  
p. 268.

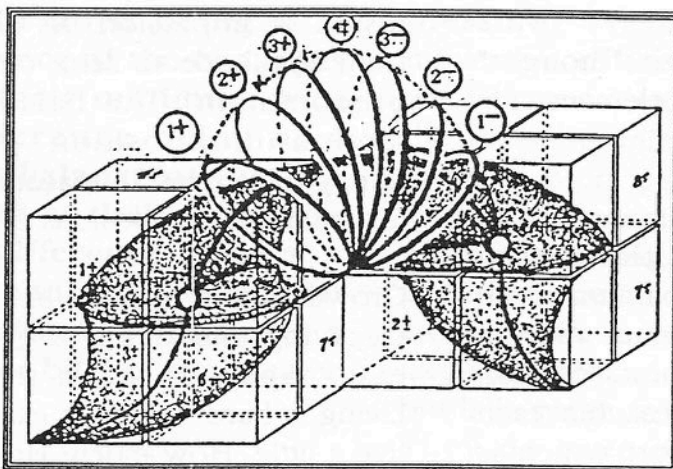


Figure 76.  
The octave gyroscopic  
principle.  
p. 278.

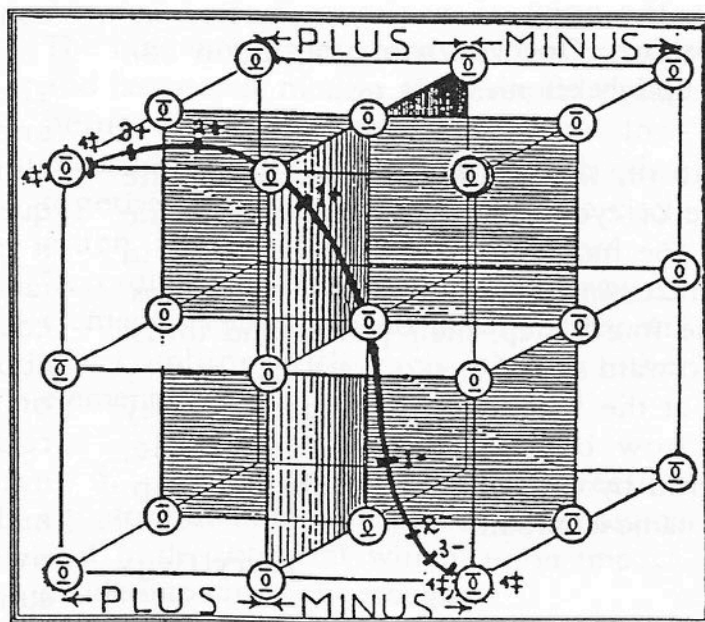


Figure 75.  
Locations of elements on wave fields are determined  
by wave-field mirrors.  
p. 276.

the instrument as do the conditions, size, pressure and shapes of the vortical motion.

Nature simply dictates that nine stages or steps are necessary for each life/death cycle. The first and last are zero, with seven whole steps and the middle united step (+4-0-4) being centered by zero. All octaves/cycles/bodies go through the same nine-step process, be they sound waves, water waves, color waves, electrical waves, elemental waves or the human wave we call our life.

The basic tenuous shapes of the nine stages of forming matter are illustrated on page 209 of *The Universal One* which has been reproduced on this month's cover.

Larry Tiegs



### Comments on Pat Flaughter article

Unlike the computerized vortex graphics in the previous *Fulcrum* (and I sincerely appreciate his effort and understanding), in nature, the beginning and ending zero points are on the same horizontal plane which centers adjacent wave fields as Russell depicts in *The Secret of Light*, pp. 268, 276 and 278. The horizontal planes of beginning, in essence, rise on both sides (of the mountain) through four steps of continued compression (shift gears four times) to stand vertically at the corner where eight wave field boundaries meet (on top of the mountain). From this point of rest, polarity reverses (the male becomes female, the female male) as they continue their journey — straight on, over and down the opposite side of the mountain, where they again lie down to rest at the bottom.

Larry Tiegs



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1. A Report on the Russell Science Research (RSR):  
Transmutation of Nitrogen to Lithium and Helium  
Plasma Shaping Reveals New Atomic Transformation Technique and Cold Fusion at Chemical - Molecular Energy Levels  
by Ron Kovac

# Vedic Metaphysics

## The Unmanifest Blueprint of Creation and Subtle Matter Technologies

*Robert Cox graduated from Vanderbilt University in 1973 and received his MA in Vedic Science from the Meru Institute in 1977. His article on Vedic Metaphysics is based on his presentation at Homecoming '95 at the University of Science and Philosophy.*

### A New Paradigm for a New Age

We are on the verge of a transformation in human consciousness unprecedented in recorded history. As this transformation unfolds, human civilization will be lifted to unimaginable heights of scientific, artistic and spiritual realization. Human awareness will be filled with the Light of Eternal Truth and Divine Love, and Heaven will descend upon the Earth.

In order to prepare for this transformation, new knowledge must be introduced into the mainstream of society: knowledge that integrates the material and the spiritual — the objective and subjective — aspects of existence into a single holistic structure of Reality.

This knowledge is now available. Indeed, it has always been available. It is embedded in the very fabric of universal consciousness, where it permanently exists as the unmanifest blueprint of creation. The ancient Vedic seers called this unmanifest structure of pure knowledge the *Veda*. The Christian mystics called it the Logos. Plato

described it as the realm of Ideal Forms or Archetypes. Although it is universally the same everywhere, various visionaries, saints, and prophets have expressed this eternal structure of knowledge differently in accordance with their level of realization and in accordance with the language, environment and culture of their time. Regardless of what it is called, this knowledge is present in the heart of everyone. It is the Light of Eternal Truth that fills the simplest state of human awareness. It is the very essence of our own being, and it is available even today for those who are truly awake.

The language of the current age is the language of science. Modern visionaries thus desire to express their visions in the language of science. Unfortunately, modern science is a mundane science, devoted only to the study of objective material creation. This limited approach to the study of Reality does not do justice to the holistic integrity of life. It suffocates the spirit beneath an illusory blanket of materialism. It obscures and hides the spiritual basis of all phenomena. The spiritual aspect of life is every bit as scientific as the material. However, it must be understood and approached properly. In order to prepare for the descent of Heaven on Earth, the current scientific paradigm must be expanded. Mundane science must be transformed into sacred science—a science that is filled with the Light of Eternal Truth.

To accomplish this transformation, a new phenomenon is needed—a phenomenon that



can only be explained in the context of a more complete holistic paradigm. The modern scientific community has demonstrated that it is not interested in the qualitative parallels that exist between scientific and spiritual traditions. It is not interested in metaphysical theories or subjective spiritual experiences. It has paid little attention to statistical studies that demonstrate the influence of collective consciousness on social phenomena. To rapidly alter the current world view, new hard evidence is needed. A new phenomena must be demonstrated that is measurable and quantifiable using ordinary objective technology, but which pulls the rug from under the current scientific world view. This is the challenge that must be met. Fortunately, the time has come. I believe that we are on the verge of meeting this challenge in a dramatic, unmistakable, and irrefutable manner — thereby opening the door for the descent of Heaven on the Earth.

## Vedic Science and Technology

Sacred science is not new. It was known during previous Golden Ages. The ancient Atlantean, Egyptian, and Vedic cultures possessed this knowledge, and they also possessed its associated technology. Unfortunately, virtually all of the written records of the Atlantean and Egyptian cultures have been lost. But a large portion of the Vedic texts have been preserved in India, many of them dating back to several thousand years BC. These texts are written in ancient Sanskrit, which is now recognized as the most sophisticated language on the planet, far more complex than Greek, Latin, Chinese, Hebrew or Arabic. Although the Vedic expressions are encoded in Sanskrit formulas (mantras) that are extremely condensed and esoteric, the expressions contain profound descriptions of

the sacred science and its associated technology.

The technology of sacred science is not ordinary electronic technology. It is a technology that utilizes luminous subtle matter. In Vedic Science, this type of matter is called *chitta* (mind stuff). It is the stuff out of which our minds are made. It is the substance out of which our auras and light bodies are formed. It is the subtle material essence that enables consciousness to be reflected on the level of material existence. By means of this substance the impulses of pure consciousness are translated into subtle patterns of mass-energy flow (waves of *prana*), which then influence the gross structure of creation. The field of *chitta* thus serves as the link, the covenant, the rainbow bridge between the field of pure consciousness and the gross forms and phenomena of creation.

Because it is the substance out of which our mind is made, it is critical for the experience of enlightenment. The term, enlightenment, actually refers to the luminous or enlightened nature of the subtle body. As the density of the subtle body increases, its ability to reflect consciousness and radiate light increases. Consciousness has always been there. It is only our ability to reflect consciousness on the level of our mind and physiology that changes.

The sacred technologies utilize luminous subtle matter to establish a connection between the spiritual and material realms of creation. The Great Pyramids are a remnant of this sacred science and technology. The crystal technologies of Atlantis were also based on this knowledge. But the most complete records of this science are contained in the Vedic texts which describe levitation vehicles and atomic transmutation as well as procedures for developing perfect

health, physical immortality, and invincibility. Unfortunately, for thousands of years these texts have been deeply misinterpreted and misunderstood, even by Vedic practitioners. Over the last 40 years, Maharishi Mahesh Yogi has made an heroic effort to reestablish the true scientific significance of the Vedic texts based upon his own Vedic cognitions.

Having studied these texts for over 20 years under the guidance of Maharishi and having received my own cognitions relating to the sacred technologies, I am now pursuing a course of empirical research to demonstrate the reality of these technologies in a clear and unambiguous manner. It is my hope that this demonstration will open the door for a new paradigm or world view that will incorporate both the modern scientific and ancient spiritual traditions into a single system.

Because much of my own research in Vedic Science parallels Dr. Russell's work, I thought it would be useful and instructive to lay out the Vedic principles upon which this new technology is based and to compare these principles with those described by Dr. Russell.

## **The Unified Wholeness of Natural Law**

In Vedic Science the world is viewed as an expression of the unified wholeness of natural law, which may be conceived as an unmanifest METAPHYSICAL SUBSTANCE. It should be emphasized that this substance is metaphysical. It is not a material substance. It is beyond all notions of time, space, form or quality. In truth, It is inconceivable and indescribable. Nevertheless, for the sake of discussion, It may be conceived as an unbounded ocean of pure being (*sat*), pure consciousness (*chit*), and pure bliss (*ananda*). Or It may be conceived as the transcendental unity of knower, process of

knowing, and known. Regardless of how we might wish to conceive It, It is the Inconceivable, Undefinable, Absolute Reality that is the very essence of all things. It is the Infinite Source and Eternal Goal of Creation. It is the very Self of the Universe — the Immortal Self of all beings — the One Eternal God. In Vedic Science this Reality is variously called *Brahman*, *Sambita*, and *Paramatman*, but these are just names, and It is nameless and formless. How can one describe the indescribable? It is not possible. Better to remain silent and just BE.

## **Spiritual and Material Existence**

Sacred Science begins with the indescribable seamless Reality, which is available only through immediate transcendental experience, and then proceeds, step by step, to uncover the threads of creation that are woven in that Reality. The first step into relative creation involves a complete and total polarization of the Absolute into two complementary and opposite fields of existence. Although one of these fields is spiritual and the other is material, both of these fields may be conceived as unmanifest continuous substances which are capable of flowing within themselves like a fluid.

The field of spiritual existence may be compared to an unbounded ocean of consciousness that is capable of vibrating and flowing within itself in a frictionless manner, like a subjective superfluid. Unlike an ordinary objective fluid, the superfluid of consciousness is truly continuous. It cannot be divided into individual particles. It moves and acts as an infinite undivided wholeness. Furthermore, this infinite wholeness is fully awake within itself. It is an omniscient field of universal pure awareness that knows and comprehends its own spiritual reality as well as the entire field of material existence.

The field of material existence is also fluid-like in its behavior, but it is infinitely divided into point particles of infinitesimal size, mass and charge. These particles radiate and absorb photons; they collectively constitute the material fabric of the physical vacuum. This fabric is also continuous and all-pervading. It is the etheric substance that fills all space. It is the primordial stuff out of which all material forms and phenomena are fashioned. But it does not know itself. It is a field of primordial ignorance (*avidya*). It is the veil that covers and hides the ocean of consciousness. It is the Maya that must be crossed over to obtain Enlightenment.

In Vedic Science, these two continuums are called *Purusha* (pure spiritual existence) and *Prakriti* (pure material existence), respectively. Their complementary characteristics are summarized below.

*Purusha* and *Prakriti* represent the unmanifest causes of creation. *Purusha* is the spiritual cause of creation, while *Prakriti* is

the material cause. Due to their unmanifest structure, they are both eternal, all-pervading, and imperceptible. Like complementary sides of a single coin, they are ultimately unified as the one Absolute Reality which transcends all relative considerations.

### Spiritual and Material Energy

The two unmanifest vacuum continuums are capable of vibrating within themselves like primordial fluids. These vibrations carry energy. The vibrations in the subjective superfluid vacuum carry spiritual energy, while vibrations in the ordinary objective vacuum carry material energy.

There is an important difference between these two types of vibratory energy: material energy corresponds to ordinary positive energy ( $E = mc^2$ ), while spiritual energy corresponds to negative (or minus) energy ( $E = -mc^2$ ).

<p style="text-align: center;"><b>PURUSHA</b> (Pure Spiritual Existence)</p>	<p style="text-align: center;"><b>PRAKRITI</b> (Pure Material Existence)</p>
<p style="text-align: center;">An indivisible vacuum continuum Non-local in its functioning</p> <p>Dominates on the largest scales of creation A field of cooling subjective substance (<i>sattva</i>) Characterized by macroscopic coherence The subjective organizing principle of nature Filled with impulses of primordial sound The universal field of the knower</p>	<p style="text-align: center;">An infinitely divisible vacuum continuum Local in its functioning</p> <p>Dominates on the smallest scales of creation A field of fiery objective substance (<i>tamas</i>) Characterized by microscopic incoherence The objective matter-energy that is organized Filled with impulses of primordial light The universal field of the known</p>

Furthermore, material energy is primarily carried by quantized electromagnetic waves or impulses of light (positive energy photons), while spiritual energy is primarily carried by quantized waves of consciousness or impulses of primordial sound (negative energy photons).

The waves of primordial sound are not ordinary sound waves. They are quantized impulses of consciousness within the ocean of consciousness. They are longitudinal scalar waves within the field of spiritual existence. These impulses cannot be detected objectively, but they can be experienced subjectively. In the simplest state of human awareness these impulses can be experienced as spiritual sounds. The spiritual sounds are called *shrutis* (literally "that which is heard"). The Vedic *rishis* cognized the *shrutis*, or frequencies of consciousness, within their own self-referral awareness and recorded them as impulses of human speech sound called *mantras* (sonic formulas). The *mantras* are the frequency blueprints of Nature. Every object, every phenomena in Nature, has its own spiritual sound or mantra. This spiritual sound exists only on the level of pure consciousness. It exists as the true spiritual Name of the object or phenomena. It embodies the vibrating pattern of pure intelligence that upholds the structure of the object or phenomenon on the level of material existence. It is the vibrant, living, breathing soul (*jiva*) of the object.

The impulses of spiritual and material energy are complementary and opposite in their properties. When a material system absorbs material energy (impulses of light) it becomes more excited, and its internal order decreases. If it embodies more material energy than spiritual energy, it will tend to decompose, decay, melt, disintegrate or explode. Material energy thus tends to increase the disorder of the system by dividing the system into more

microscopic components which display increasingly chaotic behavior.

When a material system absorbs spiritual energy (impulses of consciousness) it tends to become more quiescent, and its internal order increases. If it embodies more spiritual energy than material energy, it will tend to experience a state of transcendence. Subjectively this means that the experience of unbounded pure consciousness will dominate over the experience of the finite material body. In extreme cases, the system may gradually or rapidly lose its mass and disappear while radiating light. This type of transformation is called ascension. Ascended beings have a spiritualized body. They have a body that is filled with spiritual energy rather than material energy. Such beings are called *siddhas* (perfected ones). In general, spiritual energy tends to increase the order of the system, unifying it into a more coherent whole that is capable of reflecting the unbroken wholeness of pure consciousness.

## The Wheel of Knowledge

Modern science is the science of material energy. It has no clue about spiritual energy because this type of energy cannot be measured by objective instruments. Scientists thus have tried to imagine the process of creation using only material energy as the source. The result is a BIG BANG. According to current theory, the Creation began in a huge EXPLOSION several billion years ago, and nothing new has been created since then. This is a false picture. The Creation is continuously being born in the vast womb of space and in the hearts of all beings. Furthermore, it is not a violent process. It is a gentle, beautiful, subtle process that involves the transformation of consciousness into matter, and matter into consciousness. Both of these transformations are necessary for the

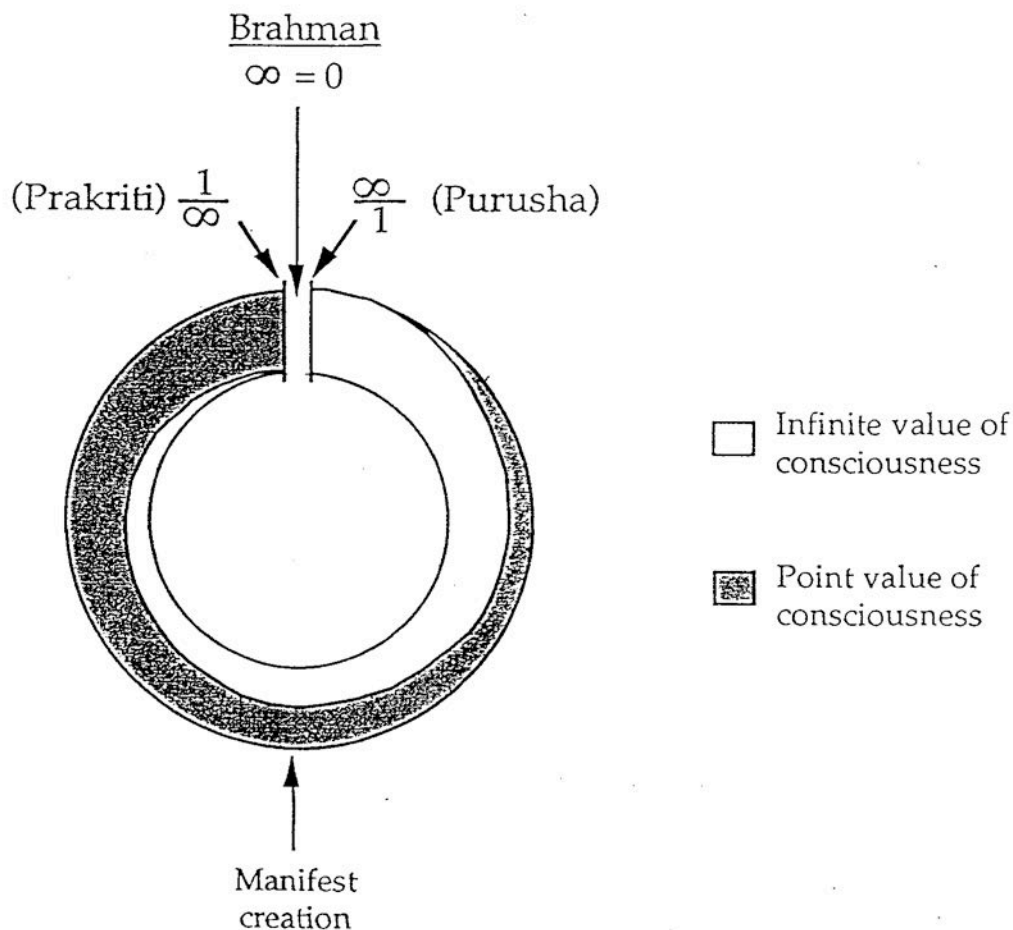
evolution of creation. The mechanics of creation are thus bi-directional. They form a self-referral loop of transformation between *Purusha* and *Prakriti*. In sacred science, this loop is called the Wheel of Life or the Wheel of Knowledge.

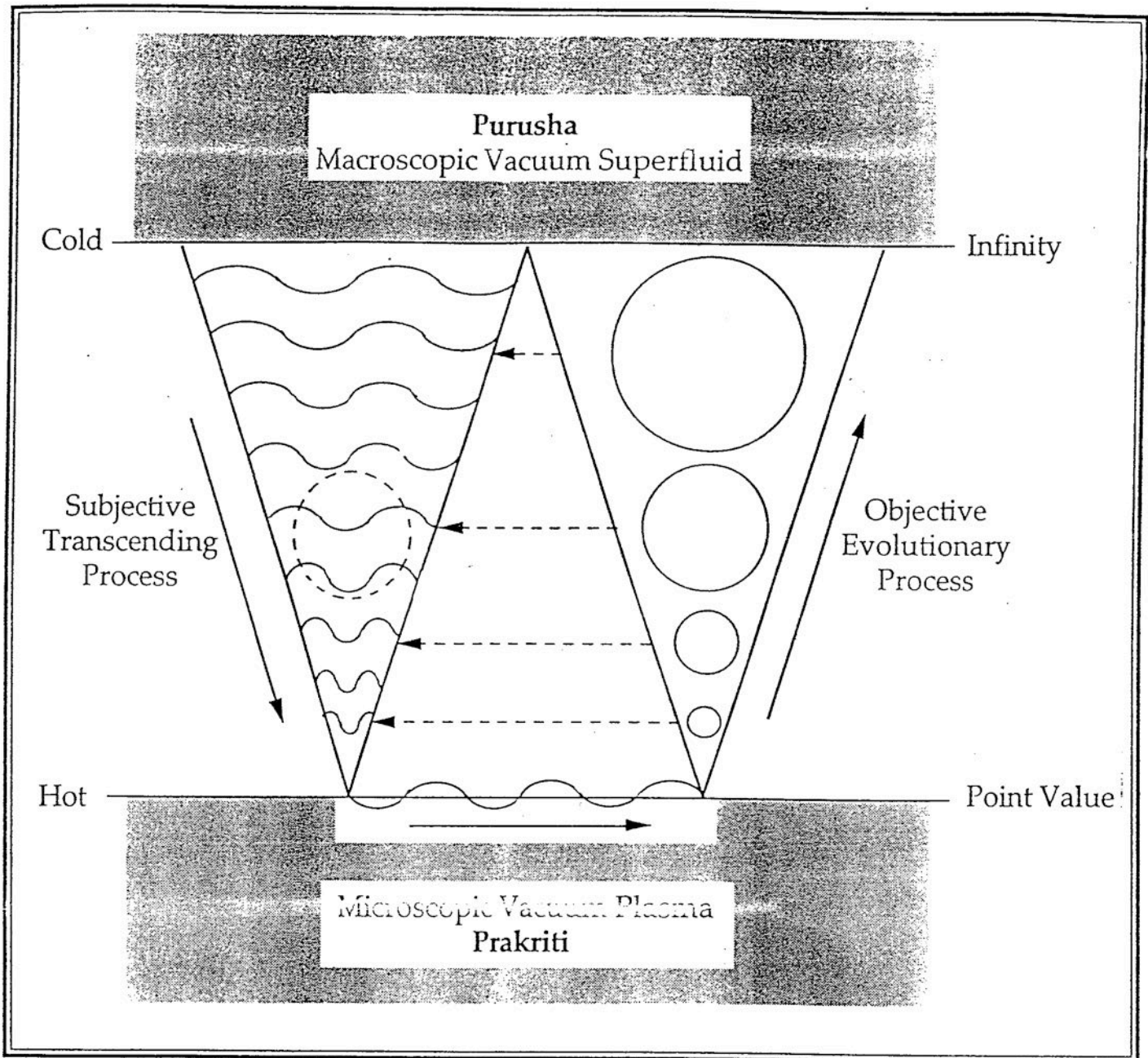
The Wheel of Knowledge connects the two extremes of creation. It connects the unmanifest field of spiritual existence (*Purusha*), which dominates at infinite scales ( $\infty/1$ ) of time and space, with the unmanifest field of

material existence (*Prakriti*), which dominates at infinitesimal scales ( $1/\infty$ ) of time and space. The Absolute Reality (*Brahman*) transcends such considerations. It is bigger than the biggest and smaller than the smallest scales of time and space. It transcends the whole notion of time and space, as well as the duality of spiritual and material existence.

In between the two unmanifest extremes lies the whole spectrum of manifest creation. This spectrum is divided into two streams of

## Vedic Mandala Wheel of Knowledge





energy. The stream of spiritual energy descends from the infinity of *Purusha* to the point value of *Prakriti*, and the stream of material energy ascends from point to infinity.

### The Dynamics of Akshara

In Vedic Science, this bi-directional flow of energy between *Purusha* and *Prakriti* is described by the word *Akshara*. The word *Akshara* may be broken down into AK and

SARA. The syllable *AK* indicates the relationship between the infinite value of consciousness (represented by the most open sound, A) and the point value of material existence (represented by the most closed sound, K). The expression *SARA* indicates the eternal bi-directional flow between these two extremes. *Akshara* thus signifies the descent of infinite consciousness into the point value of matter and the simultaneous ascent of matter back towards consciousness. These dynamics are graphically illustrated above.

In the dynamics of *Akshara*, the spiritual energy of *Purusha* (consisting of impulses of primordial sound) descends from the infinite value of spiritual existence and becomes infused into the point value of material existence. This impregnates the field of material existence with spiritual power and liberates rays of light from the darkness of the Void. Being impregnated with spiritual power, and illumined with rays of light, the field of material existence begins to move and flow within itself. The infinitesimal particles of *Prakriti* begin to interact with one another in an organized manner and begin to display circular flow patterns. These flow patterns give rise to whirlpools (*vruttis*) of primordial matter within the field of material existence. These whirlpools appear as tiny vortex particles. These are the subtlest types of material particles within the physical vacuum. The luminous substance formed out of these particles is called *chitta* (mind stuff). Our minds are literally made out of this subtle luminous substance. This is the substance out of which our auras and light bodies are formed. In western esoteric traditions it is described as astral or etheric matter.

The subtle particles which constitute the etheric substance exist everywhere throughout space. Due to their extreme subtlety, they have not yet been discovered in physics. Nevertheless, they combine in various ways to give rise to all the known elementary particles. To give some idea of the subtlety of these particles, if an electron were the size of the Sun, the subtle particles would be the size of hydrogen atoms. An electron may thus contain many trillions of subtle particles within its structure. Protons and neutrons are also formed out of these subtle particles. In fact, all the particles and atoms in our gross universe are ultimately constituted of these particles. The gross creation is just a complex flow pattern of universal mind stuff. It is simply a projection of Universal Mind.

The subtle particles evolve into the elementary particles by absorbing additional spiritual energy. This additional spiritual energy enables the subtle particles to combine to form larger aggregates which function as a single whole, a single being. In this manner, the elementary particles are formed. These elementary particles are not just chunks of matter. They contain spiritual energy. They are conscious beings. By our own standards, the consciousness of an elementary particle is completely insignificant. It appears to be completely unconscious. But it actually possesses some small degree of consciousness. Such beings are called *bhutatmas* (elemental beings). They form the material basis of the universe.

Once the elementary particles are formed, they absorb additional spiritual energy and combine to form atoms. The atoms then combine to form molecules, solids, liquids and gases. Out of these elemental states of existence the whole spectrum of organic, planetary, solar and galactic beings are gradually evolved.

In this way, the physical creation is built up, layer upon layer, in a hierarchical, combinatorial manner. In each stage of evolutionary unfoldment, more complex systems are evolved which have a larger territory of influence and contain more consciousness or spiritual energy in their structure. The descent of spiritual energy into material existence thus results in the ascension of matter back toward consciousness. But this is only one-half of the story.

At each phase of the evolutionary unfoldment described above, light is liberated from the evolving system. When spiritual energy is absorbed by the system, some small amount of material existence is converted into spiritual existence, and light is radiated. In

this process, matter is transformed into consciousness.

The material energy or light that is liberated during this transformation ascends toward infinity where it gets absorbed in the unbounded ocean of consciousness. This absorption of material energy into the field of consciousness converts some small amount of spiritual existence into material existence. In this process, primordial sound is radiated and some small amount of consciousness is transformed into matter.

These two processes generally occur in separate regions of space. In one region, the transformation of consciousness into matter dominates, and, in the other region, the transformation of matter into consciousness dominates. The universe is thus divided into regions that are predominately ascending or descending. The ascending regions radiate material energy and absorb spiritual energy, while the descending regions absorb material energy and radiate spiritual energy.

These two types of transformation compare very closely with Russell's concept of the generative and radiative states of matter. When matter is generating (i.e., becoming manifest from consciousness), it absorbs light and radiates primordial sound. When matter is radiating (i.e., being transformed back into consciousness), it radiates light and absorbs primordial sound. Although these two states of matter are opposite and complementary, they always coexist in all phases of evolutionary unfoldment. The Universal One transcends these two states and serves as the eternal basis for all balanced cycles of transformation between them.

Because the amount of radiated and absorbed material energy exactly equals the amount of radiated and absorbed spiritual energy and because the amount of matter transformed

into consciousness exactly equals the amount of consciousness transformed into matter, the universal books remain balanced, and so, on a cosmic scale, nothing has happened. It is a zero sum transformation.

That is why the word *Akshara* also means The Imperishable. The cycles of creation and dissolution or ascension and descension that occur in different regions of the Infinite Universe do not and cannot alter the Imperishable Structure of the Infinite Universe Itself. On a cosmic scale the structure of Reality remains unchanged throughout all such cycles. Individual beings and finite universes may come and go, but the Imperishable Structure of the Infinite Universe remains unchanged forever.

There are thus two phases of transformation in *Akshara*. In one phase, spiritual existence is transformed into material existence; in the other phase, material existence is transformed into spiritual existence. These represent the inward and outward breaths of the Creator. Through these two breaths the fabric of creation is woven warp and woof. Matter is transformed into consciousness, and consciousness is transformed into matter in endless cycles of self-referral transformation. These transformations uphold the imperishable structure of creation and allow Life to be lived on all scales of existence.

### **Luminous Subtle Matter**

The first stage in the manifestation of creation involves the generation of luminous subtle matter (*chitta*) from the universal vacuum. Due to its luminous nature, some visionaries have equated this subtle matter with light. But this is a mistake. The particles of *chitta* are not photons. Photons are without mass, electrically neutral, and generally move in straight lines. The particles of *chitta*, on the



other hand, possess mass, are electrically charged, and generally move in helical or spiral motions. Because of their helical motions, they almost always radiate photons — hence their association with light. However, the radiated light is very low in intensity due to the extremely small magnitude of the charges (billions of times smaller than the charge of an electron), and, as a result, it generally cannot be distinguished from electromagnetic noise levels in the environment.

In its universal aspect, the field of *chitta* pervades all space and serves as the luminous subtle body of the universe. This luminous subtle body is called *Hiranyagabha*, the golden womb. It resembles an ocean of milky-golden light or an ocean of moonlight that can be perceived by the mind alone.

On an individual level, the *chitta* is the stuff out of which our minds are made. It is the stuff out of which our subtle bodies are made. It is the stuff out of which our dreams are formed. Although it is mind stuff, it nevertheless possesses mass. When a person dies and the subtle body leaves the gross body, there is an unexplained loss of weight. A few ounces of mass disappear at the time of death. This is the weight of the subtle body, which floats free of the gross body at the time of departure.

The subtle body of the universe also possesses mass. This subtle mass pervades all space and is concentrated in spherical halos around the stars and galaxies. The existence of this additional mass must necessarily alter the movements of the stars and galaxies. Indeed, this influence has been observed by modern astrophysicists. On the basis of their observations, the astrophysicists have predicted the existence of an all-pervading subtle matter field which they call “dark

matter” — i.e., dark because they cannot see it. (See *Discover Magazine* cover story, March 1995, and *Time Magazine* cover story, March 6, 1995). In spite of its subtlety, it is estimated that the subtle dark matter is the dominant form of matter, constituting 90 percent of the total mass in the universe.

Although it is a material substance, it is so subtle that it is capable of reflecting the impulses of consciousness. The impulses of consciousness are impulses of primordial sound. When primordial sound is reflected in the *chitta*, it appears as *Prana*. *Prana* is the universal life force. It flows in endless waves in the milky ocean of subtle matter and is responsible for continuously stirring the gross creation into existence. It is the Breath of the Creator. It is the Wind that moves across the Deep and Fathomless Waters. It gives substance to the Word and manifests the Word as Light.

## The Wave of Creation

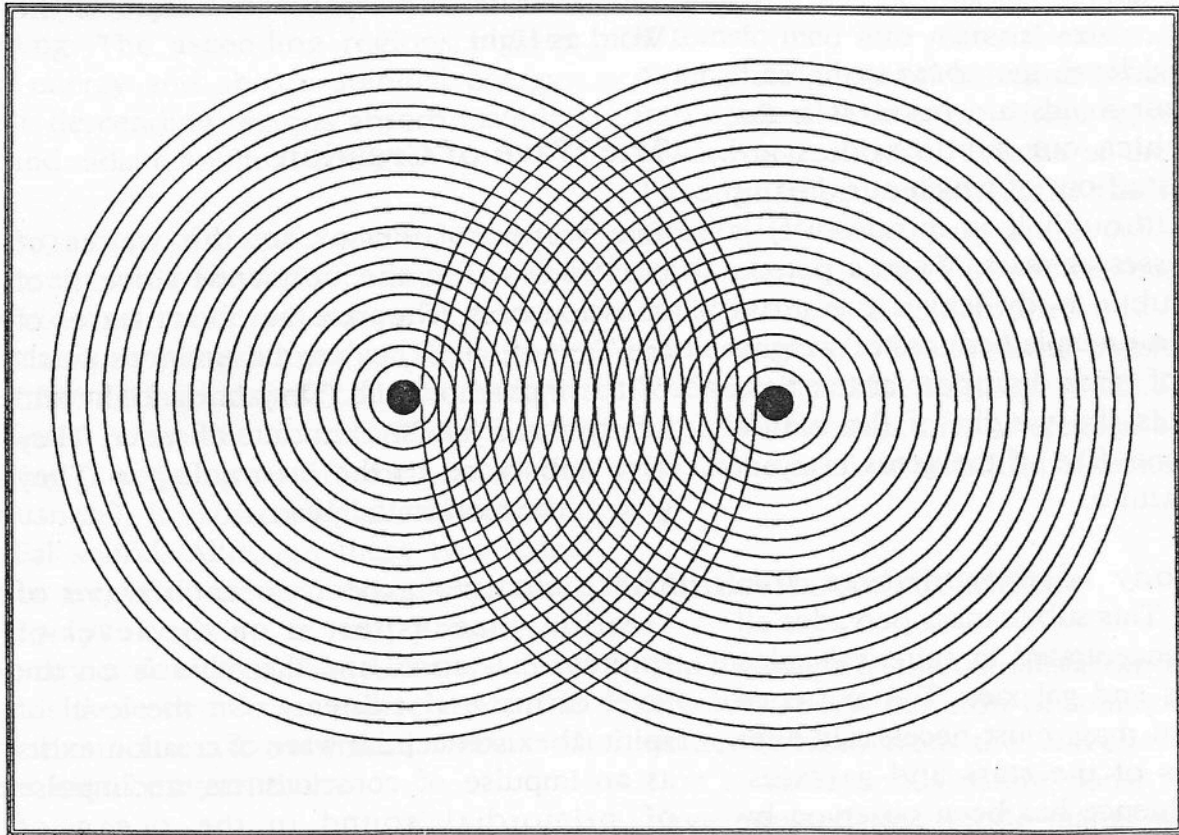
The waves of *Prana* are the waves of creation within the unbounded ocean of consciousness. They are the vibrant leaves of the Tree of Life. They are the luminous petals of the Flower of Life. They bring Light and Life to the crystalline structure of space. They give substance to the Eternal Logos. They give expression to the *Veda*.

There are two aspects to each wave of creation: one aspect is on the level of spiritual existence, and the other is on the level of material existence. On the level of spiritual existence, the wave of creation exists as an impulse of consciousness, an impulse of primordial sound in the ocean of consciousness. On the level of material existence, the wave of creation exists as an impulse of *Prana*, an impulse of Life Force in the luminous ocean of subtle matter.

In Vedic Science, these two aspects of the wave are called *MANTRA* and *BRAHMANA*. The *Mantra* exists only on the transcendental level of pure consciousness, while the *Brahmana* is the reflection of the *Mantra* on the level of Cosmic Mind Stuff. These two aspects taken together constitute the *Veda*, the unmanifest blueprint of creation. The *Veda* is nothing other than the Tree of Life, the Flower of Life, the Eternal Logos. It is the

Universe as conceived in the Mind of God. The waves of creation connect everything with everything else in creation. The elementary particles, atoms, stars, and galaxies are all connected with one another via such waves. On the level of pure consciousness (*Mantra*) these connections are instantaneous. On the level of mind stuff (*Brahmana*) the connections occur at the speed of light.

### POINT PARTICLES ARE CONNECTED THROUGH A PETAL-SHAPED INTERACTION ZONE



**Dala of Creation**

In two dimensions, the instantaneous connection between two particles may be illustrated as on the previous page.

## The Dala of Creation

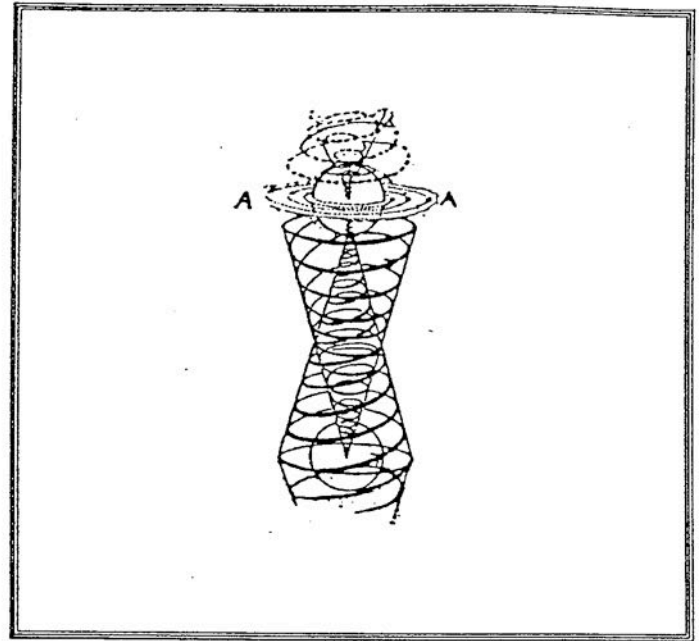
The pattern of circles radiating out from each particle represents the field of primordial sound associated with that particle. The interference pattern generated by the overlapping fields has the shape of a lotus petal or leaf (*dala*) as depicted in the illustration on the previous page. This is the basic shape associated with the Vedic *sbrutis* or *Mantras*. In three dimensions, it will appear as a bi-conical interaction zone divided into regions of silence and dynamism. This aspect of the wave is actually invisible. It exists on the level of pure intelligence alone.

Superimposed upon the lotus petal of primordial sound is a filamentary flow of luminous subtle matter. This visible aspect of the wave displays the form of a bi-directional whirlpool, which Russell depicted in the following diagram.

## Wave of Creation

The luminous wave assumes the form of a whirlpool due to the helical trajectories of the subtle particles. Unlike the connection on the level of pure consciousness, the connection on the level of luminous subtle matter is not instantaneous. The luminous aspect of the wave can only unfold at the speed of light.

Because there is a wave connecting every particle with every other particle throughout the universe, each particle appears to display the form of a lotus blossom consisting of thousand of millions of luminous petals or luminous waves of creation radiating out in all directions. This gives rise to the



AA Birth of Electronic Systems

*The Secret of Light, Figure 50, p. 248.*

appearance of a luminous glow or aura surrounding all material bodies. But the archetypal pattern displayed by each of these interconnections is nothing other than a wave of creation, incorporating the two aspects of *Mantra* and *Brahmana* described previously.

## Subtle Matter Technologies

The theoretical knowledge presented above is not new. It is ancient. What is new is our ability to grasp this knowledge on a scientific level of comprehension. In particular, the scientific understanding of subtle matter promises a technological revolution on our planet that is unprecedented in recorded history.

Electrons have always existed everywhere on this planet, but the electronic age began only after we developed methods for generating, measuring and conducting the flow of electrons. Similarly, subtle particles have always been present, but subtle matter

technologies can only be developed once we have developed methods to generate, measure and conduct these particles. This is the breakthrough required for the emergence of a new scientific paradigm.

I believe that we are currently on the verge of achieving this breakthrough. In fact, such a breakthrough is desperately needed to prepare the way for the descent of Heaven on Earth.

## Applications of the New Technology

The sacred technologies were available on our planet in previous Golden Ages and are available now on every World of Light throughout our galaxy. These technologies allow human society to function in accordance with the Light of Eternal Truth that exists in the heart of everyone. They serve to eliminate all obstacles in the field of material life so that the Light of Eternal Truth can spontaneously shine through in our lives and illumine our Earthly existence.

The sacred technologies generally involve no moving parts. They are not complicated pieces of machinery, but are very simple systems. Nevertheless, the technologies address the entire spectrum of human need and have the potential to completely revolutionize all of the major industries on our planet. Although such innovations offer enormous economic opportunity, the most important task at hand is preparation for the descent of Heaven on Earth.

## The Descent of Heaven on Earth

The descent of Heaven on Earth is not a chance phenomenon. It is in accordance with

a Divine Plan. Our solar system moves in a cyclic orbit as it wanders through the galaxy, and this cyclic orbit periodically carries it into a region of space where the density of subtle matter is much higher than elsewhere. This high-density region is in the form of a spiraling stream of luminous subtle matter (a wave of creation) that emanates from the galactic center. Because of its luminous nature this stream of subtle matter has been referred to as a photon belt. But this is a misnomer. It is not a belt of photons, but a belt of *chitta* — a luminous stream of galactic mind stuff.

When our solar system enters into this stream of galactic mind stuff, everything on our planet, including every atom, mineral, plant, organic being, social organization, and ecological system, will automatically begin to reflect a much higher state of consciousness. This is because the ambient subtle matter density will increase in the environment, and the luminous subtle body of every gross system will undergo rapid evolution. Our planet will then become a World of Light, where the individual minds of all beings will be attuned to galactic mind and filled with the experience of Universal Oneness. The light of Heaven will then shine on Earth, and a new Golden Age will dawn.

This transformation is not going to take centuries. It will occur over a very short period of time, which will be a period of intense evolution. The evolution that will occur during this period will be so intense that a great deal of evolutionary heat (*tapas*) will be generated, especially within biological systems. This heat is generated by the rapid "fusion" of subtle matter into the atoms and molecules of the body. In effect, the impurities of the system are literally burned up. In the case of extreme impurity this process can be uncomfortable and even devastating.

To survive this transition the human physiology must be purified by being gradually and repeatedly exposed to higher density fields of subtle matter. This can be achieved over a long period of time through meditation and chanting, especially in large groups. It also can be achieved through spiritual rejuvenation chambers or chambers of Light which are designed to increase the density of the subtle body and rejuvenate the DNA. Such chambers will soon be available. Their purpose is to prepare as many individuals as possible for the intense evolutionary transformation that is to come.

After the Transition, such technologies will not seem so amazing. In truth, an enlightened human physiology is its own miracle machine, capable of performing all kinds of miraculous feats. This is because the enlightened human physiology is capable of generating enormous quantities of subtle matter that can be used to achieve almost anything. The enlightened beings thus need no external technologies to fulfill their

desires. They are complete and self-sufficient unto themselves.

But even in the New Age, the human population on Earth will display a spectrum of different states of evolution. Although the process of evolution will be much faster, new souls will incarnate in human form and go through their own evolutionary unfoldment. The new subtle matter technologies will thus enable everyone throughout society, whether they are fully enlightened or not, to experience very high levels of material and spiritual fulfillment. In such a society there will be no dichotomy between the scientific and the spiritual sides of life. Matter and consciousness will coexist harmoniously in all phases of life and living. This state of life, which has been the ideal of the poets, philosophers and prophets throughout history, is now our collective destiny. Let us therefore devote our energies and resources towards this highest goal. Let us strive together to pave the way for the descent of Heaven on Earth.

## **FUTURE FEATURES**

Causes and Remedies of Oxygen/Ozone Depletion

Emissions from Computer Monitors and TVs:  
Dangers and Protective Measures

Sustainable Economic Models for a Peaceful  
Civilization

Dr. Timothy A. Binder

# Earth Changes

## From the Perspectives of the Russell Cosmogony and the Holy Science of Swami Sri Yukteswar

*Dr. Timothy A. Binder is the former President of the University of Science and Philosophy as well as a chiropractor and naturopathic physician.*

### ABSTRACT

Vedic Science and other ancient traditions speak of a 24,000-year cycle that the earth and our solar system experience while moving into and out of a galactic stream that is cycling within an even greater cycle. Both ancient and contemporary seers have prophesied earth changes for our time as a result of this 24,000-year cycle.

Walter Russell revealed the basic mechanism of Creation from the atomic to the celestial scale, thereby describing the basic mechanism for these cycles/changes. This article examines these ancient theories and prophesies in light of the Russellian Cosmogony and describes the underlying mechanism and its possible effects.

### Holy Science of Swami Sri Yukteswar

In his book, *The Holy Science*, Swami Sri Yukteswar, the guru of Paramahansa Yogananda, details a great cycle that the earth experiences approximately every 24,000 years. Within this cycle there are four other cycles called *yugas*. These *yugas* are named *kali*, *dwapara*, *treta*, and *sat*. The *yugas* are time cycles corresponding to the various spatial positions of earth throughout this 24,000-year cycle, specifically the proximity or distance of the earth from the center of our galaxy and its plane of maximum discharge.

The closer to the galactic center, the greater the stream of mind substance (*chitta* in Sanskrit) available to humanity and, in fact, all life. Therefore, when we are in or near this plane of discharge, we experience a Golden Age. As we retreat from the galactic center, darkness descends upon us. As we move continuously through this cycle, there are changes in all life as well as the planet itself.

### The Russellian Cosmogony

Walter Russell used the wave to explain the basic mechanism of creation as illustrated below using this solar system as a model.

All movement is spiral, moving simultaneously in two directions: a spiral

movement toward and a spiral movement away from a system center. The centripetal, closing, spiral movement toward the system center demonstrates integration/life, while the centrifugal, opening, spiral movement demonstrates disintegration/death. Each movement reverses direction and potential at the cubic, wave field, cathode pole peripheries and the spherical, wave field, anode pole centers.

equatorial belt, as is the galaxy in its turn. As the solar system ages, the sun becomes less and less prolate and more and more oblate. The secondary rings it throws off at its equatorial discharging belt eventually become planets.

Our solar system itself seeks its own potential, pressure zone, and position within a greater galactic system just as the planets and their moons seek like conditions within this solar system.

All creation is cyclic.

What we see at any

given moment is but an objective

tiny piece of the whole

cycle. Any

system is

either

prepon-

derantly

gener-

ating or

pre-

ponder-

antly

degen-

erating.

When

younger, a

system pro-

lates; when

older, it oblates.

Every system

geometrically illus-

trates true cube/sphere

perfection at the mature

midpoint of its wave cycle. Each

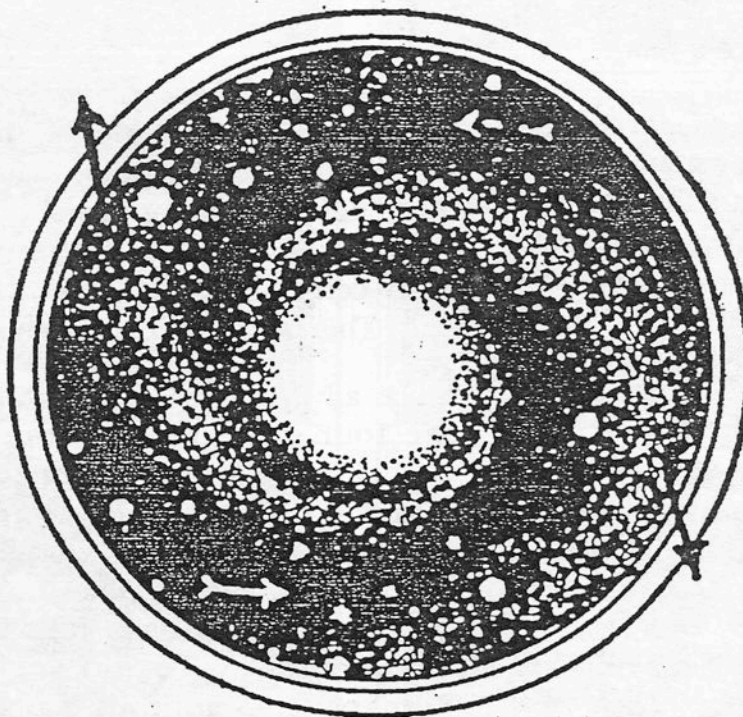
component of a system has a geometric form

and position in the system appropriate to its

potential, pressure and age.

The solar system is being wound up through the sun's polar vortexes and unwound at its

### THIS CURVED ELECTRIC UNIVERSE



Light comes from darkness,  
and darkness from light.

Radioactivity is the expression of the disintegrating or death principle.

Genero-activity is the expression of the integrating or life principle (the life force that integrates substance into plants, animals and all the building blocks of matter).

Once a planet is birthed from the equatorial discharge plane of the sun, it revolves swiftly in a tight orbit around its parent sun at the solar center with its high gravitational field. As the planet ages with each revolution around the sun, it moves progressively farther away from the sun; as it does so, it revolves slower and slower and

rotates faster and faster. This process demonstrates an increase in disintegrative, centrifugal-force dominance.

Concomitant to this ever-expanding orbit is a distancing from the equatorial plane of discharge: the planet crosses the maximum plane of solar discharge only twice during each orbit around the sun. On earth, we experience this orbit as the change of seasons. We approach and recede from the maximum plane of solar discharge as we approach and recede from the sun itself.

In the same manner, our solar system completes an orbit around an arm of the galaxy approximately every 24,000 years just as the earth orbits the sun once a year.

As a planet ages and moves farther away from its parent sun, it tilts on its own axis. It also expands in size to adjust to the lowered potential and gravity at the solar system periphery. The outer planets are more expanded and less dense than they were at their birth. In fact, the outermost planets have even tilted upside down so that they appear to have a reverse or retrograde rotation. They are actually still rotating in the same direction, but they appear to have reversed direction since they have progressively tilted so much that they turned over.

Dr. Russell explained these principles in great detail in *The Universal One*. He also described another cycle that is constant in all things which he illustrated with both the cosmic clock and the wave cycle. This constant cycle is the four steps of integration into mature form and the four steps of disintegration into formlessness.

### **Interrelationship of Russellian and Vedic Concepts**

**Time Duration.** I sense a connection between Russell's four steps and the four

*yugas* described by Sri Yukteswar in *The Holy Science*. They both have increasing time as the Golden Age of full maturity is reached and vice-versa.

Sri Yukteswar posits that *kali yuga*, the time of greatest ignorance and darkness, is the shortest. The time ratios progress from one to four: from *kali* through *dwapara* and *treta* to *sat yuga*. The first locking point position may correspond to *kali yuga* and the amplitude position to *sat yuga*. As an element reaches maturity, it has more activity since it has its greatest ability to appear to attract and repel at amplitude position; to me this implies more sequences of action which would take more time.

**Tilting Axis.** Radioactivity is the expression of the death principle — the unwinding, expanding force in nature that the planet and all things naturally undergo as they age. As a planet ages, it moves farther away from the solar center, expands, and tilts further on its axis. This process is constantly occurring.

Since all cycles are not uniform (they follow the four steps into and out of form with changing time patterns), there appear to be jumps or abrupt changes in the cycle at various times. Thus it would appear likely that there would be times in earth's journey that the revolution away from the sun and the tilting on its own axis would be increased, perhaps even abruptly from our point of view. At such times humanity and the planet would experience great cataclysmic changes as aspects such as potential, position, axis orientation, pressures and temperatures changed rapidly. Such axis shifts are an ongoing and natural process for planets.

**Radioactivity.** With this as background, two questions arise.

1. What effect and to what degree does the release of vastly increased amounts of



radioactivity into the biosphere have on this normal process?

By releasing radioactivity on the planet's surface I think we are changing the planet's potential toward increasing discharge. If we increase the potential towards disintegration, then the planet should logically tilt more and seek a corresponding position farther away from the sun.

Walter Russell stated that this release of radioactivity in the biosphere would raise the temperature of the planet. He believed that if the temperature was high enough, it could exceed the ability of the surrounding cold to keep the planet locked in its potential and form. That could cause the planet to explode or go nova if it exceeded an approximate 10-degree increase above normal. This would be the equivalent of an excessively high fever killing a sick patient.

In a farther potential position, the planet would be located in a lower pressure and temperature zone which would make it tilt more than normal. This could either allow the increased heat of radioactivity to dissipate more readily or the lower-gravity pressure could serve as a greater impetus for the planet to explode.

2. What effect do the entry of a solar system into the galactic maximum discharge plane and the release of radioactivity by humanity have on the natural process?

I think we will experience greater integrating energy as we enter the galactic plane of maximum discharge since the galactic discharge becomes solar charge when it reverses direction and potential at the wave field boundary between the solar and galactic systems. This

is similar to the sun's discharge reversing direction at the earth/sun boundary interface as it becomes charging energy for the planet.

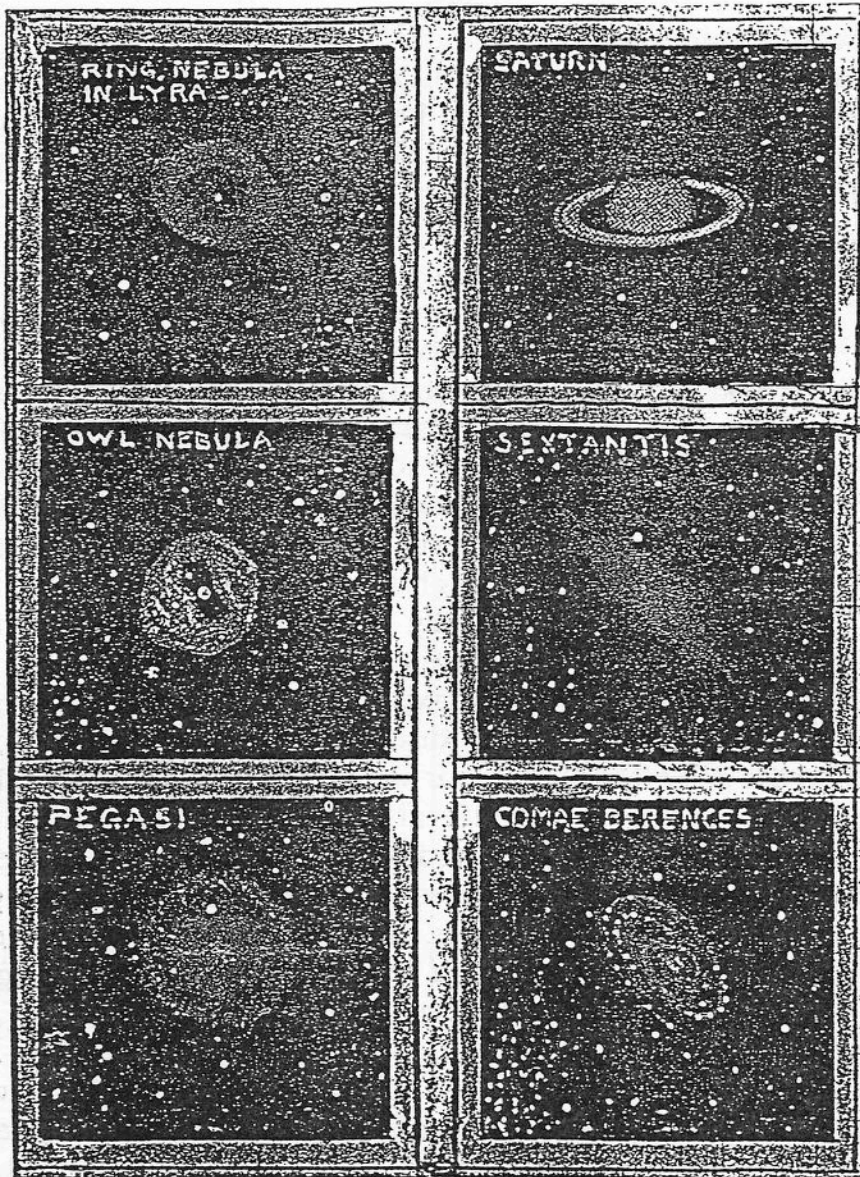


FIG. 32. The centering shaft, around which suns rotate, again compresses another sun into its vortex to repeat the process until all its mass disappears as rings. Lyra and Hydrae nebulae are good examples in the stellar system and Saturn well exemplifies how planets in our solar system, disappear into their zero.

*Atomic Suicide, p.124.*

This increase in solar charge could help stabilize and offset the increase in radioactivity that we have unwittingly released upon the planet and act to mitigate any dramatic axis tilting and accompanying cataclysms.

The Russells addressed the subject of cataclysmic earth changes from radioactivity in *Atomic Suicide?* and other writings. They believed that the resulting oxygen and ozone depletion and overheating of the planet could possibly kill the planet from the dearth of oxygen and water and even a possible planetary explosion.

Apparently Walter Russell also spoke about his visions of imminent earth changes in the form of great earthquakes. Francis Allison, who knew Dr. Russell personally and attended some of his lectures, told me that he told one class about his conscious visions of the destruction of Japan by great quakes and its disappearance into the sea. He also predicted a similar fate for California: splitting in half and sliding into the sea much like Edgar Cayce's trance readings on the subject.

It appears to me that the Russell Cosmogony explains the universal mechanics behind both the nature of the photon belt and the tilting of the earth's axis with the resultant cataclysmic earth changes. The Russell Cosmogony also underscores the need for humanity to comprehend and engineer the transmutation of elements in order to create non-polluting sustainable energy sources on a grand scale, clean up our radioactive debris, and stabilize our planetary home.

Cleaning up radioactivity on a grand scale includes not only transmuting the wastes in storage pools at nuclear reactors but also

transmuting the radioactivity throughout the biosphere in our water, air and food. There is currently so much radioactivity in everything that it would appear that the only hope is transmutation on some type of wave field basis using sound or light to effect the changes.

Perhaps entering the galactic arm or the photon belt will engineer such changes on a light and/or sound frequency basis and effect the transmutations necessary to support vitality and life in abundance. Perhaps humanity will discover that we have to do this ourselves by discovering the technological means to engineer the changes. Such engineering is one of the goals of the World Balance Through Free Energy Project.

**Summary.** This article reveals that the earth is constantly tilting further on its axis, although the rate of increasing tilt varies erratically over time. It also shows how the solar system cycles in and out of an arm of the galaxy just as the earth cycles in and out of the discharging arms of the sun. I suggest that our actions in the area of radioactive proliferation/pollution may logically be expected to increase the tilting of the earth's axis and thus increase cataclysmic earth changes. Hopefully the passage of the planet through the galactic arm may mitigate the pollution and consequent tilting.

Finally, our individual thoughts, emotions and actions influence the fate of the planet and the rest of humanity. This is the same mechanism that creates the atomic, solar and galactic systems: mind thinks, substance moves, and form appears. Thinking balanced, loving and constructive thoughts creates balanced, loving and constructive forms.

# Electrostatic Force Flow Visualization

*Charles A. Yost holds a B.S. degree in aeronautical engineering from Northrop University. This article was first published in the Electric Spacecraft Journal, (ESJ) Issue 16, 1995, 73 Sunlight Drive, Leicester NC 28748.*

## ABSTRACT

These experiments with the Dynamic Systems, Inc. Holtz/Wimshurst generator were conducted by Charles A. Yost and R. Steven Hall and provide flow visualization and microscopic details of electric forces.

*ESJ* learned from Dr. Hal Fox (editor of Fusion Facts) that German physicists had presented similar research findings at the 22nd International Conference on Phenomena in Ionized Gases held July 31-Aug. 5, 1995.

Researchers Nadja Vogel and Jan Heinzinger presented their findings in the paper, "Interferometric Investigation of Sharp Directional Jets in an Expanding Laser Plasma." Dr. Vogel works in the physics department at the University of Technology in Chemnitz, Germany.

*ESJ* will present more information on the relationship between the German research and the work being done at Electric Spacecraft, Inc. labs in a future issue.

## Philosophical Ramblings

This article describes the results of the original electrostatic experiments performed at the Electric Spacecraft lab. Some of the techniques and findings are generally not available in previous publications. While I make no claim to any extraordinary findings, I do believe that some of my observations clarify some basic behaviors in electrostatics which have previously been only vaguely described. The "electric wind" and visual microscopic details of the electrostatic "negative" and "positive" electrodes are two examples. A detailed knowledge of electrostatic actions is essential, but such detail is not widely known.

The objective of Electric Spacecraft, Inc. is to learn how to design and build a spacecraft that is totally propelled by electric forces. More than likely, such a craft would be circular in form, such as a disk, sphere or cylinder. The popular flying saucer or UFO is characteristic of such a shape. A crude, electrically-propelled craft might also have other flying saucer characteristics such as:

1. A surrounding glow which could change in brightness and color because of electric ionization of the air and high-frequency pulsations.
2. An electric radiation of both the static and oscillating types that would be strong enough within a hundred feet, more or less, to saturate nearby electrical circuits by induction and prevent them from functioning.
3. The necessity for persons outside the craft to wear an outer metallic garment that is grounded to protect them from getting electrical burns.
4. Perhaps the ability for the craft to appear or disappear when surrounded with the right ionization and oscillation

frequencies. This would be a cloaking mechanism: the craft would still be present. This effect might only work well in the daylight or against radar since light is emitted by the mechanism.

5. The appearance of being a distinct object to the eye, but photographically seen as a bright, diffuse light. This is caused by highly energetic radiation emitted from the object which the eye cannot see, but which over-exposes photographic film.

## The Electron — in Polarity

The first thing we realize in the quest to design an electric spacecraft is how little we know about electric and magnetic forces and how important it is to understand these processes at the atomic level. Everything leads back to our limited concept of the atom.

It is my belief that the concept of a free electron (a discrete, free-floating, tiny object used to explain electrical phenomena and atomic models) is basically false. It is accepted as a simple and convenient model, but it can lead to the never-never land of delusion. I am not alone in this belief as indeed there are a number of concepts used to assess the electron. The reasons for postulating that a free electron cannot exist as a free particle are listed below.

1. A negative charge never exists without its opposite polarity, the positive charge.
2. An attractive force always exists between the negative and positive charges. This force is usually explained by lines of force which always connect the positive and negative charge. In this context, the charge (electron) is always a dual or polar entity.

It is sensible to keep in mind that positive and negative charges are always connected and

always form a duality. The duality is a polarity. The electron can be treated as an independent entity in special, simplified cases. However, when researching the fundamental nature of atoms, electricity, magnetism and space-time, the electron is always one component of a duality. This knowledge has been understood and published at least since the time of Ben Franklin and has never been refuted. Textbooks and learned scientists, however, continue to teach electrons as independent detached entities, even though it is misleading.

I point this out because my subsequent experiments and descriptions frequently refer to electrons. It is my view that even though I refer to electrons as entities for the sake of simplicity, they must be recognized as being connected in a real way, no matter how tenuously, to their positive mate.

The only way in which an electron can exist as an independent force/entity is if there is no connecting force between positive (+) and negative (-) charges. The entrenchment of the lines-of-force concept from Faraday and Maxwell is older than the concept of the electron particle. However, it is the force that is real; even the lines are a convenient abstraction and subject to argument.

My suggestion that the electron is not a particle is not contrary to quantum mechanics, but it is contrary to some concepts of particle physics. My views are speculative and more favorable to the concepts of vortex entities and a medium classically known as the æther. But we need not be concerned with that in terms of experimentation.

Electric forces are recognized by the presence of attraction and repulsion forces. These are treated in pure form as electrostatic charge. Protons, or the positrons contained in protons, are defined as the positive charge polarity of electricity. Electrons are defined as the negative charge polarity of electricity. Electrons are

considered as discrete particles, energy packets, or waves, depending upon the convenience of the particular theory needed to explain certain experimental results.

A discrete electron is used to explain the projection of beams in television tubes, particle counting from radioactive materials, and the model of a discrete particle orbiting around an atomic nucleus. To explain changes in atomic energy states, however, electrons must jump. The electron may no longer remain in an orbit. In fact, the orbits are not even circular as typically pictured, but are rather a volume of space beyond the nucleus in which there is only a probability that the electron exists. It is no longer a discrete object, but rather a probability of existence in a certain energy and "spin" state. "Spin" is in quotes because this energy location may not be spinning at all in the normal sense of the word. The "spin" of an electron is used as an analogy to explain a magnetic field along its axis of presumed rotation because, in our macroscopic world, magnetic fields are made by spinning rotors or are observed as a circular field around a current of moving electrons.

The electron and its field has become a nebulous concept. It is described as discrete, but it is not truly discrete. It is described as a monopole, but it always exists in balance with its positive pole. There is never a surplus of either electrons nor positrons; in fact when they are separated, as is done in electrostatics, they still exhibit attraction and repulsion forces.

If there ever were a surplus of plus (+) or minus (-) charge in a discrete form, it could not be recognized. Charges are only recognizable by their duality of force. They are so defined and thereby recognized. Still, if a discrete surplus existed, it might be called something else, perhaps gravity. The difference between electric force and gravitational force

is that the electric force is 40 orders of magnitude greater *at the atomic size*. I doubt that such a difference can be detected. Gravity might be a side effect of the electrodynamic atom model, or it might be a totally different force. It is still a mystery. A connection between gravity and electricity has never been established.

At this point I wish to make some oversimplified, conversational distinctions:

*Electrostatic* the separation and holding of electric charges apart in a stationary condition.

*Electrodynamic* the movement of an electron or electrostatically-charged body.

*Magnetic* the creation by an electron of a circular magnetic field around its direction of motion as it separates from its opposite charge. If electron motion occurs in a conductor, it creates a magnetic field around the conductor.

*Electromagnetic* a jointly oscillating electric and magnetic field created by changes in electric polarization. These polarization changes may occur in an antenna or as energy state changes in the atom. It is a self-sustaining oscillation that propagates from its origin at the speed of light.

The separation of charge can occur without any net current flow as in the polarization of an atom, molecule, bulk dielectric or bulk metal. The act of separation is the polarization process. It might even create a magnetic field. But once the polarization is complete, there is

no net magnetic field. However, visible electromagnetic radiation from the atomic level results when such polarization oscillates or a pulse input is intense and rapid enough. Electromagnetic radiation is a result of an energy state change in the atom, which is not the same as electron flow. Energy state changes of the atom are not clearly understood.

We must better understand these basic distinctions. It is clear that we are dealing with electric polarization forces and the dynamics of polar oscillation on a macroscopic scale for propulsion and that these in turn excite atomic level electromagnetic radiations.

knife-edge assembly with a pinhole light source, and a video monitor. (The telescope mirrors were purchased especially for such experiments in 1974 since the idea for this visualization preceded the opportunity by more than 20 years!) Figure 1 shows a schematic of the electrostatic generator setup with arm extensions to bring its high voltage electrodes in front of the mirror. Figures 2 and 3 are photographs of the setup.

The video camera lens was placed at the 216-inch radius of curvature of the 12-inch mirror. The light emitted from the pinhole was aimed at the mirror 216 inches away and then reflected back to the camera.

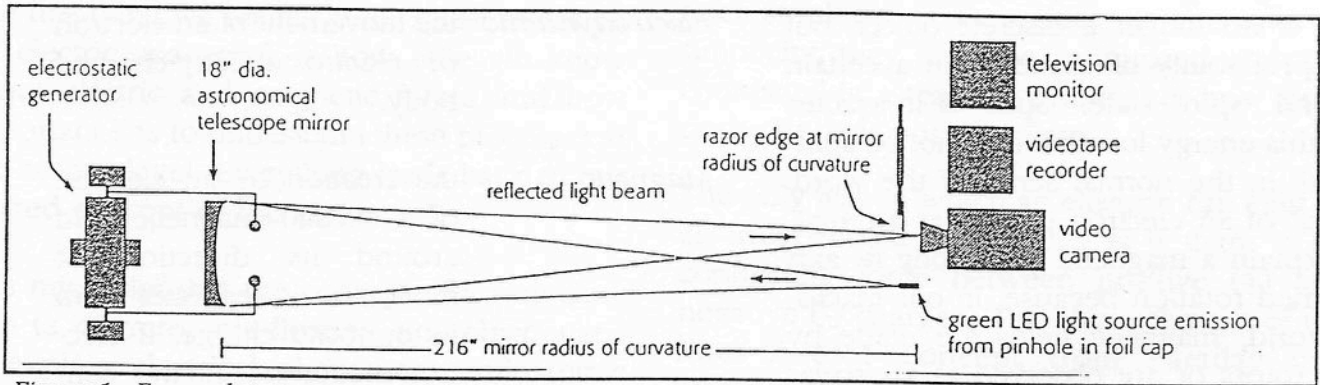


Figure 1. Foucault test setup

## Optical Visualization

An optical visualization system was set up to study electrostatic and electrodynamic fields, the premise being that such fields would cause changes in the ambient air density and thereby make the fields visible as changes in the indices of refraction. Changes in refraction indices can easily be detected by the simple Foucault light test commonly used in manufacturing telescope mirrors.

Our setup included telescope mirrors 12 and 18 inches in diameter, a standard DSI Wimshurst generator, a video recorder, a

This optical setup magnified delicate density changes in the air near the mirror. For example, when a hand approached the mirror, variations in air density caused by the heat of the hand could immediately be seen emanating from the hand. It was surmised that the ionized air would create similar air density variations. A wave effect Steve Hall had seen earlier

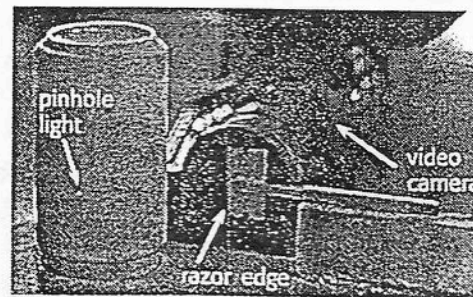


Figure 2. Video camera and knife-edge, pinhole light source

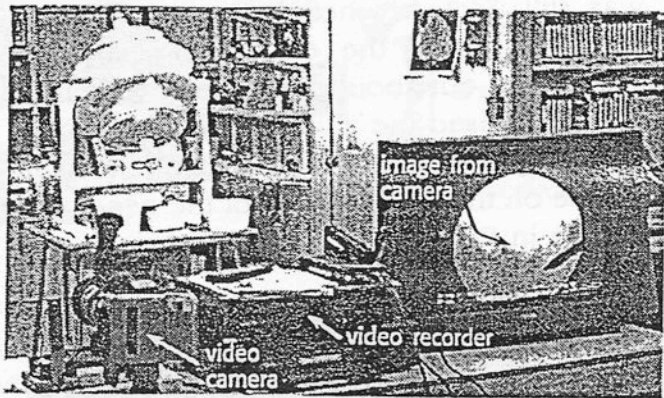


Figure 3. Optical viewing system and setup

from an electrode shadow cast by the sun was next examined on the video monitor with this optical setup.

With the generator charging, the 2-inch electrodes (negative and positive) were brought close enough together to discharge. The setup is shown in Figure 4. After repeating the discharge several times, it appeared that the wave might be the result of an ion burst and not simply a heat effect from a spark discharge.

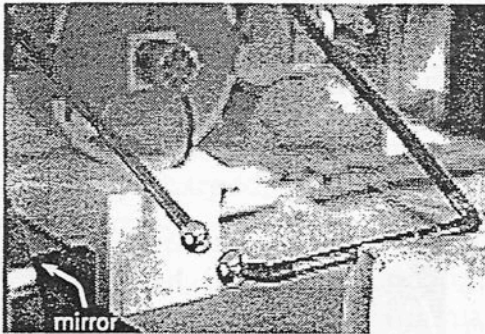


Figure 4. A typical setup with ball electrodes on arm extensions in front of the mirror

The aftermath (1/30 second later) of such a spark burst is shown in Figure 5. The ion burst hypothesis was based on the way in which the wave moved compared to a thermal motion.



Figure 5. Aftermath of a spark burst (our first video to hard copy, courtesy of Robin Yost and his computer)

Another early visualization test (in late April 1995) used a small, 1/2-inch diameter, rare earth magnet taped to the end of a 2-inch ball electrode. The magnet held a 1/4-inch diameter ball bearing at the furthest extremity of the electrode, as shown in Figure 6.

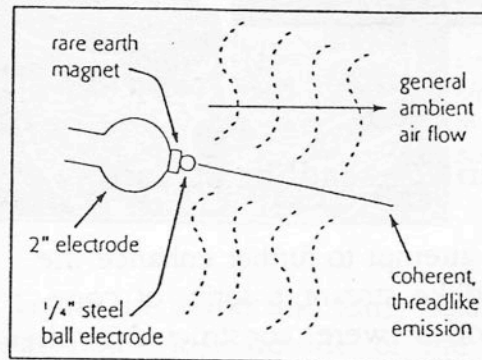


Figure 6. Negative electrode visualization shows a coherent thread of air

This setup attached to the negative polarity of the Wimshurst generator showed a very unusual phenomenon. A thin stream of unknown constitution was observed continuously emanating from the ball bearing. The stream itself appeared to be a very thin thread that reached lengths of up to 10 inches without dispersing. The threadlike stream was visible along with a general air flow away from the negative electrode (but only with our optics). Figure 7 is a photograph of the video frame taken during one of the experiments.

When the magnet and ball bearing were charged by the positive side of the generator, a threadlike stream was visible, although weaker in appearance. A general flow, as was observed with the negative electrode, still moved toward the positive electrode.

Both experiments were repeated in total darkness in order to observe the electrical phenomena occurring around the ball bearing. The negative polarity produced a tiny, cone-shaped corona, the apex of which was a tiny point of light on the bearing. The positive polarity produced an even smaller point of light on the bearing's surface without any visible coronal extension.

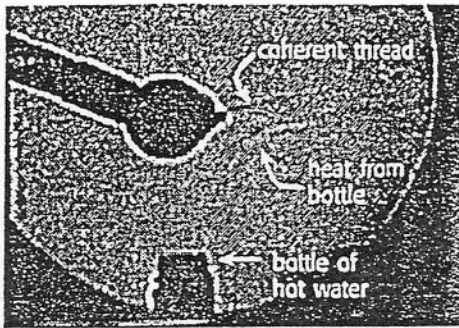


Figure 7. Visualizing a coherent emission and surrounding 'electric wind.'

## The Coherent Threadlike Stream

In a May 1995 attempt to further enhance the coherent threadlike stream, a series of cone-shaped electrodes were constructed with sharp points as shown in Figure 8.

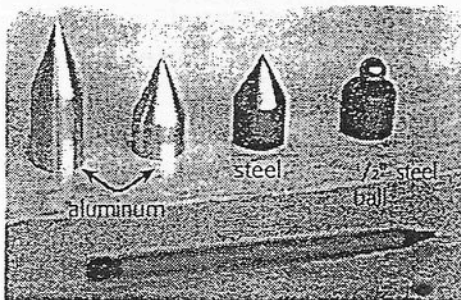


Figure 8. Various metal electrodes used in experiments

With these new electrodes installed on the negative side, an even stronger, coherent stream could be seen issuing. The general surrounding ambient flow was also visible as before. A typical point electrode setup is shown in Figure 9.

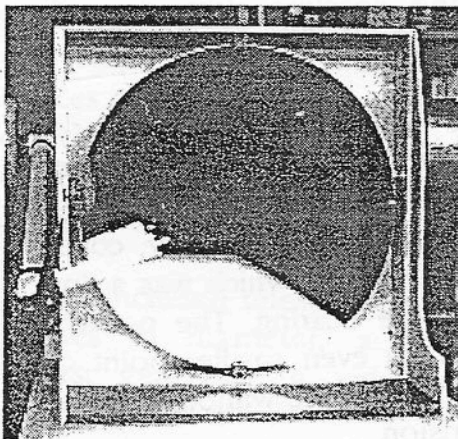


Figure 9. Cone-shaped point electrode setup in front of 18" diameter mirror

It was still unclear whether this stream was affected by either the electric or magnetic fields. To find out about electric fields, the first experiments used the aluminum conical point on the negative side and a 2-inch diameter electrode on the positive side of the generator as shown in Figure 10.

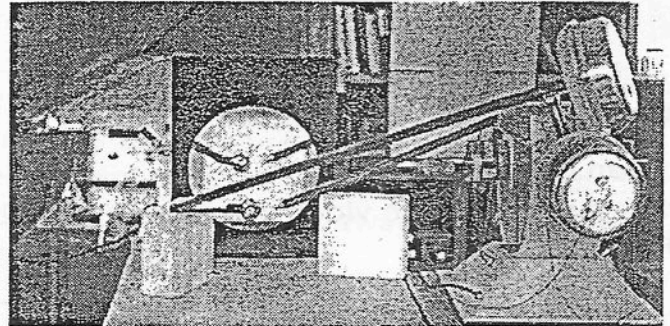


Figure 10. Point and ball electrode setup

The two electrodes were separated just enough to prevent discharge. Viewed on the video monitor, the stream was visible between the two electrodes, with a strong flow issuing from the negative side toward the positive side. The positive electrode was then moved up and down to determine if the stream would follow the electrode, but no following movement or influence was noticed.

Another test was designed to determine if a very strong magnetic field would have any effect on the stream. A 1/2-inch diameter, neodymium magnet held on an insulated rod was brought up to and through the stream. This had no effect. Magnets of varying sizes and strengths were used, always with negative results.

A follow-up experiment involved the construction of a crude Langmuir-type probe to check for any signs of current in the coherent stream. The probe was made using a 12-foot piece of coaxial cable, exposing 1/8 inch at the end of the inner wire. This is shown in Figure 11. The inner wire of the coaxial cable plugged into the negative terminal of a DC



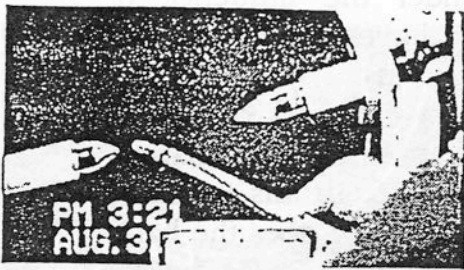


Figure 11.  
Langmuir-type  
probe designed  
to measure  
current  
around the  
point electrode

microamp meter. The positive terminal of the meter connected to the positive electrode of the generator. The coaxial shield was grounded. The current measured 50 microamps when the probe was directly in the threadlike stream and diminished to zero as the probe was moved out of the stream.

A distinct negative current bump exists in the stream, but because of the crudeness of this test it could not be resolved if this was simply a result of faster-moving surrounding air ions induced by the thread air stream. The bump rise, which is located an inch or so outside the coherent air stream, is perhaps only 10 or 20 percent higher than the general current measured in the air. Thus the bump could be accounted for by a speeded up airflow entrapment. The coherent threadlike line is shown in Figure 12 extending outward from a negatively-charged, high voltage, conical point electrode.

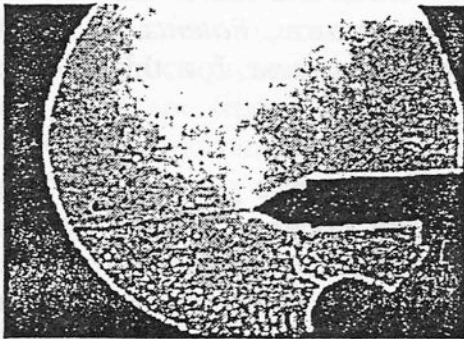


Figure 12.  
Coherent  
threadlike  
stream issuing  
from conical,  
negative point  
electrode

This threadlike stream is fairly steady and extends up to eight inches in a constant thickness, with only a slight wavering motion. The stream is not affected by heat turbulence nor a strong magnetic field in close proximity, nor apparently even by an opposite electric field

as is shown in Figure 13. The stream behaves as though it is uncharged, coherent, and perhaps possessing a vortex structure. At this stage, the vortex structure is only speculation to explain the observed stability.

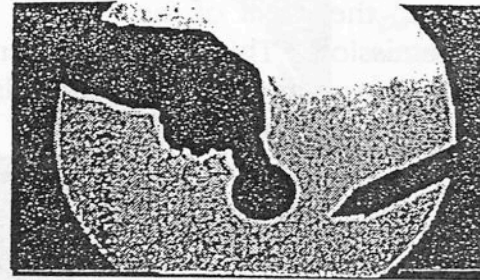


Figure 13.  
Thread stream  
is apparently  
unaffected by  
close proximity  
to grounded  
ball electrode.

In Figure 14 a metallic vane, balanced on a metal point just outside of the threadlike stream and free to rotate, rotates little or not at all. However, when one of the flat-faced vanes is placed in line with the threadlike stream, the vane is clearly impacted and forced to rotate rapidly. Since the stream is so thin and tightly bounded, the intersection of the vane with the stream is quite distinct and sudden.

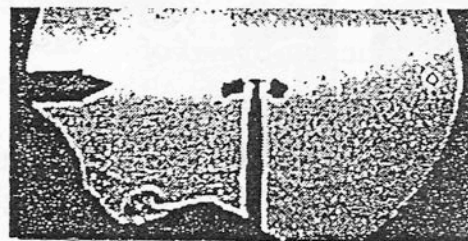


Figure 14.  
Metallic vane is  
placed outside  
of the stream

Initial conclusions are that the stream is an uncharged or a cloaked charge of air moving in a definite threadlike form at a velocity of many feet per second. This is clearly a demonstration of the electric wind often mentioned in electrostatics, but it is of a far more coherent form than previously imagined.

This negative threadlike stream, sometimes referred to as a vortex thread, raises some basic questions.

1. How does it maintain its threadlike stability over such a long distance?

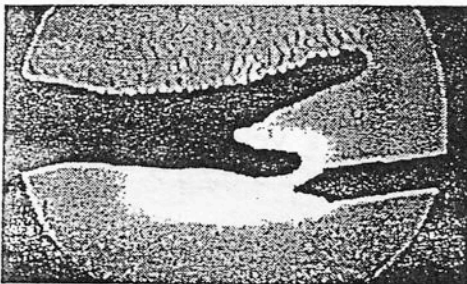
2. Why does it not appear to be affected by a magnet or a nearby electrostatically-charged ball?

3. What initiates its thrust?

Trying to answer these questions prompted a look at the activity close to the point of the electrode corona and emission. This was accomplished with a microscope and will be discussed in a later section. There are a few other flow visualization results worth mentioning first.

## Ion Flows

In Figure 15, a hand is shown in the region of the negatively-charged point emission. The hand feels the cool wind generated by the negative electrode, but this wind is widespread and the coherent threadlike stream coming from the point cannot be distinguished. Thus, there is some confusion as to what the electric wind represents. There is clearly a general flow of air as much as a foot in diameter, and there is a coherent thread of air being emitted from the point electrode. All of this is clearly visible using Foucault optical visualization.

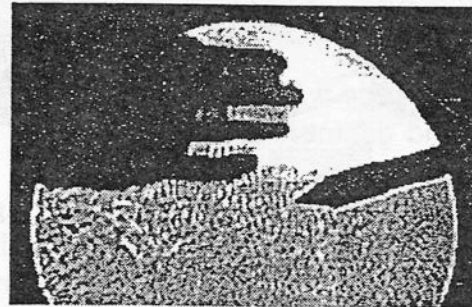


*Figure 15.  
A stationary  
hand is  
placed close  
to the  
negatively-  
charged  
point*

The hand has become electrically charged. Uniformly spaced waves can be seen rising from the hand. These waves are caused by variations in air density introduced by the heat and ions around the hand. Such heat waves are normally seen to be random, wandering

swirls of air, but under the influence of electrification, they have been highly organized into wave patterns.

Another illustration of an electrically charged hand is shown in Figure 16. In this instance, the hand is in motion; not only does the hand itself show a variety of organized air density patterns, but portions of the surrounding air do also. There is a complex of heat from the



*Figure 16.  
A Hand in  
motion is  
placed close  
to the  
negatively  
charged  
point*

hand, the local air ions and the mechanical vibration produced by the generator combining to form such patterns. I think that it is the interaction of the air vibrations caused by the vibrating generator electrode with the air ions that set up the patterns. The air ions in this case may be acting as though linked to become like a liquid or solid and readily take on a pattern of vibrations. Nikola Tesla once said that electrical vibrations can behave as though they are rigid. I will have to search the Tesla book, *Nikola Tesla: Lectures, Patents & Articles*, to find the exact context for this concept.

It is important to notice the dynamic phenomena just described. They are obtained at very little cost, and, if properly explained, can lead to an understanding of nature and how to design new energy and propulsive devices.

Figure 17 shows a spark burst pattern in the air between a negatively charged (-) ball 2 inches in diameter and a positively charged (+) ball 5/8 inch in diameter. This is the video frame after the spark, only 1/30 second later. The

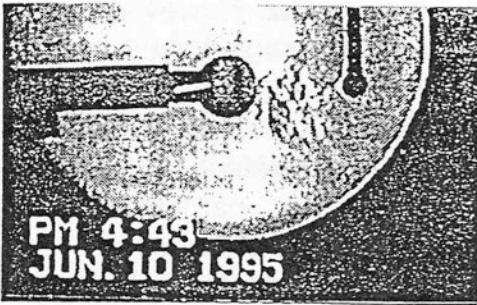


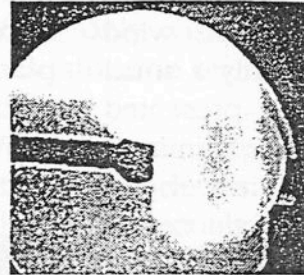
Figure 17.  
A spark burst  
pattern between  
a large  
negative and a  
smaller, positive  
ball

actual spark frame is not reproduced since it is totally whited out. The burst pattern is complex, consisting of many air cells expanding.

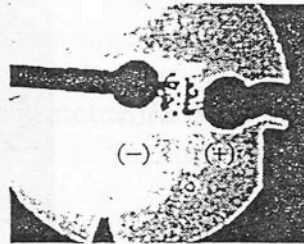
The first inclination is to explain these expansion bubbles in terms of thermodynamic heating, which would be a gross oversimplification of the dynamics in this situation. Although there is a heating effect from the spark, it may very well be small. The spark itself is extremely rapid and thin and has an immediate effect on air molecules in a small region. The factors complicating the thermodynamic analysis include: the intense electric field gradient that has polarized the molecules, the prolific existence of ions mixed with the polarized molecules, and the pressure shock impact of the spark occurrence. The sound wave from the spark explosion can travel 36 feet in the 1/30 of a second it takes to see the next video frame. However, the spark energy is transferred in a few microseconds, if not less, and a sonic shock pressure wave might still be trying to escape from a magnetic cage 1/100 or 1/50 of an inch in radius. This is, of course, a plasma-dynamic explosion in its earliest stages, and, as such, is doing things at the atomic/molecular level which are of an electrodynamic form.

Two different spark explosion expansions, this time as video frame sequences between two 2-inch diameter balls, are shown in Figure 18. The spark discharge across the 2 inch gap is supplied by two Leyden jar-type capacitors: one negatively charged and the other positively charged and having a combined

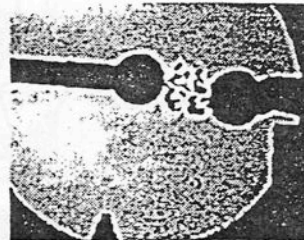
capacitance of 0.001 microfarads. The capacitors are continuously charged by the electrostatic generator. The generator has a charging current of approximately 60 microamps. It is interesting to note that the burst cloud tends to



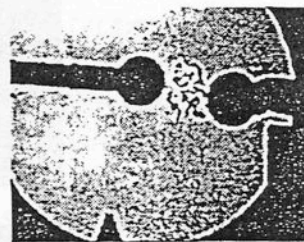
Spark burst Frame 0



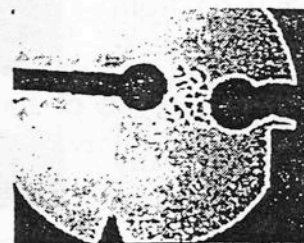
Frame 1



Frame 2

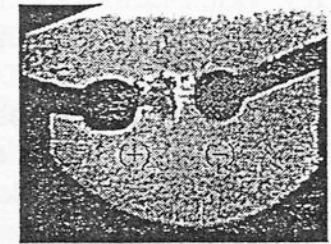


Frame 3

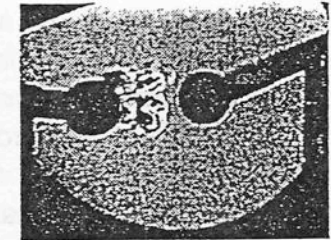


Frame 4

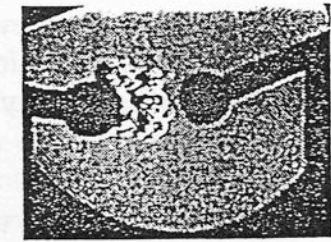
Figure 18.  
Spark burst pattern  
between 2-inch diameter  
balls. Segmented video  
frames in sequence at  
30 frames per second  
Set A (left)  
Set B (right)



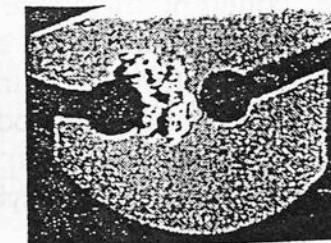
Frame 1



Frame 2



Frame 3



Frame 4

resemble a pair of clouds. This is typical. The clouds tend to follow electric ion flow directions rather than demonstrating signs of heated low-density air rising.

There have been about eight hours of spark explosion and vortex thread/electric wind experiments recorded on video. Only a small fraction of distilled information is presented here in still-picture, black-and-white format. It is necessary to view the real time video motion in order to observe the subtle details of the flow patterns. The motion of gradually shaded shadows and patterns that come and go in a few video frames cannot be effectively presented on a printed page. Since these optical visualization and video recording techniques are relatively low in cost, they are within reach of many individual experimenters. I encourage that they be practiced.

Another flow pattern we documented was prolific, well-organized vortex patterns of air at or near the mirror surface and caused by the highly charged point electrode. These were over an 18-inch diameter mirror surface which was itself charged by the surrounding ions.

These flows were clearly analogous to weather flows observed on the surface of the earth such as hurricanes and weather fronts. The charged mirror surface and the charged air definitely interact. I have previously reported research on electric weather forces and could not help noticing this similarity in phenomena.

## Microscopic Observation of Electrodes

The fine, coherent threadlike emission from the negative point electrode raises the question of how it is formed. (I might add that a 1/4-inch diameter ball electrode can also produce this threadlike emission.) It can clearly be seen with the unaided eye that the elec-

trode point has a tiny pink corona. However, this corona only extends 1/16 inch at most.

A high quality stereoscopic microscope was used to examine the coronal appearance more closely. The advantage of this particular microscope is that the objective lens can be placed up to three inches away from the high voltage electrode. This microscope setup is shown in Figure 19 with a steel ball as the electrode. It is attached to the electrostatic

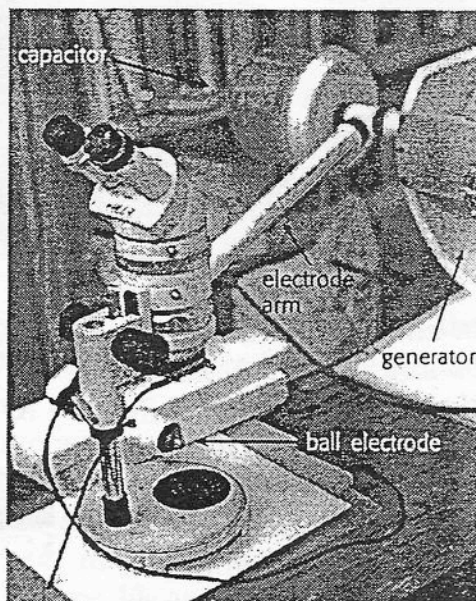


Figure 19. Microscope setup with 1/2" diameter steel ball electrode

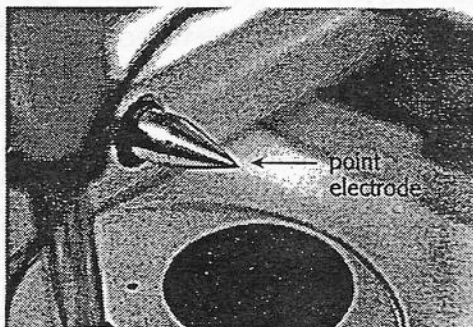


Figure 20. Microscope setup with conical aluminum point electrode

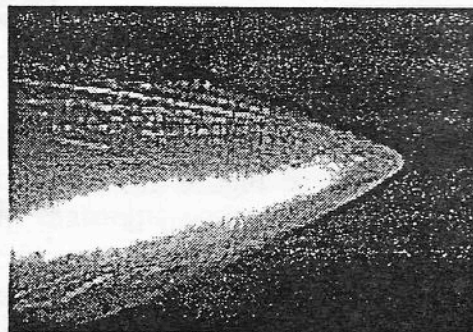


Figure 21. Aluminum point under 12x magnification

generator by 3/4-inch copper tubing which is covered by PVC pipe for insulation. Figure 20 shows the aluminum conical point in place, and Figure 21 shows a magnified image of this point as photographed through the microscope.

The most detailed observations of the high voltage coronal point are obtained by looking directly through the microscope's eyepiece. This can be literally quite shocking to your face if precautions aren't taken since the high voltage point transfers appreciable charge to the microscope itself. The solution was to drape the microscope with a (silver-coated) conductive fabric and attach it to ground. This effectively eliminated the problem for all but the most sensitive people.

I examined the negative coronal point at magnifications of 6x, 12x, 25x and 50x. The only region that appeared likely to deliver an impulse to the air and produce a coherent thread of air flow was in a thin, dark space between the surface of the aluminum point

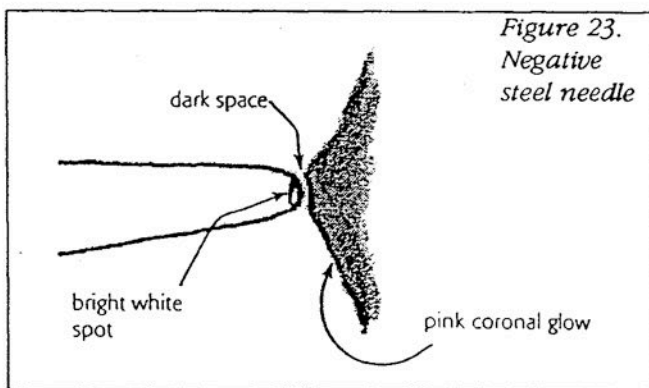
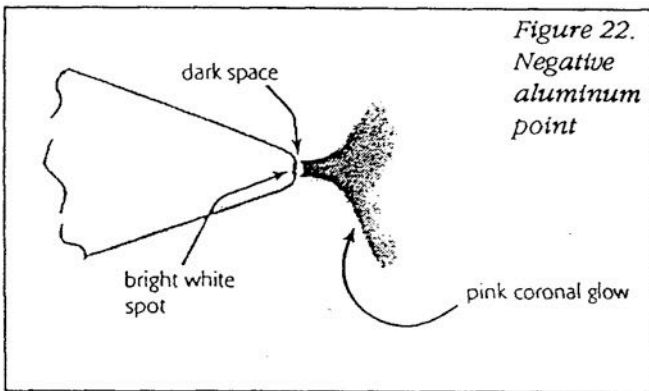
and the beginning of the pink coronal air glow. This structure was quite distinct and is sketched in Figure 22 for the aluminum point and in Figure 23 for a steel needle point. The coherent vortex thread of air is not visible since it emits no visible radiation and is therefore only visible with the Foucault optical visualization technique described earlier.

The eyes must fully adjust to the dark before the finest details can be seen. This takes at least 15 minutes. Careful examination of the negative point shows:

1. The very tip of the metal electrode has a small, brilliantly illuminated spot on its surface. It may only be 0.001 to 0.004 inches in diameter. It is obviously only on the surface, as it sometimes suddenly shifts or dances a bit from side to side without any sign of afterglow or depth. Except for this tiny spot, the point is solid black.

2. The pink coronal glow does not actually touch the surface of the metal point. It is fairly distinct in its boundary as is shown in the sketches. The boundary of the glow is about 0.001 to 0.002 inches beyond the metal surface. The narrow end of the corona glow (nearest the point) appears to have the same diameter as the bright spot on the surface. The glow fans out as it moves away from the point and fades away to invisibility at about 1/16-inch beyond the metal tip. The central axis of the glow is brighter, but it is not clear if this is intrinsic or a reflection of brightness from the spot on the metal point. The coronal glow is somewhat nebulous with a pinkish-blue coloration. The fanned-out shape is as shown.

3. The thin dark space appears to have a deep violet (purple) color. This can only be seen once the eyes have become well-adjusted to the dark. It is amazing that this nearly ultraviolet color can be seen at all in such close proximity to the brightness of the



metal tip. This fact reinforces the idea that the bright surface spot is totally on the metal and is not a derivative of molecular bombardment. It is in the gap of this dark space where the generation of the coherent threadlike stream is thought to be created.

Photographs of the negative point are shown in Figures 24 and 25. They were taken in color and are quite clear. However, they do not show the fine detail that can be seen directly by the eye. Time exposures of 30 seconds were used to register the faint colorations. During this time, vibrations of the point

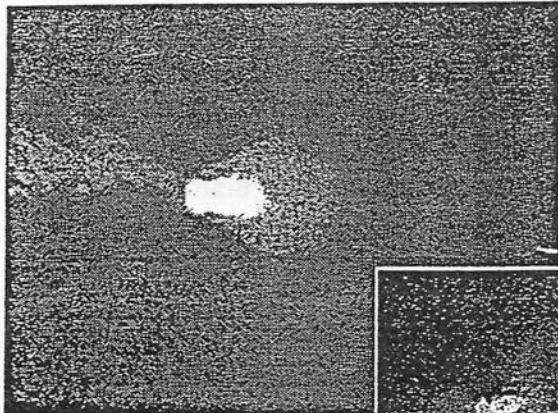


Figure 24

Figures 24-25. Negative point at 30-second exposure taken through the microscope at 25x

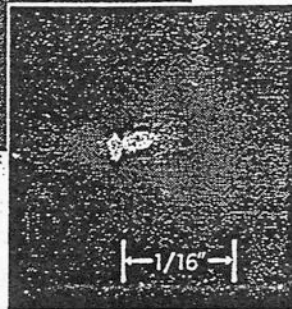


Figure 25

caused by the generator and slight fluctuations of the emissions all magnified, resulting in an image of blended movements. The point in Figure 24 was made visible by exposing it briefly to full room light after 30 seconds in darkness. Figure 25 was exposed for 30 seconds in total darkness.

## Speculation

Figures 26 and 27 illustrate some speculation about the coherent thread flow and the point's coronal structure. For whatever reason, the bright spot on the metal surface remains con-

finer and is a point of total energetic emission. (This is a common trait of cold cathode electron emission microscopes, and the trait is used to magnify the point millions of times in order to show atomic surface patterns.) There may be some emission of surface atoms, since the point gradually erodes over time. It is notable, with a positive point, that surround-

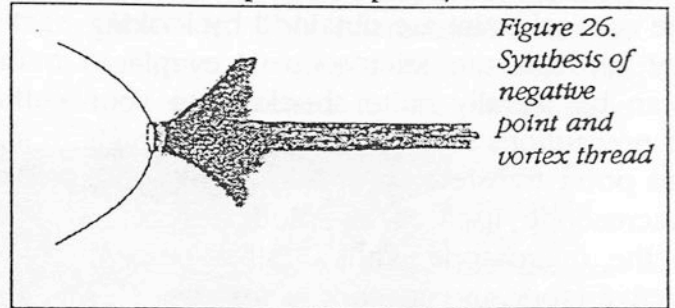


Figure 26. Synthesis of negative point and vortex thread

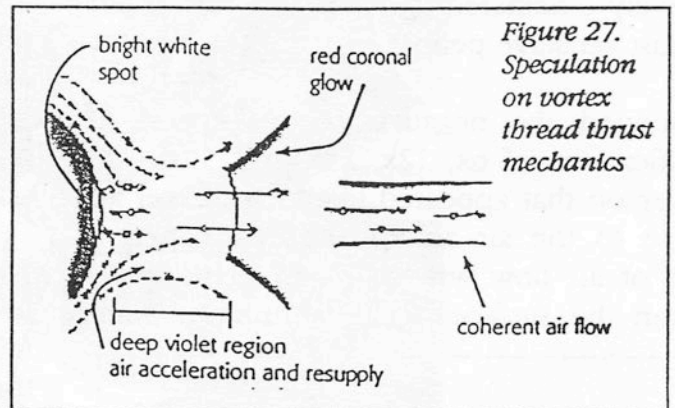


Figure 27. Speculation on vortex thread thrust mechanics

ing the point of emission a fluffy debris gradually gathers. It is easily brushed away with a slight touch from a small, camel hair, artist's brush. Thus, the forces just around the point seem to be minuscule in spite of all the action.

The bright spot on the metal surface is interpreted to be just as it appears, that is, the source of electromagnetic waves produced by excitation of the aluminum atom's outer electron shells. This form of excitation can produce light that is cold. The light need not be either a thermodynamic or a heat type. The electric charge on the surface is from the generator.

The dark purple space is again the release of electromagnetic light waves, only this time of a much higher frequency. The atoms of air are

excited at much deeper electron shell energy levels to produce this color. We are seeing the metal surface charge transfer to the air molecule to change its energy state. This air molecule must be extremely polarized, and somehow a "free" electron will disturb the molecule deeply, maybe attach and detach itself however briefly in this purple region of light. It is only in this region that the air molecule has a chance to receive a highly directed electric impulse to move away in a coherent stream, probably without ever impacting the metal surface.

The red coronal glow is symptomatic of yet another energy state change in the air atom. This time the electromagnetic radiation is of a lower red frequency. Perhaps the charge that attached itself to the air atom so intensely in the purple region is now relaxing its grip to lower electron shell energy levels. Loose negative air ions are developing and spread radially. This is revealed by the glow geometry. Beyond the region of red glow, the extra charge is perhaps only hanging on to the wandering air molecule with the slightest grip of polar attractions.

The stable, coherent, threadlike flow of air is left unexplained by the speculation thus far described. Only the energetics have been examined. The coherent air stream behaves very much as though it were neutral, except for the bump rise in the negative current detected in its path.

The fineness of the coherent stream and its stable length of up to 8 or 10 inches suggests that it is not charged and that it has a linear linkage along its length. That linear linkage might be of more massive atoms, polarization links, or some kind of vortex flow stability such as that exhibited by traveling smoke rings. A slight, sudden twitch of the bright spot on the aluminum electrode can be detected in the behavior of the vortex thread.

The motions of the thread are much like the motions seen in a stream of water issuing from a hose. Wiggle the hose nozzle and the stream will wiggle accordingly. The velocity of the coherent stream is on the order of a few feet per second. Its diameter is perhaps somewhere between 0.002 and 0.010 inches. That is enough to have an effect on changing the air density enough to be seen with the optical visualization. A soft electric wind can be felt in a wide radial region of many inches around the coherent thread. This general flow of wind contains many negative ions which readily attach to more solid surfaces.

### **Corona from a Ball Bearing**

A 1/2-inch diameter, clean, precision polished, steel ball bearing was attached to a copper end cap and examined under the microscope while attached to the negative electrode of the electrostatic generator. The coronal emissions from this surface produced basically the same coronal structures as seen on the conical point. However, there were some noticeable differences worth describing.

In one experiment, the bearing was attached with a magnet; in another it was attached with an adhesive tape. The magnet induced a strong magnetic flux in the bearing. The main effect of this was to stabilize the shifting of the coronal beams so that they would not dance around on the surface so easily. When the magnet was not present, the coronal beams from the half-inch bearing were much more numerous and erratic.

The ball bearing had a wide variety of electrical coronal emissions. These are sketched in Figures 28 and 29. There was a main beam, the shaft of which might exist several at a time and remain quite steady. There were also myriads of short spikes which undulated on the surface like wiggling worms. There were

sharp little hairline glows everywhere that never extended more than a fraction of the main beam's shaft length. There were quite a few long-shaft beams, but the proximity of one to the other made it difficult to see any fanlike spreading of their corona such as that seen from a point.

The central shaft was finer, brighter, and reddish, and extended maybe five times farther beyond the surface than it did from a conical point. The beam shaft seemed to become more sharply narrowed as it extended into the coronal glow. The coronal glow's outer boundary started farther away on the beam shaft, was more diffuse, and did not fan out nearly as much as that of the conical point. This may have been a result of the intense overall surrounding coronal activity on the ball's surface.

The effect was reminiscent of the earth's aurora shifting and the more recently discovered electrical beams extending upward from the top of cumulus clouds. The ball literally had a glowing atmosphere-type boundary produced by the short spikes which shimmered.

## Positive Electrodes under the Microscope

The appearance of the positively charged electrode is distinctly different from that of the negatively charged electrode. The setup to examine the positive electrode under the microscope was the same as that for the negative electrode. The most profound differences are listed below:

1. The tip of the positive point had a dull, whitish-grey phosphorescence on its surface, which was not easily seen through the microscope until the eyes became adapted to the dark. A very tiny point of light existed at one

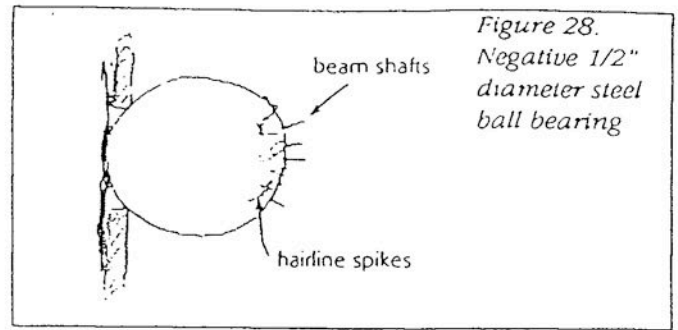


Figure 28.  
Negative 1/2"  
diameter steel  
ball bearing

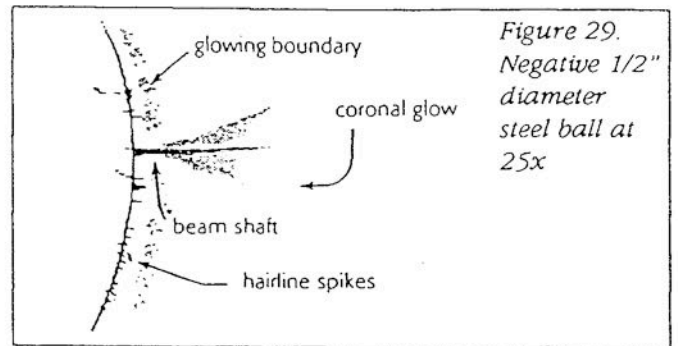


Figure 29.  
Negative 1/2"  
diameter  
steel ball at  
25x

location amid this phosphorescent region. This would last for a few seconds before other changes started. This time lapse in the progression of events is thought to be because the opposite (-) electrode is a couple of feet away, and, as a result, the proliferation of (-) ions took some time to arrive and accumulate near the (+) electrode.

2. The positive tip would briefly spit out a sharply-aligned bright reddish stream. Sometimes, it would maintain itself for several seconds and appear actually attached to the metal surface. When the sharp spit lasted a few seconds, it could be seen to extend about 1/2 inch into a light blue surrounding halo.

3. A blue coronal halo glow developed around the reddish sharp line extended from

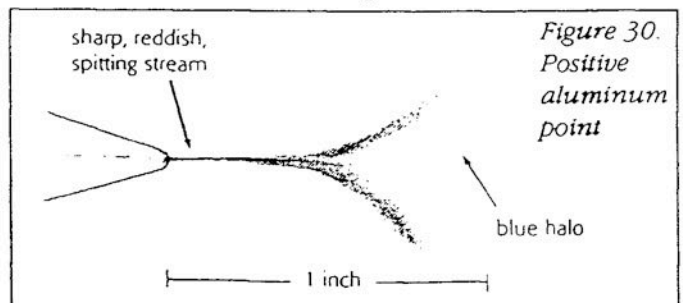


Figure 30.  
Positive  
aluminum  
point



the positive point. This blue halo, shown in Figure 30, sat close to the axial stream, but fanned out rapidly when it was 1/2 inch away

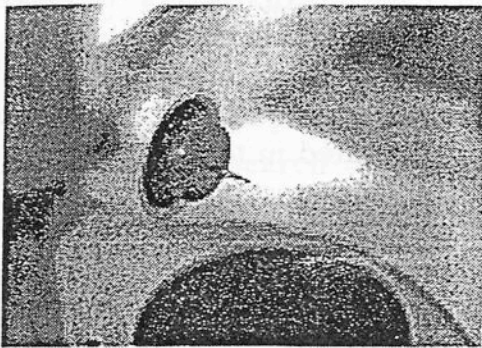


Figure 31.  
Needle point  
electrode  
attached to  
the micro-  
scope

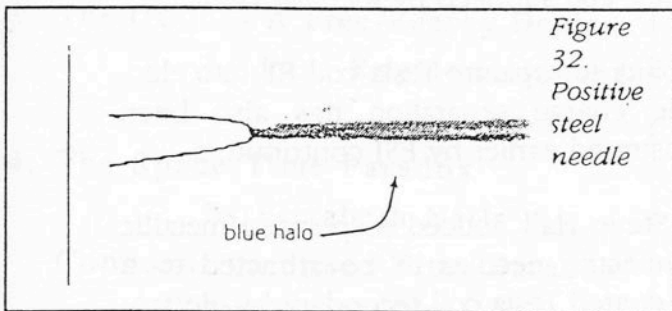


Figure  
32.  
Positive  
steel  
needle

from the point. This rapid fanning was characteristic of the conical point. The needle point of Figures 31 and 32 has similar characteristics of color, but the blue halo remains closer to the main red spit emission.

4. The positive point extended its spit and a progressively increasing surrounding halo up to an inch away, whereas the negative point corona only extended 1/16 inch. Figure 33

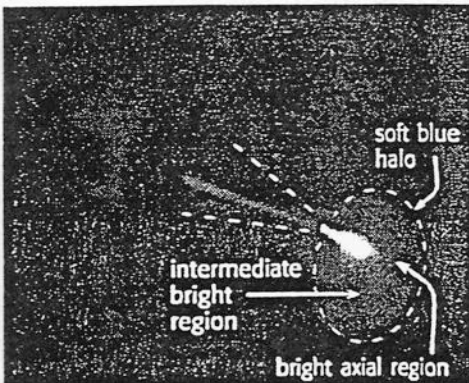


Figure 33.  
Positive glow  
from the  
aluminum  
conical point  
electrode

shows a direct (not through the microscope) photograph of a fully developed positive point emission. It is easily observed by the unaided

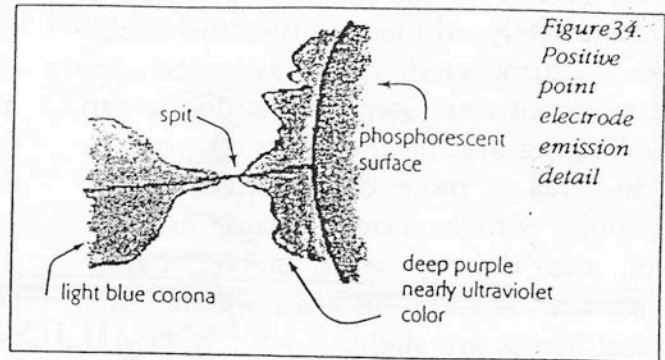


Figure 34.  
Positive  
point  
electrode  
emission  
detail

eye, but the colorations are far more pronounced in the time exposed color photo.

A sketch of the magnified positive point is shown in Figure 34. This is a compiled rendition of the view through the microscope and the photographs using a 60-second exposure through the microscope. The surface of the positive tip is barely visible to the eye as a dull phosphorescence. A near ultraviolet, barely visible, deep purple color shows on the color slide just above the surface of the tip. This deep purple color is not visible by eye through the microscope. A spit extends from a bright point on the surface and develops a halo around it at some distance beyond the surface.

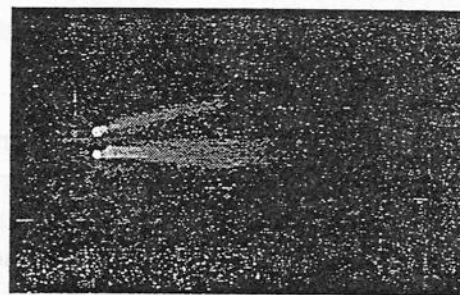


Figure 35.  
Positive point  
emission at  
15 seconds  
and 25x

Figure 35 shows the positive point in a 15-second photographic exposure at 25x;



Figure 36.  
Positive  
emission at  
120 seconds  
and 50x

Figure 36 shows a 120-second exposure at 50x. Unfortunately, in these photos the details become accumulated and blended by long-term exposures. Some point debris can be seen clinging around the emission point in Figure 36. This is more characteristic of the positive point which shows greater erosion. However, the debris, while stable, barely clings to the surface indicating that the mechanical forces are slight.

## Summary

Many tedious details of the experiments have been presented to convey the basic electrostatic and electrodynamic phenomena. The detailed mechanics of energy exchange at the electrode points is still unclear; perhaps someone can provide more insight and clarification. This would be very helpful to all of us.

Electromagnetic phenomena appear as colors of light which are looked upon as electric dipole oscillations. On the other hand, the electric and magnetic fields extend real net reaction forces through space as seen affecting the air. These forces have been demonstrated in visualized electrical air vibrations and by the thrusting of an air stream. It is this form that can be used for propulsion. This form is electrostatics. The oscillation of electrostatic forces was the grand finale of Nikola Tesla in his quest to transmit electrical energy. Such oscillations act to polarize all materials and

transmit as polarity oscillations. These can be tapped at any distance away on the globe and changed into electrical current by a tuned metal antenna-receiver circuit. It is only at the time when the receiver antenna draws current that the transmitting oscillator needs to be adding extra energy. The details of electrostatic transmission and the Tesla coil magnifier appear to be tightly related in their electrostatic characteristics. The conversion of Tesla coil radio frequency oscillations into separated charge and into stable electrostatic capacitor accumulation has been demonstrated recently in our lab thanks to a Tesla magnifier coil supplied by Richard Hull.

The ability to separate Tesla coil RF into electrostatic charge separation has also been demonstrated earlier by ESJ contributors.

1. Steve Hall noticed suspended metallic and dielectric needles to be attracted to a plastic coated Tesla coil secondary by electrostatic charge buildup.
2. Ron Kovac demonstrated that the transmission from the Tesla coil secondary through a plasma tube can separate the RF into electrostatic accumulation.
3. Richard Hull and TCBOR demonstrated not only the residual accumulation of strong electrostatic charge on the Tesla coil, but also the separation and accumulation of such charge on insulated conductors nine feet away.

**We are interested in *your* ideas  
and invite you to join our dialogue.**

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