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# *FULCRUM*

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# FULCRUM

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Fulcrum focuses on the science of creation as revealed to Walter Russell. Dr. Russell, artist/philosopher/illuminate, spent 35 years describing the Creator's multidimensional creation process 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 our multidimensional Universe as an extension of the One substance of God. More specifically all matter is described as Light. The Light of Thinking Mind spirally winds in centripetal vortex motion the One substance into the many forms we witness. Mind also unwinds through centrifugal vortex motion all manifest form into the formless zero from which it appeared.

The Russell Cosmogony can be found in its most mature form in *A New Concept Of The Universe, Atomic Suicide?*, *The Home Study Course*, and *The Secret Of Light*. His earlier descriptions can be found in *The Universal One* and *The Russell Genero - Radiative Concept*.

*Fulcrum* is now a tertiary and greatly expanded forum in which scholars and students can interact to exchange insights and perspectives on the interpretation and application of the principles of the Russell Cosmogony. *Fulcrum* is engaged in extending the understanding of the Russell Cosmogony as it applies to all of our civilization's institutions that this teaching might continue to grow and act as a mighty seed to assist the birth of a peaceful and sustainable culture.

As the editor I intend to publish articles by creative thinkers, artists and inventors that can help demonstrate the Russell's principles and make a difference in the direction of our world today- right now! Understanding the whole cycle vision of Universe as given by the Russell's and application of our understanding by students and scholars is essential for this work to complete its mission for the world. Without this demonstration humanity will continue on in its present beliefs in a Universe dying a heat death, where energy only runs downhill, where there is not enough life support let alone luxury or excess abundance to go around, where God is vengeful and thus so are we, where health is found in magic bullets, and everything is moving to greater and greater disorder- where entropy reigns supreme and unchallenged.

Our present science and technology, economic, social,

psychological, medical, philosophical, political and religious systems are patterned on entropic beliefs and foster entropic thinking and actions.

I will publish:

1) A dialogue with you on the Russell Cosmogony and literature. I invite questions from readers which may be published in each issue and answers given by you the readers or by me that will follow in the next issue. The responses may or may not be definitive. I intend to be clear, although clarity may take time to unfold. Our shared insights may or may not reach similar conclusions. My intent is that by sharing questions and answers, by sharing our perspectives and insights we will stimulate each others thinking and teach each other in the process. I invite you to participate. Have no fear, ask questions and give responses no matter what level of understanding and experience with this work you perceive yourself as having. We all come from, have access to and have our present being in the same source, the same source and being that the Russell's had.

2) Research and articles relevant to the Russell Cosmogony or that have meaning for humanity's need at this moment. What are your insights from this work? Do you know of other scientists, illuminates, or common people that have published works that have meaning for our common needs now? How do you see our institutions (science, art, religion, commerce, agriculture, education, medicine, and our human relations) from your understanding of the Russell work? I am eager to review your treatments and demonstrations of the Russell concepts for possible publication.

3) Articles on current or past experiments in the field of science and technology especially as it relates to non-polluting sustainable energy production and transportation, agriculture, medicine, economics, education, art, parapsychology, psychology, religion and metaphysics.

4) Articles on any application of the Russell work that might make a positive difference in humanity's future.

5) Patent papers on free energy inventions and articles about them.

I am pleased to present this issue of *Fulcrum* to you and look forward to your input and feedback.

Dr. Timothy A Binder, Editor



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## Dialogue: Questions for the next issue.

**Questions:** Millennium Twain's letters in this issue and his letter in the last issue have prompted these questions:

1) He claims that light has an unlimited and variable speed and it is a function of frequency. Does this conflict with or agree with Russell's cosmogony ( or does it do both) or what did Russell have to say about it? Can we "prove" the contention and what did the early Michelson Morley experiments really prove? Or did they prove what we were told?

2) MT says he discovered the non-linear, continuous, wave (AKA inertial vortex) topology of light. This appear to be the same discovery that Walter Russell revealed, and others that MT implies discovered in vortex theories revealed, that apply to light (and I believe apply to all motion/things). If light is such a wave, is not light all phenomena just as Jesus and Walter Russell stated? If this is so then will the dimensional equations and geometry I am searching for and promising to deliver in the next issue be able to demonstrate this contention?

3) What might MT mean as stated in his letter last issue that Lights' unlimited and variable speed is a function of frequency?

4) In MT's letter to Dale Ponds he says. "your longitudinal scalar wave is what some would call a gravity wave". What are the standard definitions for a scalar wave and do these also define a gravity wave and what might Russell's cosmology, or any of us as students of the work, be able to say about defining a scalar or a gravity wave? Can we engineer it to demonstrate it and use it in technology?

## Some of the featured articles for next issue

The great pyramid, octave 12 tone chromatic scale, sinusoidal standing wave, and squaring the circle, examined in light of the Russell Cosmogony with implications for energy production.

by David Levick and Timothy A. Binder.

Mechanism of Low Temperature Transmutation. G. Rabzi of The Ukrainian International Academy Of Original Ideas.

Explanations of dimensional equations detailing that all phenomena are the same phenomena; or a unification of heat, gravity electricity and light with an accompanying geometry.

by Timothy A. Binder.

The web of life from soil to humanity and the role of ancient mineral deposits in agriculture, animal and human nutrition and medicine by Timothy A. Binder.

Serendipity - the discovery of a new power saving light technology in the search for free energy by Toby Grotz.

## Dialogue: Responses to Previous Questions

### Question One

This question has three parts to it. First, how does the Russell's work consider health and disease? Second, how could the Russell Cosmogony address the origins of cancer (the epidemic of our times) and its possible eradication? Third, do the Russell concepts support alternative methods of healing and what is known as modern medicine at the same time, parts of both, one or the other or neither?

### Question two

Lloyd Zirbes gives an equation,  $G=m(v \text{ squared})$  that he says expresses the grand unification theory. Does it, and if so can we extend it so that this equation expresses what science calls light, EM waves, sound waves and heat waves so that we can mathematically express that say sound is heat is light is EM phenomena is gravity? In other words is there an extended form of this equation that expresses all of these phenomena as equivalent? Is there a geometrical expression for this?

### Question three

Is there an equation we can create that expresses the equivalency of all of the 18 dimensions of matter that Walter Russell gave us? If so, what is it? Is there a geometrical expression for this?

### Question four

Millennium Twain's letter claims that there is no need for an equivalency principle between gravity and inertia, that there is no gravity, only inertia. His ideas to me appear to be equivalent to Russell's except he wishes to discard gravity. Can this be done and if so, why? And secondly, is everything in the cosmos made from laterally balanced electric fields and longitudinally balanced magnetic fields? What would Russell say about this and is there a way to "prove" it?

Two individuals have responded to this issues questions. Chester Hatstatt has responded to the first one and Larry Tiegs has responded to all four. I believe their answers enrich my viewpoint and provide opportunity to deepen the dialogue. Thank you both for responding!

My answers to the questions follow Chester and Larry's answers.



From Chester Hatstat:

The keys to health found in the Russell Cosmogony are derived from its fundamental concepts that 1. God is the sole Creator, 2. There is One Idea in God's Mind for Creation, 3. There is only One Mind, 4. God's desire to express Love is the only power that exists, 5. God's rhythmic balance thinking divides the One Idea into the many sensed forms, and 6. Each human being is integral with God's Mind.

A few quotes from Walter Russell's *The Book of Healing in The Message of the Divine Iliad, Vol. II*, provide further insights:

p. 55—

"14. "The toxemia of unbalance is man's only ailment. There is no other ailment. Therefore, give him Balance."

p.64—

"9. "Man, likewise, maketh his own ills in his own unbalanced image when thinking alone without Me—for all ills are unbalanced things and unbalance is not in Me.

10. "When thinking My knowing with Me, he findeth Balance in Me to void the pairs of opposites of his unbalanced thinking and is made whole by finding rest in Me.

11. "He who would be made whole—or who would heal others—must himself think My knowing with Me. My Balance must be in him ere he extendeth its rest to others.

12. "He must know that pairs of opposed sensations and emotions are unbalanced conditions from which his good health or his ills springeth in the patterns of his thinking. At his will, he may void them both in the oneness from which both sprang."

From these concepts and others throughout Walter and Lao Russell's literature and based on my own experience, I surmise the following:

The idea for health is within God's One Idea for Creation. Health is a spiritual ideal and idea which manifests at all levels of my earthly presence: psychic, mental, emotional, and physical. Because I am integral with God's One Mind, through meditation I can access the idea for health within God's Mind. My desire for health taken into the Stillness infuses and enthuses my living activities with ideas, thoughts and feelings of health. The knowledge and information I need to be healthy at all levels is drawn to me. By repeated sojourns into the Stillness with desire for health, my brain and body come to know what constitutes healthy thinking and activity, and I act accordingly.



As an example, the initial ideas I got in meditation and in my daily living when I desired to improve my health were to exercise, study nutrition, reduce stress levels, and study Yoga and Tai C'hi. Years later I was inspired to study Macrobiotics, food combining, Powerful Partnerships, and the art of mindfulness. My desire for health and wholeness coupled with God's knowing and Love generated the ideas, the tools, and the relationships I needed to be healthful at all levels and to evolve along my spiritual path towards God consciousness.

God's repetitive thinking initiates rhythmically balanced cycles of polar opposite integration/disintegration, expansion/contraction, cold/heat, etc. causing an apparent two-way motion of the One Substance of God's body. From this two-way motion the many sensed forms within our Universe appear. This polarity process creates our 3-dimensional universe. Without polar opposites our world and our bodies would cease to exist.

Physical, psychic, mental, and emotional levels of our being have their own polarities. I will leave the discussion of the polarity of foods and medicines to Dr. Binder. His insights and information were valuable to me, and I thank him for his willingness to share them. Knowledge of the polarity within our physical environment is essential to generating physical health.

In their Home Study Course (HSC) both Lao and Walter Russell emphasize the importance of balance in one's thinking, emotions and feelings. Extremes of emotions (anger, jealousy, love, etc.) generate poisons within the body. Extremes of thinking in religious practice, work ethic, consumerism, or politics generate imbalance and poison our relationships, cultures, economies and ecology.

The Russell Cosmogony teaches us about the Balance existing in God's One Idea and the Balance found in the Stillness within our being. It teaches the ecstasy we experience when working knowingly with God and while in union with God is the ultimate balance of sensate thinking and feeling. The Russell's HSC is replete with teachings and examples of the healthy effects produced when we make the effort to center our thinking and activities in God awareness.

I urge you to read Walter Russell's two chapters *The Book of Healing* and *The Healing Principle* in the *The Message of the Divine Iliad, Vol. II*. And I urge you to take your desire for health and wholeness into the Stillness within you. The Stillness is your "fountain of youth" where God's Idea, Balance, Power and Love abide eternally.



Prelude to question #1:

Walter Russell died at age 14. His body was pronounced dead by attending physicians. His fully conscious eternal Spirit/Self/Mind, while out of body and at-one-ment with God, came to know the secret of healing. Shortly afterward he arose from the stretcher, alive, healthy and of sound body with no sign of disease or imbalance, to the astonishment and delight of his weeping parents.

From such an experience one would know there is the body; somewhere inside the body an observer that moved outside the body during his "death"; a universe being observed while "living".

Russell came to know himself as the observer, the eternal consciousness which merged into full cosmic awareness with the Omnipotent, Omnipresent, Omniscient God presence. Russell knew himself as one-with and co-creator with God, a speck of self-awareness, aware of itself as one with the vast universe of God knowingness. Just as a separate drop of ocean water regains the power and presence of the whole ocean upon reemergence, so did Russell allow the power, knowingness and creative God presence to flow through his tiny point of awareness to restore normalcy, balance and perfection to his creation, his image - his body.

#### Part A: Health & Disease

I think the Russell's would consider health as a normal, perfect balanced state: physically energetic, mentally positive and creative, emotionally loving and spiritually at-one-ment. Disease to them would be a temporarily imbalanced state easily restored to balance through positive thoughts and actions.

#### Part B: Cancer

I think the Russell's would say cancer isn't the problem. Cancer, disease and pain are just warning signals. In truth, a healthy cell and a cancer cell are the same cell, one in a balanced harmonious environment, the other in an imbalanced or toxic environment. In reality, cancer is a purposeful process of nature that is preparing the body for its regiving back to the earth. Any imbalance<sup>d</sup> toxic substance or negative thoughts/emotions - in excess - over time can cause cancer. All foods, balanced, natural and alive can help to cleanse and restore balance supported by a positive attitude of choiceless love and selfless actions. Most important is the letting go of all negative stress causing emotions toward self and others.

#### Part C: Methods of healing

While the Russells would support all methods of healing including surgery and allopathic drugs when absolutely necessary, healing wasn't their issue. Their emphasis was learning to take full responsibility as co-creators of our bodies and lives; learning to clearly picture the body and health we choose to experience; learning to express perfection. They knew this thought-wave seeming universe is only a mirror which reflects back to us what we project into it. They knew the body exists only in our consciousness, not we, the consciousness in the body. They knew that we are co-creators with God of all that we clearly picture, truly desire, sincerely believe and earnestly work toward. They knew that perfection - health/wellness - is our normal divine state when all other images



are cast off. They knew that as we become silent and still in at-one-ment, clearly picturing the perfect image of what we choose to create, we only need imprint that image on our soul, giving thanks that it is done and accepting - that moment - a life of love, health, strength and eternal youth.

Question #2 Grand unification theory:  $G = m(v \text{ squared})$

Does it express unification? No.

Can it be extended to include all phenomena? No.

Is there a geometrical expression? No.

Simply, you can't create a true theory based on incomplete and incorrect premises.

The concept of unification is premised on a material universe of separate substances, bodies, motions and forces. The universe does seem to be. Our senses tell us so. But our senses and our current science deceive us into believing in a one-way universe of gravity, energy, matter and incandescent light.

Russell came to enlighten us, as all masters before him, that we live in a non-dual spiritual universe of One Unit, One Mind, One invisible Light. The seeming material universe of duality we observe outside our bodies is only a holographic thought-wave extended from the Creator's All-Knowing, All-Powerful, Everywhere Present Mind and thrown on the cosmic screen of space to create the illusion of time, space and substance. Equations and formulas may indicate relationships between observed effects but none can prove the mirage or it's cause. However, you can come to know the illusion for what it is just as you can know the principle/concept/workings of how images appear on your T.V. screen.

Mr. Zirbes is to be congratulated as a thinker and truth seeker with his accurate comments regarding:

The inadequacy of Einstein's  $E=MC^2$ ; the incompleteness of Galileo's theory of gravity; the need for a repulsive force in nature; the idea of weight being relative; the idea of two forces, gravity and what he calls motion (velocity); the different rates of acceleration of gravity and velocity; the effect of velocity to pull apart and gravity to densification; the relationship of speed, volume and temperature to the two forces.

What follows is a very short capsule of Russell's complete and consistent cosmogony which will serve to correct the numerous errors in Mr. Zirbes presentation and as a premise for questions 3 and 4.

CREATOR  
THE SPIRITUAL UNIVERSE OF CAUSE,

the One Unit Reality, the Universal Equilibrium, the One Infinite Cosmic Principle, the One Universal Mind; the undivided/unmanifest/unconditioned/unchangeable/nonpolar; the eternal/still/absolute cold/zero fulcrum of invisible Spirit/Light/Mind/Love. It is beyond words, beyond the perceptual and conceptual. It is referred to as the One, God, Supreme Reality, Brahman and many other words which indicate but do not explain. It is most often defined as Omnipotent, Omnipresent and Omniscient. We will eventually get used to the idea that the spiritual, material, metaphysical, psychic, supernatural,



religious and sciences are all One. All are premised on, come from and function according to the One Universal Principle with the essence of Knowledge, Power, Love, Truth, Balance and Law. Any theory of Unity must include the Creator.

### CREATION THE MATERIAL UNIVERSE OF EFFECT

"Desire in the Light of Mind for creative expression is the only energy in this universe. All motion is Mind motivated. All motion records Mind thoughts in matter.

"All matter is but pressure-conditioned motion. Varying pressure conditions yield varying states of motion. Varying states of motion are what science misinterprets as the elements of matter." NCU pg. 10 (emphasis added)

Creation is the effect of the Creator's desire to give for the regiving. Our visible universe is a Mind-thinking, thought-wave universe of motion simulating Reality. Mind thinking divides the undivided then multiplies it into complexity to manifest our two-way, dual-polarity universe of motion simulating substance. All motion is composed of equal, opposite and opposed extended pairs of visible light woven and frozen into form. The pairs are simultaneously extended from zero in opposite directions and sequentially repeated at zero to again find rest in zero of the beginning. Every action/reaction in this illusionary cosmic cinema of continually balanced two-way motion "is voided as it occurs, is recorded as it is voided (in the inert gases), and repeated as it is recorded."

"This is a zero universe of rest from which motion is projected into seeming existence, and then is retracted into its zero of rest." NCU pg. 76

Creation is a zero-sum-zero illusion.

### THE CREATIVE PROCESS

of growth, be it an atom, ant, elephant, tree, man, sun or galaxy.

The secret of creation is in the wave, the rhythmic balanced interchange between opposite polarities.

The mechanics of the wave are the dual polarity created when Mind thinking divides the undivided One Idea, creating the stress of two opposite and opposed pressure conditions, making motion imperative to restore balance. All motion is curved spiral vortexes concentrating to a point or apex (centripetal) or expanding toward space and conal bases (centrifugal).

All seeming matter in the universe is created by this universal two-way contraction/expansion pump. The absolute cold of space is the contracting half of the pump which presses down upon all suns and planets with immeasurable force. All seeming matter is held together from without. The compression of the great cold of space creates the effect we call gravity and growth.



DAY

Brain/body appears  
 World appears, perceives by sensing  
 Mind appears, collection of memories and imagination  
 Person/selfhood emerges with a sense of I am a separate individual  
 Wakefulness, subjective (hypnotic) state of imagination, expectations, desires, fears, appearances and illusions based on memory  
 Active, conscious of mind and body, search for pleasure and avoidance of pain  
 Reacts to sense perceptions based on memory  
 Reasons and "thinks" deductively from associative memory  
 Takes appearances for Reality  
 Believes self is in the world  
 Capable of conscious directional choice, inspiration, awareness of Self, genius, mystic

COSMIC SELF

AWARENESS IS PRIMORDIAL

beginningless  
endless  
continuous  
timeless  
changeless  
causeless

NOW PRESENCE

MIND KNOWING

UNIVERSAL EXISTENCE

THE SELF REALIZED AS ONE

COSMIC CONSCIOUS

NIGHT

Brain/body disappears to observer  
 World disappears, no sensing  
 Energy withdraws from mind, lapse of memory (not unconscious)  
 Person fades, individuality disappears  
 Dream state, light sleep, echo of waking state, dim light of awareness illumines only part of mind  
 Passive, deep sleep, consciousness continues but no memory  
 Body "dead" to sense perceptions  
 Intuitive knowledge more easily appears at night  
 Reality can only be inwardly known  
 World disappears within the self  
 All knowledge deeply desired comes during sleep, recognized upon awakening



	COSMIC CAUSE	
Simulation of Reality - waves of motion only	REALITY	Voidance of simulation - waves of motion only
Simulation of idea	IDEA	Voidance of idea
Positive Zero	ZERO	Negative Zero
Inflate - inhale	EMPTY	Deflate - exhale
Expresses vitality	REST	Expresses devitality
Wave crest/ amplitude	FULCRUM	Wave trough
Positive energy - <u>charging</u> (all particles both + & -; no single charged particles in nature)	POWER	Negative energy - <u>discharging</u> (there is no negative charge in nature)
Alkaline	BALANCE	Acid
Sound pitch increases	SILENCE	Sound pitch decreases
Positive elements - generoactive	INERT GASES	Negative elements - radioactive
Desire for creative expression	LOVE	Voidance of expression
Principle of growth	LIFE	Principle of death
Manifests/animates seeming life	SPIRIT	Retracts to manifest <u>seeming death</u>
Concentrative mind thinking - compresses thought-waves into form	MIND	Decentration expands thought-waves to void form
RHYTHMIC BALANCED INTERCHANGE	LAW	BETWEEN OPPOSITE POLARITIES



COSMIC  
PROCESS

CONDITION OF GRAVITY

effect of compressing motion -  
not the pull of matter

CENTRIPEDAL - WINDS UP black  
space/light into visible spheres

IMPLOSION - FUSION

MULTIPLIES POTENTIAL

GENERATES - GROWTH

COMPRESSES TOWARD CENTER  
center seeking

SQUEEZES large volume of space  
into small dense matter

DENSITY INCREASES

POWER POTENTIAL MULTIPLIES  
orbital speed increases  
atomic spin decreases

FALLING BODIES increase weight  
and potential

CONTRACTION PRESSURE is inverse  
ratio of square of distance and  
cube of volume

PROLATING/ freezing/ condensing  
CREATES HEAT- feels cold

DENSE COLD OF SPACE GENERATES,  
generation contracts, contraction  
heats toward the center of spheres  
by giving off its large volume of  
cold at circumference

CREATES GYROSCOPIC SUNS,  
planets, moons, atoms which float  
weightless in their own wave  
fields; sequentially becoming  
black holes

VORTEXES TURN OUTSIDE-IN  
without reversal of direction  
of turning

VORTEXES ARE RED, spiraling  
through orange to yellow apex

EQUILIBRIUM

INVISIBLE  
LIGHT  
(black)  
← DIVIDES →  
→ UNITES ←

causing two-way  
continuous rhythmic  
balanced inter-  
change between all  
equal pairs of  
opposite/opposed  
polarities which  
simulate substance  
through motion.

Potentials are  
two-way continuous  
seesaw, one com-  
pressing as the  
other expands,  
then reversing  
polarity at wave  
amplitude, each  
then becoming the  
other.

"Each action is  
simultaneously  
balanced by an  
equal and opposite  
reaction and is  
repeated sequen-  
tially in reverse  
polarity."

All motion is  
cyclical, balanced  
and dependent upon  
its opposite  
condition.

CONDITION OF RADIATION

effect of expansion toward rest

CENTRIFUGAL - UNWINDS visible  
spheres into invisible light rings

EXPLOSION - FISSION

DIVIDES POTENTIAL

DEGENERATES - DECAYS

COMPRESSES TOWARD CIRCUMFERENCE  
center fleeing

EXPANDS density into space gases  
by swallowing space

VACUITY INCREASES

SPEED/WORK POTENTIAL INCREASES  
orbital speed decreases  
atomic spin increases

RISING BODIES decrease weight  
and potential

EXPANSION PRESSURE is direct  
ratio of square of distance and  
cube of volume

OBLATING/ melting/vaporizing  
RETURNS TO COLD - feels hot

HEAT RADIATES, radiation expands,  
expansion cools, giving off its  
compressed heat on the circum-  
ference

CREATES BLACK HOLES (anti-  
matter) where Universal Substance  
borrowed to compress into suns;  
sequentially becoming anode for  
a new sun

VORTEXES TURN INSIDE-OUT  
without reversal of direction  
of turning

VORTEXES ARE BLUE, spiraling  
from yellow apex through green  
to blue circumference

UNITY THEORY: Creator plus Creation equals Cosmos  
Zero plus +zero and -zero = zero  
Zero + zero = zero



Question #3: Is there an equation for the 18 dimensions? No.  
A geometrical expression? No.

A comment on the word dimension. It means to measure out objectively as to magnitude, size, spacial quality. It implies fixed properties of stable matter. As to length, breadth and width the word is appropriate. And Russell says, "Polarity is expressed in waves. Waves have dimension. Time is a dimension. It takes time to create a wave, for a wave has a seeming beginning and ending." NCU pg. 84. This would make time the 4th dimension as it accumulates and dissipates with the seeming appearance of matter. And when change ceases, time ceases.

But does the word dimensions apply to the other expressions/qualities/attributes/effects/aspects/simulations of ever-changing pressure conditions? Can we call the pitch, timber and tones of sound dimensions? Should we refer to the sweet, sour, salty and pungent taste of foods as dimensions? I don't think so. Neither did Russell after the one and only time (Universal One, 1926) when he subtitled temperature, color, rotation, revolution, rotation, crystalization, plane and ecliptic, ionization, valence and tone as dimensions. Each chapter heading was titled, "EXPRESSIONS OF GRAVITATION & RADIATION". For the next 37 years he never again referred to expressions of motion as dimensions nor mentioned 18 of them. Why should we? His words were chosen carefully to clearly express this seeming universe as motion only - in order to free our minds from the 'old concept' of fixed properties of stable matter.

Question #4: Can we discard gravity? Yes, if by inertia he means the One Reality. No, if he is referring to our seeming material universe.

Is everything made from laterally balanced electric fields and longitudinally balanced magnetic fields? No. Motion is extended (made from) zero. If he had said, made by, implying the valid concept of wave fields which surround all forming matter, the answer is a partial yes. Specifically, the North/South longitudinal axis of all forming matter is predominately positive electricity (not magnetic), that is, gravitative/centripetal/densifying. The East/West lateral equator of forming or prolating matter is weakly expansive (not electric) and becomes predominately radiative/expansive/disintegrating after the sphere has reached full maturity.

From Larry Tiegs



## Answer to question one

The Russell work considers health and disease from the fundamental viewpoint of all of their work, balance. It also gives great weight to the mental/emotional aspects of healing. They recognize Mind as creator and therefore as healer. Accordingly, as we think so we become. If we think unbalanced thoughts (those with negative emotional tones) we create corresponding bodily conditions. If we entertain positive balanced thoughts we will call forth their corresponding bodily condition.

They recognized reincarnation as a fact of existence and thus implied that our present conditions are related to our past actions and this implies that present mental/bodily conditions may be related to past life actions/thinking. My interpretation of their work is that no matter what our past is we can balance it in the present; although it may take time and great effort.

I believe their work is more harmonious with virtually all of the traditional healing of humanity than it is with modern medicine in addressing fundamental causes from a universal systems model or a cosmogony that explains everything, including disease. Yet, they do not deny what is real healing in modern medicine.

See past Fulcrums Volume 1, Nos. 3 & 4 for two articles titled Medicine, Health, Healing and the Russell Legacy . These are an attempt to relate traditional natural (alternative) healing to the Russell Cosmogony as well as show in principle how all systems of healing both ancient and modern are related. I believe that the Russell's concepts support both alternative and regular medical concepts, and that through a deeper understanding of fundamental knowledge as given by this work both systems can see how they only differ in principle by the degree of emphasis and focus on two complementary viewpoints.

Lao Russell was very much interested in alternative methods of healing and in prevention of disease through diet and exercise as well as through balanced thinking. In her books God will work with you, but not for you as well as Why you cannot die, she speaks of the origins of any disease as well as cancer in terms of accumulated imbalance through ignorance of these three basic foundations of health building lifestyles.

## Answer to question two

The answer that I am searching for to questions two and three (and four is related to it as well) is a dimensional equation that shows that all phenomena are essentially qualitatively the same phenomena and further how the quantitative differences of this One phenomena are what cause us to see them as separate phenomena. Thus, although they are the same qualitatively ( have the same fundamental structure/dimensions and thus are related) they are different (have different measures) quantitatively. I believe that Russell

implied this in his work but did not give us such an equation.

## Comments on questions two, three and four.

At this time I do not have the complete definitive answers to questions two, three and four, but I do have comments about them in regards to Larry Tiegs' answers. I realize that these questions are very ambitious ones and that they will require an extensive paper to adequately express what I am looking for. Here is some anticipatory thinking about them that Larry has inspired.

I think that  $G=m(v \text{ squared})$  is a unification theory in the following way: By Russell's' Cosmogony all phenomena is motion to and away from a system center which is Gravity (as the One) = the push to the center of a system to form mass and the push away from a system center to dissipate mass. Or, gravity (as the Many) = the push to the center of a system to form mass and radiation (as the Many) is the push from the center towards the periphery to dissipate mass. Thus, Gravity increases and decreases as  $G= m(v \text{ squared})$  as a mass moves towards or away from its system center.

All phenomena according to Russell are expressions of gravitation and radiation and in that simple way  $G= m(v \text{ squared})$  unifies all phenomena as it expresses something that applies to all phenomena.

See In The Wave Lies The Secret Of Creation pgs.22,23,32, & 33 for discussions on gravity and the Russell Cosmogony as well as the presentation of language mechanics and its application to a Universal Systems Model to decipher Russell's ideas in the first part of the book.

All phenomena have a structure or a geometrical form. Russell gave the cube and the sphere as the two outside/inside, female/male archetypal forms from which all other forms are derived. I think that there may be a geometrical expression for the above discussion about  $G= m(v \text{ squared})$ . It may be that gravity as gravitation/ radiation begins and ends as spheres and cubes and there are a series of geometrical forms for the harmonic steps along the wave path from sphere to cube that will express the answer I am looking for.

The concept of unification is premised on a unified/universe. This means that everything is connected, inseparably united and there is no real separation - even between "spiritual" and "material". This reality as a premise allows the mind to conceive of a mathematical/geometric expression for Universe. Part of the reason science has not had such a unified theory is that, as Larry points out, science has assumed that this is a universe of separate things. This is an expression of the most ancient riddle in philosophy; is the One real or is the Many real? Russell at least implied that they both are real while he emphasized the "spiritual" universe or the "One" as being reality. I believe to conceive the spiritual universe as reality means to recognize the Universe as One thing, a unity



with no real separation between anything even between spirit and matter while at the same time recognizing that the material universe of seeming separate but really interconnected things is also just as real. If mind manifests as an individual unit it does it in some structure; even a thought has structure. As Mind, Universal Mind, the Mind that knows All the Universe, it has all structure or none at all depending on infinite or zero point of view.

One possible benefit of seeing material/spiritual unification and being able to express it in dimensional equations and geometric form might be to engineer a new non-polluting sustainable technology. In the same way that  $E=Mc^2$  was supposed to have given birth to the atomic bomb and nuclear power, which equation the Russells said expressed only one half of the whole cycle, I believe that whole cycle dimensional equations and geometry will assist us to birth a new technology.

I believe there are dimensional equations for all of the 18 dimensions that Russell gave in The Universal One. Certainly temperature has a one half of the cycle attempt at such an equation in Clausius' laws of thermodynamics and the Russells gave their seven laws of thermodynamics but did not express them as classic dimensional equations. As all "things" have dimensions and all dimensions thus also have measure and a geometric structure there can be dimensional equations and geometric expressions for all of them. Color is expressed in wavelengths and can and should be completely expressed in the other directions of depth and breadth as well as other quantities. There is a geometry for every atom, every color etc. If we know the expression for these I believe it will enable us to create a more sane technology for the age of transmutation, free energy, abundance, and peace.

Any unification theory must express that there is no exact science, no fixed dimensions of any thing in Universe. All things change in all ways always. While seeing clearly that the old concept of fixed properties of "stable Matter" are chimeras, we can see the constant as ever changing pattern/patterns in all phenomena. To see and express the pattern/patterns is to see and express a unification theory. It is possible to simply express this as "this is a seeming universe of motion only". I don't think we have to stop there; and, to go beyond it as I am prodding us to do I believe will help advance us into an era of a new technology as well as a new economics, government, religion, art, etc.

I think Larry's answer to question four is on the mark. I think we can discard the word gravity but not the reality that the word points to. If we wish to call the winding up force in nature inertia ( and the unwinding force something else?) then we can discard the word gravity for inertia. But we still must understand what we mean by inertia.

To me Larry implies that he can see how we can discard gravity for inertia if we consider the One, the Universe as a whole

unit with no moving internal parts, but not if we see Universe as made up of even inseparable parts. In this way he implies gravity or inertia is a One condition of absolute balance.

Larry says he does not think that we can discard gravity (for inertia) as it applies to our seeming material universe. This means to me that he does not wish to describe inertia as the winding up and unwinding force that creates seeming material form from formlessness and dissipates the form back into formlessness. He also implies that in the "spiritual" universe he can do this. To me that means he is describing the Universe from the "One", or as not having moving internal parts and calls this the spiritual universe. This is valid. Yet, we need to be aware of what we really are saying and not get caught in the delusion of the ages that there is a real separation between the One and the Many or between the spiritual and material universe. Are they not all One?

I can see that a mass has inertia (resistance to centrifugal deceleration or dissipation/expansion out of form via friction) because it has gravity as the push from without to within to form mass; and that the less gravity it has the less inertia it has. In this way we can replace the word gravity with another that combines this meaning of gravity with inertia. But, if this is not understood we would be better off not to discard gravity.

I don't know if Millennium Twain is trying to get us to see something different about gravity by wanting to replace it with inertia or not. Millennium Twain do you have something more you would like to tell us after seeing our comments? At this time I do have preliminary very rough dimensional equations for light, gravity, heat, and electricity as follows:

Gravity = Force (as a relationship that is dynamic as opposed to potential) = Mass  $L(T \text{ to the minus } 2)$  or  $G= M (V \text{ squared})$  = Energy

Heat=Pressure...x Volume.... = Energy =  $MJ1/2H1/2 L2 T-2$

Electricity (and Light) = F (as relationship) =  $(MU1/2) CK1/2)LT-1/L2=$  Energy

Light Intensity X length = Energy

These equations all express the different phenomena as Energy, and thus as equivalent. The structure of the two way motion that manifests as gravity = heat= electricity= light= energy will be different distortions of perfect cube spheres depending on where the particular form of energy manifests in a wave (field), be it gravity, heat, electric or light field.

There is a geometry for all phenomena. All things have dimensions. The Universe as a One has all dimensions or none depending on point of view.

## Letters to the Editor



12/30/96

Dear Tim,

Here is my response *Fulcrum* V.4, #2 that got lost in the mail. I am working on an answer to V.4, #3 and hope to finish it within 10 days or so.

I like the cover of *Fulcrum*. It looks snappy, and the picture is a pleasing look at the mechanics of the Russell Cosmogony. I am also pleased to see you share your knowledge of healing remedies and modalities with the readers. You provide much food for thought as to how they work in light of the Russell Cosmogony.

I had difficulty taking off my editorial cap while reading this issue. It appears to me you did not have someone with editorial skills review any of the articles you wrote or co-wrote and did not proofread the final layout. I recommend you enlist the aid of Violet Houser (since she is no longer working at USP maybe you can hire Barbara Sims) to edit the next issue as she is a professional editor. Tim, you have much knowledge and many insights relating the Russells' spiritual and scientific message to human cultural and societal institutions. I imagine communicating your ideas is a prime purpose in your life, and I think your writing skills do not serve that purpose well. A college level course in English composition might greatly enhance your effectiveness as a writer. I urge you to solicit a second opinion on your articles in this last *Fulcrum* from an impartial professional editor or English composition instructor. I think the quality of your message is devalued in your readers' minds by the poor quality of the grammar, syntax and organization of your writing.

From a purely technical view, in the VDT article (p.14) you cite the inverse square law and say if you are 1 foot from a TV screen you will receive 1/2 the exposure that you would if you were 6 inches away. The inverse square law is a square function; if you increase the distance by a factor of 2, then you will decrease the exposure by a factor of  $2^2$  or 4. If you triple the distance, you decrease the exposure by a factor of  $3^2$  or 9. Imagine a one meter diameter balloon-sphere around an energy source and divide its surface area into squares 5 centimeters (cm) on a side yielding  $25 \text{ cm}^2$  within each square. When the balloon is expanded to 2



meters in diameter, each 5 cm square now becomes a square with 10 cm to a side yielding an area of  $10 \times 10$  or  $100 \text{ cm}^2$ . Now the same energy that was coursing through the original  $25 \text{ cm}^2$  area is spread out over a  $100 \text{ cm}^2$  area, an area 4 times the size of the original. Therefore the exposure is decreased by a factor of 4 when doubling the diameter. In the example you use, the exposure at 1 foot is  $1/4$  of the exposure at 6 inches. The surface area of a sphere increases as the square of its diameter or radius, while its volume increases as the cube of its diameter or radius.

Another technical mistake occurs on page 2. Force is measured in terms of mass times acceleration ( $F=ma$ ; in units of  $\text{kg-meter}/\text{sec}^2$ ). Energy or the ability to do work is measured as force acting for a given distance ( $E=mc^2$ , in units of  $\text{kg-meter}^2/\text{sec}^2$ ). Momentum is measured in terms of mass times velocity (in units of  $\text{kg-meter}/\text{sec}$ ).

Regarding Don Kelly's work and the relationship between gravity and electricity/magnetism, Fulcrum Vol. 2, #4 gives, I think, a comprehensive explanation of what the Russell literature (mainly *Atomic Suicide*) has to say about this subject. The force of earth's gravity is due to the difference in electric potential between: 1. the summed electric potentials of all the atoms within a given mass and 2. the summed electric potential of the earth's discharging and charging electric potential fields. Gravity is the force of like potential seeking like potential. What is the nature of this electric potential Russell defines as gravity; how do we measure this potential; how is it different from what is normally understood as electricity and magnetism or gravity; and how do we affect it?

Gravity is the subtlest form of electric potential as Russell defines it, and it acts over the farthest distances of the Universe. Don Kelly has affected one, if not all, of the following: the atomic electric potentials of some or all of the mass, the interaction of the atomic electric potentials with the earth's cumulative electric potential field, and/or the localized electric potential of the earth's cumulative electric potential field.

I think the balance tray interferes with the electric potential changes caused by the magnetizing field. Larry Tieg's idea to weigh the mass differently is valid.

One further thought on this, Tim, is that the electric potential field which causes gravity creates the apparent motion of the Oneness around

(2)



points and shafts of Stillness. Electricity is caused by the motion of electrons (a discharging mass centered by a point and shaft of Stillness). So what we measure as electricity is the apparent motion of points and shafts of Stillness relative to themselves. While to measure the potentials that create the effect of gravity, we can either measure the apparent motion of the Oneness or the electric potential fields around a point and shaft of Stillness. To affect gravity we must affect either the motion or the electric potential fields around atomic, planetary or stellar points and shafts of Stillness.

What is an electron??? I think Ron Kovac has some interesting ideas on that subject. I asked for and received the paper he presented to the Tesla symposium. He has a real knack for pulling together the many different pieces of the puzzle. With a bit of editing it will make a great article for *Fulcrum*.

On a more personal note, something wonderful happened to me last June. I attended a workshop on a meditation technique called Self Inquiry. Ramana Maharshi refined it to its present form. According to their literature, millions worldwide have learned this technique, yet it is not well known here in America. Their retreat center is in Asheboro, NC. I learned how to access the ecstasy of God's Love every time I meditate. For years I had trouble with the Russells' instruction to decentrate to the Stillness by desiring the ecstasy of communion with God and then to concentrate with whatever desire or question I had. I could hardly ever feel that ecstasy, yet my desire to reach Source still brought centeredness and a flow of knowledge. I think now that I was scared of ecstasy and never deemed myself worthy of it. I know Nan's love for me and the unconditional love of Jennifer has been critical to my accepting my true value in the eyes of God. I have come to feel that pulse of God's Love expressing continuously and omnipresently. I haven't been able to totally melt into Self awareness or tap into God's omniscience, yet mercifully I now have confidence that enlightenment is realizable!!

Much Love to You





## T. Henry Moray and the Transmutation of Elements.

Electrical Engineer Robert Achzehner visited T.H. Moray in his Salt Lake City Laboratory during the summer of 1957. Mr. Achzehner was on his way from Indianapolis to the I.R.E. convention on the West Coast. (The convention is held yearly and is now known as WESCON). Moray demonstrated a new metal that he had invented. He gave Robert a drill with a 1/4" high speed drill bit and asked him to drill a hole in a piece of metal. It was impossible to drill the metal and after several attempts, both the drill bit and the metal remained cool. There was no heating due to friction.

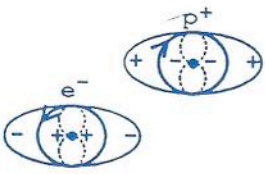
Moray makes reference to transmutation technology in several places. The process of transmutation was described as "...not a case of splitting the atom, but merely of addition, multiplication, division and subtraction of the combinations of the atoms, but not the braking into the chain of the universe. It is plain evolution of matter and evolution of forces, and there is no need in highly over estimating the accomplishment under misinterpretation of the facts". (from Radiant Energy, compiled for the Layman in 1926 © 1945 & 1946 by T.H. Moray)

The mechanism of elemental transmutation held by T. Henry Moray was similar to that proposed by Walter Russell. Russell stated that "All dimension is an illusion, an appearance, due to rising potential, which must disappear into its inevitable sequence of lowering potential and again appear in endless cycles of appearance, disappearance and re-appearance...The efforts of man to transmute one element to another must be governed by this principle, and not upon the theory that another substance will be obtained by "knocking out one electron". Russell was able to demonstrate the transmutation of gases in the Bloomfield, New Jersey research laboratory of at the Westinghouse Lamp Company on September 30th, 1927. Transmutation of hydrogen and oxygen to nitrogen, and, nitrogen to oxygen and hydrogen was accomplished.

Those who pursue the transmutation of elements would be wise to study the words and work of those who paved the way. Do not expect to create a new paradigm by using the theories of the old paradigm.

*submitted by: Toby Grotz*





# Plasmatronix Intl, Post Office Box E

Menlo Park CA 94026 USA, tele 415-569-3299

Superluminal Protonics Lab, 408-885-1631

John E. Chapell, Jr,

30 January 1997

Got your (characteristicly lengthy) letter today. Thanks. Please do link my WebSite from the NPA WebSite. In return I will add active link to the NPA.

Link to: [<http://www.mediacity.com/~muse/mirror.html>]

Re: A Stanford area meeting. I think it can be done (constructively) with little effort, probably can even get a free or cheap room at Stanford. There are several hotels along El Camino in south Palo Alto and Mtn View (i.e., Oak Motel) with rooms for \$35 a nite.

I talked with Norm Silliman, and left messages with Alan Pendleton and Phil Lawson. Norm and I are in 100% agreement on how to go ahead with it, assuming others are open to working with our particular strengths and weaknesses. [I will be the moderator/strong arm]. The meeting will be an equal-participatory workshop, with the focus being **the aether**. Our goal will be to bring together all available contacts, references, perspectives, theories etc. on the subject of the aether -- to share each other's knowledge and experience thereon, and to build a further shared and created language, knowledge, etc.

[Just spoke to Alan Pendleton -- sounds like he may wish to participate in, and help publicize it].

Since **the aether** can [may] be viewed as the central foundation or experience of nature -- natural philosophers of all 'bents' should be able to present, participate and contribute. [Whether cosmologists, post-relativists, electrodynamicists, free-energy theorists ... or other]. Anyone from abroad (or otherwise) who cannot participate due to distance and expense, but wishes to, may send their written contribution to me or Norm (or any other participant). We can arrange to have it presented, distributed, summarized or referenced at the workshop.

Again -- the goal would be to fully summarize, completely bibliographize (is this a word?), and discuss and advance (and simplify) the idiom, knowledge and theory of **the aether**. **Of nature**. Particularly, to uncover or discover previously unrecognized theorists and experimentors from around the world. To further the art and knowledge. To widen the audience and debate.

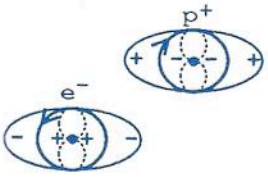
Yes. Please do send me that 3-page northern California list, if you will, as well as the addendum to the December membership list.

Later,

Millennium Twain

cc: Müller, Curé, Munch, Silliman, Pendleton, Lawson, Shurig, Hodges





# Plasmatronix Intl, Post Office Box E

Menlo Park CA 94026 USA, tele 415-851-9099

Tim Binder, /

9 December 1996

Much appreciate your printing of my letter -- re: the unified aether vortex EMG field and the structure of the electron. Also pleased to be included as subject of critique and discussion in your upcoming "Dialogue: Questions" section.

I feel I'm very fortunate to be getting all this education from people like you, Charles Yost and others. I'm certainly learning a lot, something nearly every day. Like most people, I have been seriously handicapped (victimized) by our covert institutions of media and education (incarceration and indoctrination). It wasn't until I had spent nearly two decades out of the institution (unlearning everything they had taught me) that I began to come across the true teachers of natural philosophy (physics). And the best of them come from outside our fascist education system!

People like Viktor Schauberger, John Keely, Nikola Tesla and Walter Russell. My latest fascination is with Schauberger -- having just acquired two new books on his perspectives of the vortex dynamics and topologies of streams of water. "Living Energies" by Callum Coats [Gateway Books, The Hollies, Wellow, Bath BA2 8QJ England], just now reading, is a riveting revelation of illustration, philosophy, common-sense experience and living nature. Like going for a walk in the woods, and breathing the clean awakening air.

Ah yes; I also have to thank you for including a listing of the Ratbag AntiPhysics Rag (RAPR) in your section on periodicals. Copies are free to anyone who writes (budget permitting), or makes an interesting submission.

---

The question of the dynamic electric, magnetic, and gravitic structures of light, the electron, and the proton -- are exceptionally interesting ones. I look forward to the continuing discussion in **Fulcrum**. Really, this question of evolution of the continuous and variable structure of the aether -- from light to electron to proton [and thence filaments, nuclei, atoms and molecules] -- is the pivotal one for dissident physics.

Are we going to transcend our violent and victimizing heritage of lies, counterintelligence and propaganda? Are we to realize truth and integrity in ourselves, and health and joy in our families and communities? Are we prepared to speak the truth? Or bow our heads and undergo another century of servitude and ignorance?

---

I vote we continue this discussion (and illustration!) of truth in nature, truth in ourselves ...

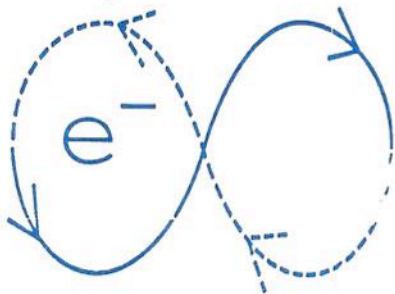
Millennium Twain

cc: Charles Yost



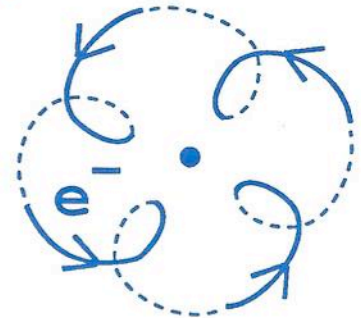
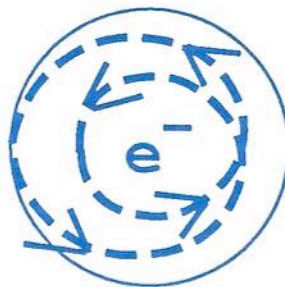
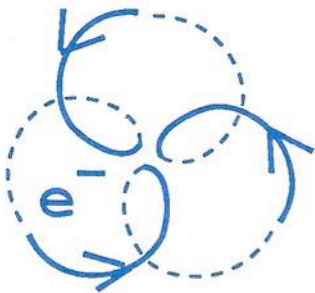
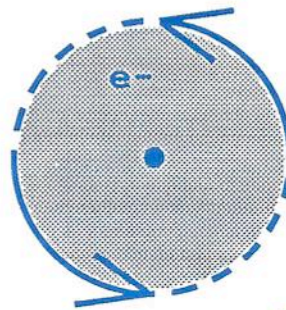
How do we illustrate the Hydrogen Atom, and its transitional dynamic structures between and to the Neutron?

At right is a simplified (axial) image of my superluminal spin and twist Lissajous proton. [Simplified from  $N=137$  to  $N=12$ ]. It propagates out of the page, spins CW in the plane of the page, and twists in-and-out of the page about the spin axis.

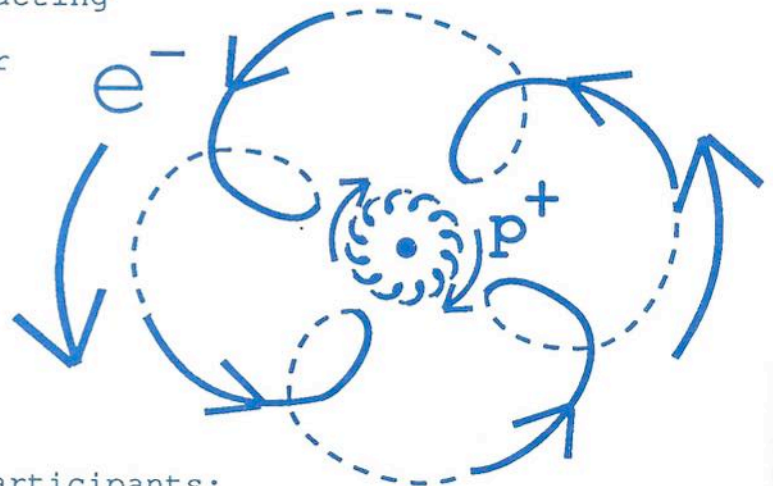


On the left is a lateral (side) view of a  $N=2$  Lissajous electron. Not an axial (end) view. I haven't figured out yet how to illustrate it axially (help?). I show one attempt below.

One of my uncertainties may be clear. From the spin axis, this  $N=2$  Lissajous figure is the same as the  $N=1$  Lissajous ring. **Should there not be an additional sinewave (oscillation) component 'in-and-out', laterally-speaking? Or should there?**



Above left is another attempt, an  $N=3$  Lissajous on end. In the middle is another, showing a contracting then expanding EM wave reflection, from my August 1994 proof. Neither leaves me room to do what I want, so above right I attempt another. This  $N=4$  gives me room. & flow directions, which enable me to **put a proton in the center:**

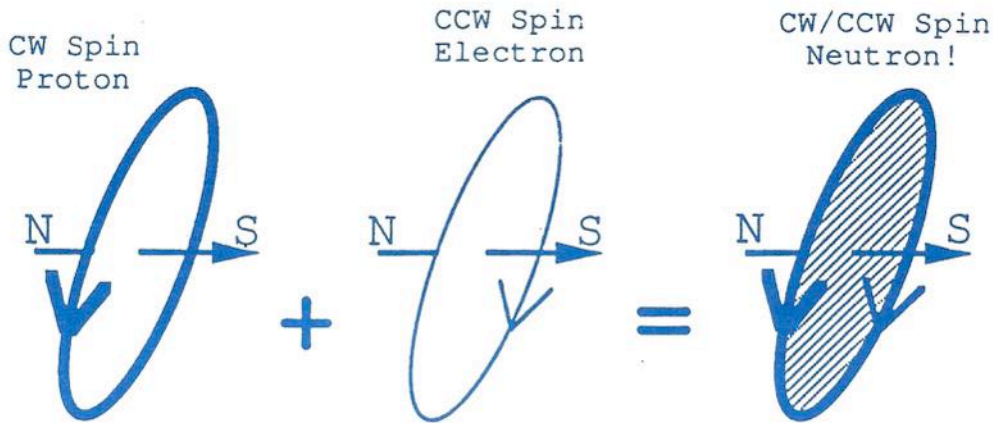


Resulting in a concentric proton-in-an-electron model of the neutron, or the hydrogen atom.

[Illustrated for Aether Workshop Participants; 7 April 1997, by Millennium Twain. Abstracted from "New Hydrogen Atom", in process.]



Metric Closure Wave Neutron Formation  
(Electron coincident with Proton)

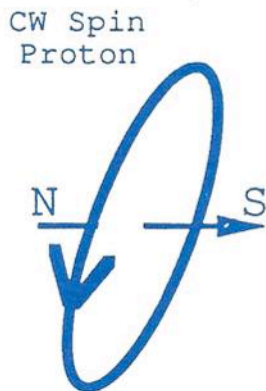


Note that though the electric charge of the neutron has been neutralized, it still has a net spin, magnetic moment, and orientation! The magnetic moment of the neutron (-1.9130427) equals the magnetic moment of the proton (+2.7928474) [13] plus the magnetic moment of the reduced electron (-4.7058901).

I'm still working through the numbers, so don't be surprised if my proton and neutron metrics change by up to a factor of two, say. [For current numbers, see 'working appendix' on page 14.] However, I will venture this: If the proton has a charge +1, and it is so much more dynamic (energetic, massive, superluminal) than the electron (charge -1) -- why does the proton have a magnetic moment which is less than 1/600th that of the electron?

Simple. Most of the induced magnetic moment of the proton is along the twist axis, not the spin axis. Hence it is contained! In fact, the twist axis frequency is about 80 times that of the spin axis, and the whole enchilada is 1/8th the radius of the normal electron (8 x 80 = 640). That is, the revealed magnetic moment is less than 1/600th that of the proton!

*electron!*  
CW/CCW Spin Neutron!

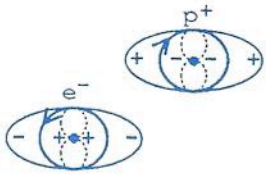


**Deuteron's**  
dumbbell-shape is produced by its widely separated proton & neutron.



Deuteron's reported radius of 2.1 fermi is an rms average of an approximately 1.5 by 3 fermi cylinder -- much different from the 4.3 fermi sphere demanded by the Schrödinger 'wave' function  $\Psi(z,t)$ ! [Proton and neutron have 0.8 fermi radii.]





# Plasmatronix Intl, Post Office Box E

Menlo Park CA 94026 USA, tele 415-851-9099

11 December 1996

Don Reed,

Have you read the newsletter **Gesundheit!**? It is published by a group of semi-radical physicians who heal people with humor and laughter, generally in clown suits.

Anyway, I've sneezed several times already today -- and I haven't had any allergy problems in a couple of years. Just too damn sensitive is all, and reading your stuff just brings it all to the top!

Got your letter with enclosures yesterday, and today have gotten half way thru my 2nd Don Reed paper "**Archetypal Vortex Topology in Nature**". Finally I seem to understand what (physically, topologically) structures you are describing by the terms 1) Beltrami Vortex, 2) Linear Complex, 3) the Trkalian Field, etc. And, true enough, I have yet to hear (see) a "scalar" wave advocate actually reveal what they mean -- physically, topologically, three-dimensionally. [Then again, I should consult **Electric Spacecraft Journal** to see if Yost et al have even done so. If anyone has, they certainly will have.]

Which brings up a question for you. Have you sent your stuff to Charles Yost at **ESJ**? And Tim Binder at **Fulcrum**? Your focus: the structure, meaning and effects of the electromagnetic (gravitic) field is specifically what **ESJ** is trying to uncover and communicate. Your vast (and visual) work would add immensely to their growing discussion.

OK. Some more questions regarding your SST V17N3 paper. On pages 207 etc. you attempt to describe (via equation  $r \cdot \tan \lambda = h$ , and figures 1 and 2) the 'Linear Complex' or Beltrami Geometry. You say that as field velocity increases, the helicoidal radius (and the pitch) decrease. Questions. 1) What is the 'pitch'  $h$ ? I couldn't find  $h$  illustrated (labeled) in either figures 1 or 2. 2) What happens to the **vertical** spacing (wavelength) as radius decreases and velocity increases?

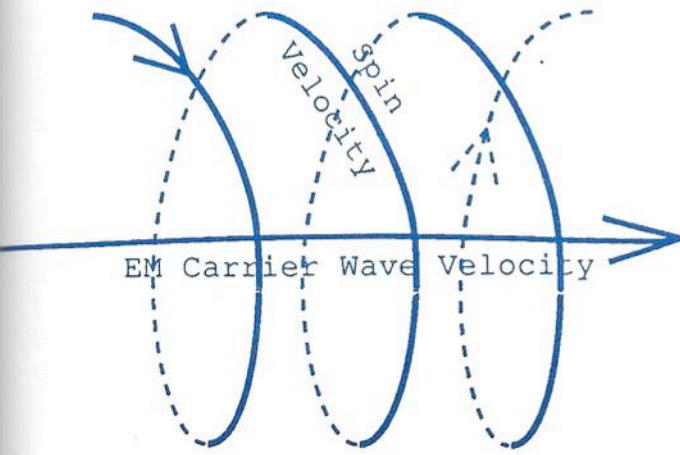
Figure 7, page 213, appears to answer both these questions. Pitch, or pitch angle, decreases with increasing helix radius. Therefore  $h$  (pitch) and thus pitch-angle is measured from the horizontal, whereas your  $\lambda$  is measured from the vertical. Is this correct? i.e.,  $\lambda$  plus  $h$ -angle total  $90^\circ$ ? And also, you have vertical spacing (wavelength) **increasing** as radius/amplitude decreases?

OK. It gets worse. Admittedly this is only rough and conjectural, as I haven't yet finished reading (or internalizing) your stuff -- but it looks like this "Beltrami Vortex" mathematics produces just the **opposite** of what I perceive is going on in electrodynamics and, dare I say it, in hydrodynamics (c.f. Schauberger) too?!

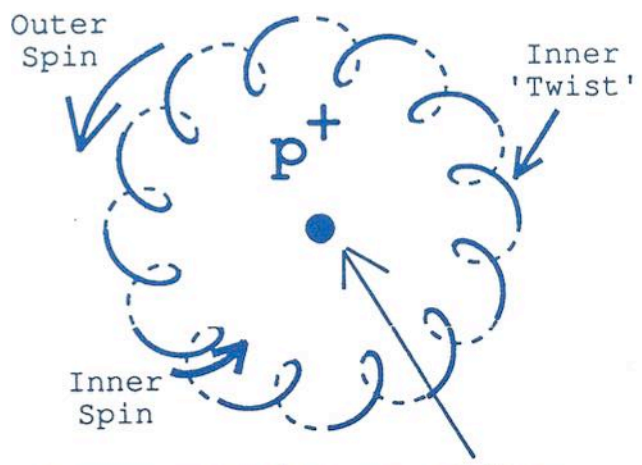
The explanation would come in my papers (which you do not yet have) on the metric vortex topologies of the electron and proton, and also the proof of metric relativity. Still, as you have "**Life Without Spacetime**" you may be able to infer it.



There are (at least) a couple ways you can visualize what I perceive is actually going on. In the EMG plasma continuum known as 'outer space' there are two or more frequencies (in each of the chiral directions) for every event or situation -- not simply one helicoidal topology. You can visualize it as: 1) the signal wave plus the carrier wave, 2) the electron spin wave plus its twist wave, or 3) the proton outer spin plus its inner spin plus its inner twist ...



Lightwave



Linear Velocity out of Page

Proton

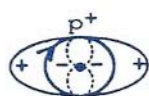
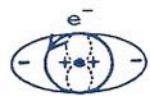
To visualize it in terms of classical electromagnetogeometrodynamics -- just recall that there are always two levels (characters) of electric field, magnetic field [and gravitic as well]. The vector nomenclature we are familiar with labels these as ~~E, H, B, M~~. That is, the outer (background) electric and magnetic potentials, as well as the inner or induction potentials.

*E, D, B, H*

But what happens when we move from one helicoidal (sheath) layer down to another? Our, previous, inner potentials now become outer (background) potentials -- and another layer of inner potentials is generated, created! As example (cf page 12 "Proton & Neutron") my metric relativity model of the (superluminal spin) proton reveals the physical reason why the magnetic induction moment of the proton appears to be less than 1/600th that of the electron -- at the (unseen) core of the innermost spin (twist) of the proton resides a magnetic field 640 times that of the electron!

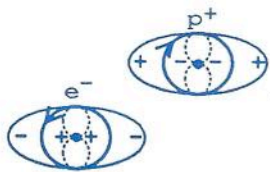
Anyway, you can see how much fun I'm having reading your stuff (well illustrated and very well referenced) -- and comparing it to the models in my head, and the heads of those other theorist/experimenters I am most familiar with. After I make a couple of trips to the library to pick up some of your citations, I hope to be able to ask you for those few references I cannot locate, which may appear crucial to me. perhaps I can also locate, in return, references for you. [Also, I will run a search on "Trkalian" as you suggest, and send you the results.]

Millennium Twain



cc: Tim Binder, Charles Yost





# Plasmatronix Intl, Post Office Box E

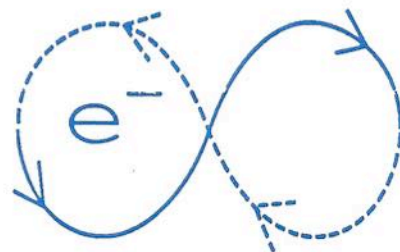
Menlo Park CA 94026 USA, tele 415-569-3299

3 April 1997

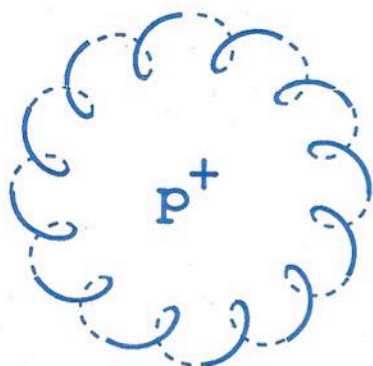
Dale Pond,

Well. It's the next morning and I still haven't gotten your paper out of my mind. Guess I'll have to 'express' it right here, right back to you. To do so, I will attempt to summarize the essential notes (fundamentals) and chords of your cosmology, and compare them with mine. Being a **less advanced student of music**, but perhaps more advanced student of light, than you -- it should prove an interesting composition.

On the right is one illustration of my metric relativity model of the electron -- a standing or self-reflected lightwave which I have alternately described as a 3-D Lissajous figure, a cardioid, the bipolar circulation shown above in the Plasmatronix letterhead, and probably by other names and topologies.



This dynamic inertial topology, and the one shown below of the proton, I consider the aetherial structure cornerstones, harmonic sources, or 'atomic' foundations of **all** greater (larger) and lesser (smaller) materiality in nature. It is a point of view, a vista so to speak, equivalent to any other -- whether a Keely's, a Bearden's, a Schauberger's or a Wolff's. What makes it more useful and communicative, perhaps, is **its simplicity and its universality**. i.e., unlike many of the partial 'unified-field-theories', theories-of-everything, or other breakthrough descriptions of the aether continuum -- it includes overunity and it includes superluminality. Equally important, or more so, it excludes 'black' formalism, 'covert' idiom, and fascist 'physics' altogether.



This metric relativity illustration of the the proton, composed of the three frequency (harmonic) vibrations, reveals two resulting superluminal spiral velocities: spin & twist. You describe these inertial lightwave motions as longitudinal, transverse, and vortex. I show how they 'couple' (transduce) one-into-each-other in the **standing-wave reconnection** called an electron or a proton.

But enough about me. Now for the fun -- a questing, commenting, explorative excursion into your Vibratory Etheric Tree. Let's see if I can reconstruct my journey of yestreday -- the euphoria, the challenge, the confusion, and the summit ...

Page 1 -- I agree we are discussing "The Continuum", including "etheric (subtle) energies", and that our experiences in acoustics and electromagnetics are central to that understanding.

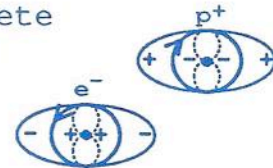


The word "vacuum" I avoid, as we are indeed talking about an inertial, lightwave, or aetherial ocean -- indeed a **rainbow continuum** -- a 'plasmisphere' (or heliosphere locally) by space-physics idiom.

Similarly, the covert paradigm of the zero-point (at least as promoted by Lockheed's Haisch and CIA's Puthoff). There are tens of thousands of papers published from the (institutional) astronomical and astrophysical communities -- and essentially all of them find the same cosmic density. The mass-energy density of the Solar System, of the Milky Way Galaxy, and of the entire 'universe' as its is wrongly named and inferred by the institution -- **all show a mass-energy between that of an electron and that of a proton.** The inertial density of the cosmos is not anywhere near  $10^{95}$  grams/cubic centimeter. It is about  $10^{90}$  less than that. [All argument hovers around a factor of ten or so, i.e., 'dark matter', required for closure or stability.]

Re: the "Scalar". I don't yet have Whittaker's book on my shelf, but I did spend some time with it a few years back. A lot of people refer to and swear by the "Scalar" field or potential or waves -- but I have never gotten a good explanation before now. It took me until page 8 before I was able to put together all your clues and definitions. Basically **your longitudinal scalar wave is what some would call a gravity wave**, what you describe as a sound or pressure wave, and I refer to as a group acceleration or deceleration. It probably would concur with my cosmology as an inertial group wave (hidden EM phase waves) -- differing from quantal or subquantal EM inertial waves.

Anyway. I'm obviously not going to be able to complete my 'critique' of you today. So let me get straight to the proposal for collaboration. Feynman, and the whole particle physics hogfarm, have nothing to offer us. And if you are committed to the (page 9) 'quark' paradigm and the (page 10)



"Keely Molecular Morphology", then we probably will be unable to work together. But if you are willing to look to **dynamic internal structures** of the electron and the proton -- towards illustrating and numbering all the harmonic frequencies (both sympathetic & resonant). Then we accomplish the impossible, the unprecedented, the forbidden.

As you correctly surmise, derive, or hear -- it certainly is a musical cosmos. And I for one am ready and willing to hear it more clearly, and re-sound it to all others who would, too.

Work like Bearden's, Puthoff's, etc. is (for 'historical' reasons) one-to-two orders of magnitude more complicated and inaccessible than is appropriate for a healthy world -- or for a Millennium. You and I and others can **simply** illustrate, **rigorously** reveal (number), and **heretically** spread the truth ... The truth of the precise harmonic frequencies of the electron and the proton, and how they replicate and resonate throughout the aether continuum, within the neutron and the hydrogen atom, and on to any natural or human-made constructs existing or imaginable. We don't need the 'power' of the "covert ('physics') field"! The energies available from protonic fusion, or proton decay!, are vastly more than we require to build any interstellar technology, or civilization, conceivable.

Shall we?

**Millennium Twain**

cc: Silliman, Bennett, Rado, Hodges, Fox, DePalma, Yost



Chester, I thank you for clearing up the technical mistake I made in Vol. 4 No. 2 of Fulcrum with an incorrect interpretation/illustration of the inverse square law as it relates to the radiation received from a VDT or TV. And, thanks for your other contributions to this and past issues.

I do not believe that I made a technical mistake on Page 2 of the same issue in giving an explanation for the meaning of force as  $\text{Force} = \text{mass} \times \text{velocity}$ . I may have been incomplete in my explanation but then I also think all the definitions you give are incomplete. (I suspect that all definitions by nature are incomplete?) If one wishes to say that  $\text{Force} = \text{mass} \times \text{acceleration}$  then I would say that says the same thing I implied in my definition or that it is also incomplete. As, one could say my definition of force implies that all mass must be or is either accelerating or decelerating. Therefore to say  $F = m \times v$  means all velocity is either increasing or decreasing in relation to whatever the mass is forcing. And, thus force increases or decreases in relation to the mass times velocity as velocity increases or decreases. Also, the mass changes with the speed change. Similarly, if energy is force acting for a given distance, then energy is force because all force acts over a given distance. Nothing is without motion - except nothing. If momentum is mass times velocity then it looks to me like momentum is force is energy as all things have mass and are moving in an accelerating or decelerating mode in relation to whatever other mass we measure it against. And, all mass as it moves moves all other mass - everywhere. Here is what Walter Russell had to say about such cosmic synchronicity, "Even the drift of a tuft of milkweed across a lazy summer sky, brings about simultaneous adjustments in the compression-expansion dimensions of ten times ten billion suns".

Chester, your explanation of Don Kelly's gravity drop tests was illuminating and I appreciate your attempt to give further insight about the subject in discussing the apparent motion of the Oneness around points and shafts of stillness. What occurs to me as I read you is that language mechanics as I gave a very short introduction to in *In The Wave Lies The Secret Of Creation* appears to me to be essential in helping all of us be clear about what we are thinking and expressing, about this and really everything else. I think it is at least in part the lack of understanding language mechanics and the solution of the question of the simultaneous reality of the One and the Many, especially as it applies to language, that makes Russell's work so difficult for so many people.

What I see in your explanation is that when Russell or you say apparent motion or seeming motion, is that this is an attempt to talk about the Universe or any part of it in both viewpoints at the same time. To say that motion only appears to be is to see the One and all things as One - past present and future. This means to see whatever it is you are talking about as not internally split into parts or even as a part related to some other part. That is valid if one wishes to speak a mystical One language or use that point of view. It is equally valid to speak of all things as being internally split into parts, even ad infinitum, and yet in every thing we reach a point of no longer splitting it into parts and finally see it as One) and that this part is related to other parts - inseparably.

To speak of the apparent motion of the Oneness (or the seeming motion in Russell's own words), means to me that you and he are recognizing that the whole Universe is moving around or in relation to that point and when you finally consider the motion of the whole Universe it sums to zero or infinity. Thus, it is a seeming or apparent motion when looking at the ONE.

In the same way points and shafts of stillness don't exist in the Universe as it is validly recognized from the point of view of the Many or as inseparably related and interchanging parts. They are abstractions and only exist in the ONE. In this One sense they exist everywhere or nowhere at once and for all time. In this way I can make sense out of your phrase (but only as a One or religious not scientific statement) that "electricity is the apparent motion of points and shafts of stillness relative to themselves". The only motion that I can conceive that is relative to itself is the motion of the entire Universe. All other motion is in relation to all other parts of the Universe and we can't see or sense all of these relations so we cut off our sensing and description somewhere short of the ONE.

I find insight in your explanation that to measure the potentials that create the effect of gravity we can either measure the apparent motion of the oneness ( this says to me that we must consider as much as we can or at least acknowledge that gravity is a force that is omnidirectional and is made up of all other mass interacting with whatever mass we are measuring gravity in or against) or the electric potential fields around a point and shaft of stillness ( to me this shifts the point of view from the One back to the Many and to measuring gravity in our local vicinity on planet earth and disregarding the entire Universal Gravity effect. To be



more accurate we should measure gravity locally in three dimensions rather than just the longitudinal direction to earth's core; but for most engineering problems even that is not necessary. If we are going to engineer gravity for new transportation devices then we may need to see very clearly what I feel I am only hazily hinting at.).

Chester you are quite likely correct in that I could benefit by a college level course in English composition. Unfortunately there is simply not enough time in my life to indulge that study, nor even presently to have someone edit the issues for me. As a result of your critique of my writing skills, until the luxury of another editor to edit the editor manifests, I will at the very least be more attentive about the form of my writing. Thank you! But, I hope and trust that most readers will not let my writing skills devalue the worth of the content presented.

Toby Grotz' letter speaks very clearly to the predicament that science and technology finds itself in when trying

to explain say the observed transmutations in cold fusion technology or any other of the over unity devices that are or have been developed. This is again another instance where I feel that an understanding of a Universal Systems model and how that model applies to language, the tool we conceptualize with, that we think by, can be extremely helpful. Many of our puzzles about new technologies as well as ancient paradoxes are verbal puzzles that are the children of inability to differentiate and integrate the ONE and the MANY. I urge you all to study language mechanics as presented through *In the Wave Lies The Secret Of Creation*.

Millennium Twains' letters prompted the questions for next issue. If you are interested in attending his Stanford CA area workshop sometime in July 1997 titled the First Global Workshop on the Nature and Structure of the Aether call the phone number on the April 1997 letter: 415-569-3299 and access the following website for more up to date info about it: [mediacity.com/~muse/workshop.html](http://mediacity.com/~muse/workshop.html).



## UNUSUAL REACTIONS OF MASS 5 WITH HELIUM AND CATALYTIC METALS

by

Ronald J. Kovac

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### ABSTRACT

It is shown that pieces of sheet gold or platinum, when exposed to excited nitrogen from a low pressure ring discharge or a capillary plasma discharge, visibly glow or melt. Associated historical experiments are sighted dating from 1884 to 1955 concerning excess heat and after glow. The case is then made that this form of nitrogen is really mass 5 as reported at the first conference on Low-Energy Nuclear Reactions held at Texas A&M Univ. on June 1995. All 100 years of scientific anomalies discovered in the name of activated nitrogen can now be resolved as the physical, chemical, and atomic electrodynamic nature of atomic mass 5. New research has shown, using mass spectroscopy, that when mass 5 is exposed to helium, reactions occur causing the entire range of masses to appear off scale from 3 amu to 100 amu. The associated pressure increase is sometimes so great as to cause the mass spec. to trip "auto shut down" as damage prevention to the mass spec..

### INTRODUCTION

In Vol. 1, No. 1, 1996 Journal of New Energy p.87 it was reported that the "missing mass amu= 5" was created in a rarefied nitrogen quartz plasma tube surrounded by opposing magnetic fields. It was also reported that the same mass 5 could be obtained by squeezing the nitrogen plasma through a pyrex glass frit comprised of capillary tubes. The results are duplicated here as fig.s 1 and 2. Fig. 2 is from Texas A&M results of reheating one of the quartz tubes used. All the results are mass spec. examination of the mass 5 over a range of time of 6 seconds to 6 hours (Texas A&M plot).  
(9) (10)

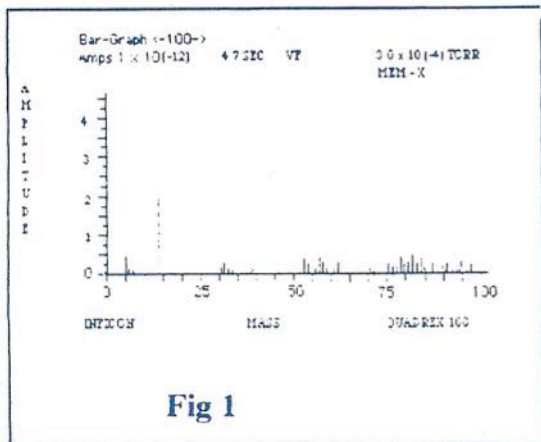


Fig 1

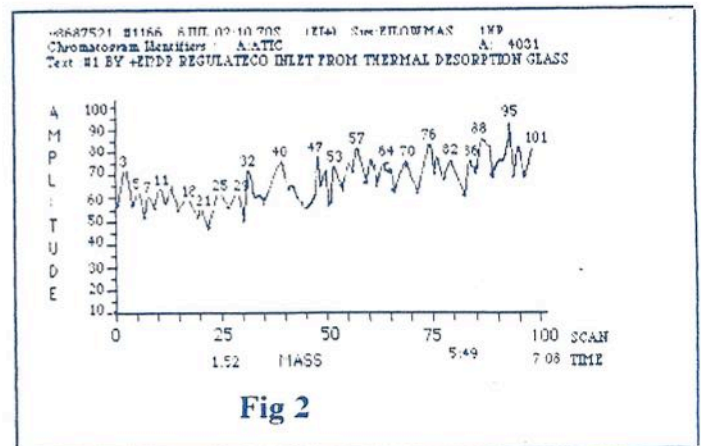
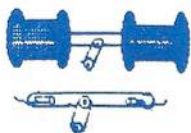


Fig 2



Mass 5 was first discovered May of 1994 using opposing field plasma tubes and a capillary glass frit plasma tube.



SEP. 1994 RON KOVAC, MASS 5 CREATED  
IN QUARTZ TUBE WITH 2 OPPOSING MAGNETS  
(one year later Weiman & Cornell freeze atom into a wave,  
confirmed by MIT using the same opposing magnetic fields).  
This confirms the Bose/Einstein condensate theory.

Fig. 3

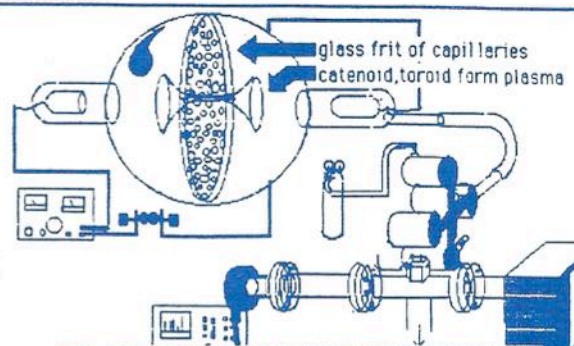
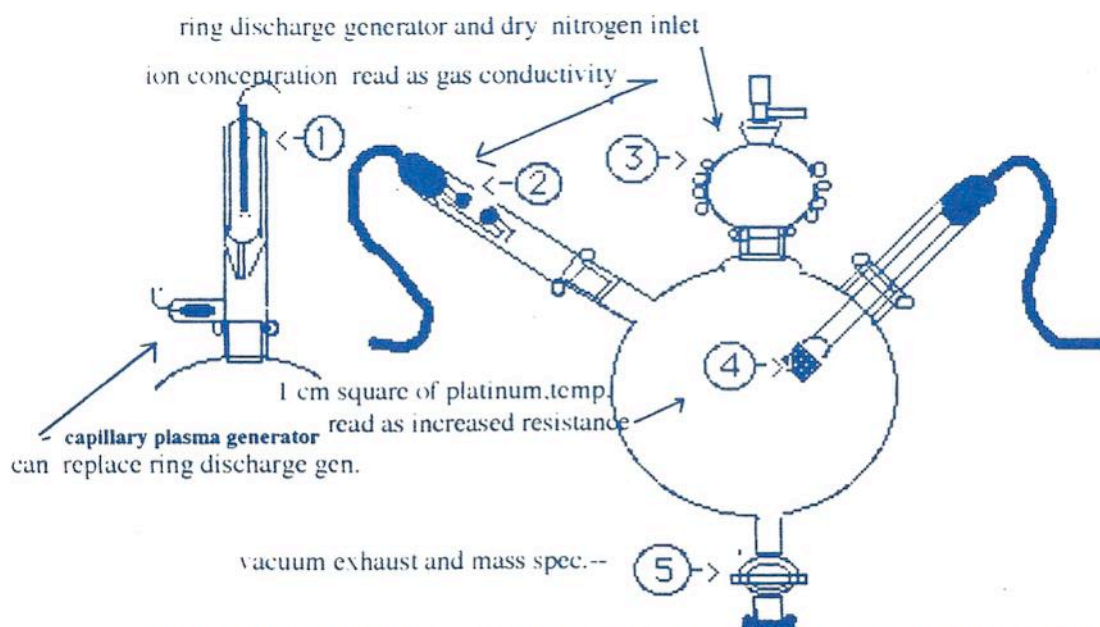


Fig 4 OCT. 1994 RON KOVAC, MASS 5 GEN BY CAPILLARY

Nitrogen was the parent gas at low pressure inside each plasma tube, fig.'s 3 and 4. A literature search on nitrogen plasma proved a windfall. Early researchers, Warburg (1), Dewar (2), Rayleigh (3) Strutt (4), Mita (7), and Stanley (5), researched "activated nitrogen" from 1888 to 1955. Their work was with a gas that was created in a similar way as fig 3 and 4 that would glow after the current was turned off for as much as 8 hours. They found that gold or platinum in the gas would get heated and sometimes visibly hot and melt. Many other anomalies were found as well as a good emission spectroscopy spectrum, but the nature of the gas remained an unresolved mystery. Fig 5 is the apparatus that was used to show that mass 5 is the real identity of "activated nitrogen", (which is no longer nitrogen).

### APPARATUS DESCRIPTION

Glassware and power supplies were designed to repeat the "activated nitrogen" experiments of history and still allow mass spec. and emission spec. to prove it is no longer nitrogen, but mass 5.

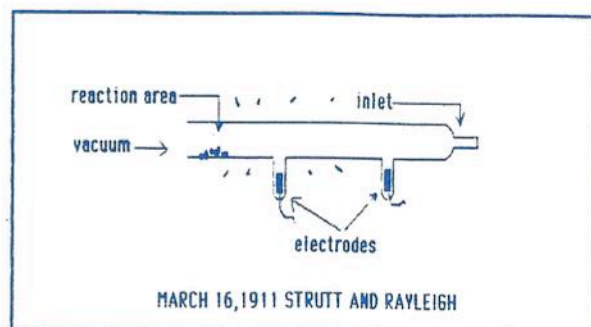
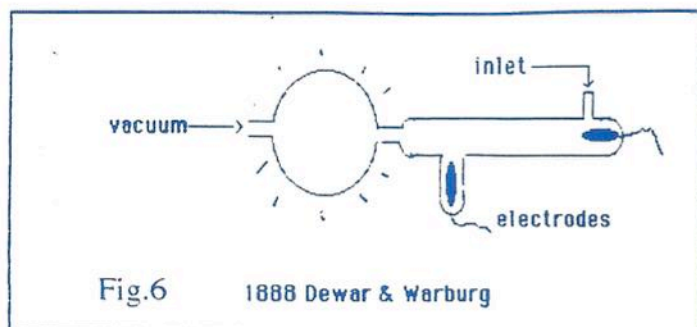


1996 RON KOVAC, MASS 5 SAME AS ACT. NITROGEN

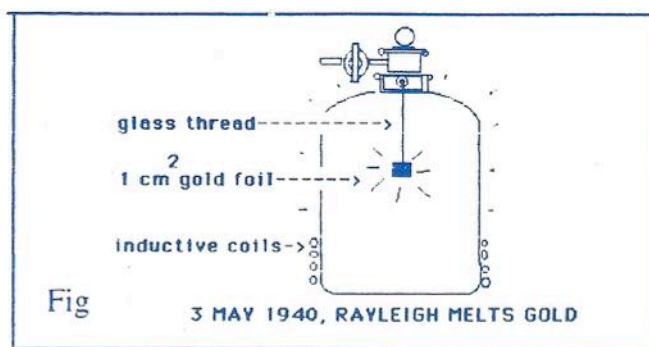
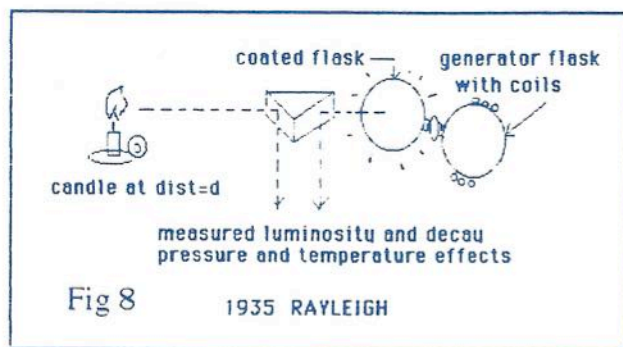


## HISTORY OF ACTIVATED NITROGEN (HENCEFORTH MASS 5)

WARBURG (1884) and later DEWAR (1888) noticed that some types of spark discharges in a rarefied nitrogen atmosphere would create a plasma, but when the power was turned off the gas would glow. LEWIS (1900) first identified the unusual green, yellow, and red band spectra. (9)



STRUTT (1911) used apparatus like fig 7 to investigate strange chemical reactions with mercury phosphorus, and many other elements. Reviewing his results Strutt wrote "It seems doubtful if the current atomic or molecular composition of chemistry will suffice to describe these results." RAYLEIGH (1911) identified spectral bands for activated nitrogen at 6252, 5804, 5407, and 5054, but if oxygen was present a different afterglow would appear at 5485, 5870, 5592, and 5248 nm. Strutt pointed out that the reaction was one of nitric oxide and activated nitrogen creating the peroxide by emission spec. He also pointed out that this, in itself was an anomaly. How could activated nitrogen and nitric oxide give a substance not less, but more oxidized than itself? RAYLEIGH (1935) discovers that a sulfuric acid coating inside the vessel would prolong the after glow to 8 hours by getting rid of the least amount of water.(5)



In 1935 Rayleigh studies luminosity versus pressure and temperature for reaction rate information with which to model a molecular reaction. The results were contradictory for pressure and temperature. Strutt found that the after glow ion concentration (as measured by conductivity) was not related to the afterglow intensity and decay. This meant the ion recombination model was invalid. The most surprising anomaly was found by Rayleigh in (1935) when a piece of gold got red hot when inside the gas, fig. 9.(6).

Many designs of experimental set ups were tried by Rayleigh in the following five years to accurately measure what appeared to be more energy put out as heat from the platinum or gold metal in the gas than could be explained even if every molecule gave up its ionizing energy to the metal. The energy was found to be as high as 10 eV for every  $N_2$  molecule and the afterglow was one-thousandth of the energy collected by the metal. Later, in 1946, Rayleigh measured energies as high as 223 eV/molecule. This was done using the apparatus shown in fig. 10.







When the helium was introduced for purging 16 times out of 16 purges the explosive behavior of the reaction would generate the plot on page 6, or the pressure increase would trip the auto shut down of the mass spec. to prevent damage. Between purges the valve was shut for one minute and a control spectrum was plotted to show the mass spec was still calibrated and functioning properly. These control plots had very little mass from back flow etc. showing. The helium would fill every mass from amu = 6 or less to 100 amu, all off scale quantity, every time it reacted with residual mass 5 until, finally, there was no more mass 5 with which to react.

## CONCLUSION

A windfall of chemical, physical, and electromagnetic information characterizing mass 5 is available from the literature under the subject, "activated nitrogen" since this work shows activated nitrogen is mass 5. This very strongly supports the hypothesis that the missing mass 5 has been created and it is a consequence of special plasma dynamics previously described and published.

## ACKNOWLEDGMENTS

Special thanks to Jon Pierce of Kansas City for literature research. The support from Howard Hull in his very creative mathematical interpretations of this authors typological arguments is very much appreciated. Discussion on mass spec. data interpretations, calibration, etc. afforded by John Marshal of Surface Solutions was most helpful.

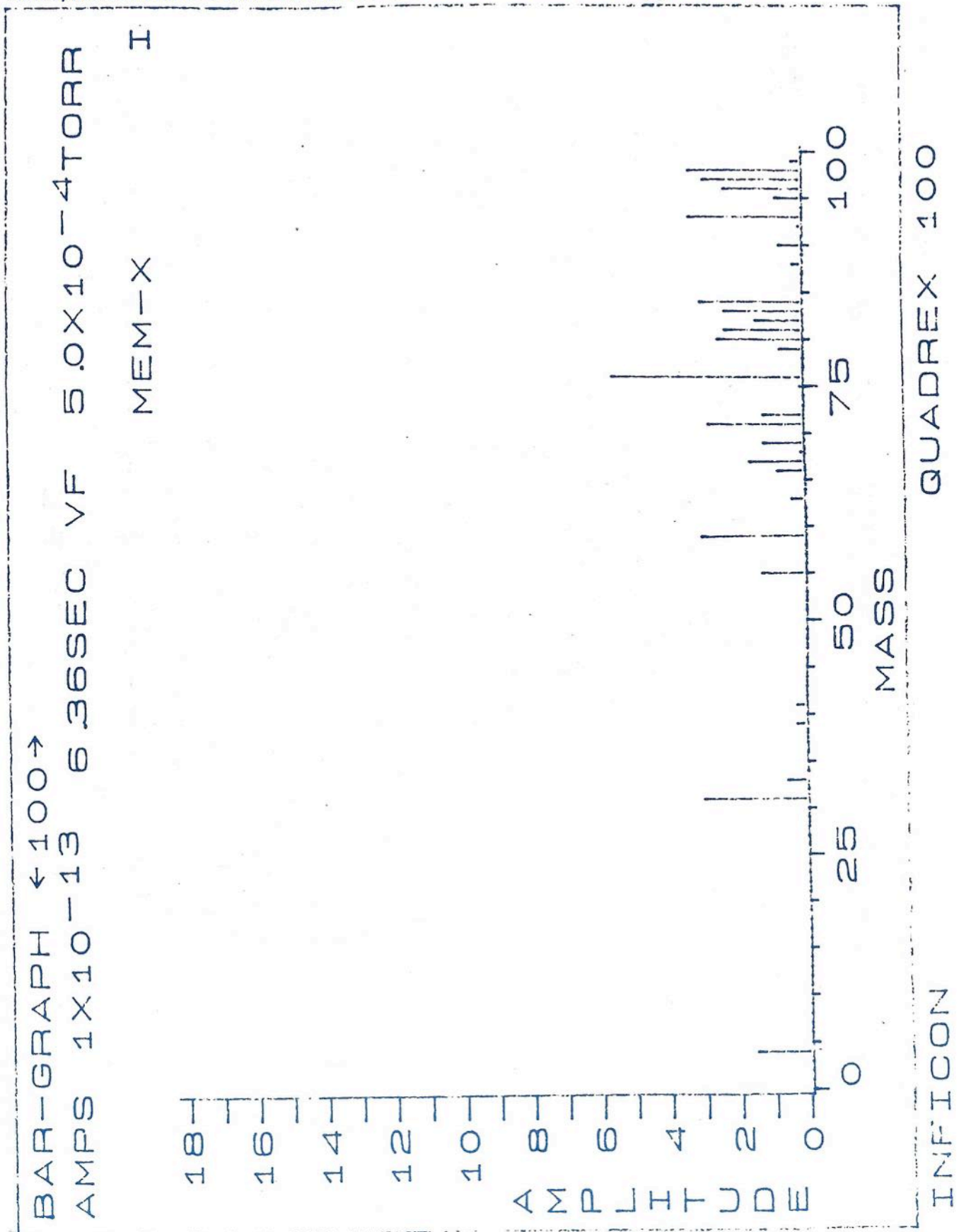
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(719) 475-0918



**APPENDIX : 4 PAGES OF MASS SPECTROGRAPHS BEFORE,DURING AND AFTER MASS 5 / HELIUM REACTION.**

If the mass assortment created are molecules and not ion clusters it would explain why the helium generated by volcanoes reacts with mass 5 generated by lightning to make helium rare, in our atmosphere and mass 5 nonexistent. Recall that mass 5 reacts with oxygen and water.

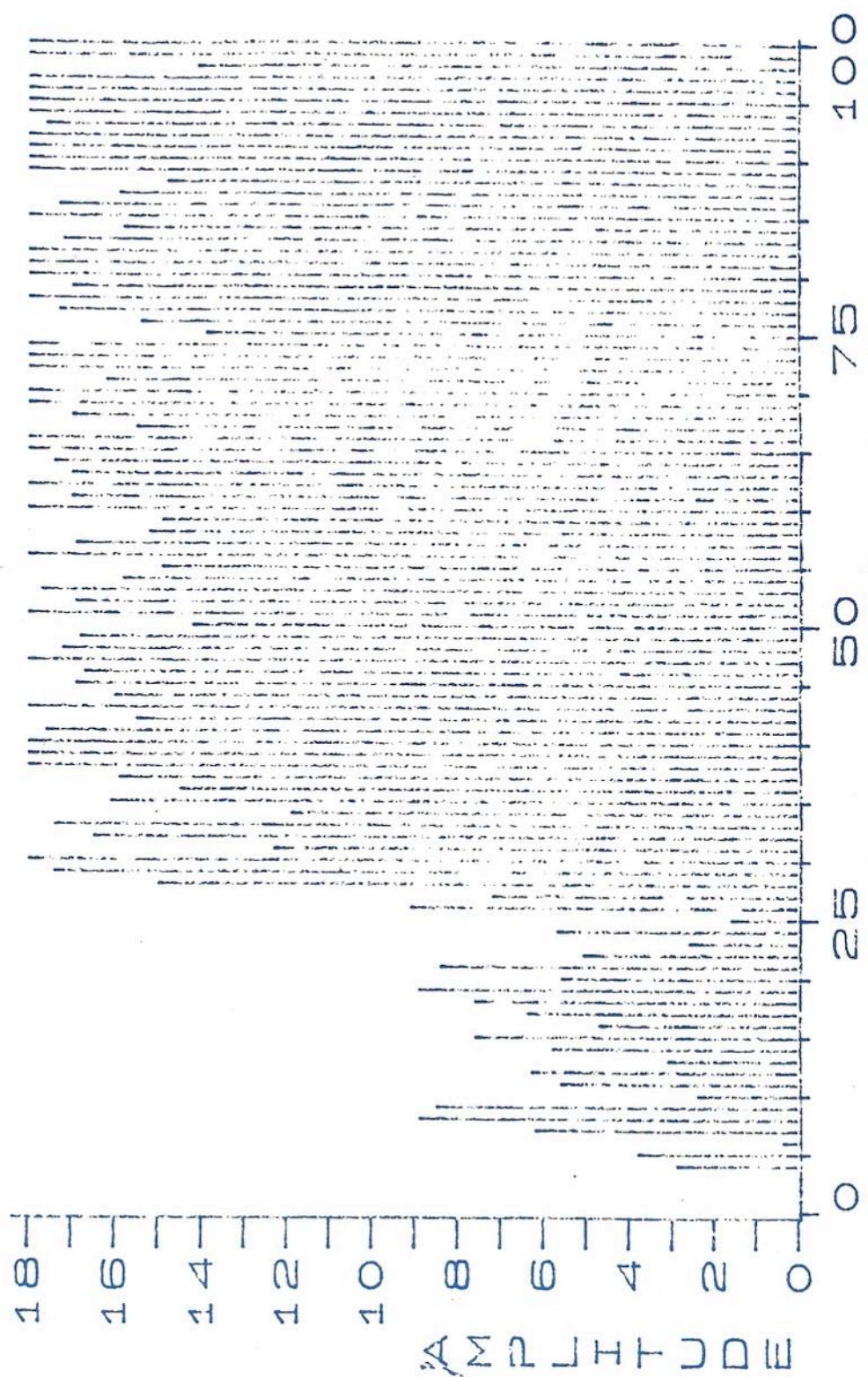




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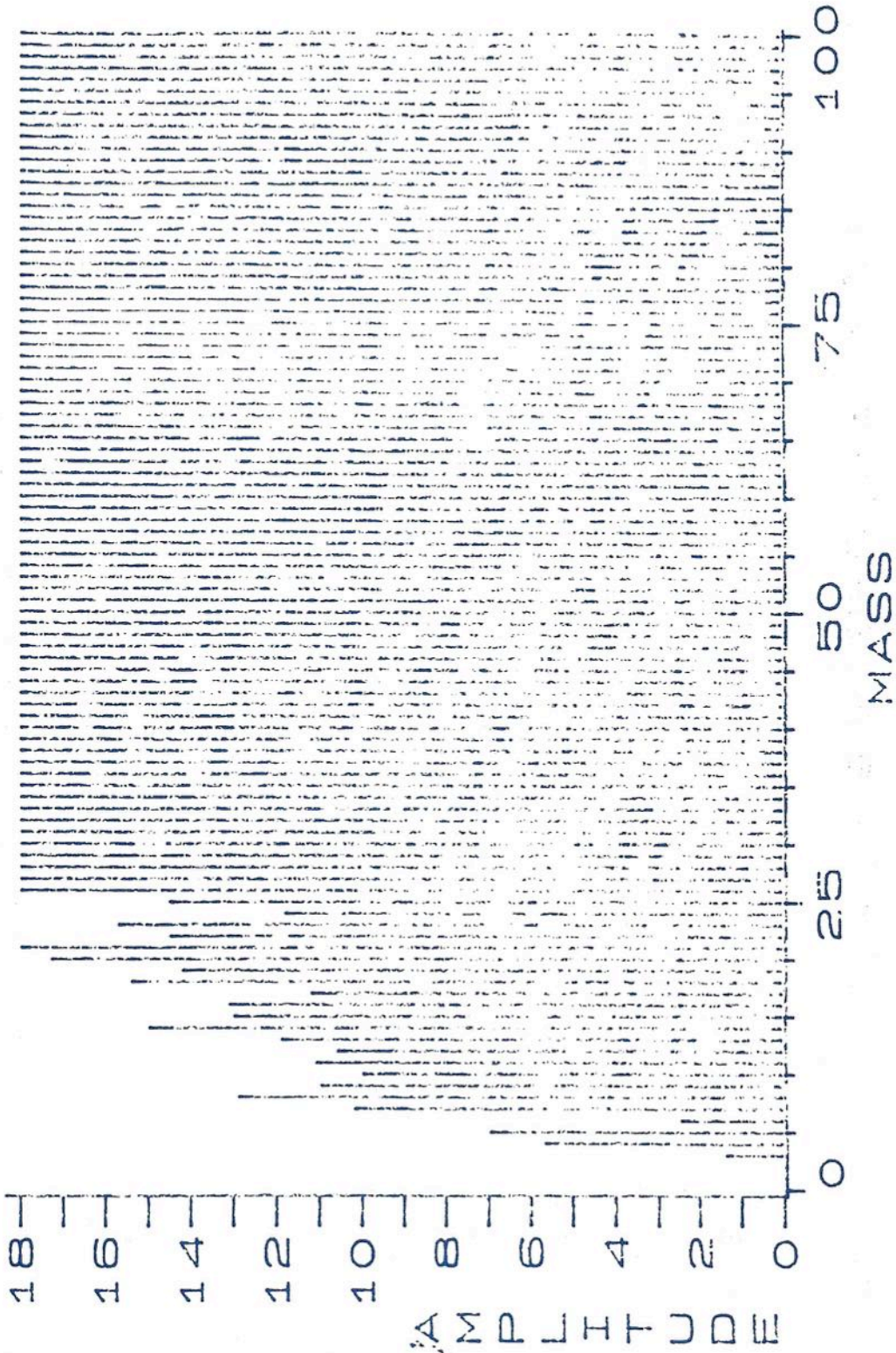
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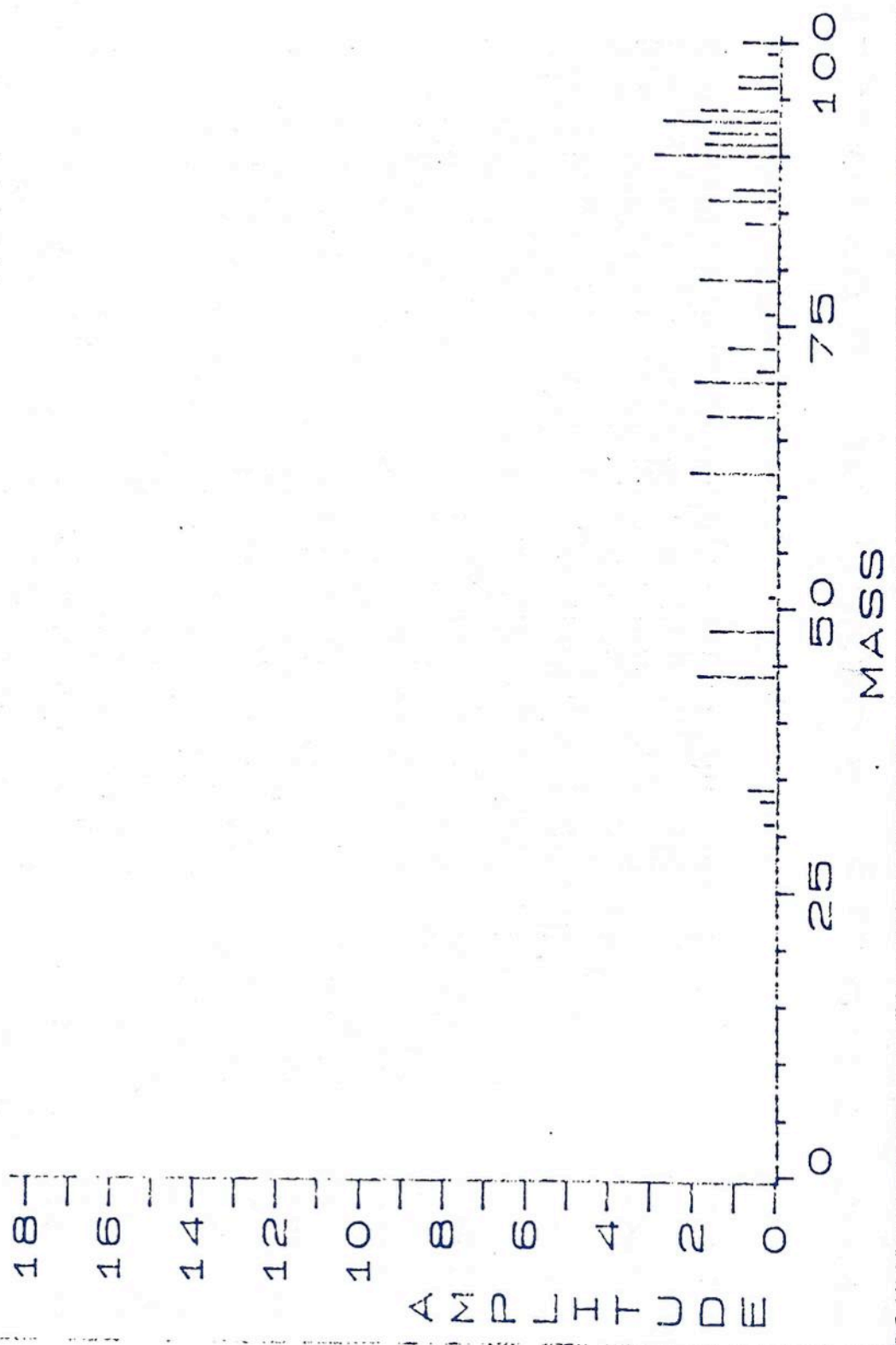
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A TREATISE

SCALAR MAGNETIC COOLING IN PLANTS  
AND VORTEX GENERATORS OF WATER

Written by: Robert S. Cafarelli  
March 15, 1996



Water's unique 105 degree hydrogen atom angle and polarization existing within plants, in which fluorescence re-emits photon energy and positively charged hydrogen ions remain in solution inside the thylakoid vesicle, represent only half of the inherent cosmic connection between water and plants.

Hydrogen is the most stable atom as a result of dynamics in motion except for the proton particle. The specific vector frequencies of hydrogen ions in a collinear relationship with protons allow for the possibility of creating varying amplitudes within localized EM components producing scalar electromagnetic cooling. Plants build tuned pigment receivers to utilize specific solar spectral bands and energy levels which allow surface and internal scalar effects to protect plants from excessive heating.

Water molecules are a positive polarity bias, laminar layers form as water flows, surface tension provides structure during underground vortex implosion in which both the mass and energy levels tend to increase due to extreme voltage potential across the laminar layers. Dynamic geometric angular momentum liberate EM(stored) energy producing a virtual non-restricted vector force. Tremendous acceleration within compound geometric frames of angular motion ultimately establish new stable vector frames free as they originally were as independent stable energy fields. Virtual communication is established beyond recognizable atomic co-resonance allowing for water to be influenced directly by cosmic energy. Water literally gives birth and illustrates this fact within complex 'Rosette' patterns and spiral vortex forms prevalent throughout observable reality. It is conceivable that regardless of a planet's mass, gravity or rotational speed, that the viscosity and temperature properties of water will narrowly define specific underground vortex implosion to such a degree that living water has a common co-resonate communication link throughout the universe.

Plants exhibit a negative polarity bias within underground root structure. Positively bias living water defies gravity and is attracted to and levitates upward along the complex plant structures. Observable patterns of cosmic influence are presented as a glorious display of life itself.



Do we really understand the simplicity within the universe? We are destroying our communication link by the contamination of water and the destruction of water's underground vortex generators. I perceive these generators are the uterus of our living planet. These generators are the earth's transmitters and receivers of cosmic intelligent energy. Could hostile alien life be waiting to invade when our planet's wall of protection, our unique loving cosmic protection is destroyed? Simply, our EM vortex structure is unique and complex mass energy mechanical particle flux allows only specific life forms to exist. Will other life forms connected to us by living water sense our transmitter is off frequency and come to help us? Perhaps only our CREATOR, our GOD, can intervene.

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Written by: Robert S. Cafarelli, March 15, 1996



## A SYSTEM OF GEOMETRY SUITABLE FOR AN ORAL TRADITION

A figure is being traced in the sand on a sheltered beach. To an attentive audience, a theorem is swiftly and easily demonstrated.

I shall now explain how this image helped in formulating an effortless entry into geometry, of which a shortened version then follows.

It all started by wondering if the simpler properties of a circle can be demonstrated in such a way as to appear self-evident. And the answer emerged, 'Yes, they can be.'

Yet what value would these demonstrations have unless they were part of a systematic development of geometry? Such prior steps as definitions and axioms were going to be needed to pave the way.

A clue as to what sort of formulation would work well was available to me. For a key element was the inspiration provided



by B. K. Tirthaji's reconstruction of an ancient system of mathematics belonging to the oral tradition of India's vedic period, some 3,000 or more years ago.

Tirthaji's methods are startlingly direct and unexpected, and they tend to be effortless. They present a very fresh view of mathematics. Yet his one surviving book on the topic, 'Vedic Mathematics', contains but a handful of examples in geometry.

This is where the 'figures traced in the sand' image comes in; for it suggests what the study of geometry might be like in the context of an oral tradition, figures being drawn and the exposition spoken, not written down.

So my aim was to formulate all the steps required to demonstrate the elementary properties of circles, right from the beginning. And these steps needed to be of sufficient simplicity, brevity and clarity that drawn figures and a spoken



commentary would suffice to put them across.

Otherwise put, the aim was to formulate the first steps of a system of geometry suitable for an oral tradition. A reduced and informal version of the outcome is presented here.



Before proceeding the reader may be interested in more information concerning oral traditions in general, and Tirthaji's system in particular.

Two devices of an oral tradition are worth mentioning, although neither is used here :-

(i) Rhymes It is easier to remember material in rhymed phrases.

(ii) Sutras A sutra is a terse statement of an important point or principle.

[Literally, the Sanskrit word 'sutra' = thread]

Tirthaji says that his system is based on sixteen sutras. An appendix on them is intended for a fuller version of the present material, showing how they relate to it.



Tirthaji wrote sixteen volumes on his reconstruction of vedic mathematics, all now lost. On registering the loss, in the 1950's and in his eighth decade, he wrote 'Vedic Mathematics'. More accurately, since his eye-sight was now failing he wrote the book with the aid of an amanuensis. It was intended as an introduction to the series of sixteen volumes, his idea being to rewrite them all. Ill-health frustrated the plan, and he died in 1960.

### Contents of this present article

Some nineteen theorems are given here. Topics include, in order of occurrence :-  
 sums of angles, e.g. of triangles (4 theorems);



some properties of circles (6 theorems);  
the theory of parallels (5 theorems).

There is a fair degree of flexibility in the sequence. E.g. instead of being placed at the end the theory of parallels could start before the present Theorem 1, without changing any proofs.

First, there are some preparatory matters to consider.

### PRELIMINARIES

In order to start, assume that a language is given; e.g. English, as here. Without this assumption there would be no oral tradition, no tool with which to carry out (or at least to communicate) the study.

Yet in the case of geometry the language also provides material to work on. It contains words which imply a prior acquaintance with geometry. E.g. a word such as 'circle' brings a concept to mind. Thus in beginning the study of geometry there is already a pool of knowledge to draw on, contained within the language. And it can be accessed through definitions.

Here we have a key device of language. A definition names something and in some way characterises it uniquely. A handy



6  
way of doing this, for mathematical purposes, is to state a single property which is so distinctive as to suffice of itself - known as a defining property. This can then be drawn upon in proofs.

A list of definitions is given below. It is hoped that the reader will find them lively; mostly they represent a fresh look at well-known concepts. The principle followed here is that dictionary definitions apply until replaced (by this list).

Yet why supply definitions at all? - especially for well-known concepts. Why not just use dictionary definitions? More could be said, but the following consideration alone is worth noting.

In the Japanese art of flower arrangement, much of the art lies in the preparation. Here, too, if they have been well-chosen, the definitions and axioms and other preparatory steps can put the reader's mind in a state receptive to what follows, that it may all the more swiftly and easily be comprehended.

As well as definitions, devices in this study include theorems and axioms. These terms are now defined.



## DEFINITIONS

1. A theorem is an assertion to be proved.  
In the present context such assertions concern figures, or more particularly the magnitudes present in figures.  
(See Def. 4 below.)
2. An axiom is an assertion which is granted, being self-evident.
3. Magnitude is that of which a part is indistinguishable from the whole, save in size.

Examples include a length, an angle, and an arc of a circle. A part of a length is itself a length. Were it not so what sense could we make of speaking of lengths of different sizes?



4. Two magnitudes which are indistinguishable from one another except by position are said to be equal to one another.

5. A point is that which has position but no parts.

And having no parts it has no magnitude.

6. A line is that which, having points as elements, suffices to link two points.

7. A straight line is that line which is uniquely specified given two points on it.

Note that, defined in this way, a straight line is unlimited in either direction.

8. The portion of a straight line joining two points is called a segment.

9. Direction is specified by a straight line or segment to or from a point.

10. A turn is a change in direction.

11. An angle is a measure of change in direction at a point.

12. If a segment, initially coinciding with a straight line, turns just sufficiently about one of its ends to lie on the adjoining part of the straight line, it is



said to make a half-turn.



Fig. 1 Illustrating a half-turn.

13. A turn which is just sufficient to pass in sequence through the four directions indicated by two intersecting straight lines, starting from one of them and returning to it, is called a complete turn.

A complete turn contains two half-turns.

14. That surface which is completely specified given three points on it is said to be plane.

This is a generalisation of the definition of a straight line. In consequence the straight line through any two points in a plane lies in that plane.

15. If a straight line standing on another straight line makes equal angles with it on either side then that line is said to be perpendicular to the other, and those equal angles are said to be right angles.



Note : a half-turn contains two right angles, and a complete turn contains four right angles.

16. If two straight lines in a plane do not meet they are said to be parallel.

17. A figure consists of lines and/or points in a plane.

Otherwise put, a figure is that which can be drawn in a plane.

Note that a part of a figure is itself a figure, since it also satisfies this definition.

18. A construction of a figure, or construction, consists of the steps required to draw that figure.

### OF FIGURES IN A PLANE

19. If a pair of straight lines are separately intersected by a third straight line, the latter is said to be a transversal to the other two.

20. A line drawn at constant distance from a given point is called an arc of a circle.



The abbreviated form 'arc' may be used here, without ambiguity.

21. The complete arc so drawn is called the circumference of the circle.

22. The given point is called the centre, and the fixed distance from that centre is called the radius of the circle.

23. The complete figure consisting of centre and circumference is called the circle.

Common usage does not so clearly distinguish between a circle and its circumference, and definitions of a circle do not normally specifically include the centre as part of the figure. Yet in geometry, if a useful distinction is to be made between a circle and its circumference it is surely this.

24. A segment lying between two points on the circumference of a circle is called a chord.



25. A straight line which shares just one point with a circle is said to be a tangent to that circle.

26. Joining the ends of an arc <sup>of a circle</sup> to a point on the opposite arc, the arc is said to subtend an angle at that point, or to subtend an angle on the circumference.

A chord can also be said to subtend an angle at the circumference, although there may be a need to specify which of the two opposite arcs the angle is subtended onto.

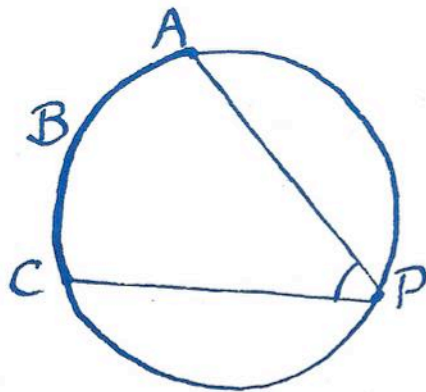


Fig. 2 Showing an arc ABC subtending an angle at P.

27. A closed figure formed from joining segments end-to-end is called a polygon.



28. The point where two of those segments meet is called a vertex of the polygon.

29. The angle at a vertex between one segment extended and the other segment is called an external angle of the polygon.

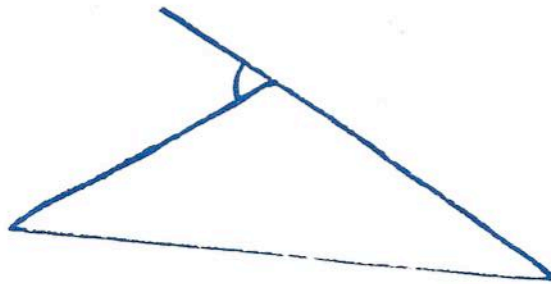


Fig. 3 Showing an external angle of a triangle.

30 A triangle is a polygon with three sides.

Literally, 'triangle' means 'three angles.'

31. An isosceles triangle is one with two sides equal in length.

32. A quadrilateral is a polygon with four sides.

33. A rectangle is a quadrilateral with all angles equal.

It can readily be shown that these



are right angles, and this will hereafter be assumed. 14

34. A cyclic-quadrilateral is a quadrilateral with all four vertices lying on the circumference of a circle.

35. Figures which are indistinguishable from one another except by position are said to be congruent to one another.

A fuller treatment of this material is being prepared for a book, 'Geometry for an oral tradition.' It gives definitions not supplied here, including :- length, surface, intersection, closed figures, equal areas, etc.

Moving on from the study of definitions, consider the following brief overview of what the study is about.

This study of geometry is concerned with :-

- (i) constructing figures, and
- (ii) making assertions about figures.

Proofs are needed in both cases. The exception is that to get things started some constructions and assertions are



accepted without proof.

## CONSTRUCTIONS WHICH ARE GRANTED

Let it be granted that :-

1. We can draw any portion we choose of the straight line through two given points.

2. A circle can be drawn about any point as centre and of any given radius.

I.e. a straight edge and compasses are assumed to be available, to be used as taught in schools. The second rule permits compasses to be set to a given radius, and that radius transferred wherever desired. [This was not acceptable to Euclid. Once a circle is drawn, in the words of Professor Augustus de Morgan, "we suppose the compasses to be snapped shut." If the same radius is wanted elsewhere, Euclid provides a construction for transferring it. Evidently he saw that directly transferring lengths (using compasses) involves an assumption, and he found a way of avoiding it.]



## AXIOMS

No doubt it would generally be agreed that it does not matter whereabouts in a plane a figure is constructed. We would not expect the figure to be affected by its location. This expectation is formulated in the first axiom:

AXIOM 1. Figures which can be constructed identically are congruent.

The implication is that it does not matter where or when a figure is constructed; these factors do not change it. This axiom provides a test of congruence.

COROLLARY. Magnitudes which can be constructed identically are equal.

References to Axiom 1 or its corollary are given as 'Axiom 1'.

A further issue is that a straight line is used to denote, or specify, a pair of directions. There is a suggestion in this, that perhaps the directions specified by a straight line do not vary along it. The second axiom takes this idea up.



AXIOM 2. A straight line specifies the same pair of directions at all points on it.

Two further assumptions are made:-

(i) That figures may be used to formulate and prove theorems. [Otherwise put, it is assumed that there are valid ways of using figures in proofs.]

(ii) That the rules of reasoning are understood. [Otherwise put, that logic is available, already worked out.]

These, and the assumption that a language is given, pervade what follows. Perhaps all three could be considered as axioms, but not being referred to subsequently this would make no practical difference.

The way has been prepared, and the theorems now follow.



## THEOREMS

These first two theorems are proved in 'Geometry for an oral tradition'; they are stated here without proof. Euclid gives them as axioms.

Theorem 1. Two magnitudes which are equal to the same magnitude are equal to one another.

I.e. if  $a = b$  and  $b = c$  then  $a = c$

Theorem 2. If two magnitudes are equal, and an equal quantity is subtracted from each, then what remains is equal.

I.e. if  $a = b$ ,  
then  $a - c = b - c$

Theorem 3. The base angles of an isosceles triangle are equal.

For the two angles are constructed identically.  
[Axiom 1]

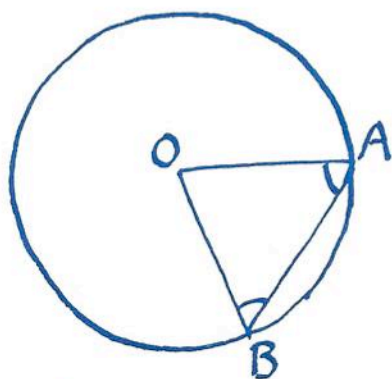
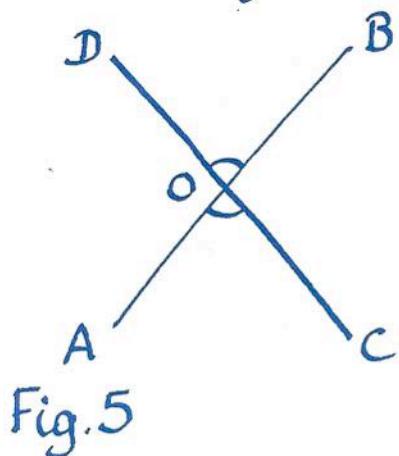


Fig. 4

Note Isosceles triangles commonly occur in circles, the radius of a circle being constant.



Theorem 4. Vertically opposite angles are equal



Proof

For let  $AOB, COB$  be intersecting straight lines (Fig. 5).

Then by Axiom 2,  $AO$  and  $OB$  point in the same direction, and likewise  $CO$  and  $OD$ .

Therefore the change in direction from  $AO$  to  $CO$  is the same as the change in direction from  $OB$  to  $OD$ .

$$\text{I.e. } \hat{AOC} = \hat{BOD}, \quad [\text{Def. II}]$$

which establishes the Theorem.

Second proof The two vertically opposite angles are constructed identically,

$\therefore$  they are equal,  $[\text{Axiom 1}]$

which establishes the Theorem.

Note This is known as the VERTICALLY OPPOSITE Theorem.



## SUMS OF ANGLES THEOREMS

20

Theorem 5. The angles of a triangle total a half-turn.



Fig. 6.

Represent the side AB of  $\triangle ABC$  by a pencil pointing from A to B. (Fig. 6)

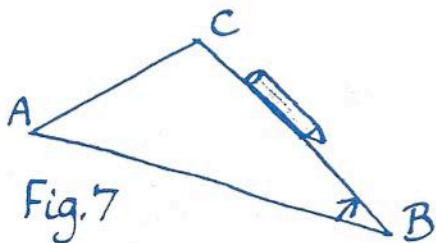


Fig. 7

Rotate the pencil clockwise about point B, until it coincides with side CB. (Fig. 7)

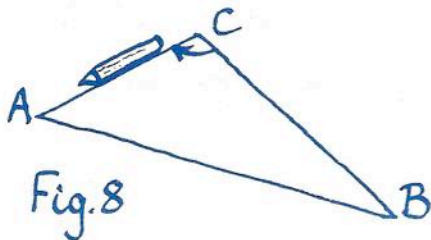


Fig. 8

By Axiom 2, line CB does not vary in direction. This permits us to continue the same clockwise rotation about point C, until the pencil coincides with CA. (Fig. 8)

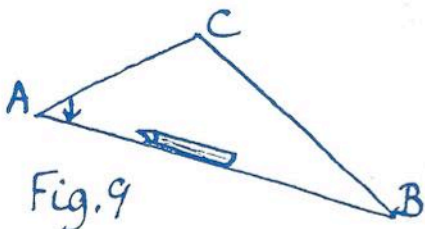


Fig. 9

Finally, rotate the pencil clockwise about point A until it coincides with side AB. (Fig. 9)

The pencil has now rotated through & summed three angles successively. However it is now pointing opposite to its initial direction; it has gone through a half-turn. That is to say, the sum of the angles of a triangle is a half-turn.

This completes the proof.



Theorem 6 An exterior angle of a triangle equals the sum of the interior opposite angles.

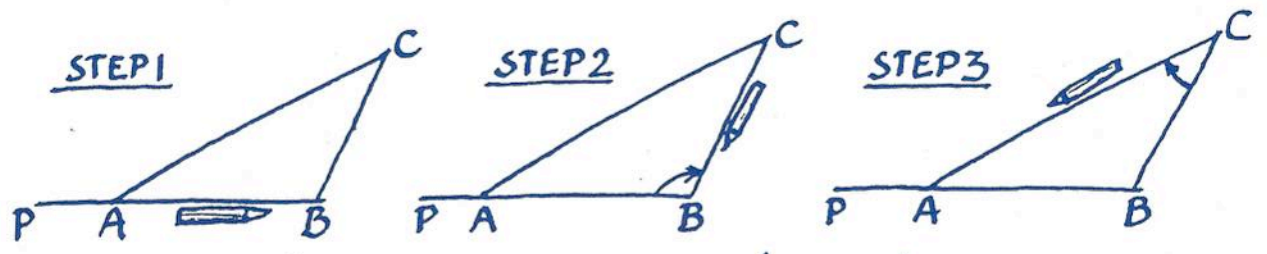


Fig.10 Adding two internal angles

First consider Fig.10. A rotating line, represented by the pencil, initially coincides with straight line PAB (Step1). It rotates clockwise, first about point B to coincide with CB (Step2); then about point C to coincide with CA (Step3). In the process it has summed angles B and C.

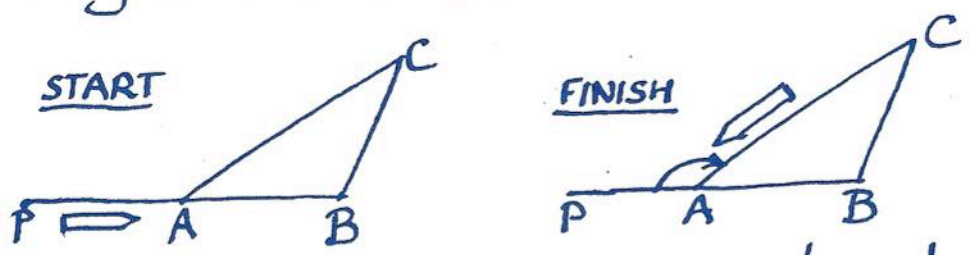


Fig.11 Measuring an external angle.

But as can be seen in Fig.11, a clockwise rotation about point A, starting with line PAB and concluding with line CA, begins and ends the same and therefore sweeps through the same angle. In the process it measures the external angle PAC.

I.e.  $\hat{PAC} = \hat{PBC} + \hat{BCA}$ , demonstrating the Theorem.



Theorem 7 The angles of a quadrilateral total a complete turn.

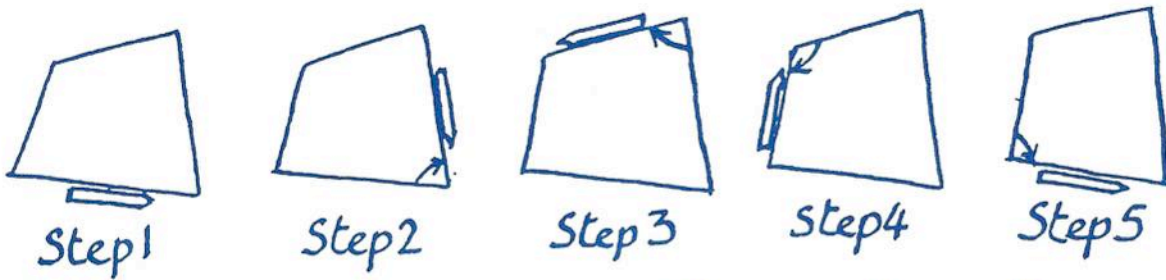


Fig.12 Steps in summing the angles of a quadrilateral.

At this stage the sequence of diagrams is probably sufficient without explanation (Fig.12).

These diagrams could be collapsed into one, as has been done to illustrate the next theorem. Again, the reader is left to fill in the steps from the diagram. First note that a convex polygon is one in which all (internal) angles are less than a half-turn. (See Figs. 13a and 13b.)

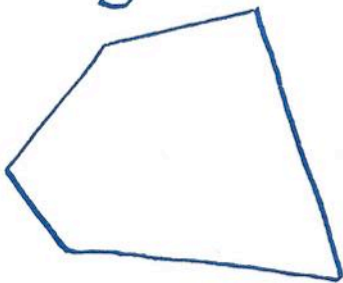


Fig.13a Convex polygon

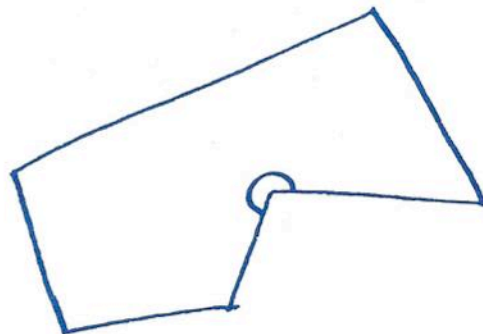


Fig.13b Non-convex polygon

Note that Theorem 7 holds whether the quadrilateral is convex or non-convex.



Theorem 8 The exterior angles of a convex polygon together make a complete turn.

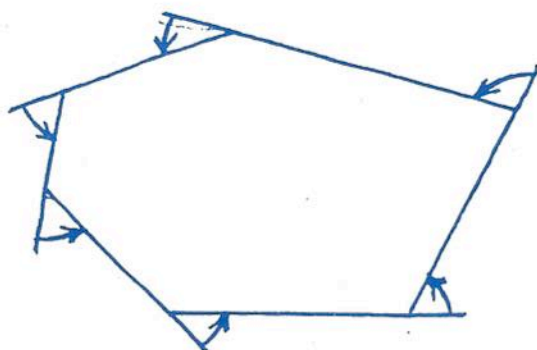


Fig. 14 Summing the exterior angles of a convex polygon.

These last few theorems illustrate what might be considered an ideal of an oral tradition: familiarity with the system means that less and less need be explained or shown. The ultimate objective is that, given a theorem to be proved one can simply look at the relevant figure and go through the rest of the working mentally. However, in some cases one might choose to use supplementary figures or constructions, even if only in the mind's eye.

Is this ideal realisable, apart from a few elementary examples? The question is natural enough. Yet it is always possible



that more is achievable than might be suspected. And those who believe that more is possible are more likely to be successful in finding examples which demonstrate that. The attitude of the sceptic cannot be expected to be fruitful in this matter.

Again, once the issue has been raised it acts as a challenge. It will be interesting to see if it is taken up.

### SOME PROPERTIES OF A CIRCLE

The next theorem is preceded by a construction.

#### To construct a rectangle

Draw two straight lines, intersecting at  $P$ .  
Centre  $P$ , draw a circle, intersecting the first straight line at points  $A$  and  $C$ , and the second at  $B$  and  $D$  (Fig. 15).

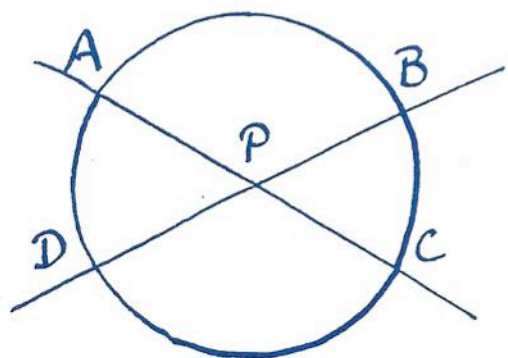


Fig. 15 A rectangle in construction

Join  $AB, BC, CD, DA$ .  
[Note that it suffices to do this mentally.]

Then  $ABCD$  is a rectangle.



Proof All four angles of quadrilateral ABCD have been constructed identically,  $\therefore$  they are equal. [Axiom 1]  
 $\therefore$  ABCD is a rectangle, [Def. 33]  
 as required.

Note AC and DB can be any two intersecting straight lines, and any rectangle can be constructed in this way.

The next theorem follows from the consideration that the angles of a rectangle are right angles, as already noted after Def. 33, and DB and AC are diameters of the circle. (Fig 15)

Theorem 9 A diameter of a circle subtends a right angle on the circumference.

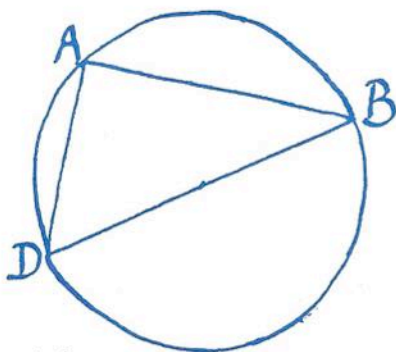


Fig. 16

Fig. 16 results from omitting parts of Fig. 15. It was the case in Fig. 15 that DB is a diameter and  $\hat{DAB}$  a right angle, and this remains the case here.

This demonstrates the Theorem.



Theorem 10 Opposite angles of a cyclic-quadrilateral total a half turn.

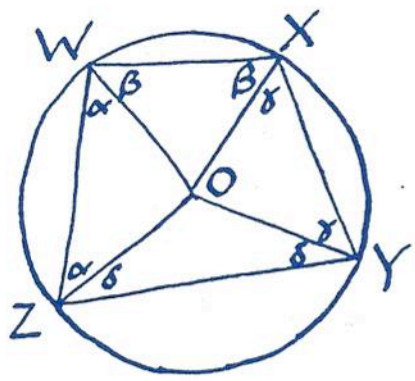


Fig. 17a CASE I  
'O' inside cyclic-quadrilateral

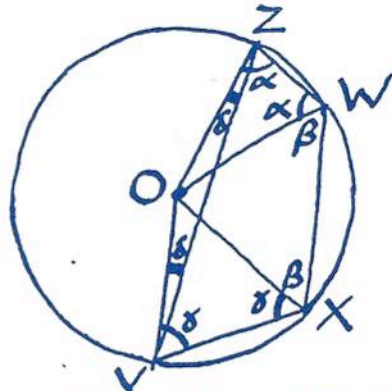


Fig. 17b CASE II  
'O' outside cyclic-quadrilateral

First note that in Figs 17a and b, a cyclic-quadrilateral is divided into four isosceles triangles, with base angles  $\alpha$ ,  $\beta$ ,  $\delta$  and  $\delta$ . 'O' is the centre of the circle.

Proof By Theorem 7 the angles in a quadrilateral total a complete turn.

CASE I It can be seen in Fig 17a that angles  $\widehat{W+Y}$  and  $\widehat{Z+X}$  both come to  $\alpha + \beta + \delta + \delta$   
i.e. opposite angle-sums are equal.  
 $\therefore$  each must equal a half-turn.

CASE II Opposite angle-sums in Fig. 17b total  $\alpha + \beta + \delta - \delta$  in each case.

i.e.  $\widehat{ZWX} + \widehat{XYZ} = \alpha + \beta + \delta - \delta = \widehat{WXY} + \widehat{YZW}$   
Once again opposite angle-sums are equal to one another, and when added make a complete turn.  
 $\therefore$  each is a half-turn.  
This establishes the Theorem in both cases.



Theorem 11 Equal arcs of a circle subtend equal angles on the circumference.  
 I.e. in Fig. 18, angle  $\alpha$  does not depend on where A lies between D and B; it is constant.

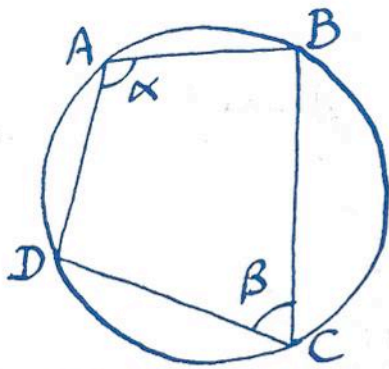


Fig. 18

Consider arc DCB, subtending an angle  $DAB = \alpha$  on the circumference. (Fig. 18)

Now  $\alpha + \beta = \frac{1}{2}$  turn [Theorem 10]

Keeping points D, C and B fixed, so that  $\beta$  is fixed,

this means that  $\widehat{DAB}$  takes the same value  $\alpha$  wherever point A lies, on the arc facing arc DCB.

I.e. a given arc subtends a constant angle on the circumference.

By Axiom 1, the same thing happens wherever arc DCB is constructed on the circle.

That is, equal arcs subtend equal angles on the circumference.

This demonstrates the Theorem.



Theorem 12 An exterior angle of a cyclic-quadrilateral equals the interior opposite angle.

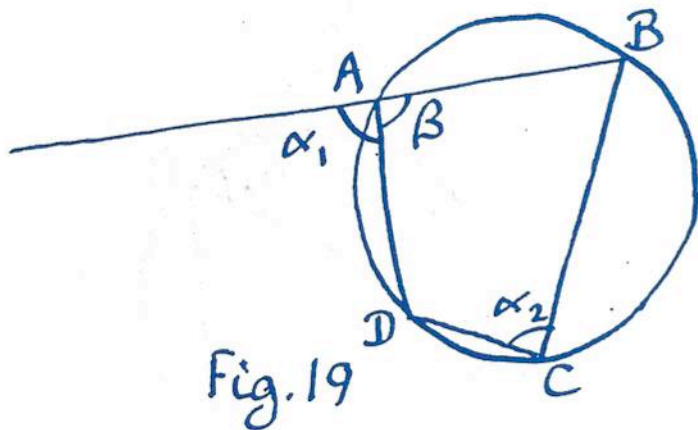


Fig. 19

For in Fig. 19,

$$\alpha_1 + \beta = \frac{1}{2} \text{ turn,}$$

since together they form the total angle on one side of a straight line and about point A.

$$\text{And } \alpha_2 + \beta = \frac{1}{2} \text{ turn} \quad [\text{Theorem 10}]$$

$$[\text{Theorem 2}]$$

$\therefore \alpha_1 = \alpha_2,$   
establishing the Theorem.



Theorem 13 The angle between the tangent and the chord equals the angle subtended by that chord on the far arc.

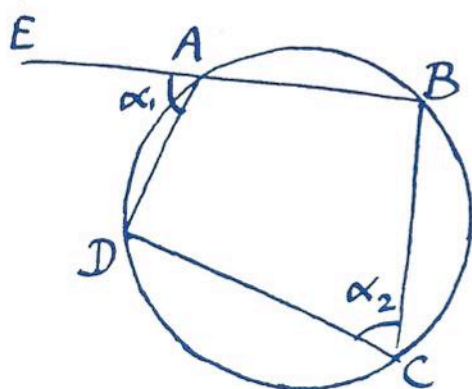


Fig. 20

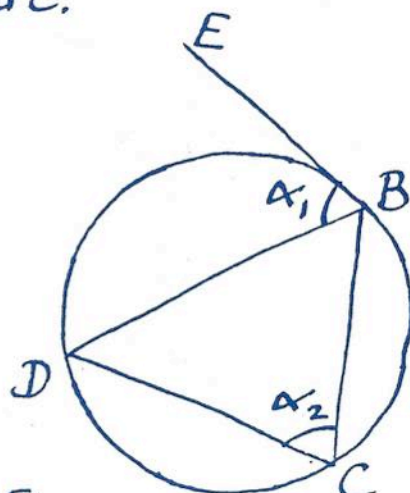


Fig. 21

In Fig 20, suppose that A is a variable point, with  $\alpha_1 = \alpha_2$  [Theorem 12]

Let A approach and then merge with point B (Fig. 21). When this happens the straight line EB becomes the tangent at B. [Def. 25]

Since  $\alpha_1 = \alpha_2$  throughout, it follows that the angle between the tangent and the chord (DB) equals the angle subtended by that chord on the far arc.

This completes the proof.

Examples of this 'limiting case' type of proof are to be found in 'Discover vedic mathematics', by K. Williams.



Theorem 14 The angle at the centre of the circle equals twice the angle subtended at the circumference

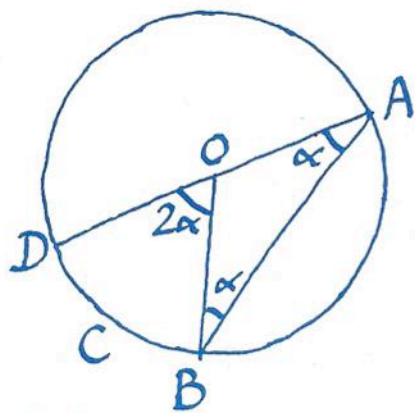


Fig. 22a

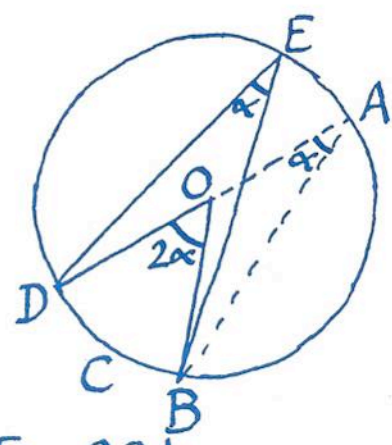


Fig. 22b

Proof In Fig. 22a,  $\triangle OAB$  is isosceles, with  $\hat{A} = \hat{B} = \alpha$

$\therefore \hat{D}OB = 2\alpha$  [Theorem 6]

In Fig. 22b,

$\hat{D}EB = \hat{D}AB = \alpha$  [Theorem 11]

$\therefore \hat{D}OB = 2 \cdot \hat{D}EB$

I.e., since E can be any point on the circumference (arc DCB excepted), the Theorem follows. [It can be shown that the Theorem also holds if  $\hat{D}OB$  is more than a half-turn.]

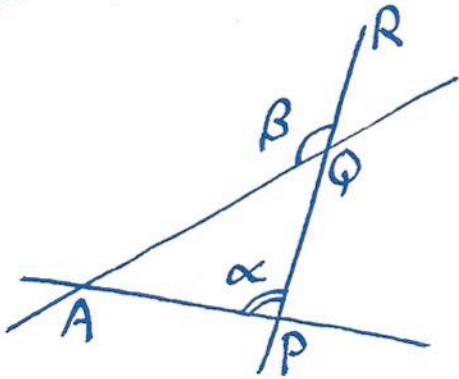


The next topic (Theorems 15-19) is followed by applications. Any reader who wishes to do so may now skip these and, without loss of continuity, move straight on to the section headed, 'What has been achieved by this study'.



## THE THEORY OF PARALLELS

Theorem 15 Two intersecting straight lines make unequal corresponding angles with a transversal.



In Fig. 23 the corresponding angles  $\alpha$  and  $\beta$  will be shown to be unequal.

Fig. 23 Showing transversal PR

Proof Two straight lines through a point A lie in different directions. (Fig. 23)

And this is so everywhere along those lines. [Axiom 2]

But the transversal PR represents a constant direction or pair of directions. [Axiom 2]

Hence the changes in direction from PR to PA and to QA are different.

That is, angles  $\alpha$  and  $\beta$  are different, [Def. 11]

or in other words unequal.

This establishes the Theorem.



Theorem 16 If corresponding angles are equal, the lines intersected by the transversal are parallel.

For if the latter intersect, corresponding angles are unequal. [Theorem 15]

Therefore since corresponding angles are not unequal the pair of lines do not intersect. I.e. they are parallel, [Def. 16]  
demonstrating the Theorem.



Theorem 17 Parallel lines make equal corresponding angles with a transversal.

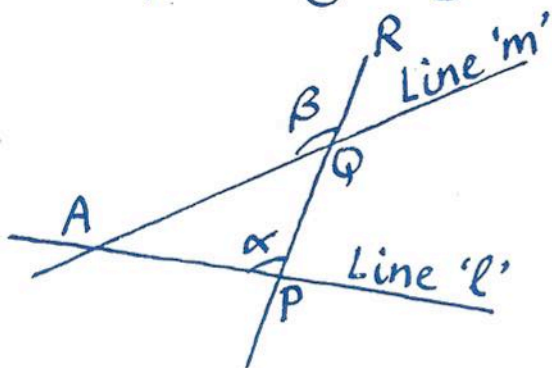


Fig. 24 Showing intersecting lines  $l$  and  $m$ , and corresponding angles  $\alpha$  and  $\beta$

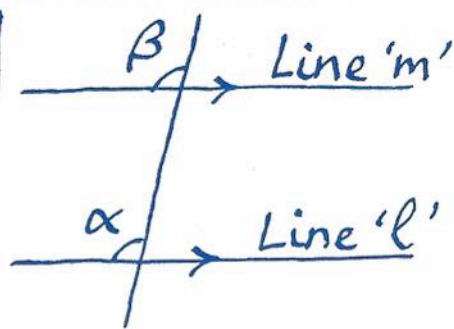


Fig. 25 Showing parallel lines  $l$  and  $m$ , and corresponding angles  $\alpha$  and  $\beta$ .

It will be shown that, in Fig. 25,  $\alpha$  and  $\beta$  must be equal since  $l$  and  $m$  are parallel.

Proof That all possible pairs of unequal corresponding angles arise from intersecting straight lines can be seen from the following consideration. In Fig. 24 suppose that line  $m$  rotates about  $A$ ; then repeat with  $P$  elsewhere on line  $PQR$ ; then repeat with another position of  $P$ , and so on.

In each case,  $\alpha \neq \beta$  [Theorem 15]

This leaves no possible pair of unequal angles  $\alpha$  and  $\beta$  for the case of parallel lines, i.e.  $\alpha = \beta$  when  $l$  and  $m$  are parallel, demonstrating the Theorem.



Theorem 18 Parallel lines make equal alternate angles with a transversal

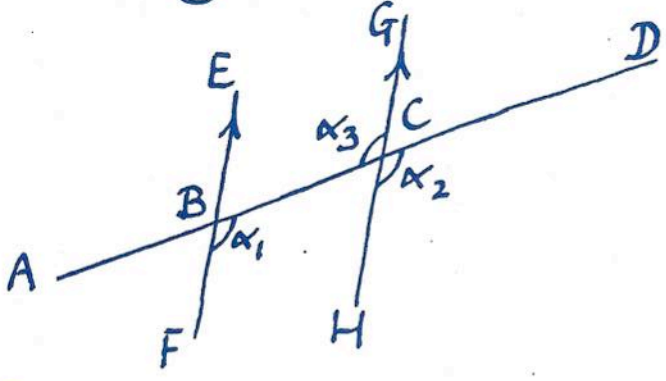


Fig. 26

In Fig. 26, FBE and HCG are parallel lines, and ABCD is a transversal. It will be shown that  $\alpha_1 = \alpha_3$

Proof

$\alpha_1 = \alpha_2$  [Theorem 17, 'corresponding angles']

$\alpha_2 = \alpha_3$  [Theorem 4, 'vertically opposite']

$\therefore \alpha_1 = \alpha_3$

And this establishes the Theorem.



Theorem 19 If alternate angles with a transversal are equal, the lines are parallel.

For if alternate angles are equal, corresponding angles are equal.

[Theorem 4, 'vertically opposite']

And if corresponding angles are equal, the lines are parallel. [Theorem 16]

I.e. if alternate angles are equal the lines are parallel.

This completes the proof.



The theory of parallels can be used to obtain alternative proofs of the sums of angles theorems.

E.g., since the INTERNAL ANGLES OF A QUADRILATERAL TOTAL A COMPLETE TURN (Theorem 7), it should be possible to arrange them nicely around a point (see Fig. 27).



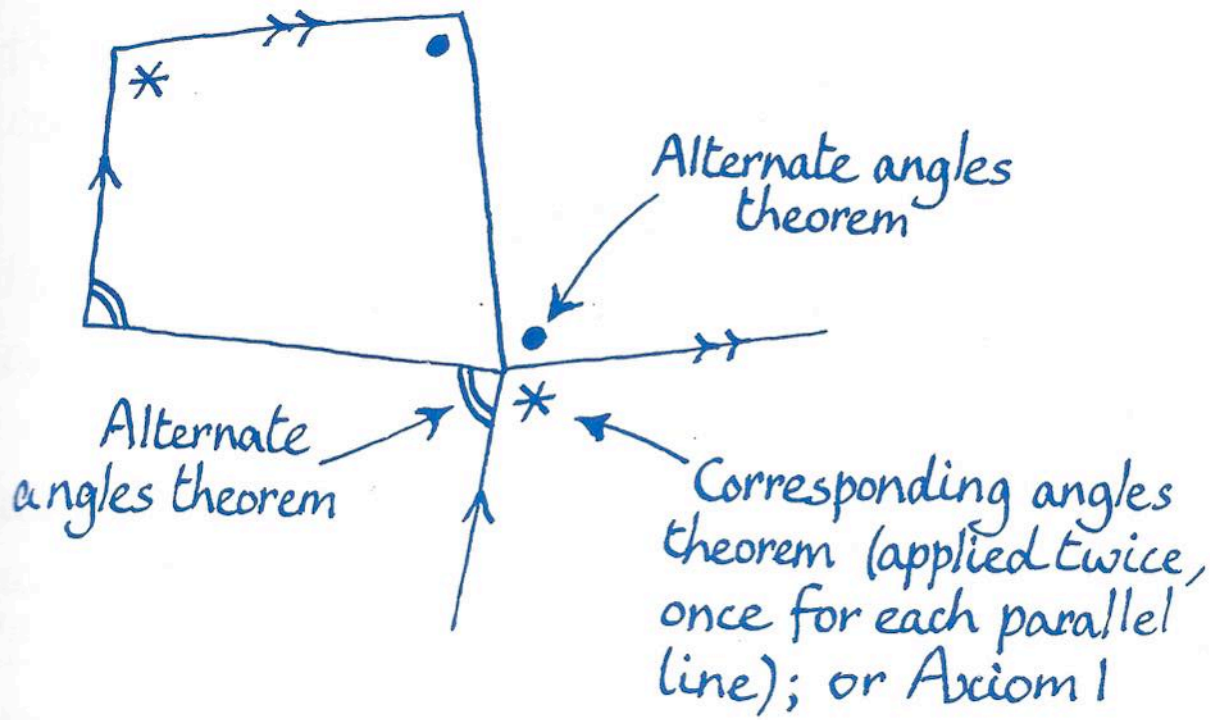


Fig. 27 Showing the internal angles of a quadrilateral rearranged to lie around a single point.

Note that :-

- (i) arrows indicate parallel lines;
- (ii) equal angles are represented by like symbols.

Similarly, Fig. 28 demonstrates that the angles of a triangle total a half-turn.



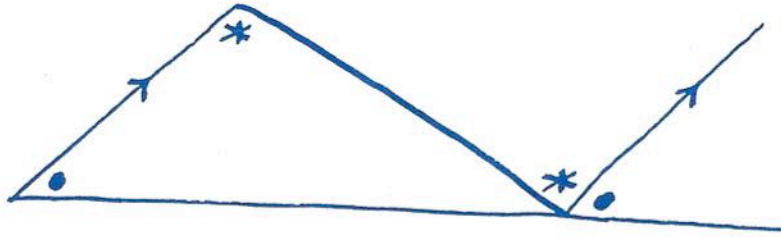


Fig. 28 Showing the internal angles of a triangle rearranged to coincide at a single point.

These last two examples show that alternative proofs can be useful in offering different insights.

### WHAT HAS BEEN ACHIEVED BY THIS STUDY?

The proofs given here can be seen as keys, by which theorems in geometry become self-evident. Two examples make the point.

(i) The construction of a rectangle, followed by Theorem 9, between them make it evident that a diameter of a circle subtends a right angle on the circumference.

(ii) Again, on examining Theorem 10 carefully, it becomes obvious that opposite angles of a cyclic-quadrilateral total a half-turn. This being established clearly



in one's mind, the next Theorem rapidly follows, that equal arcs of a circle subtend equal angles on the circumference.

Furthermore the keys to the theorems have been placed within the framework of a system.

Also instructive is the comparison with Euclid's 'Elements'. These theorems are proved in the first three books of the 'Elements'. This is ground which has received a lot of attention from mathematicians over the centuries. Often their efforts have tended to focus on changing a small part of Euclid's 'Elements', e.g. the parallel axiom, while keeping the rest essentially intact.



The present approach is radically different. It uses different axioms, and only two of them compared with Euclid's five or more. Also, the definitions here are different from Euclid's, and the proofs of theorems are generally much briefer. The reader should not be misled by its simplicity or its limited scope into thinking that it is of little or no significance: it is a totally fresh approach to the topic.

Consider one example of a substantial difference between this system and Euclid's. The test of congruence of two figures used here is, can they be constructed identically? (See Axiom 1.) Euclid, however, uses a 'method of application' (or superposition) - quite possibly a standard method in his day. If one figure can be 'applied to', i.e. placed against or on another, so that they fit precisely, the figures are accepted as congruent. Yet Euclid did not consider



it acceptable to transfer lengths directly using the compasses at a fixed radius. Therefore one would have thought that he would have considered it even less acceptable to transfer one whole figure to another, albeit mentally. He is applying different standards here, and this is a weakness in his system.

### OBJECTIONS

Are there any objections to the approach developed here? Two will now be discussed briefly. These may be omitted without loss of continuity.

#### 1. Objection to using notions of change in geometry

To the ancient greeks of the Pythagorean school of thought, any admission of change or movement in geometry was anathema. They considered mathematics to be beyond the changing world, the straight line and circle being examples of perfect forms.

E.g. to define an angle as a measure of change (in direction) would have been unacceptable to them. Even the concept of



direction would not have been acceptable (in the context of geometry), direction being from one point to another.

The choice made here is not to be inhibited by such considerations. But it is probably an indication of their persistence that dictionary definitions tend to follow Euclid, 'defining an angle by using 'inclination' as a synonym rather than indicating that change in direction has anything to do with it.

2. Objection to transferring lengths directly, using compasses at a fixed radius  
(See second of 'Constructions granted'.)

There are systems of geometry in which length itself is changed by movement (special relativity theory uses one of them). It clearly does not follow that length is necessarily changed by movement. This being so we are entitled to explore the consequences of including the assumption that length is not so changed, in formulating a system of geometry.

The book 'Geometry for an oral tradition' considerably reduces and simplifies some of the earlier steps in geometry. It is a wholly



new approach to the subject. And it raises questions as to what further can be achieved by pursuing this approach.

42

Can it be taken further? There is no doubt in my mind that it can be taken much further. Tirthaji, who did not distinguish between his system of sixteen sutras and an 'oral tradition' approach, made a much bolder statement. He said, of the sixteen sutras, 'There is no part of mathematics, pure or applied, which is beyond their jurisdiction.' He studied the subject in depth, and his comments are to be taken seriously - though his work is as yet little known. There is much to be gained, and little to be lost, from being open to the possibility that he was on to something.



## REFERENCES

4.

1. 'Geometry for an oral tradition', by A.P. Nicholas (In course of preparation)
2. 'Vedic Mathematics', by B.K. Tirthaji, Motilal Banarsidass, Delhi 1965
3. 'Short supplementary remarks on the first six books of Euclid's 'Elements'', by A. de Morgan; an article in 'The Companion to the Almanac', 1849, publ. by the Society for the Diffusion of Useful Knowledge, London
4. 'Discover vedic mathematics', by K. Williams, publ. by Dinah Grice, Skelmersdale, 3<sup>rd</sup> edition 1988
5. 'The Thirteen Books of Euclid's Elements', Sir T.L. Heath, C.U.P., 2<sup>nd</sup> edition 1926



## **From The Archives**

In this issue I have finished publishing all the detailed drawings of the Russell and Conventional Test Coils for the tests Dr. Russell had conducted on spiral coils. I hope that more exact knowledge of how these coils were constructed may help experimenters that might still believe there is merit in the concept of spiral wound coils. Dr. Russell still appeared to believe this in spite of the test results that were printed in the last Fulcrum. See his letter to Mr. Dube printed in the last issue of Fulcrum.

In the next issue we will explore some of the relationships between squaring the circle, the great pyramid and the wave as expressed in the Russell Cosmogony. This featured article may suggest reasons for alternate spiral coil designs that may generate more power than conventional coils.



# ALCO VALVE COMPANY

TELEPHONE · PARKVIEW 5-2460



865 KINGSLAND AVENUE

*Saint Louis 5, Missouri*

August 25, 1958

Dr. Walter Russell,  
University of Science and Philosophy,  
Swannanoa, Waynesboro, Virginia

Dear Dr. Russell:

The conventional method of constructing a solenoid valve is illustrated in Fig. 31, page 64 of our Handbook, a copy of which is enclosed. The armature moves up and down in a cylindrical cavity in the center of the coil winding. Since the Russell Coil has no through center cavity, I do not see how we can directly compare its efficiency to our standard units. As an alternate we suggest making two pull test fixtures as illustrated in Figs. 1 and 3.

Referring to Fig. 1, Parts (1) and (2) are identical halves of the iron core, shaped as suggested in your description dated August 8th. The cross sectional area of the iron in any section perpendicular to the axis will be consistent except at transition (or step) points. Parts (6) and (11) are flat iron straps to "conduct the energy" to an armature assembly. Bolt (3) holds the straps and iron core halves together and is made of non-magnetic material. Part (7) is a magnetic top plug which is bolted to the other end of strap (6). Enclosing tube (8), which is made of non-magnetic material and is pre-welded or brazed to the top plug, serves as a guide for the magnetic armature (9) that is free to slide vertically in the tube. Part (10) is a cylindrical, magnetic bushing that fits on the outside of the enclosing tube and on the inside of a hole in magnetic strap (11). The bushing provides an enlarged flow path for the energy between the strap (11) and the armature (9), thus tending to reduce the flow resistance through the "non-conducting" tube (8) and the small air gap between the tube (8) and the armature (9). Sleeve (4) is an insulating tube on which to wind the copper wire (5). A separate sleeve will be used for each section of the winding.



Dr. Walter Russell  
Univ. of Science and  
Philosophy

-2-

August 25th  
1958

Fig. 2 indicates the method of electrically connecting the various winding sections, as we understand it. For simplicity only one turn of wire is indicated in each section, although actually about 500 turns per section will be used. We have used particular care in diagraming the windings in Fig. 2 so you can check the direction of the turns and the method of interconnecting the sections.

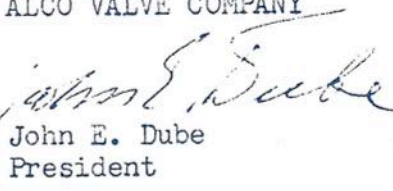
Fig. 3 illustrates the same test fixture but with one of our standard solenoid coils and a straight iron core substituted for the Russell Units. This core will have the same length and cross section area as the Russell core, and the two coils will be wound with the identical amount of wire of the same size.

The tests will be conducted as follows. With the armature (9) in place against the top plug (7) the electrical voltage supplied to the coil windings will be adjusted until the unit is drawing 5 watts of electrical power. Increasing downward force will then be applied to the armature. The amount of force required to pull the armature free from the top plug will be a measure of the capability of the unit. The relative pulling capability of the two units should determine the merits of the Russell Theory.

Please let me know if you are in accord with this outline so we may proceed with the actual fabrication of the parts.

Yours very truly,

ALCO VALVE COMPANY

  
John E. Dube  
President

JED:ER  
Encl.

CC: Mr. Russell Maguire



August 30th, 1958,

Mr. John Dube,      CC, Mr. Russell Maquire.  
Alco Valve Co.  
St. Louis, Mo.

Dear Mr. Dube;

We thank you for your good letter and drawings. The receipt of them made us very happy to feel your thinking, and your interest going into them, and that they are a step in the direction of our objective. We feel the necessity of sending you supplementary data, however, and more complete drawings for a complete test which these drawings lack. The new drawings - and their test counterparts, can be followed exactly and they will be found to work. Explanations can come afterwards as to theory, but with these drawings will come a brief explanation as to WHY they are incomplete, and what there is in them which is not in accord with Nature's processes. We are in search of maximum POWER - but that is not enough. We want to control that power with the precision which a piano tuner controls his pitch.

Fig. 1 properly interprets the coil but Nature's secret of multiplying power in her step-up process of multiplying low potential gases into high potential solids is absent, and that is our objective. Man has never yet been able to imitate Nature's miracle of power building by putting the breaks upon high speed and multiple frequencies which she constantly performs in order to transform an invisible, static, vacuous universe of indescribable cold, into a visible, dense, dynamic universe which climaxes in the incandescence of incalculably not, incandescent suns.

Nature multiplies silent and inaudible lightwaves into visible and audible ones by reducing a 186,400 miles per second, into 1100 feet per second sound waves. Nature also multiplies the invisible light (which we see as darkness because it is beyond human range) to incandescent suns by slowing a seven hundred trillion frequencies per second to one in eleven years and more. There is no other way for man to multiply light and power but that one way, but he has not yet fathomed Nature's secret. The Russell coil will conquer that secret when fully understood and applied, and that is why these tests should be right.

It would not be a waste of money, or time, to carry out your plan just as outlined, so long as not too much expectation is looked for. It could be a revealing step in the right direction, especially if the two vacuum tubes we designed were made use of to visualize what happens in them which would be lacking in this test. The one thing which is right about it is its complete cathode, but the essential thing which is wrong with it is that it is only half a wave instead of a whole.



John Dube.

I am worried about the armatures and strap pieces No's 6 and 11. These strap pieces void some of the power which the coils have generated, and all armatures in Nature are located between the pole pairs at wave amplitude- and there are no such anode pairs in this design. I will comment on that fact in our new letter for I am afraid that engineers have not recognized that extensions - such as those straps, - cannot conduct anywhere near the potential of energy which their solenoids generate. It may be that you can avoid this fault in many of Alco products by comprehending the principle involved in it.

Your letter states that the straps were necessary because the Russell coil has "no through center cavity." It can have one, however, if the purpose calls for one, such as transmutation. I had a hole all through my homely self-made coils through which I thrust my small preheated quartz tube when I transmuted a few drops of water into seventeen different patterns. The Russell coil is built upon Nature's tornado principle of power multiplication, and every tornado has an ever narrowing hole in it. I will provide for that hole in the next drawing and compensate for it by adding steel where marked X in Fig. 1, and make the bolt into a tube.

With our warm personal regards we are

Sincerely yours,

Walter and Leo Russell,  
UNIVERSITY OF SCIENCE  
AND PHILOSOPHY.



# UNIVERSITY OF SCIENCE AND PHILOSOPHY

FORMERLY THE WALTER RUSSELL FOUNDATION

SWANNANOVA, WAYNESBORO, VIRGINIA

Founded by Walter and Lao Russell to give new  
knowledge of the SCIENCE OF MAN through Uni-  
versal Law, Natural Science and Living Philosophy.

*"In vain we build the city if we do not first build  
the Man" — Markham*

October 5th, /58.

*President*  
LAO RUSSELL

Mr. John E. Dube,  
Alco Valve Co.  
St. Louis, Mo.

CC: Mr. Russell Maguire,  
Greenwich.  
Connecticut.

*Secretary*  
DR. WALTER RUSSELL

Dear Mr. Dube;

*Directors*  
LAO RUSSELL  
WALTER RUSSELL  
ARTHUR J. JONES  
JOHN LOMBARDI  
EMELIA LOMBARDI  
DR. H. W. LAVENDER  
CHARLES L. BANISTER

Your letter of the 3rd inst. lifted us up into the high heavens of happiness. Your revision, made necessary by small scale, is perfect. We did not want the hole for this test anyhow but will need it when we begin to tear the elements apart with fifty to a hundred pound coils to transmute them.

We will then make revisions of the design which will make the central solenoids smaller and grade them up in size because less turns on large diameters will require less space. This will keep the outside sphere shape as is and would help make the inner cathode hole monospherical. It is not worth while doing now while your tools are set as they are, but it would be worth while doing when you have made this test and find it works, just to find out in small scale how much extra percentage of lifting power can be added to the poles.

*Counselors*  
ROBERT ASH  
CHARLES H. BURTON  
CLARK L. JORDAN  
JOHN LOMBARDI

My intuitive mathematics are often very near being right. Applying that method to the design now under way I venture to predict a 40% to 60% increase in gravity power of the Russell coils over the pair of conventional ones, as you are now making them. By changing the middle solenoid diameters for refinement, as above suggested, it should add between 5% and 10%. It will be interesting to see how near our prophesy comes true.

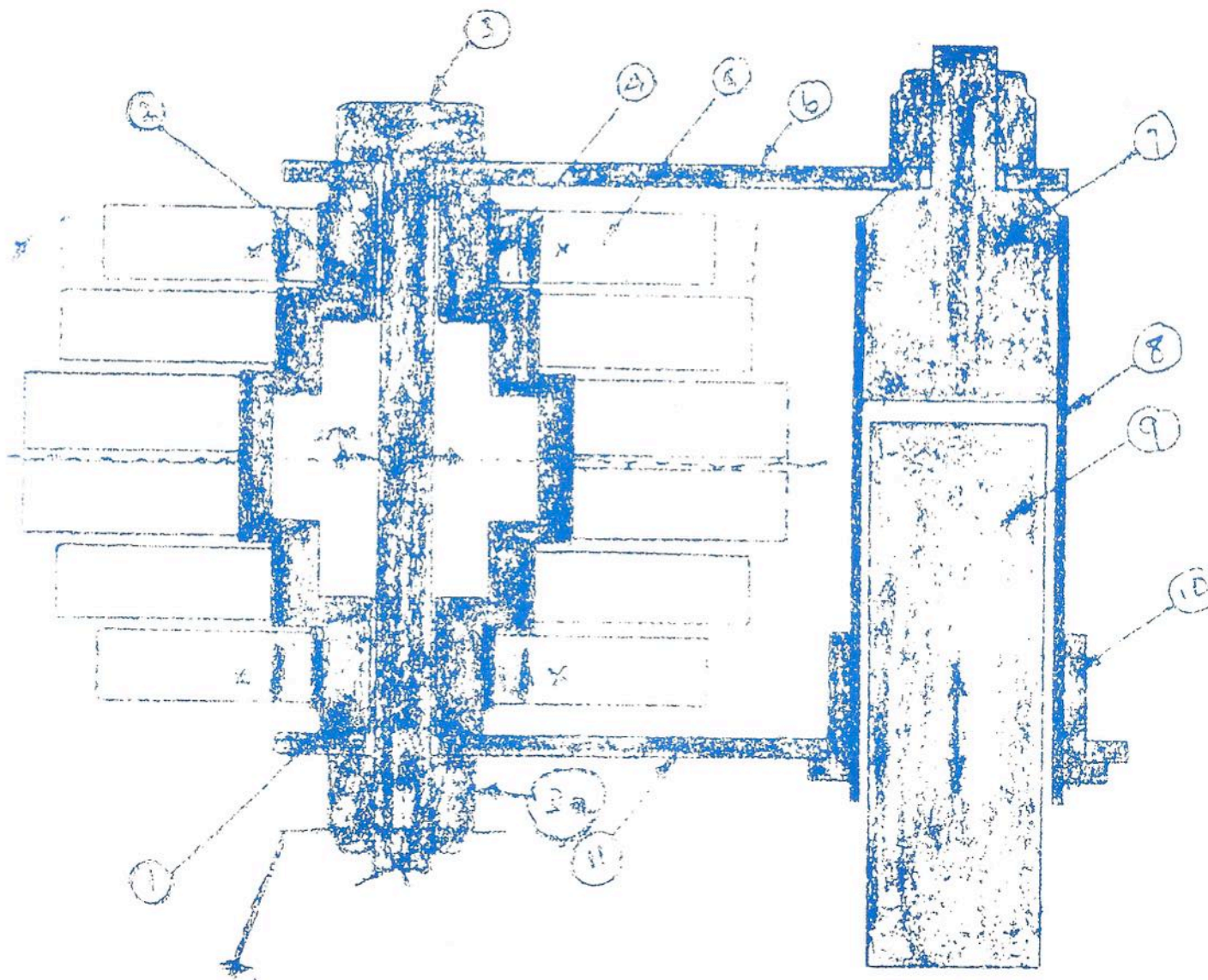
Again expressing our happiness for having been able to have you so clearly understand the underlying principles which must be conformed to in order to mechanically interpret Nature's process of power multiplication, and thanking you for your patient follow through with us, we are,

Sincerely yours



Walter and Lao Russell.





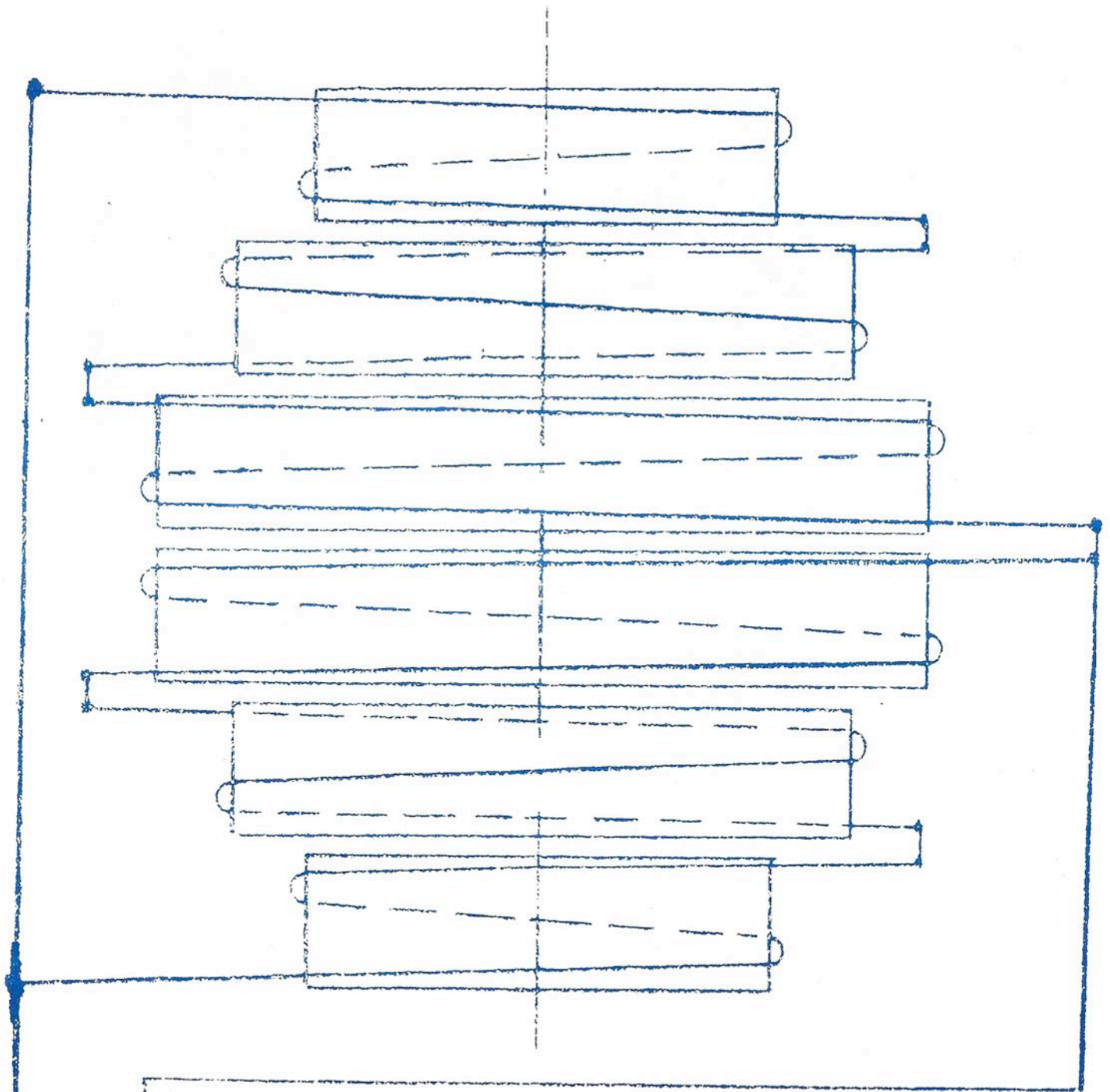
Note

3 and 3a  
 should balance  
 with wave axis (3)  
 WTS

FIG 1  
 TEST FIXTURE FOR  
 RUSSELL SOLENOID

Drawn by T. J. ...





ELECTRICAL  
POWER  
INPUT

- (1) 6 SECTIONS OF SOL TENNIS EMM
- (2) DIVIDED INTO 2 GROUPS OF 2 SECTIONS.
- (3) THE 2 SECTIONS WITHIN A GROUP ARE WIRED IN SERIES.
- (4) THE 2 GROUPS ARE WIRED PARALLEL TO EACH OTHER

FIG 2  
WIRING SCHEMATIC  
FOR RUSSELL SOLENOID



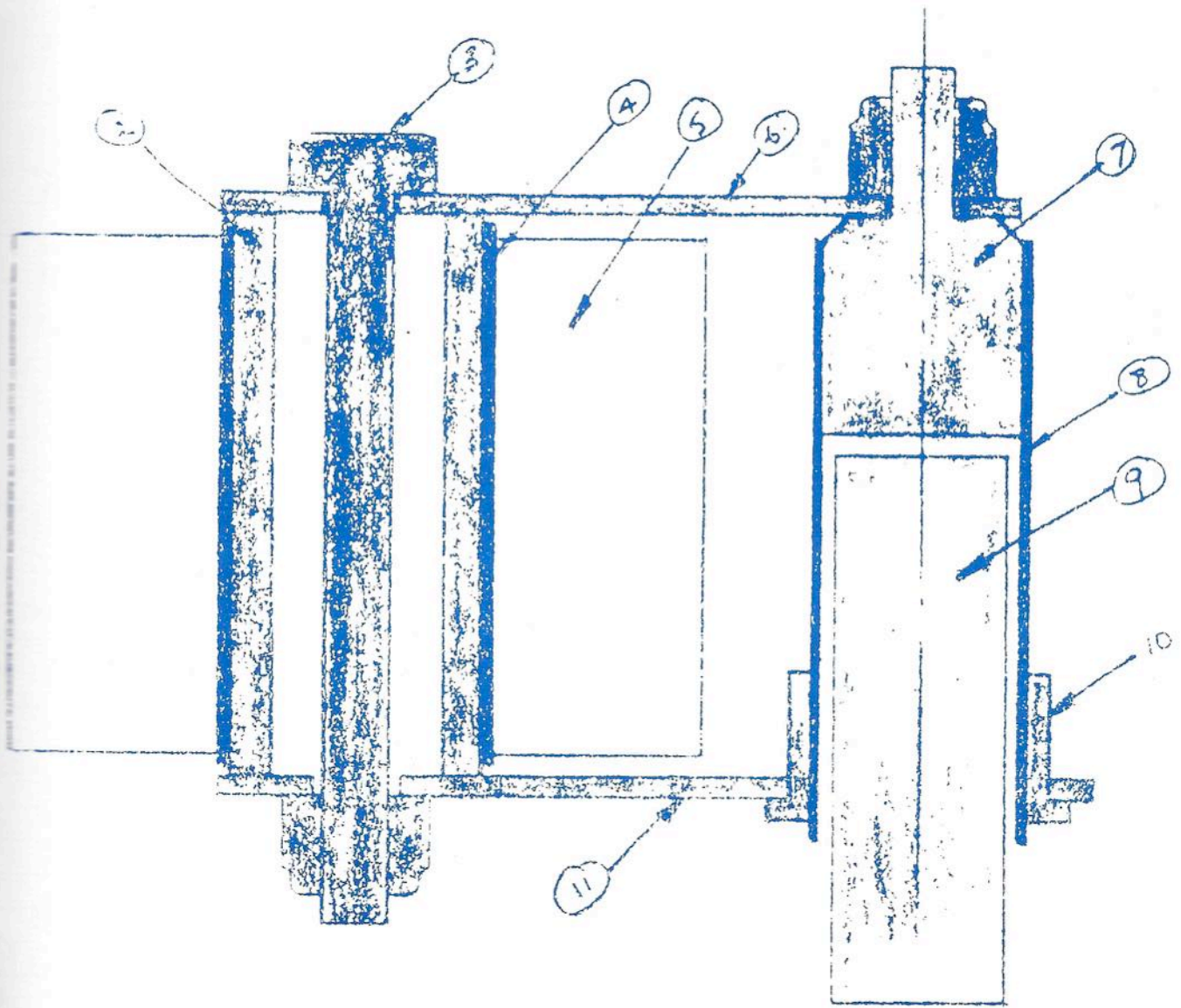


FIG 3  
TEST FIXTURE FOR  
CONVENTIONAL SOLENOIDS





FIG. 1

FIG. 2

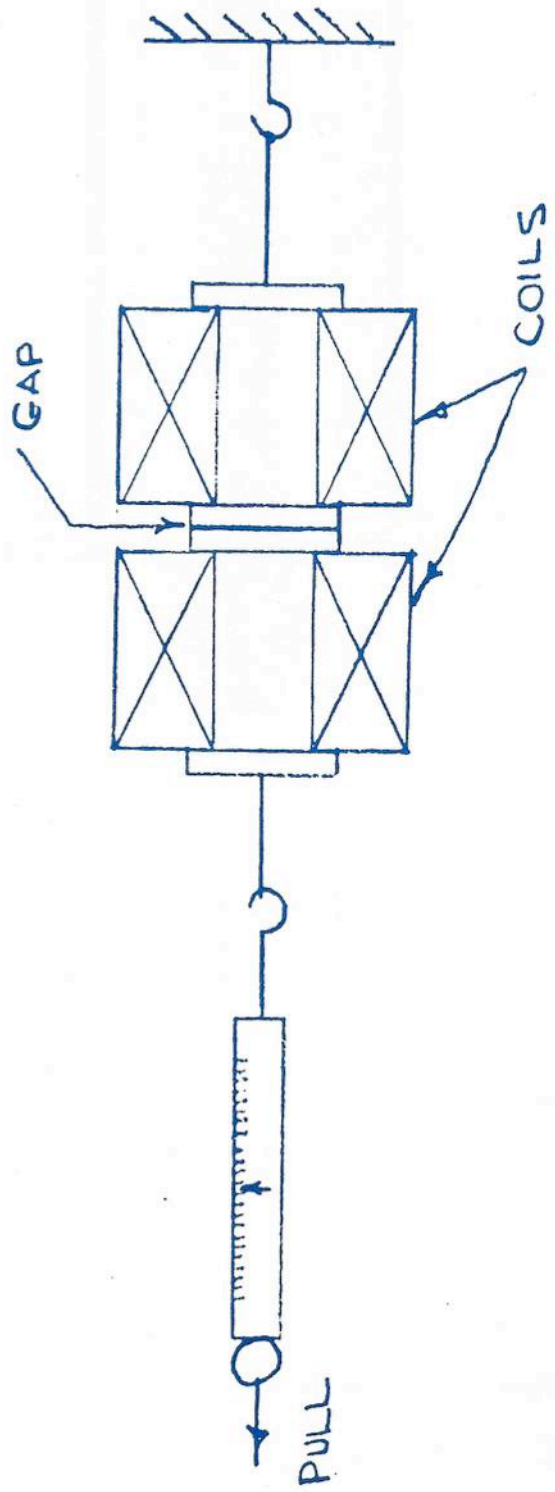


FIG. 3



COMPARATIVE PULL TEST  
OF STANDARD & STEP  
DIMENSION COILS

VOLTAGE 24VDC  
WAVELENGTH 24 INCHES  
APPLYING  
HEAT

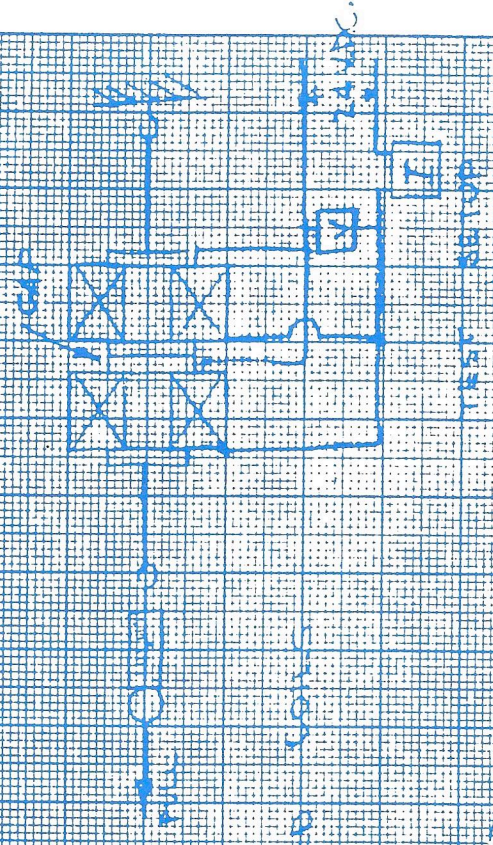
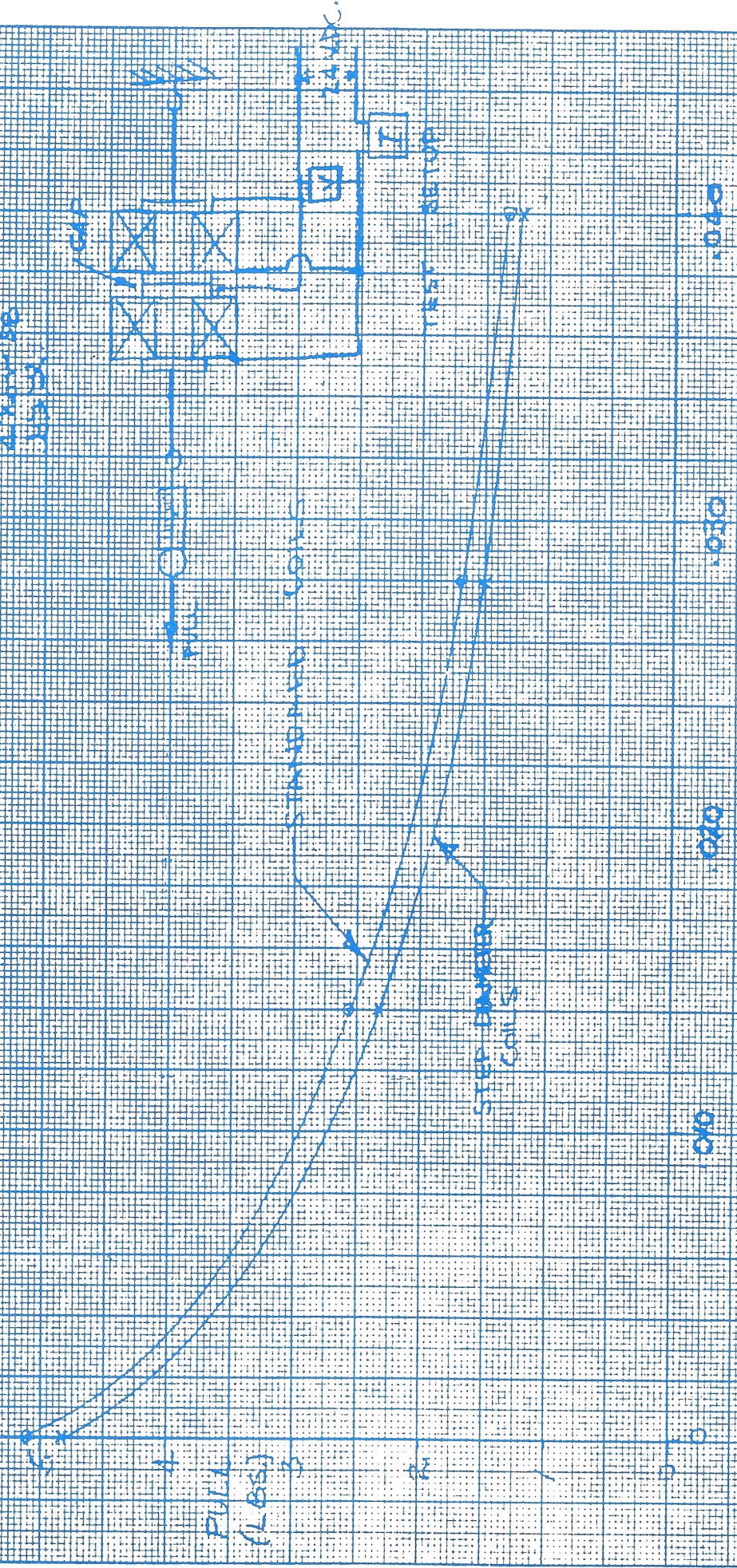
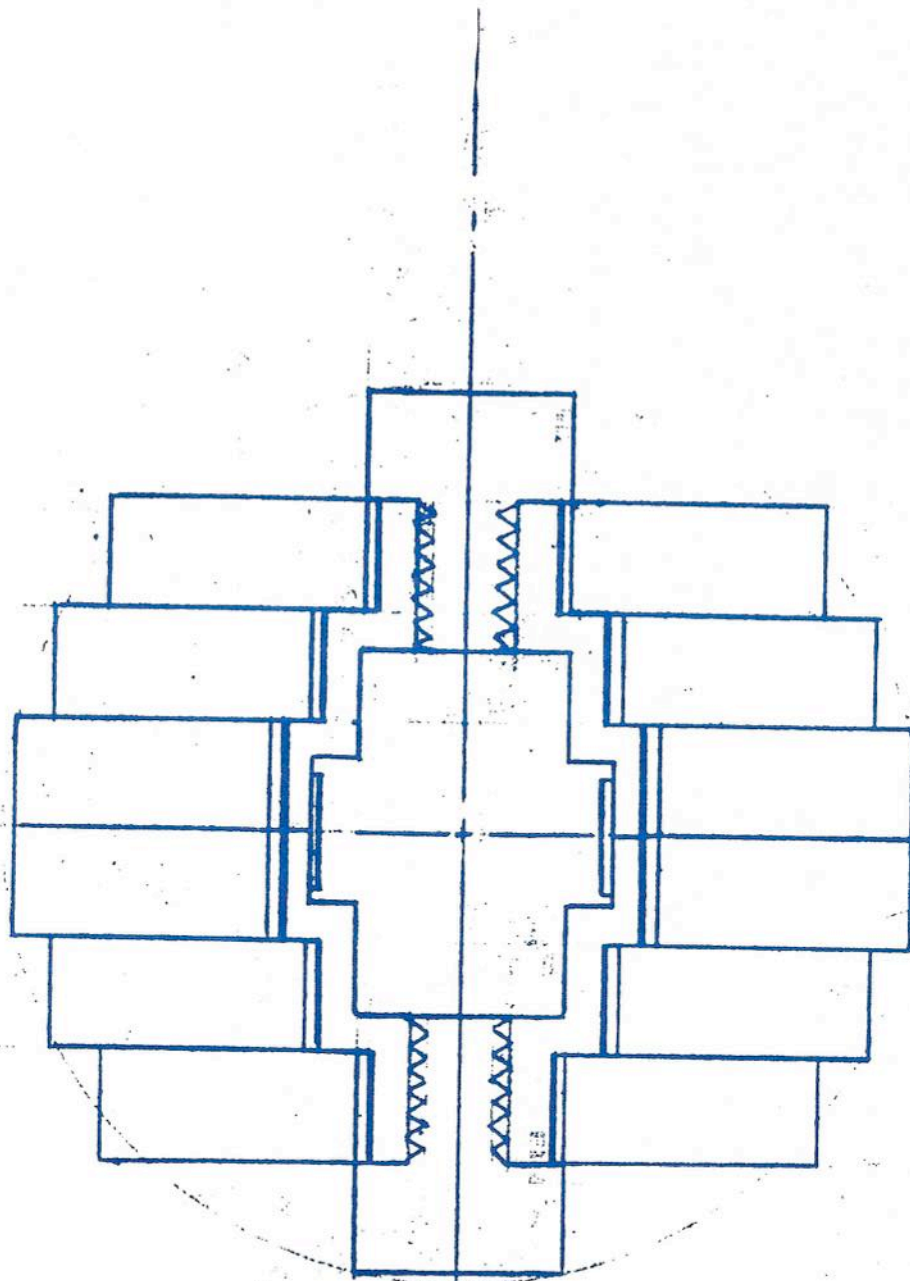


FIG. 4



GAP LENGTHS



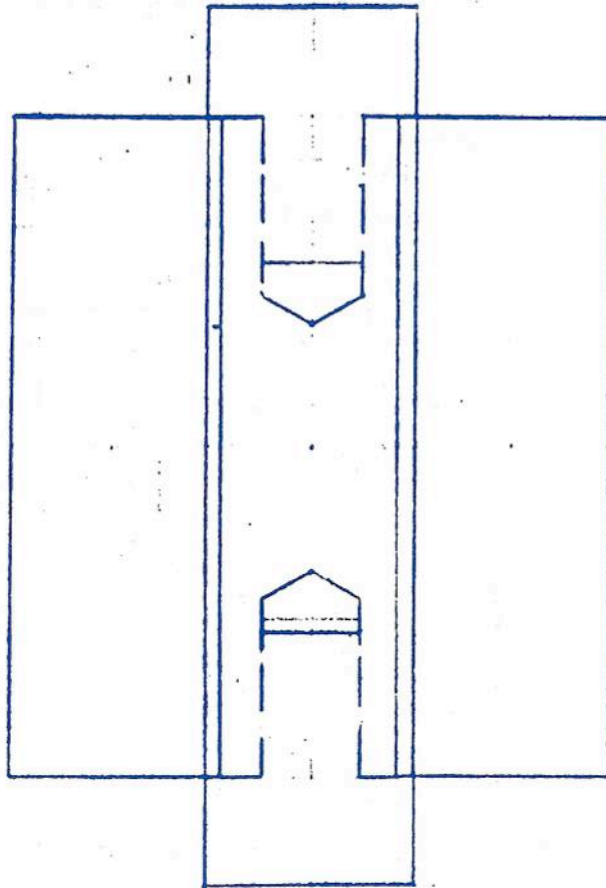


PROPOSED TEST UNIT FOR  
RUSSELL SOLENOID COIL  
OCT. 2, 1958

TWICE SIZE

LO 8308-11



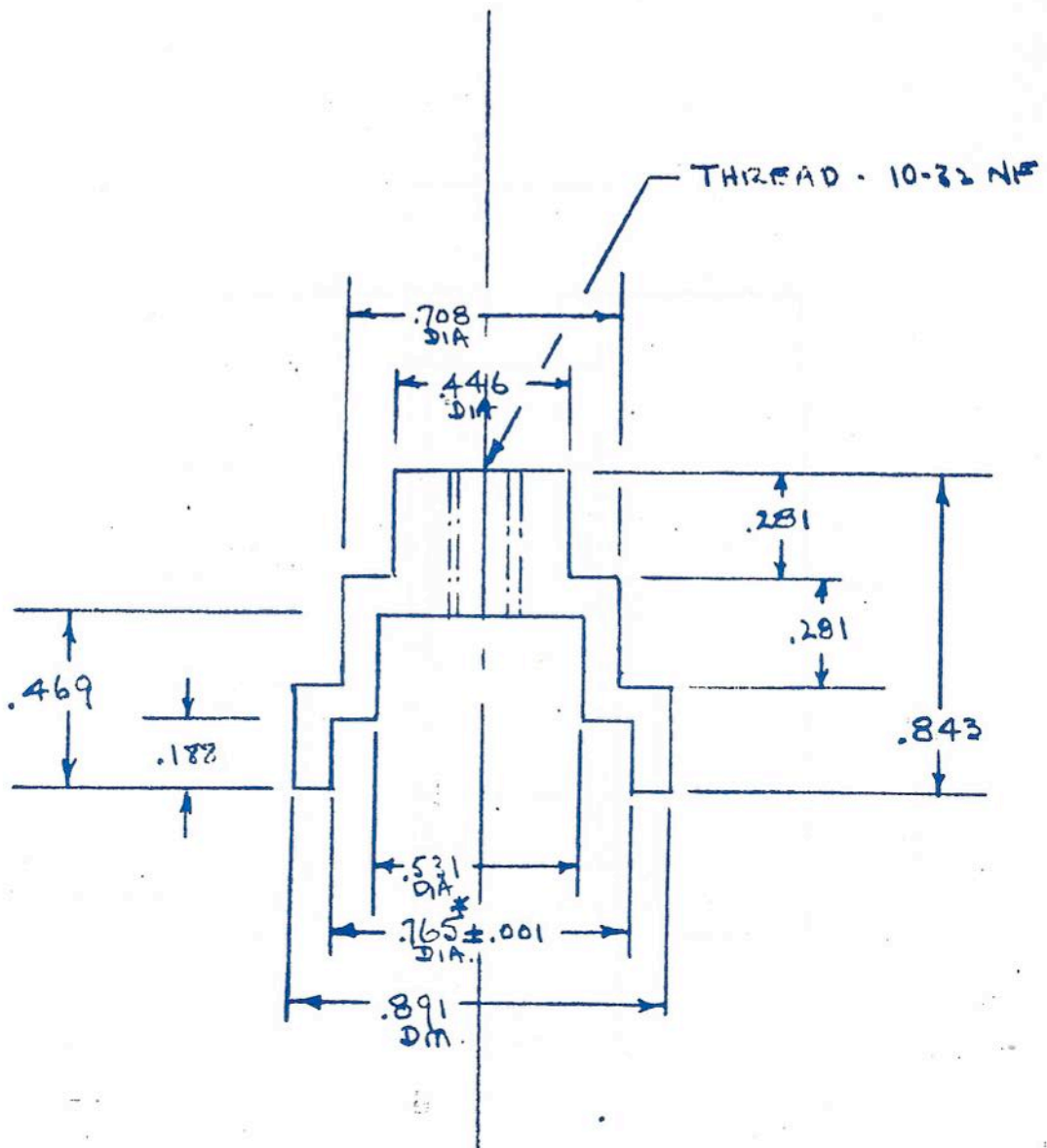


PROPOSED TEST UNIT FOR  
COMPARISON WITH THE RUSSEL COIL  
OCT 2, 1958

TWICE SIZE

LO 8308-12





FOR PRESS FIT WITH CORE SLEEVE LO 8308-102

MATERIAL: APMCO LIGHT IRON

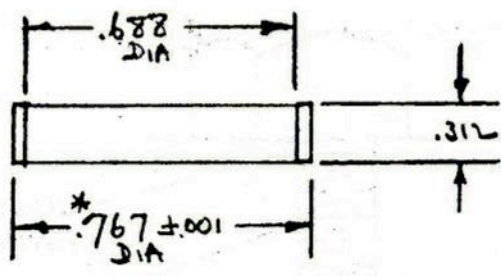
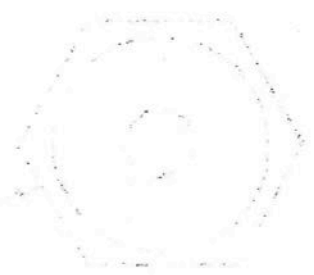
TIME: 10-13-58

2x SIZE

CORE HALF

LO 8308-101



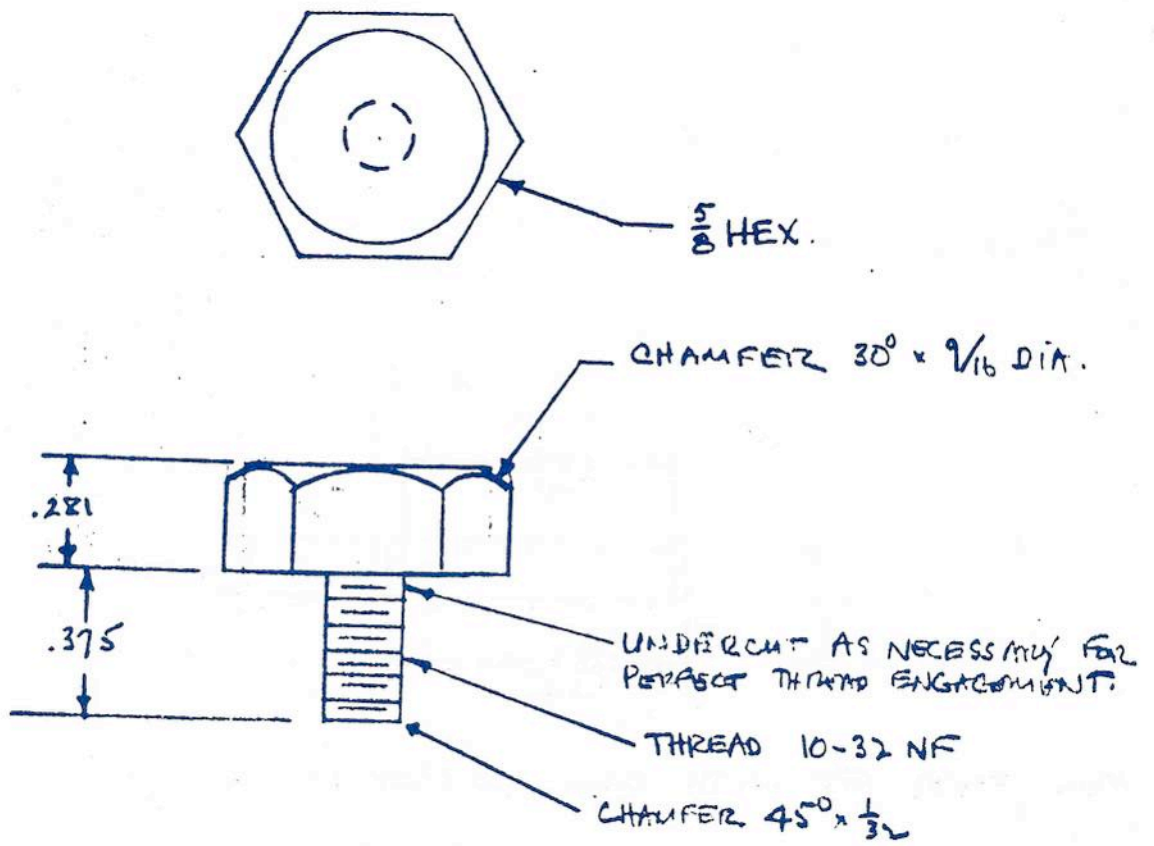


\* FOR PRESS FIT WITH CORE LO 8308-101

MATERIAL: STEEL

TWENTY 10-13-58  
2X SIZE  
CORE SLEEVE  
LO 8308-102





MATL: ARMCO INGOT IRON

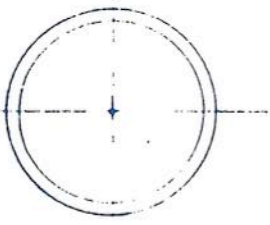
TILLEY 10-13-58

2x SIZE

BUTTON

LO 8308-103





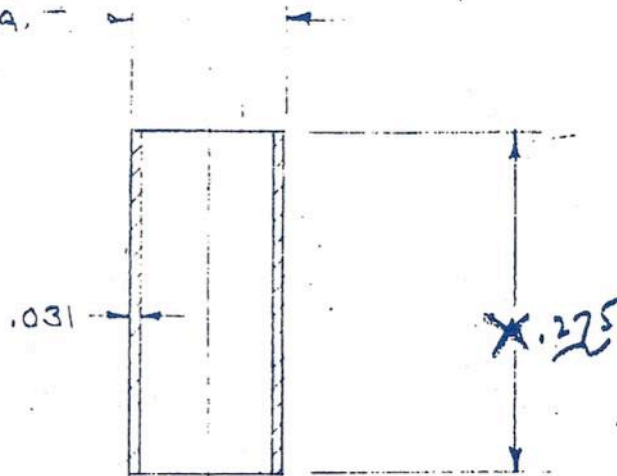
*.275*  
~~1.19~~  
~~1.000~~

$.456 \pm .003$  DIA.  
 $.520 \pm .003$  DIA.

EPOXY TUBE MADE FROM  
SHELL CHEMICAL EPON 828 &  
HARDENING AGENT Z  
BY RESDEL CORP.

		MATERIAL <i>SEE NOTE</i>	DRAWN <i>JDC</i>	ALCO VALVE CO. ST. LOUIS	
		FINISH	CHECKED <i>[Signature]</i>		
<i>12362</i>	<i>8-6-57</i>	REMOVE ALL BURRS BREAK SHARP EDGES .010 MAX	APPROVED <i>[Signature]</i>		
MEMO	DATE				
DIMENSIONS UNLESS OTHERWISE SPECIFIED		SURFACE FINISH		SUPERSEDES	
MACHINE PARTS		CASTINGS AND FORGINGS		SUPERSEDED BY	
HOLE ± .005		CASTINGS ±		SCALE 2:1	
THREADS ± 1/16		FORGINGS ±		DATE 7-25-57	
ANGLE ± 1°		UNLESS OTHERWISE SPECIFIED, MACHINED SURFACE FINISH 250-MAX		NO. <del>7558</del> LO 8308-104	

.781 ± .003 DIA.



NOTE:

ENDS TO BE SQUARE  
WITH AXIS WITHIN .005 F.T.P.

PART NO.	A DIM.
<del>A1131-1</del>	<del>1.656 ± .005</del>
<del>-2</del>	<del>1.718 ± .005</del>
<del>-3</del>	<del>2.218 ± .005</del>
<del>-4</del>	<del>1.187 ± .005</del>
<del>-5</del>	<del>1.843 ± .005</del>
<del>-6</del>	<del>1.531 ± .005</del>

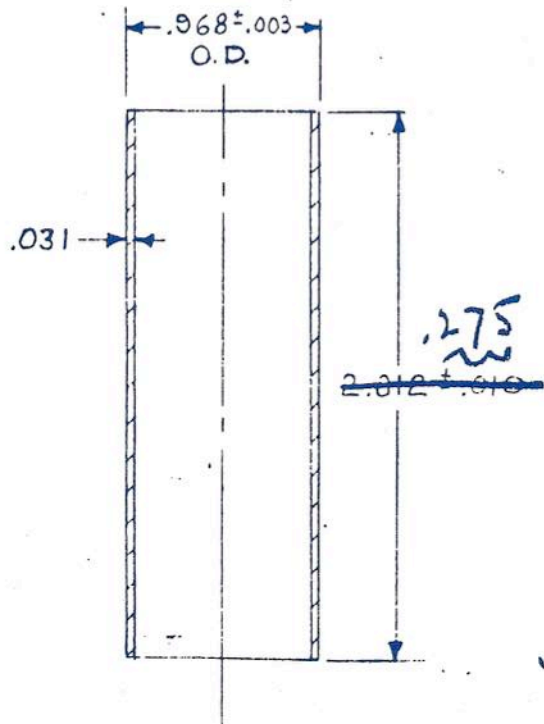
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		MATERIAL		DRAWN	
		NEMA GRADE XX		1-11-49	
3039 8-5-58		NATURAL BAKELITE		CHECKED	
1-11-56		FINISH		APPROVED	
6144 8-22-57		VARNISH FINISH		SCALE FULL	
5-18-48				DATE 12-1-38	
MEMO DATE				NO. <del>A1131</del>	

COIL FORM

2-5 WAS 401882-5

208365-10

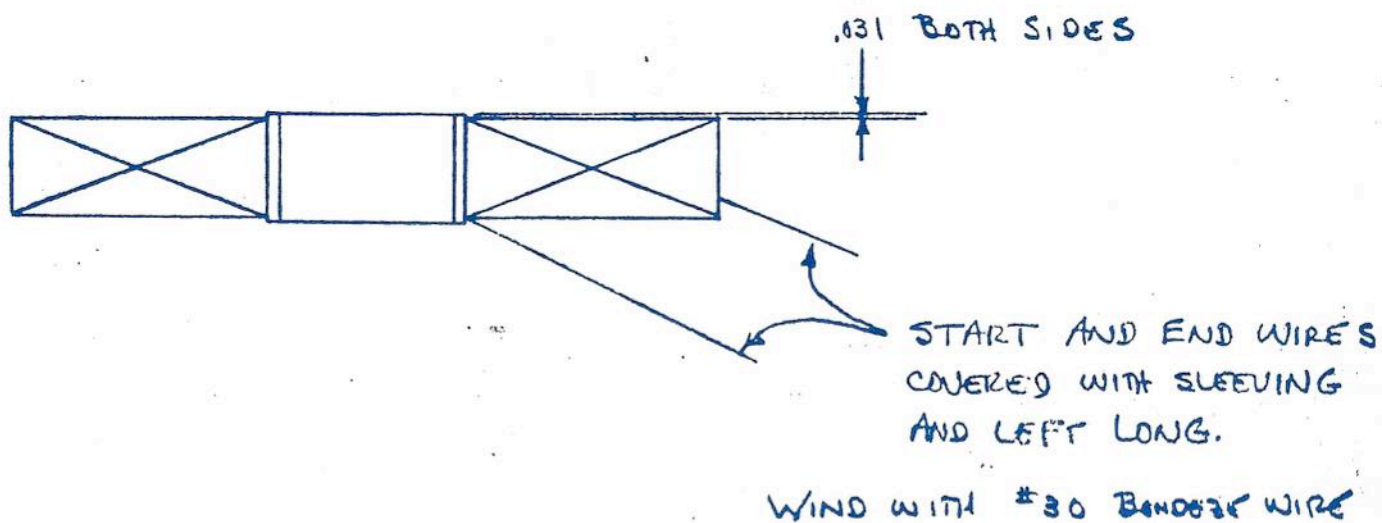
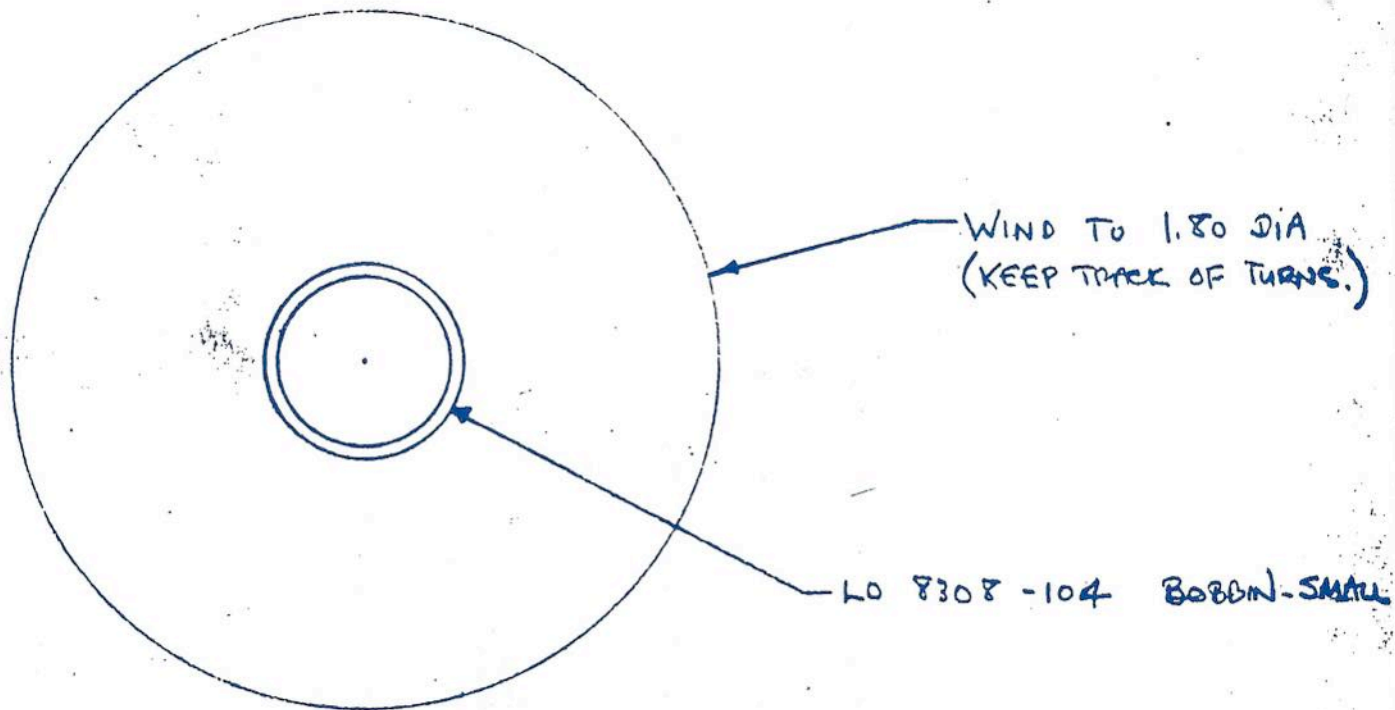




NOTE:

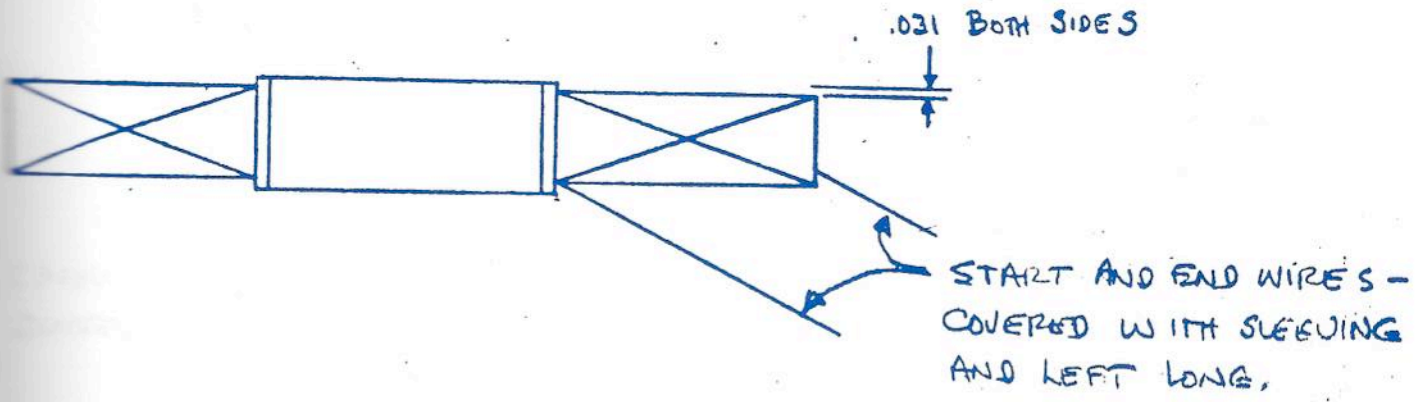
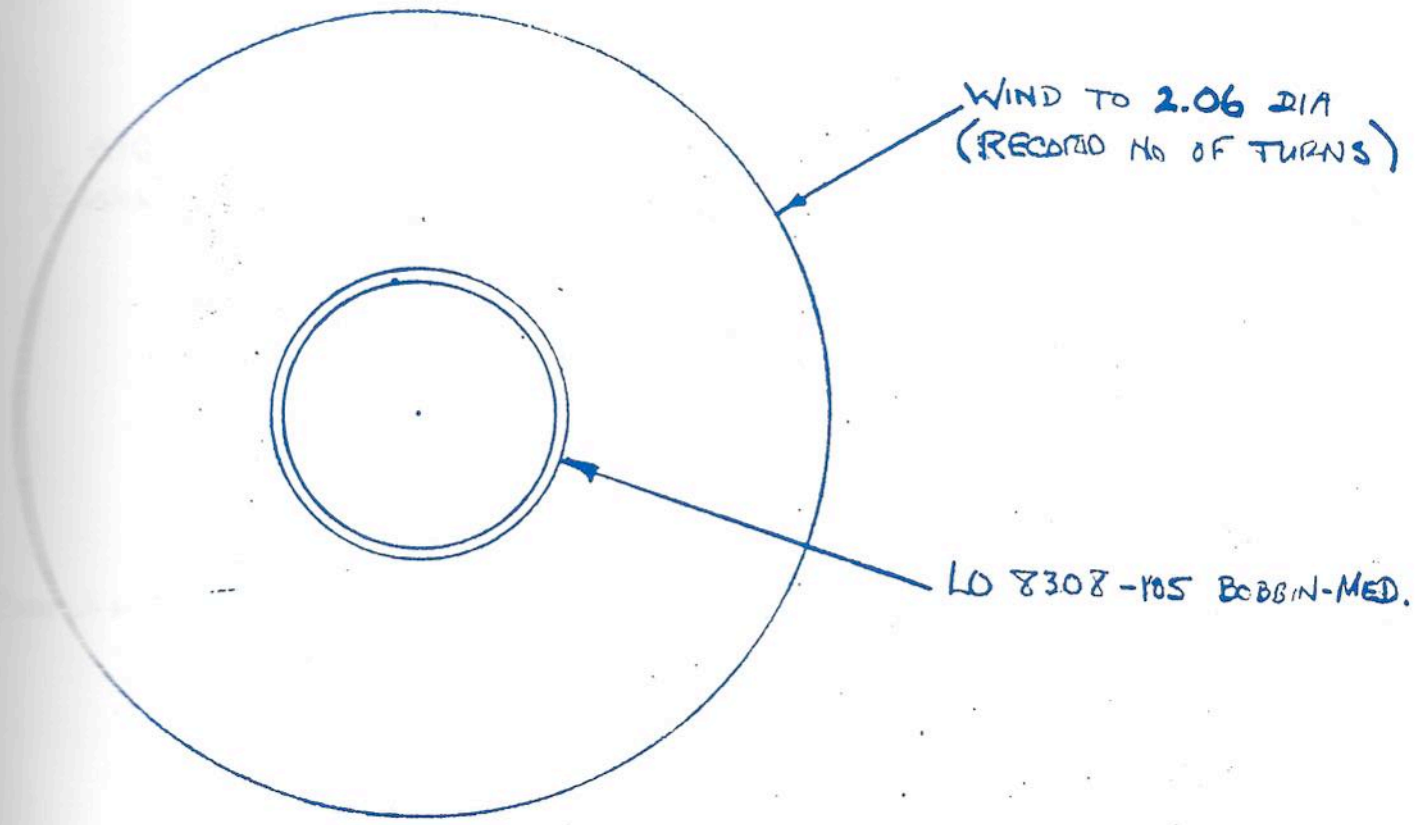
ENDS TO BE SQUARE WITH  
AXIS, WITHIN .005 F.I.R.

		MATERIAL	NEMA GRADE XX NATURAL BAKELITE	REDRAWN	ALCO VALVE CO. ST. LOUIS	
				HES 5-7-53		
		FINISH	VARNISH FINISH	TRACED	<del>COIL FORM</del>	
				CHECKED MOHOW		
MEMO	DATE			APPROVED	SUPERSEDES	SUPERSEDED BY
6-2-48				<i>[Signature]</i>		
STANDARD MACHINING TOLERANCES				SCALE FULL	NO. <del>A1054</del> LO 8308-106	
DECIMAL $\pm .005$ , FRACTION $\pm \frac{1}{16}$ , REAM $\pm .0010$ , ANGLE $\pm 1^\circ$				DATE 7-6-58		
DIAS. - .0135 TO .060 $\pm .002$ ; .061 TO .115 $\pm .003$ ; .116 TO .230 $\pm .004$						
.231 TO .500 $\pm .005$ ; .501 TO .990 $\pm .007$ ; 1" & OVER $\pm \frac{1}{32}$						



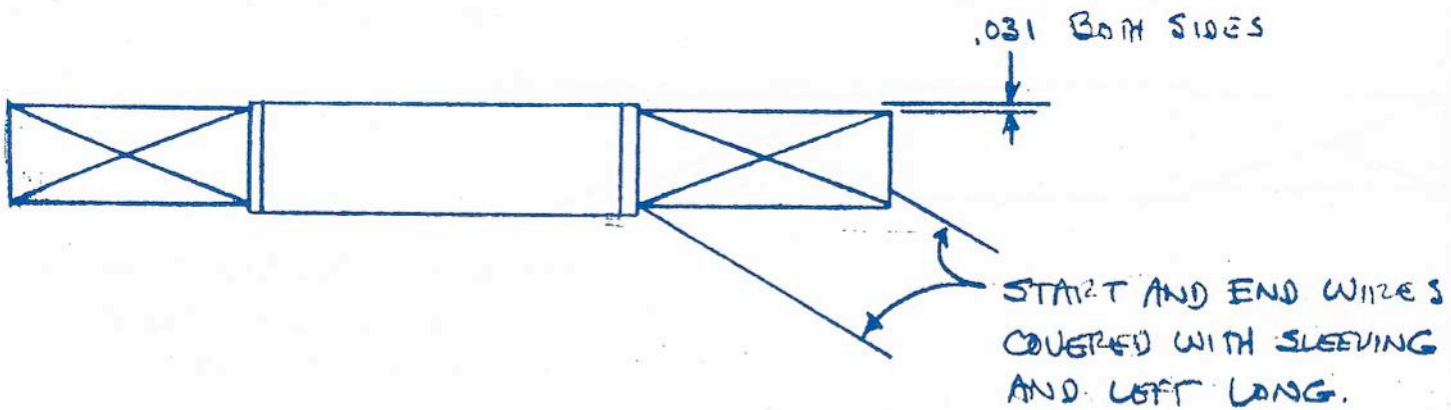
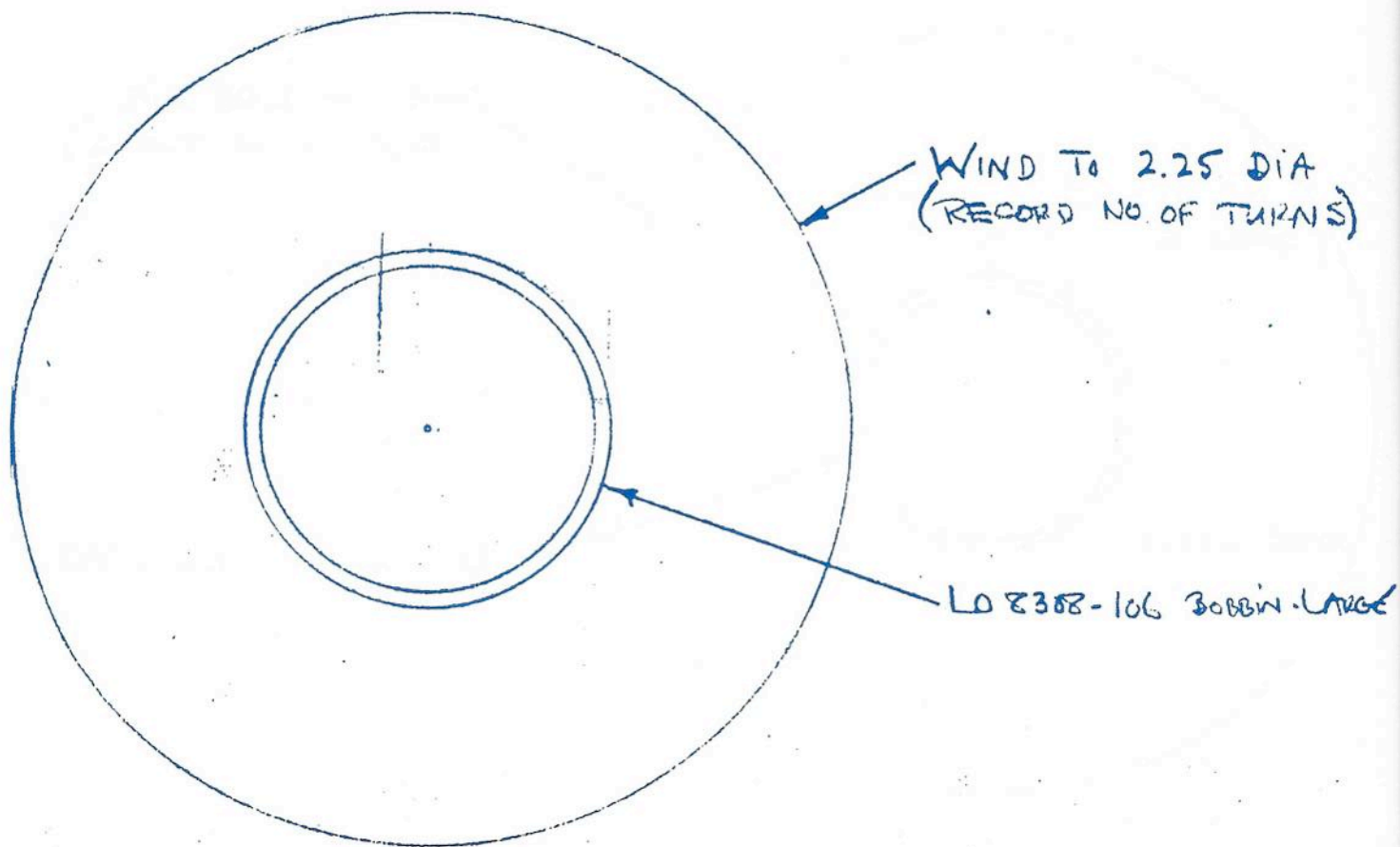
TINNEY 10-13-58  
TWICE SIZE  
COIL ASSEMBY-SMALL  
LO 8308-107





WIND WITH #30 BONDED WIRE

TUNING 1013.58  
TUNING SIZE  
COIL ASSEM - MED.  
LO 8308-108

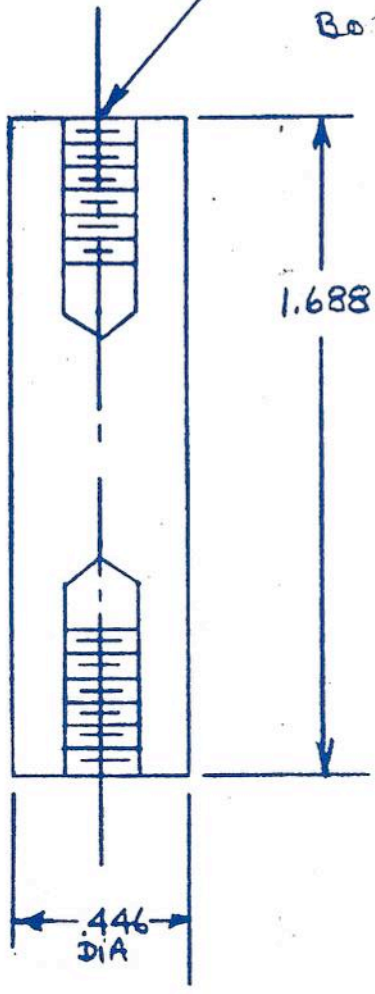


WIND WITH #30 BONDERZE WIRE

TTWcy 10-13-58  
 2X SIZE  
 COIL ASSEM - LARGE  
 LO 8308-109

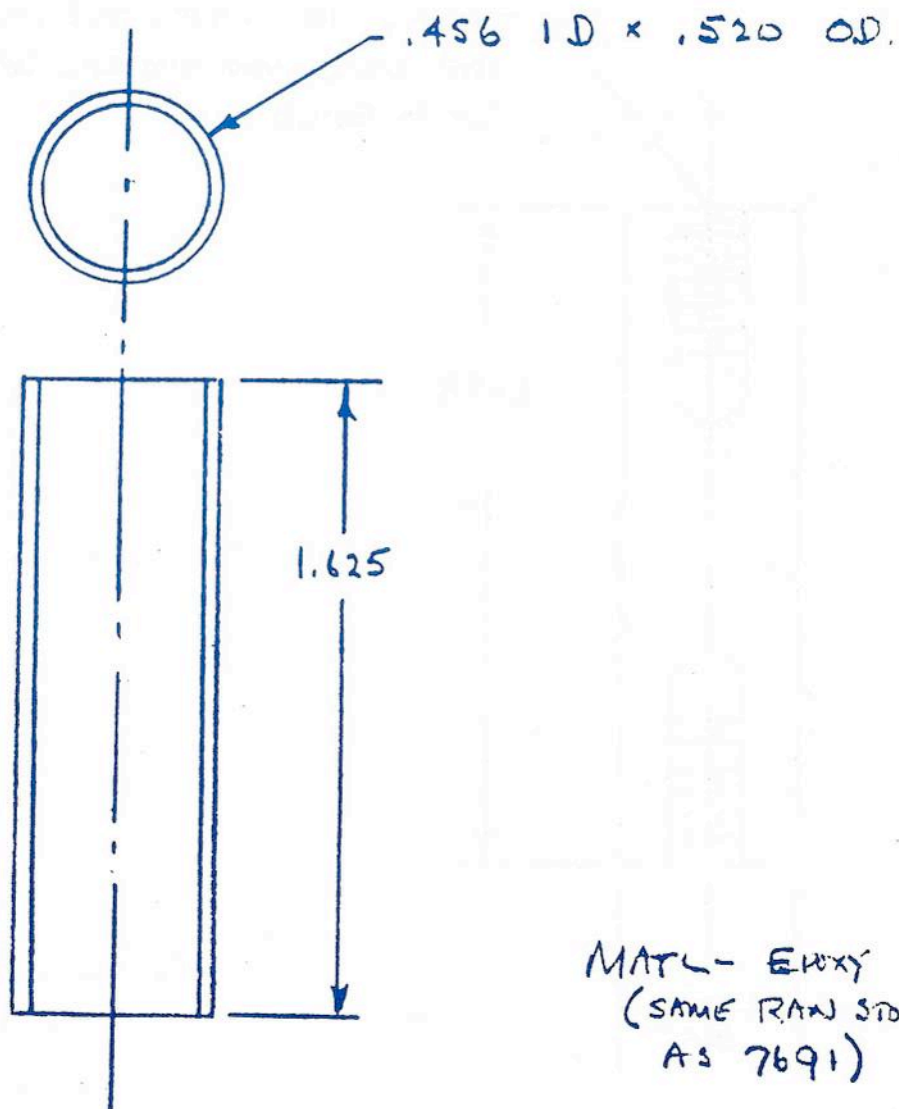


THREAD 10-32 NF - .375 PERFECT THREAD DEPTH  
TAP DRILL - MIN PRACTICAL DEPTH  
BOTH ENDS.



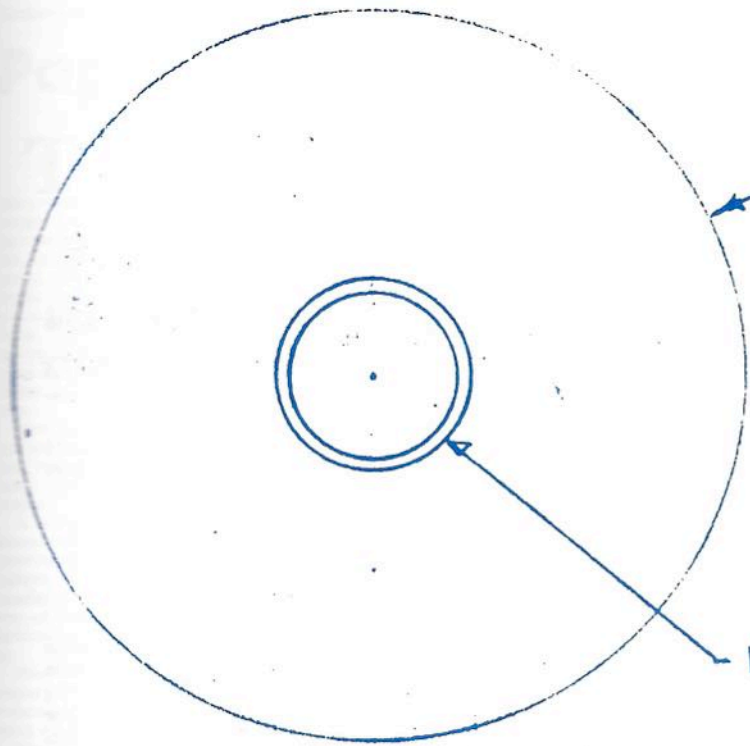
MATL: ARMC0 ING0T  
IRON

TINLEY 10-13-58  
2x SIZE  
CORE  
LO 8307-120



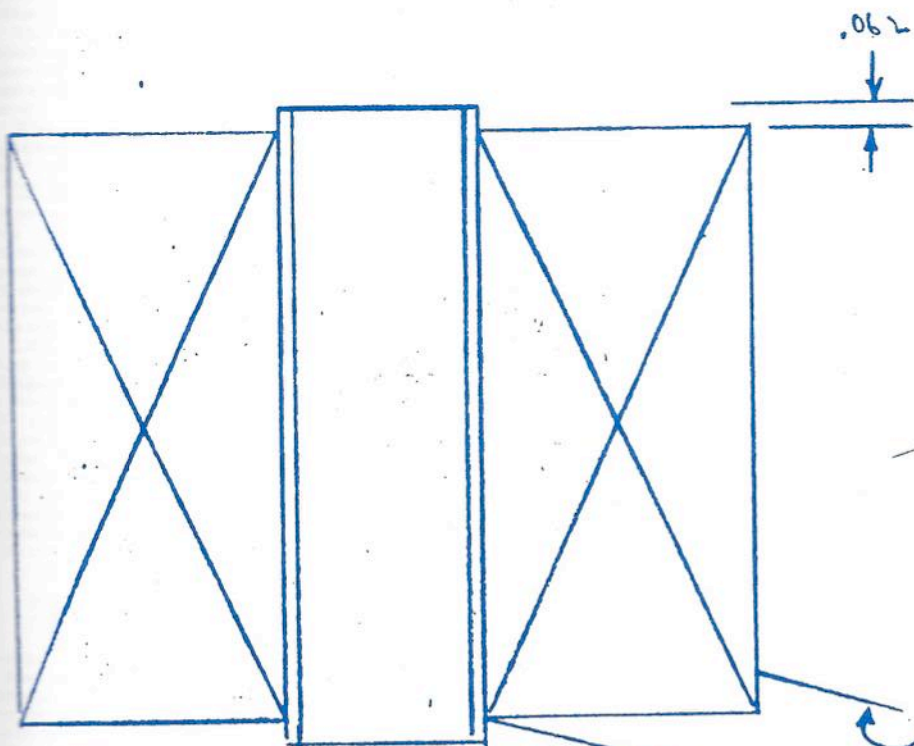
TINNEY 10-13-58  
2x SIZE  
OIL SLEEVE  
LO 8308-121





WIND WITH #30 BONDERZE  
WIRE - CHECK WITH  
TUNNEY FOR NO OF TURNS

LO 8308-121 SLEEVE



.062 BOTH ENDS

START AND END WIRES  
COVERED WITH SLEEVING  
AND LEFT LONG

TUNNEY 10-14-58.  
2x SIZE  
COIL ASSEMBLY  
LO 8308-122

**United States Patent**  
**Papp**

[15] **3,670,494**  
[45] **June 20, 1972**

[54] **METHOD AND MEANS OF  
CONVERTING ATOMIC ENERGY INTO  
UTILIZABLE KINETIC ENERGY**

[72] **Inventor:** Josef Papp, San Pedro, Calif.  
[73] **Assignee:** Environetics, Inc., Gardena, Calif.  
[22] **Filed:** Oct. 31, 1968  
[21] **Appl. No.:** 772,077

[52] **U.S. Cl.**.....60/23, 60/1, 60/27,  
123/1, 176/39  
[51] **Int. Cl.**.....F01k 27/00, F03g 7/06  
[58] **Field of Search**.....60/23, 25, 27, 1

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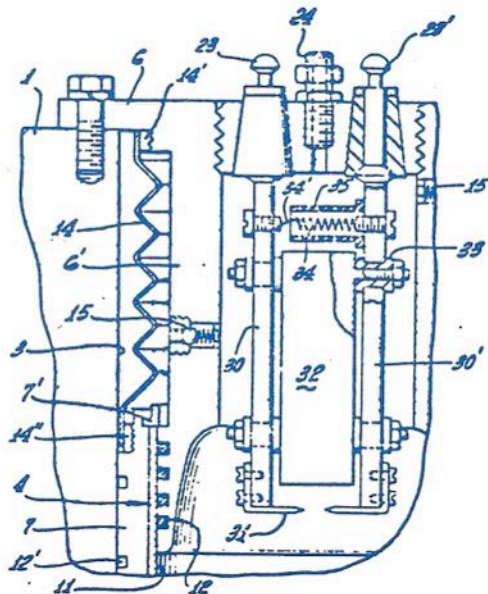
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*Primary Examiner*—Martin P. Schwadron  
*Assistant Examiner*—Robert R. Bunevich  
*Attorney*—Miketta, Glenny, Poms and Smith

[57] **ABSTRACT**

Method of utilizing potential energy of atoms and various forms of radiation (electrons, photons, positrons, gamma beta and alpha radiations, etc.) in a controlled power generating system; effective mixtures of chemical elements adapted for use in the method; the preparation of charges of ingredients for use in virtually gas-tight power generating devices; the activation and control of such charges and devices; structural requirements of power generating devices utilizing the methods and compositions.

**18 Claims, 4 Drawing Figures**





# Papp's gasless engine

The name change to "Far-out Engines" does not imply that this column is going to look at designs that are far-fetched or hair-brained concepts, but just the opposite. It will examine sound engineering developments that, in the future, will evolve into commercial products. Value this inside information because the average data given to the public is a boring repeat of age-old engineering data.

Now, on with the most unique engine design and fuel concept ever discussed in this column: The Papp Nobel gas engine.

A special note to remember when reading about this exciting development is that the information is from 1968: Revolutionary developments have a way of creeping up on you in a technologically advanced society.

How would you like an engine of, say, 300 horsepower weighing half as much as existing ones?

What if that engine used no consumable fuel and, therefore, required no fuel tanks, lines, pumps, carburetor or injection pump, intake valves, spark plugs or exhaust system?

What if it did not use air and could operate at 30,000 feet above or 300 feet below water, and as efficiently as it did at sea level?

What if that same engine generated no excess heat, thus not needing a water-cooling jacket or air-cooling fins?

Reporters, investors and potential customers have seen it operate and have talked to the people who have developed it. If things continue to progress, we may be on the edge of an entire new revolution.

Let's take a hard, skeptical look at this engine. It was designed by a Hungarian-born inventor named Joseph Papp. He and financial backer Don Rosen, who has set up a firm called Environetics, Inc. to develop the engine, are saying little about the details of what makes it work until their patent applications have been granted. But this much they will say:

The engine operates on a charge of gas blends, hermetically sealed inside each cylinder above the existing piston. A charge of low-voltage electricity, which can come from either a 12- or 24-volt battery common to any automobile engine, is used to create an electrical field in or around the cylinder. This causes the gas to change from its original form to a new form which requires more space.

As it expands, it does two things: It pushes the pistons down and creates — and they are not saying how — the conditions for returning to its original form. The heat generated by the gas expansion is absorbed by its contraction cycle, and so on. When this sequence of events occurs in an orderly fashion in an engine, there is useful work output.

Brad Dennis is a combustion engineer in St. Paul, Minn.



Figure 1: A maze of tubes and wiring hooked to the test board showed the Volvo was hitting 300 HP, developers reported.

## Far-out engines

BY BRAD DENNIS



Inventor Papp had been working on the concept for years. In 1960, he immigrated to the U.S. by way of Canada to work for Rosen's firm, which manufactures refinement equipment. A few days after he went on the payroll, Rosen decided to put him to work on a "crash" basis to develop an engine which would actually run, to prove the concept. And develop it he did, in six weeks.

A four-cylinder, 90-hp Volvo auto engine was chosen as the basis of the rig. Only the "short" block was used. The cylinder head intake and exhaust valve assembly and accessories were discarded:

On top of the Volvo short block, Papp set an aluminum block bored to match the Volvo cylinders. It contains the sleeved, hermetically sealed cylinders and pistons which are the heart of his engine. He bolted the bottom of his pistons to the top of the Volvo pistons, injected the charge of the Papp Nobel gas, hooked up all manner of wires and gauges to his test board, and fired up the engine. Under best conditions, Papp says no starter is needed, just turn on the juice (Figure 1).

In one of his demonstrations, the engine operated for 35 minutes at 4,000 rpm in a closed conference room full of interested customers. Any ordinary engine would have knocked them all out with carbon monoxide poisoning. This one did not.

What the engine did, according to the test board, was generate "between 50 and 75 hp per cylinder" at 4,000 rpm. This speaks well for the strength of the Volvo connecting rods and crankshaft. Rosen said the little four banger was generating "better than 300 hp" based on

known displacement and measured pressure.

Rosen stressed that what Papp has done is design a fuel, not an engine. The blend of Nobel gases is the key to the discovery. Using a power source to move pistons and a crankshaft is old hat to reciprocating engine technology. Papp's "key" can be applied to turbine technology as well.

The new type of energy operating Nobel Gas Plasma

**The engine is a closed, two-cycle reciprocating engine that has no intake, uses no outside supply of air, and emits no exhaust.**

engine, hereafter referred to as the engine, was discovered by a Hungarian-born scientist. After years of constant work and research in the field of new energies, he reached a breakthrough in 1968 by successfully operating his first unique engine and changing some of the basic thoughts on physical laws of the present.

The engine is a closed, two-cycle reciprocating engine that has no intake, uses no outside supply of air, and emits no exhaust. A hermetic gas chamber is created by the telescopic fitting of two cylindrical units each open at one end, fitted over the other to permit extension and retraction of the unit under the cycling pulses of a varying gas pressure confined within the chamber (Figure 2).

The fuel is self-contained and hermetically sealed in the cylinders which are initially charged at the time of manufacturing. Carrying their own

power supply, it will last between 60-75,000 miles with no loss of efficiency. The cylinders can be recharged quickly and simply for about \$25 to \$30 each, depending on the size of the engine.

The self-contained fuel consists of a combination of Nobel gases, after exiting by electrical pulse and radiation effect, are momentarily creating a plasma filament from the gas with the lowest atomic number.

As the filament destroys itself, fusion occurs, with a small amount of neutrons ejected. The gases expand with great force, then contract on signal, ready to repeat the cycle for the life of the system. This process takes place in 1/1,000,000th

readily adaptable for use other than in the automotive field. Since the engine will be run for long periods without refueling and requires no air or oxygen, it can be used for aerospace and submarine applications, or in any environment devoid of oxygen.

As designed, the engine can be built at a lower cost than currently available engines. Simplified construction, substantial reduction in the number of moving parts, lower operating speeds, and the absence of heat and contaminants in this engine produce an increased engine life and lower maintenance cost.

The engine with its sealed cylinder system emits no radi-

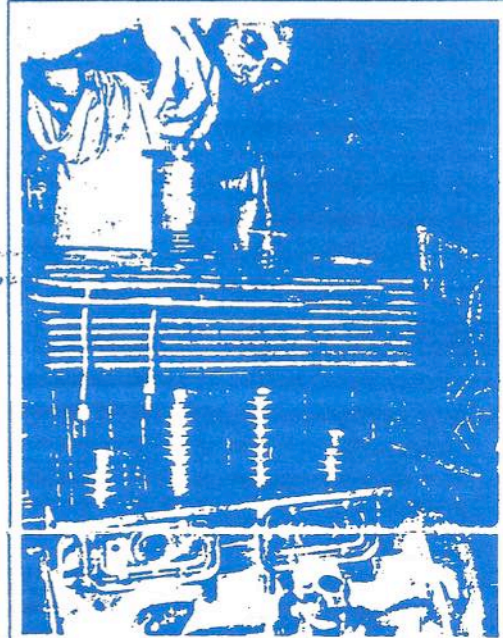


Figure 2: Joseph Papp assembles the components of the modified engine used to show how his unique fuel concept works.

tion, exhaust or any chemical pollutants. This design, if allowed to be produced — that means if the world powers would allow production, and I feel that this is highly unlikely — can and would replace each and every internal combustion engine on this planet.

Developed as inventor Papp envisions, it would be quite a product, indeed.

Only a quarter-inch of metal is needed to surround the cylinders — no water jacket or cooling fans. They would be so much useless weight. The engine could be mounted inverted or vertically to power a rotor. In an auto application, Papp says an rpm range comparable to those of diesels would be used, but the best for the system is 2,500 to 3,000 rpm, which is right in the aircraft range. Acceleration and deceleration are "practically instantaneous." Much better than existing engines. We have instant rpm.

At the time of manufacture, each cylinder would be charged with the Papp-Nobel gas mixture and, according to Papp's calculations, the engine would be able to propel an

second. This time is so brief the ultra-high temperatures cannot be absorbed in the cylinders. A layering of the gases also provides a cooling cycle.

The engine needs no cooling. After conducting test runs for over 300 hours, the temperature of the running engine was found to be 130 degrees Fahrenheit.

The engine provided a constant torque throughout its operation. Its horsepower-per-pound ratio at a 500 hp or larger engine is 10 hp per pound. Pressure in the cylinders is 1,500 to 2,000 psi.

It is necessary to have at least two cylinders in an engine. Electricity produced in one cylinder is used to create fusion in the other. There is at least 50 hp per cylinder, or at least a 100-hp engine. The only waste from this engine is surplus electricity of 200 volts, 150 amperes per cylinder.

The principles of this engine and fuel or energy source are

(continued on page 76)



FIG. 1.

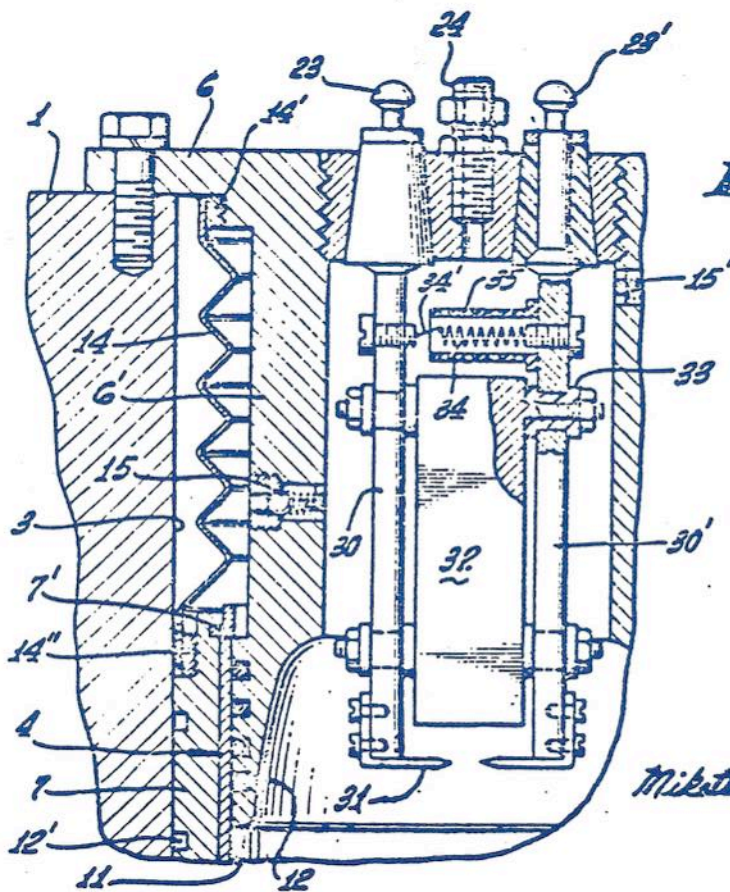
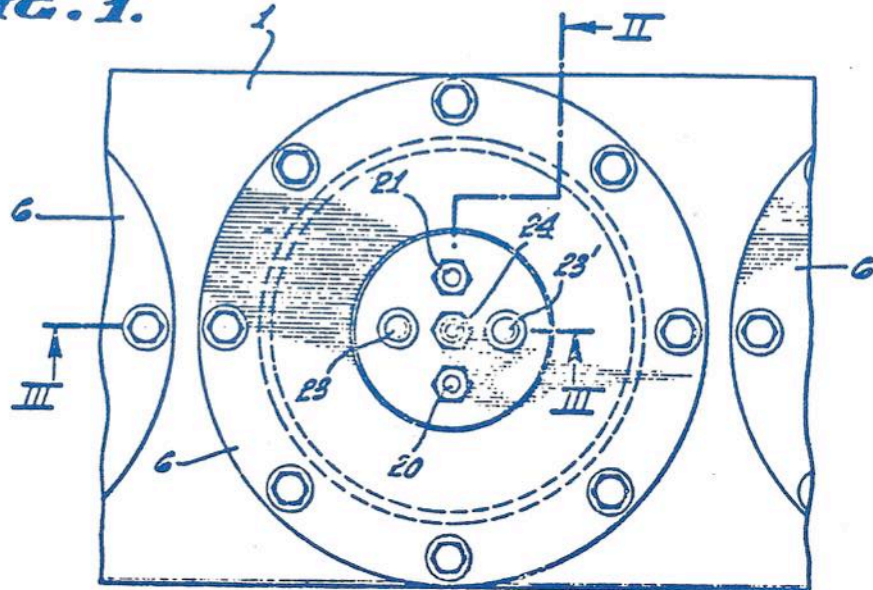


FIG. 3.

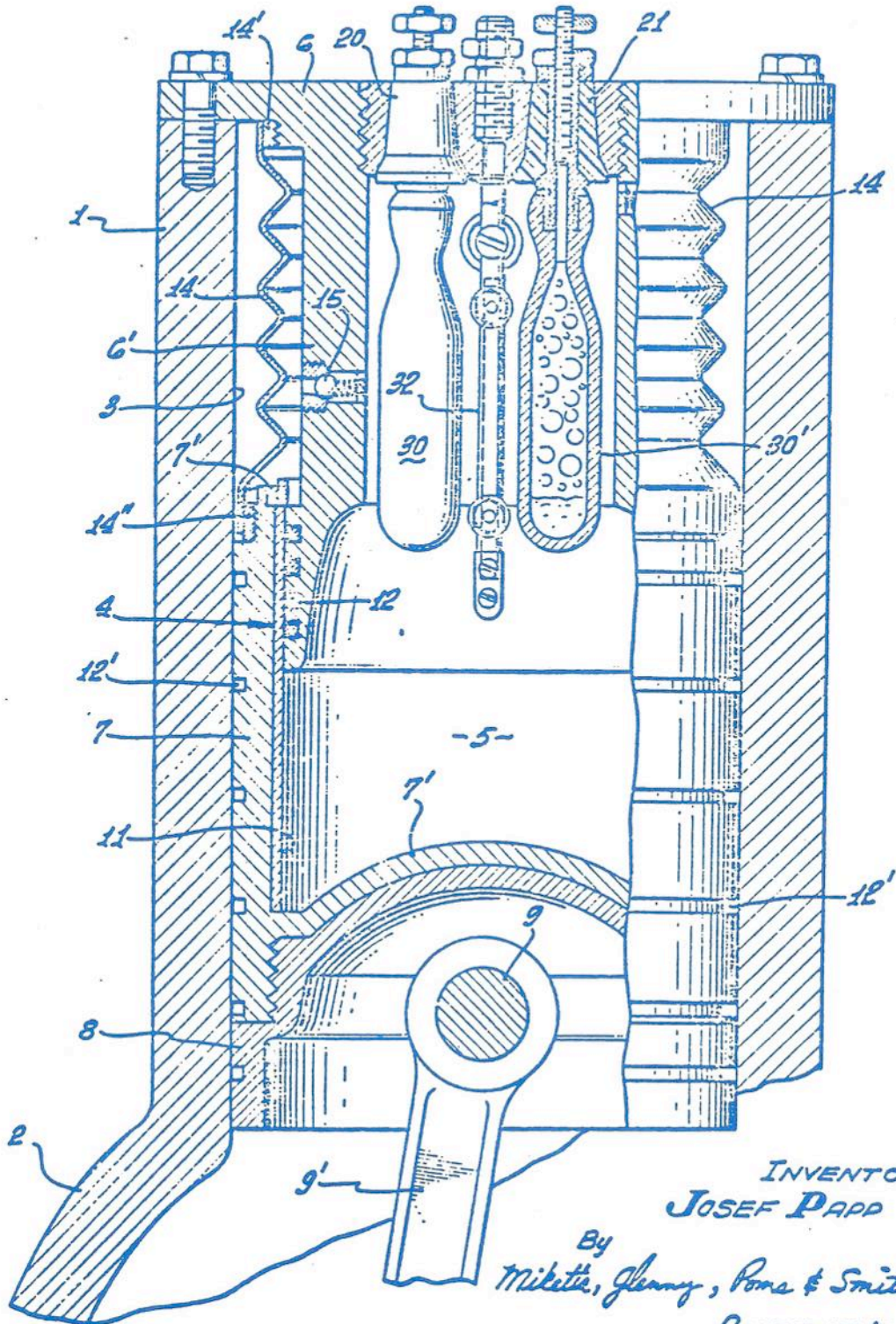
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FIG. 2.



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ATTORNEYS.

FIG. 2.

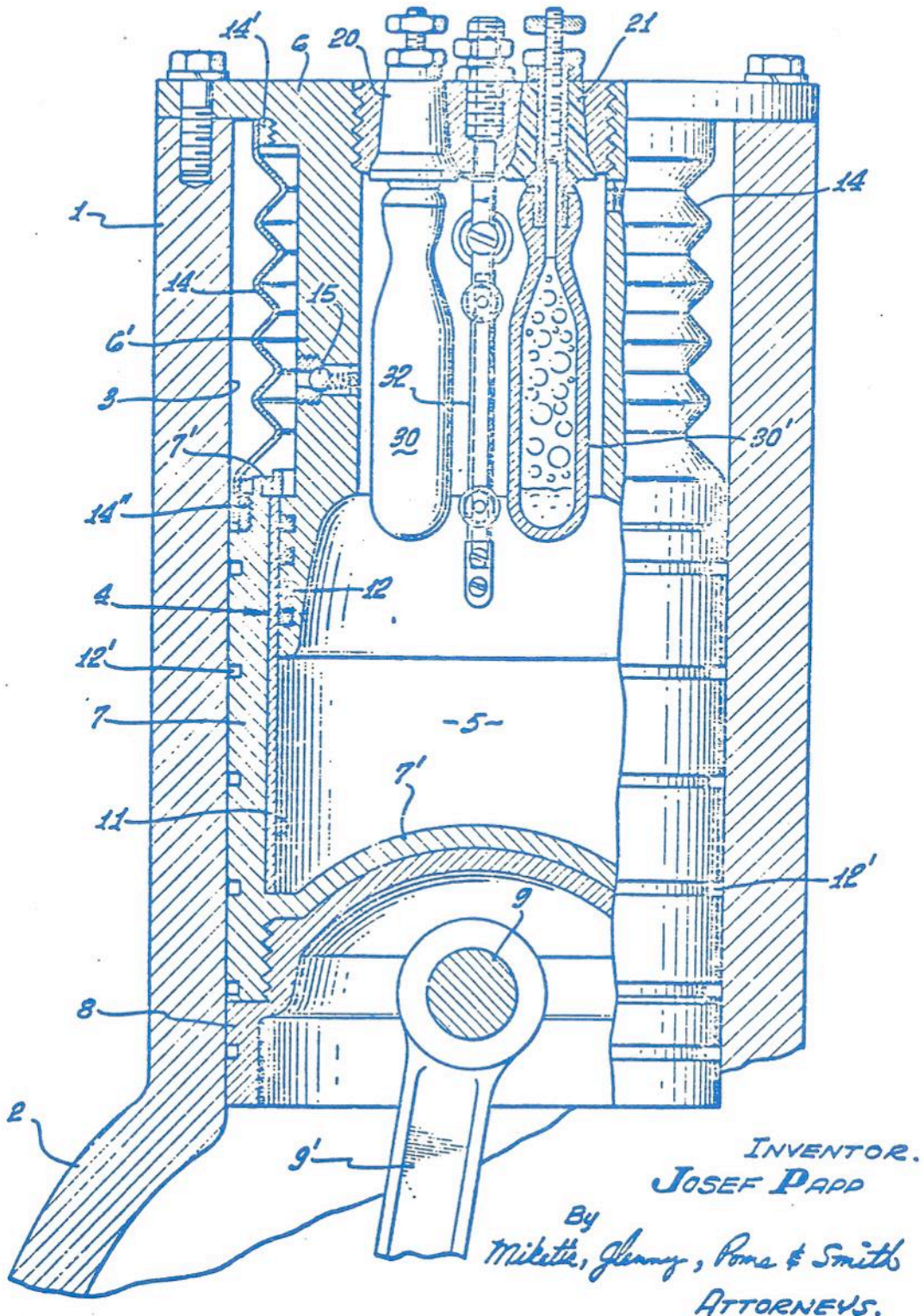
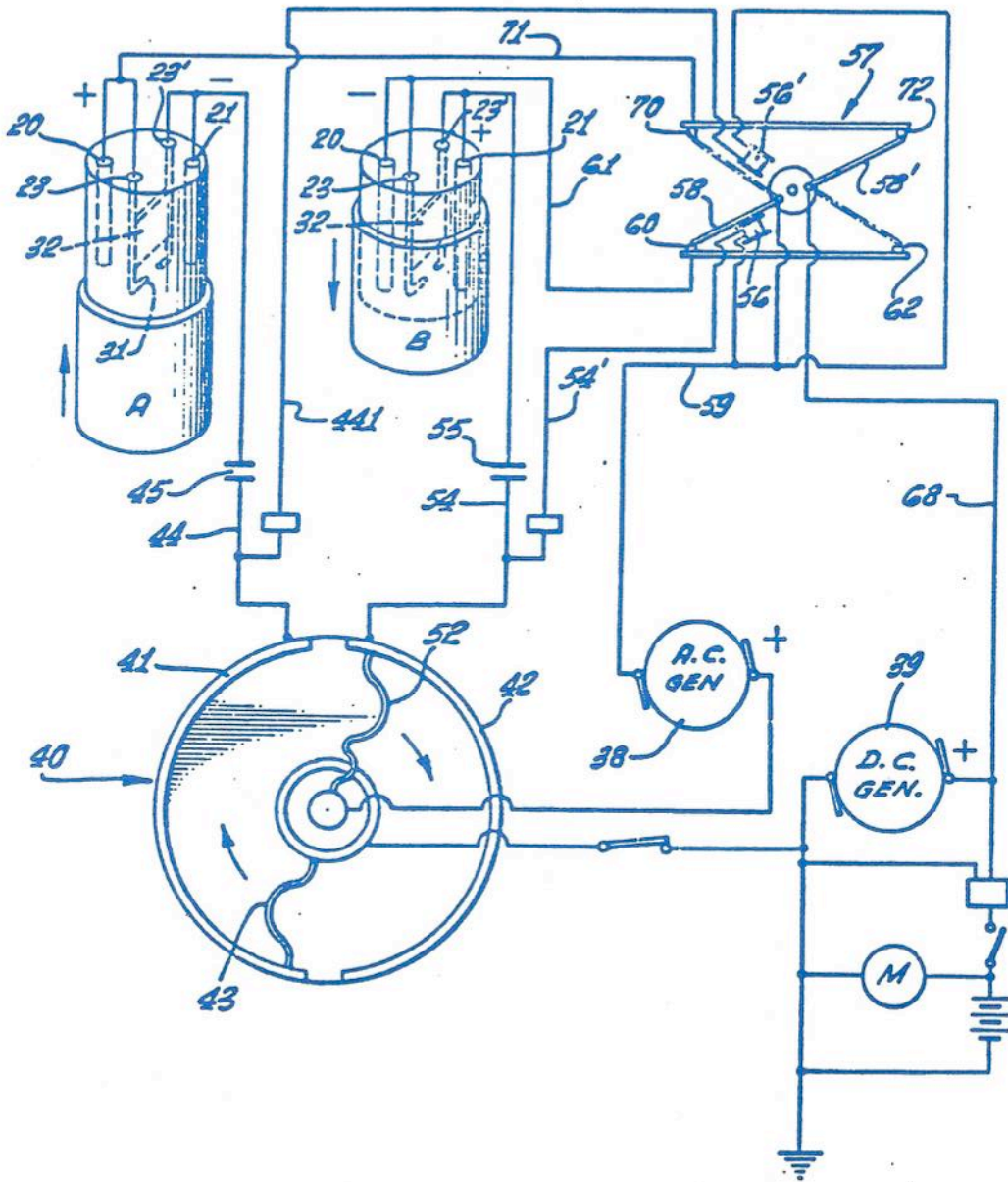




FIG. 4.



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## METHOD AND MEANS OF CONVERTING ATOMIC ENERGY INTO UTILIZABLE KINETIC ENERGY

This invention is directed to a source of energy such as an engine wherein the energy is derived from rearrangements within an atom or atoms. Since such rearrangements are reversible, the utilization of suitably charged elements or atoms which are capable of rearrangement permits the conversion of potential energy into kinetic energy over very long prolonged periods of time with a single charge of atoms or elements of suitable composition. The invention is postulated upon the premise that when a substance is exposed to conditions under which the absorption of energy is possible (as by the use of suitable electric charge or discharge), the electrons which are in their lowest energy or ground state take up energy and pass into the states of higher energy or excited state. The return of electrons to the lower state liberates energy. By the use of atoms of suitable electronic configuration and by the periodic subjection of such atoms to an electric charge or discharge, the electrons may be caused to rapidly move from one arrangement into another thereby permitting the utilization of the energy liberated by the movement of the electrons from one orbit or energy level to another.

Under the conditions here described, the quantum yield is maintained high and by maintaining the radiation above the level at which the molecules stay intact, the electronic energy is utilized as heat. This is attained, in part at least, by the use of substances capable of emitting gamma and beta rays and electrons, and the generation of visible light and fluorescence whereby large numbers of photons are made available. These substances and conditions, together with cyclic changes in magnetic field, polarity and potential supplied to activating cells to stimulate radiation, and cyclic generation and condensation of vapors in a trapped volume of noble and other gases capable of existing in higher energy states, produce expansion and contraction or condensation of such trapped gases in a controlled cyclic manner, the energy thus produced being capable of use in generating power which can be converted into rotative or linear forces.

Since theorists in quantum mechanics may come to conflicting opinions and explanations of the same observed results, applicant will state facts and observations and describe an operative and tested embodiment without excessive discussion of theory, applicant being willing to adopt that explanation of some aspects of operation which will stand the test of time. Data contained in this application was largely derived from a document prepared by applicant in the Hungarian language and translated to English by a person who was not knowledgeable in science or the subject matter.

Among the objects of this invention, I list:

1. To provide a virtually sealed telescoping chamber of variable volume provided with a precharged energy supply having a long life, and composed essentially of noble gases and substances capable of emitting beta and gamma rays and electrons, said chamber being capable of forcibly expanding and contracting in volume under the influence of electrical timing to thereby be used as a source of controlled energy and power.

2. To provide a two cycle reciprocating engine which does not use fuel intake valves or exhaust valves, does not require an air supply and does not emit exhaust gases.

3. To provide a precharged engine of the character stated in item 2 capable of generating power for a period of from 2,000 to over 10,000 hours continuously or until mechanical breakdown) without the addition of fuel, injection of air or discharge of gases.

4. To provide a low temperature system of converting potential energy into kinetic energy

5. To provide a system or method of generating power by the use of mixtures of gases and substances (referred to in item 1) wherein the reactions are cyclic and under control.

6. To disclose and provide the constructions, elements and components, molecular and atomic fuel compositions and method of preparation and operation which exemplify the teachings of this invention.

The invention may be utilized in many fields of endeavor for many industrial, scientific and military purposes, both terrestrial, in space and under water. For purposes of illustration and to facilitate understanding, an exemplary reciprocating engine will be described by reference to the following drawings in which:

FIG. 1 is a top or plan view of a single cylinder (of an in-line assembly) of an engine embodying aspects of this invention;

FIG. 2 is a transverse section taken along the plane II—II in FIG. 1, some parts being in partial elevation;

FIG. 3 is a section taken along the plane III—III of FIG. 1;

FIG. 4 is a diagrammatic representation illustrating one form of an electric supply and timing control system.

FIGS. 1 and 2 illustrate a motor block 1 provided with or mounted upon a crankcase housing 2; the crankshaft, transmission and other conventional elements are not illustrated. The block 1 is provided with a plurality of parallel bores such as 3, each being adapted to receive a cylinder providing a variable volume chamber 5. Each cylinder 4 comprises a stationary upper, hollow head portion 6 firmly attached by its enlarged head end to the upper surface of the block 1, and a movable portion 7 in telescopic relation to the skirt 6' of the head portion 6. The lower end of the movable portion 7 is closed and is shown provided with an inwardly extending domed surface 7'; this movable portion of the hollow cylinder which forms the enclosed chamber 5 is shown attached to a lower extension 8 which carries the wristpin 9 to which the piston rod 9' is connected. It is to be understood that the parts 7 and 8 may be made integral although a removable threaded connection facilitates assembly. In FIG. 2, the chamber is shown in its substantially expanded position; in actual practice, the chamber is precharged with a mixture of gases and an aqueous component and such gases are caused to forcibly expand and contract in a repetitive and controlled manner as hereafter described.

The chamber 5 should be substantially gas-tight; in order to facilitate the attainment of a gas-tight seal, the lower portion 7 is shown provided with a steel liner 11 preferably having a highly polished or burnished, reflecting internal surface. The exterior of the lower end of skirt 6' of the stationary portion 6 is shown provided with a series of grooves carrying O-rings of suitable material adapted to produce a hermetic seal as at 12. The exterior of lower portion 7 is provided with a plurality of oil grooves 12' for distribution of lubricating oil.

In the form of construction illustrated, the head end of cylinder portion 6 is shown connected to the upper end of the movable portion 7 by means of a gas retaining bellows 14 which may be made of any non-oxidizing, flexible and resilient sheet metal, the upper and lower ends of such bellows being suitably attached to the head and to the upper end of movable cylinder portion 7 as by means of threaded internal rings indicated at 14' and 14''. A split expansion ring 7' carried by the upper edge of movable portion 7 may be used to prevent separation of the chamber portions during installation. The skirt wall 6' of the upper portion is preferably provided with a plurality of check valves such as 15 at different distances from the head for preventing internal pressure in chamber 5 (or within the bellows) from rupturing the bellows.

The head of the stationary portion 6 is shown provided with internally threaded ports adapted to receive and hold in gas-tight relation the upper terminal portions of an anode 20, a cathode 21, terminals 23 and 23' of an electrode generally indicated at 22, and a centrally located gas inlet fitting indicated at 24. Since the polarity and potential of current supplied to 20 and 21 is cyclically varied to control the expansion and contraction of the trapped charge within chamber 5, the devices 20 and 21 will be generally referred to as activating cells, the current supplied thereto affecting the direction and velocity of electrons and rays emanating from the cells.

It has been found that under the conditions hereinafter disclosed, many of the noble gases and elements found in the periodic table, and particularly their isotopes from periods 2, 3, 4 and 5 of the periodic table, are capable of being utilized as



the trapped charge in chamber 5 for operation of the present invention. The noble gases are preferred. They do not contain or produce acid containing materials; although they can be caused to create heat, they will not burn; they are sensitive to and respond to radiations, whereupon they radiate themselves. They are capable of picking up mutated electrons and their electron distances permit electron connections. The noble gases found to be most effective are those of neon, argon, krypton and xenon and their isotopes. Some of the isotopes are capable of internal electron conversion very readily and xenon may be cited as a typical example. Xe<sup>11</sup> is an isotope which is particularly effective in that it is readily capable of internal conversion. Similarly, other gases such as chlorine are unstable in that chlorine contains 8 electrons in the 2nd level and only 7 (instead of 18) in the 3rd level.

Phosphorous and rubidium and its isotopes are examples of elements adapted for use in activating cells 20 and 21; phosphorous contains 8 in the 2nd group and only 5 in the 3rd level; rubidium contains 18 in the 3rd level but only 8 in the 4th level and 1 in the 5th. Mesothorium I or radium D can be used in the activating cells to good advantage, although they have a shorter half-life than rubidium. Elements useful in the activating cells are preferably those capable of emitting electrons, alpha rays, beta rays, gamma rays and X-rays, negative beta rays being particularly useful since they are directed to exert their force (as hereafter described) in the direction of the movement of the end wall of the expanding chamber.

Differently considered, it may be stated that the present invention utilizes those elements and isotopes which can be readily caused to emit alpha rays, beta rays, gamma radiations and electrons. In general it may be stated that substances which decay by the emission of negative beta particles and which are also subject to rearrangement within the atom or decay by orbital electron capture, are effective sources of energy in the fuel and system of the present invention.

Similarly, atoms which exhibit alpha particle emission (which generally involves strong interaction between nucleons), are capable of being utilized. Although alpha decay is normally slow and have half-lives which are longer due to electrostatic barriers that make it difficult for alpha particles to escape, the present invention utilizes periodic discharges of electrical energy which speed up the escape of alpha particles and permit the reactions to be utilized effectively in the method of the present invention.

For purposes of illustration (and without limitation thereto), the following examples of charges, activating cells or ampules and operating conditions are given. The hollow anode and cathode cells may be made of stainless steel, aluminum alloys such as duraluminum, aluminum alloys containing zinc, antimony and cesium. Effective cells were made from an aluminum alloy containing antimony and cesium, said cells containing two grams of red phosphorous 99.5 percent pure in argon periodically approaching 15-20 atmospheres pressure. Anodes were stainless steel vessels each containing one gram of rubidium, the vessels being filled with 20-30 percent refined mineral oil and 70-80 percent argon periodically approaching about 20 atmospheres pressure. The variable volume chambers may contain a precharge composed of between about 10 percent and 25 percent of de-oxygenated water by volume, the remaining volume in the chamber being composed of between about 35 percent and 50 percent of argon, 8 percent and 18 percent of neon, from about 15 percent to 25 percent of xenon and from about 15 percent to 25 percent of chlorine.

A method of precharging each of the variable volume power generating chambers may be carried out in a simple and effective manner, as follows: the variable volume chamber comprising the portions 6 and 7, together with the activating cells 20 and 21 in position, may be first filled with de-oxygenated water through the fitting 24 while the chamber is in its fully expanded position. A mixture of say, 60 percent neon and 40 percent chlorine is now injected into the cylindrical cavity until about 10 percent of the water is expelled. The contents of the

cylinder are then cycled, agitated or otherwise mixed to cause some of the chlorine to become absorbed by the water.

A mixture of 60-70 percent xenon with say, 30-40 percent chlorine, is then injected into the cylinder until an additional 40 percent of the original volume of decomposed water is expelled by this second gas injection. The contents should again be cycled or thoroughly agitated.

With the chamber now containing approximately 50 percent decomposed water by volume, a mixture composed of about 65 percent argon, 25 percent xenon and 10 percent neon is injected with the cylinder or chamber in a collapsed position until a sufficient amount of water is displaced so as to leave within the cylinder between about 10 percent and 25 percent of water. Thereafter, the cylinder is expanded to maximum volume position and the last named gas mixture is injected so as to create a pressure within the chamber of between about 1.0 and 3.0 atmospheres. The injection fitting 24 is now securely closed and the gases therein are ionized by charging with 110 to 440 volt current for a period of about 6 hours; a longer time is required when the volumes are larger and lower potentials are used on the charging current. Ionization of the charge is conveniently accomplished by supplying the current through the terminals 20 and 23 of an actuating cell and adjacent electrode.

At this point, it may be noted that the terminal posts 23 and 23' extend as electrodes 30 and 30' into the chamber and terminate in a pair of opposed platinum spark gap points 31 and 31' adapted to produce a glow field under stated conditions of operation. The gap between the electrodes may be from one-sixteenth inch to one-fourth inch depending upon the construction and size of the chamber. The two copper electrodes 30 and 30' carry between them a collector plate 32 which may be made of a copper alloy including magnesium, manganese and aluminum alloy containing some zinc sulfide or preferably from an alloy containing appreciable quantities of antimony and cesium. As shown in FIG. 3, the collector plate 32 is suspended from the electrodes by means of relatively thin insulators 33 capable of breaking down in the event the voltage across the collector 32 and its terminals 30, 30' exceeds about 12 to 24 volts, DC.

Above the collector plate 32, there is mounted a glow coil 34 (preferably made of wolfram) which may be protected by a perforated shroud 35. One end of the coil is connected to electrode 30' and contact with electrode 30 is by way of a thermosensitive, bimetallic element 34' which disconnects the glow coil after the initial heating of the environmental gases has been accomplished.

The collector plate 32 lies in a plane between the two activating cells 20 and 21 as shown in FIG. 2. The preferred distance between the two activating cells may vary from one-fourth inch to three-fourths inch. It is important however that the spark gap 31 of the electrode assembly extend slightly below the bottom of the two activating cells so that when the cylinder or chamber is in its collapsed or minimum volume position, the spark gap extends into the aqueous medium or de-oxygenated water in the bottom of the chamber. Similarly, it is desirable that the extreme lower ends of the activating cells contact or are in very close proximity to the water in the bottom of the chamber when the chamber is in its collapsed position.

May virtually instantaneous radiations, reactions, changes in energy levels, changes in directions of radiations due to electron charges absorbed by the collector plate and electromagnetic field effects, luminescence and fluorescence, photonelectron absorption and emission, endothermic resultants caused by reason of release of chlorine from the water, exothermic resultants caused by discharges between the points of the gap, etc., take place in the chamber. These reversible reactions are controlled by the selection of the atomic constituents of the charge and activating cells and a unique cyclic supply of electrical energy. One form of such control system, adapted for use with any multiple of two variable volume chambers herein before described, is shown in FIG. 4.



Two variable volume chambers of an engine are illustrated at A and B; A is shown at the beginning of an upstroke and B is shown at the beginning of a downstroke toward expansion. Activating cells are indicated diagrammatically at 20 and 21 and the electrodes are indicated at 23 and 23' with the collector plate 32 therebetween. During operation of the system, it is desirable to supply alternating current as well as direct current and for this reason the diagram illustrates an AC generator at 38 and a DC generator at 39. The two generators would normally be initiated and the entire motor started by means of a starting motor and a storage battery. Such conventional starting system is illustrated in the lower right hand corner.

A distributor 40 is diagrammatically illustrated, such distributor having an external distribution ring split into two sections 41 and 42, each covering slightly less than 180°. Two diametrically opposed contact brushes or spring urged contact points rotate within the distributor, one of the arms 43 being shown beginning its contact with split ring section 41, whereas the other arm 52 is shown beginning a downstroke in contact with ring 42. It will be noticed that arm 44 is constantly supplied with alternating current from the generator 38 whereas arm 43 is grounded and connected to the negative side of DC generator 39. Distributor segment 41 is associated with expansion chamber A whereas segment 42 of the distributor is associated with the variable volume chamber B. Rotation of the contact arms in the distributor is in timed relation with the cycles of expansion and contraction of the variable volume chambers; since the power sources are of two cycle character, one complete rotation of the distributor contact arms corresponds to a full cycle of a chamber.

In the position shown in FIG. 4, it will be noticed that the contact arm 43 is now supplying negative (ground) to segment 41 which is connected by line 44 through a condenser 45 to the cell 21 and one of the electrodes 23' of chamber A which is at the beginning stage of the upstroke. Simultaneously however, contact arm 52 is being supplied from the positive output of the generator 38 with alternating current through segment 42 which is now transmitted by line 54 through a condenser 55 to the corresponding cell 21 and electrode 23' of variable chamber B which is at the beginning of its down or expansion stroke. Simultaneously, branch line 54' (also connected to distributor ring 42 and fed with alternating current), passes through a voltage regulator and actuates an electromagnetic coil 56 of a double pole, single throw, relay switch indicated at 57, whereby switch bar portion 58 assumes the full line position, switch bar 58 being connected at its inner end by line 59 to the negative side of the AC generator and by making contact at terminal 60, connects such negative side by line 61 to the opposite electrode 23 and cell 20 of expansion chamber B.

Simultaneously, while the double pole, single throw relay switch is in full line position, line 68 is supplying positive direct current to the inner end of arm 58' of the switch which is in contact with terminal 72, the opposite end of this conductor being connected as at 70 to line 71 which conveys this direct positive current to actuating cell 20 and terminal 23 within variable volume chamber A.

At this point it is to be noted that during the expansion stroke in chamber B, actuating cell 21 is supplied with positive alternating current while the opposing actuating cell 20 is connected to ground or negative terminal. Similarly, the two electrodes 23 and 23' in variable chamber B are supplied with negative and positive alternating current. However, during the upstroke or contraction of chamber A, which occurs concurrently, the system provides positive direct current to actuating cell 20 and terminal 23 of the electrode whereas negative direct current is supplied to the opposing actuating cell 21 and the opposite terminal of the electrode 23'.

When DC arm 43 completes its sweep of segment 41 and contacts segment 42, chamber B starts its upward or contraction stroke. Simultaneously arm 52 starts its sweep of segment 41 and chamber A starts its expansion stroke. During these strokes, the switch 57 is in dotted line position (coil 56' energized through line 44'). In chamber A actuating cell 20 will be supplied with negative alternating current or ground, whereas

the opposite actuating cell 21 will be supplied with ungrounded alternating current. In chamber B (now contracting cell 20 will be supplied with positive DC and cell 21 with negative DC.

The two cells in a given chamber are therefore sequentially supplied with electrical current differing in potential and polarity, only one cell of a pair being supplied with positive current at a given instant. Supply of electrical current (from an external source) to the two electrodes in a given chamber conforms to the same rule. Such sequential supply controls expansion and contraction of the gaseous environment in the chambers.

The alternating current supply may vary from between about 28 to 500 volts depending upon the volume of each of the chambers; a direct current supply at from approximately 24 to 100 volts is adequate. The presence of capacitors 45 and 55 in lines 44 and 54 is required and will allow the passage of direct current since these currents are in effect of a pulsating type.

Attention is called to the fact that the glow coil 34 is located near the top extremities of the collector plate between the electrodes. The function of the glow coil is to initially preheat the gas mixture of the chamber and the water therein during start-up. Although it is connected to the electrodes, from the bottom of the stroke to the top of the stroke during each cycle, it cannot glow during operation because of the bi-metallic relay or switch 34' referred to hereinabove; therefore the coil will merely short the electrodes without benefit of glow in subsequent phases and will complete the circuit between the condenser electrodes, permitting the collector plate 32 between the electrodes to receive its charge.

During the up or contraction stroke, the electrodes are operating with D.C. and the collector plate 32 is building up its charge potential. The charging of the collector ceases at the beginning of the expansion stroke. During the downstroke, the electrodes receive A.C. and, due to this change in the type of electrical impulse and variation in voltage, the collector plate will short out with high voltage both through the insulators and between the electrodes. This discharge is given impetus by the moist steam which results during the cooling phase of the super heated dry steam from the initiation to the completion of the up or contraction stroke. When the chamber is in its contracted phase, the charge on the condenser is negative and the condenser has excess electrons at the moment of electric discharge. The negative charge condenser attracts or absorbs positive molecules. These positive charges are moving toward the collector plate and the negative charges will be repelled while the positive atoms, which are deficient in electrons, will reach the collector plate and pick up the needed electrons from the plate. Moreover, the collector plate, because of its charge, creates an electric barrier; the charge on the collector plate is negative and has excess electrons at the moment of electrical discharge in the gap between terminals 31 of the electrodes and while the chamber is in its contracted phase. This negative charge on the collector attracts or absorbs positive molecules which are moving toward the collector, while the negative molecules are repelled. The positive atoms which are deficient in electrons will reach the collector plate and will pick up the needed electrons from the plate. During the expansion of the chamber, the positive and negative ions which are created by the gamma ray of the cathode will increase in mass instantaneously by the assimilation of the electron supplied by the generator, whereby the gross pressure resultant within the chamber is increased directly and proportionately. The collision of gas atoms and electrons and molecules results in a high heat coefficient with resultant gas expansion. The amount of heat depends on the charge of the anode and cathode and the charge of the collector plate. The rays from the cathode (phosphorous may be the element) generally travel in a straight vector but can be deflected by an electromagnetic field. Within the chamber, these cathode ray particles will be directed downward toward the bottom of the cylinder during the expansion stroke from the time that the



collector plate discharges its static potential previously acquired and from the discharge between the points of the electrodes which are positioned close to the bottom of the cylinder and complete the electric circuit. Owing to the presence of ionized gases and water vapor, the electromagnetic field which is created this way between the electrodes will be the force phenomenon which will attract the otherwise directional migrations of the cathode ray particles toward the bottom of the chamber. Simultaneously the collector plates create an electric barrier above such discharge and field, facilitating the downward deflection of the rays in the direction of movement of the bottom wall of the chamber.

In general there are two forces working in the cylinder, one force is the resultant of the anode, cathode and collector plate short-circuiting and changing the moist steam to a super heated dry steam. The second force is a resultant due to the high temperature/pressure coefficient of the gasses and the directional electrons emanating from the rubidium and phosphorous for example, whose velocity is increased by the electrical impulses to which they are subjected. These free electrons are absorbed by the gases which are capable of assimilating these electrons due to their special nature. The collector plate located between the two cells also attracts some free electrons and adds them to its charge. When rubidium is in one of the cells, it radiates gamma rays which have no negative or positive charge and will not be absorbed by the gases nor the electric components of the cylinder but will cause structural changes in the molecules of the argon which has been subjected to the radiation from the other cell containing phosphorous, and which has been subjected to the supplied A.C. and D.C. The working capacity and the life expectancy of the environment is dependent upon the percentage of the various gases in the mixture, the percentage of water and the quantity and character of the elements in the two activating cells. The causes of the energy produced in this environment are eclectic and are a function of the molecular structures and atomic substructures connected with and altered by the electrons migrating and the molecules of hydrogen and oxygen which are sequentially bound and released due to the interplay of the elements and electrical forces interacting upon the system.

During operation, a certain amount of fluorescence and luminosity is highly desirable within the chambers and in order to stimulate such fluorescence and the emanations from the activating cells, these cells are sequentially supplied with current as previously stated. Electron emissions are therefore stimulated or induced and the electrons from one cell are attracted toward the other cell, the flow of these electrons resulting in electric current. The strength or potential of this current can be increased by the presence of the noble gases in the chamber as well as their quantity and the pressure within the chamber. The presence of these gases aids the flow of the current (EMF) because the flow of electrons from the cathode will be accelerated sufficiently so that collision of the electrons with the gas molecules and atoms occurs, causing fission of the neutral gas atoms and particles permitting them to carry a greater electrical charge (this may be called collision ionization). The cathode also emits beta rays and gamma rays. The gamma rays will induce certain materials to radiate fluorescent light and this has a special function at the expanded position of the chamber and aid by cooling the walls of the cylinders. Heat is removed from the cylinder walls because elementary particles are retrieved from the walls, such particles having previously emanated from the cathode rays.

Within the confines of the chamber, the gas molecules collide with the walls and other gas molecules and change direction; oppositely moving positive and negative molecules attract each other but the neutral molecules will not be able to participate in this current. To increase the number of charged particles which are responsible for the state which causes electrical power, we increase the speed so as to reduce the number of recombinations which tends to result in neutral equilibrium. If the molecular velocity is sufficient, it will tend to inhibit

reassociation of gas atoms to reduce the electric ionic charges available to support an electric current and if we sustain sufficient atomic velocity of the gases, we tend to increase the electric current potential. By further increasing the power source of motion, the charged molecules will speed up so fast that collisions with neutral molecules will explode them to nascent particles which are capable of taking charges and the forces acting upon them will begin to move the charged particles in positive and negative directions and into further collisions where they create new charge carrying particles. X-rays created by the cathode knock out or dislodge atoms from the xenon in the chamber and atoms that have lost one or more of their electrons will suffer an electron deficiency. By reason of this, the atom which has lost its electron will have a positive electric charge and the free electrons will be picked up by the argon, neon and krypton isotopes. The gas which accepts the free electrons will have a negative charge. The xenon will replace its lost electrons from electrons assimilated from the collector plate surplus. The charge on the collector is negative as previously stated.

The element in one of the cells should be capable of emanating alpha ray particles so as to produce a fluorescence or luminescence which encourages beta and gamma propagation. Phosphorous, mesothorium or radium can be so employed, the latter elements permitting the utilization of additional charges. The alpha ray particles collide with the zinc sulfide crystals on the collection plate. Moreover, the aforesaid elements also create ultraviolet rays which also force electrons to emanate from the zinc, aluminum or other metals employed for the housings of the cells. The photons thus obtained by the luminescence are of value in that their removal from the metal walls assists in cooling.

During the upstroke or contraction, A.C. is withdrawn and D.C. is supplied to the cells and electrodes from the distributor.

The "Neutral Electrons" which were forced to explode, loose their charges and will again become "Neutral Electrons" since the collector will retrieve their charges. (The theory of Neutral Electrons evolving suggests that electrons with a given mass when carrying a charge of electricity are in negative phase but may be stripped of their charge and revert to a positive condition devoid of the electrical charge normally attributed to them.) The xenon is in need of charges and will reassemble its lost electrons from the argon and neon. The huge electron surplus originally admitted via the cathode will migrate through the closed circuit of the flow coil shunt or relay and will drain excess electrons to the generator which is extraneous to the internal electron system. A collector plate or electron sink between the electrodes and the distributor modulates the exodus of electron surpluses. The quantity of electrons which are returned by the distributor at the top of the stroke, combined with the low EMF current from the generator results in a very powerful charge to the previously charged collector plate inside the cylinder, resulting in a high magnitude explosive discharge at the top of the stroke. The radiation of the phosphorus (or alternates) placed in the cathode will be reduced, almost stopped (with the exception of the gamma ray) because the current of electrons will now have opposite direction (polarity) which will result in opposite charge, owing to the change of polarity mentioned above. The same will happen with the rubidium in the anode, and even its radiating capacity will be intensified to a certain degree, with the aid of the charge laden electron current. The charge laden electron stream entering the anode from the generator will have a negative charge and will pick up the particles and electrons which were eliminated by the gases and will circulate them from the anode to the cathode. The same will happen with the electrons and particles which will be released from the cylinder wall and which will result with the aid of water vapor in a diminution or loss of sensible heat. The cylinder wall will cool and it will cool the hot gases and the high pressure dry water steam. Small amounts of water vapor will even condense on the cylinder wall. Total and complete condensa-



tion of the water and cooling cannot occur because within a fraction of a second, the heating cycle will commence. The rubidium rays will be (alpha and gamma) intensified during the reversed polarity upstroke cycle. At the moment of the next discharge between gap points of the electrode, 80 to 85 percent of the water will become moist steam and 15 to 20 percent will condense to liquid water. The resultant residue will settle on the cylinder wall and will be chemically harmless, because it consists of only the atrophied electrons of the electricity.

A complete four cylinder engine made in accordance with this invention wherein the movable wall portions of the four variable volume chambers were connected to a crank shaft of an engine so as to convert the linear reciprocation of such wall portions into rotary motion was constructed and successfully operated and demonstrated. Each of the cylinders had a gross volume of  $8\frac{1}{2}$  cubic inches and a net displacement of 5.5 cubic inches. The activating cells in each cylinder contained 1 gram of rubidium and 2 grams of phosphorus respectively, and were made in accordance with the specific example given hereinbefore. The environment within each chamber had the composition given hereinbefore consisting of de-oxygenated water, xenon, neon, argon, and chlorine. The precharging method hereinbefore disclosed was employed. The electrical energy sources utilized were direct current at 27 volts and alternating current at 42 volts.

Starting of the engine occurred after 4 to 6 revolutions of the engine by a conventional starting motor. The timing of the distributor during operation of the engine was advanced to initiate changes in type of current supplied to the activating cells a few degrees in advance of dead center. The engine accelerated rapidly (to about 1,500 rpm in less than one second) and then at a somewhat slower rate to between 2,500 and 3,000 rpm (attained in less than two seconds from start). Although electron reactions involving temperatures on the order of 2,000°-3,000° occur at the peak in the expansion portion of the cycle, the walls of the engine showed a temperature of 75°-80° at the end of protracted runs. No cooling water was employed; a circulating oil system injected some oil through the wall of the block into the outer grooves of the movable wall portion of each chamber cylinder. Momentary pressures of between 700 and 800 pounds per square inch appear to have been developed in the chambers. The engine was quiet during operation. A power output of about 70 hp was apparently produced at 2,500 rpm.

Rectilinear motion of the movable wall portion of the variable volume chamber or chambers (which is obtained in accordance with the mode of operation described hereinabove) may be changed or translated into rotary motion, intermittent motion or rectilinear motion of intermittent or practically uniform velocity by the use of many different types of mechanisms which are within the skill of mechanical engineers and designers. The shafts, arms, rods, linkages or other force transfer means energized by the power source of the present invention may be used for the manipulation, adjustment, positioning, lifting, etc. of any desired device or element. The regenerative two cycle character of the example given herein, its compactness, ability to provide high energy output at relatively low rpm (1,500-3,600), the simple construction (no valves or valve actuating mechanisms, cooling systems, air supply or supercharges, no exhaust or muffler) and light weight, as well as the ability of the system to operate for thousands of hours without refueling or recharging, provides solutions to present and future problems involving the generation and utilization of power in isolated locations and under exotic conditions.

I claim:

1. A variable volume gas-tight chamber within a normally stationary hollow cylinder element and a hollow element telescopically related to the first element and movable with relation to the first element, said chamber, when in expanded position, containing an effective charge of 10 to 25 percent of de-oxygenated water, by volume, and the remaining volume

being composed of a mixture of three or more gases whose atoms do not have their outer quantum levels completely satisfied with orbital electrons, the contents of said chamber being at a pressure of between about 1.0 and 3.0 atmospheres at normal temperatures.

2. A variable volume chamber as stated in claim 1 wherein at least some of said gases have the property of emitting an electron upon absorption of a photon.

3. A variable volume chamber as stated in claim 1 wherein the remaining volume is composed of a mixture of xenon, neon, argon and chlorine.

4. A variable volume chamber as stated in claim 1 wherein the remaining volume is composed of between about 35 percent and 50 percent of argon, 8 percent and 18 percent neon, about 15 percent to 25 percent xenon, and from about 15 percent to 25 percent of chlorine.

5. A variable volume chamber as stated in claim 1 wherein the chamber contains a pair of hollow activating cells, said cells containing elements having the property of emitting electrons, and alpha, gamma and beta radiations, one of the cells containing an element of higher molecular weight than the other, and both cells containing argon.

6. A variable volume chamber as stated in claim 1, wherein the chamber contains a pair of hollow activating cells, said cells containing rubidium and phosphorous, respectively.

7. A variable volume chamber as stated in claim 5 including means for periodically and sequentially supplying said cells with electrical current differing in potential and polarity, only one cell of a pair being supplied with positive current at a given instant.

8. A variable volume gas-tight chamber within a normally stationary hollow cylinder element and a hollow element telescopically related to the first element and movable with relation to the first element,

a pair of hollow, sealed activating cells carried by the normally stationary cylinder element and extending into the chamber, said cells containing elements having the property of emitting electrons, and alpha, gamma and beta radiations;

said chamber containing an effective charge of between about 10 percent and 25 percent of de-oxygenated water, by volume, and the remaining volume being composed of a mixture of three or more noble gases, characterized by ability to withstand heat without burning and non-acid in character, at least some of said gases having the property of emitting an electron upon absorption of a photon;

the contents of said chamber, when in expanded but not energized position, being at a pressure of between about 1.0 and 3.0 atmospheres;

and means for sequentially supplying said cells with electrical current differing in potential and polarity, only one cell of a pair being supplied with positive current at a given instant.

9. A variable volume chamber as stated in claim 8 including a pair of spaced electrodes carried by the normally stationary cylinder element and extending into the chamber between said activating cells, said electrodes terminating in a spark gap at a level adapted to contact the water content of said chamber when said chamber is in collapsed, minimum volume position, and an electron collector plate carried by and between said electrodes, said pair of electrodes being supplied sequentially with current differing in potential and polarity in a manner as stated for said cells.

10. A variable volume chamber as stated in claim 9 wherein the gases of said charge are composed of a mixture of xenon, neon, argon, and chlorine and said cells contain rubidium and phosphorous, respectively.

11. A method of precharging a variable volume power generating chamber within a normally stationary hollow cylinder element and a hollow element telescopically related to the first element and movable with relation to the first element, which comprises:

displacing air from the interior of or the chamber with de-oxygenated water;



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injecting a mixture of a noble gas and chlorine to displace between about 8 percent and 15 percent of the volume of water contained in said chamber and agitating the contents of the chamber;

injecting further mixtures of another noble gas and chlorine to displace between about 30 percent and 45 percent of additional water from the chamber, and agitating the contents of the chamber;

injecting a further mixture of noble gases into the chamber to displace water in quantities sufficient to retain only between about 10 percent and 25 percent by volume of de-oxygenated water in the chamber, the remaining volume being composed of a mixture of at least three of said gases at a pressure of between about 1.0 and 3.0 atmospheres when the chamber is in expanded position;

and ionizing the charge by subjecting it to the action of an ionizing current for a period of several hours.

12. A method as stated in claim 11 wherein the ionization is carried out by means of an alternating current at a voltage of between 110 and 440.

13. A method of generating power pulses in rapid succession within a sealed, variable volume chamber including a stationary wall portion and a movable wall portion telescopically related thereto which comprises:

positioning two sealed activating cells in said chamber, said cells being attached to the stationary wall portion and containing elements adapted to emit alpha, beta and gamma radiations;

positioning an electron collector plate supported in weakly insulated relation by a pair of electrodes between said activating cells;

providing an environment in the chamber surrounding said activating cells and electron collecting plate composed essentially of a mixture of ionized noble gases and deoxygenated water;

and mass producing reversible, rearrangements of electrons in atoms of said environment into and out of higher energy states in pulses and rapid succession by actively stimulating the emission of alpha rays toward the movable wall

portion of the chamber to cause expansion and supplying electric current to said cells alternately to cause expansion and contraction of the contents of said chamber and correlated reciprocating movement of the movable wall portion.

14. In a method as stated in claim 13, the step of supplying electrical current to at least one of the electrodes, in timed relation of the movement of the movable wall portion, to produce an electrical discharge between the electrodes at virtually the beginning of expansion movement of the movable wall portion and to produce a magnetic field between said cells to deflect radiations emitted by the cells in the direction of said expansion movement.

15. In a method as stated in claim 13, the steps of supplying positive direct current to one of said activating cells and to one of said electrodes while the chamber is contracting,

and then supplying positive alternating current to the other cell and other electrode to cause the environment in the chamber to expand and impart an expansive movement to the movable wall portion,

said direct current being supplied in pulses at a potential of between about 27 and 100 volts and said alternating current being supplied at a potential sufficient to produce an electrical discharge between the electrodes at virtually the beginning of expansion movement of the movable wall portion and cyclically repeating the aforesaid steps to effectively utilize the potential energy forces of the cell elements and environment into kinetic energy of the movable wall portion.

16. In a method as stated in claim 15, the step of facilitating the emission of electrons from atoms in said environment by stimulating the production of fluorescence and luminescence within the chamber to provide protons.

17. A method as stated in claim 15 wherein elements from the group consisting of rubidium, mesothorium, radium and phosphorus are contained in said activating cells.

18. A method as stated in claim 15 wherein the environment in the chamber includes xenon, neon, argon, krypton and chlorine.

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[54] **ATOMIC EXPANSION REFLEX OPTICS  
POWER OPTICS POWER SOURCE  
(AEROPS) ENGINE**

3,609,965 10/1971 Hercher ..... 60/513

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[22] Filed: **Aug. 14, 1974**

[21] Appl. No.: **497,335**

[57] **ABSTRACT**

[52] U.S. Cl. .... **60/509; 60/513;  
60/721; 219/121 P; 313/226**

[51] Int. Cl.<sup>2</sup> ..... **F01K 25/06**

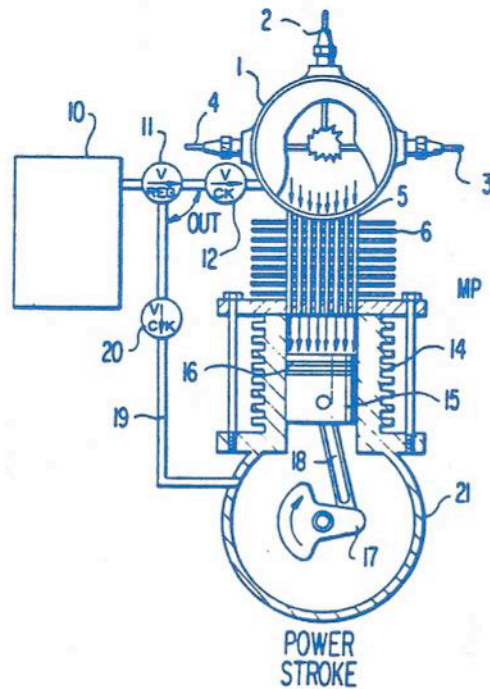
[58] Field of Search ..... **60/508-515,  
60/651, 671, 650, 680, 669; 313/226; 219/21  
P**

An engine is provided which will greatly reduce atmospheric pollution and noise by providing a sealed system engine power source which has no exhaust nor intake ports. The engine includes a spherical hollow pressure chamber which is provided with a reflecting mirror surface. A noble gas mixture within the chamber is energized by electrodes and work is derived from the expansion of the gas mixture against a piston.

[56] **References Cited  
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**12 Claims, 7 Drawing Figures**





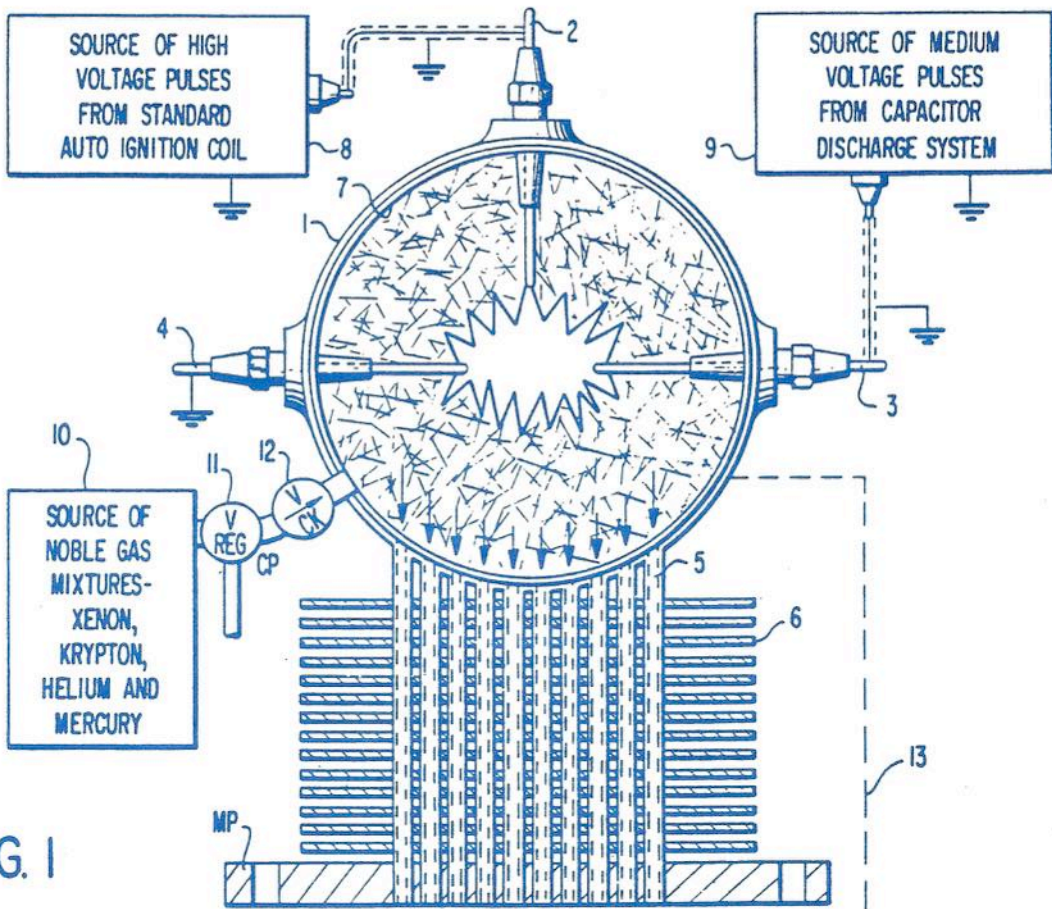


FIG. 1

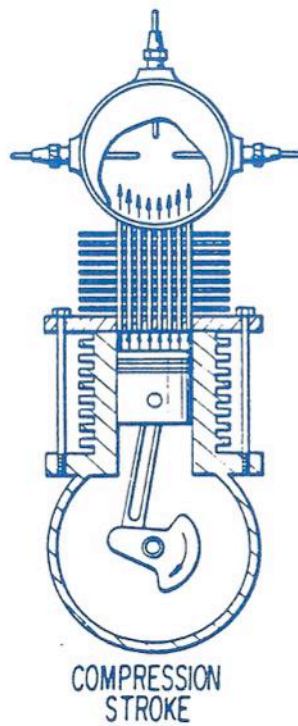


FIG. 3

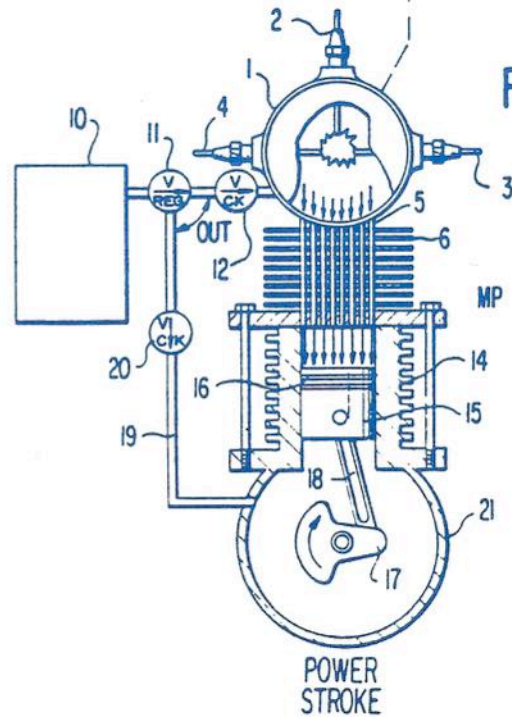


FIG. 2

FIG. 4

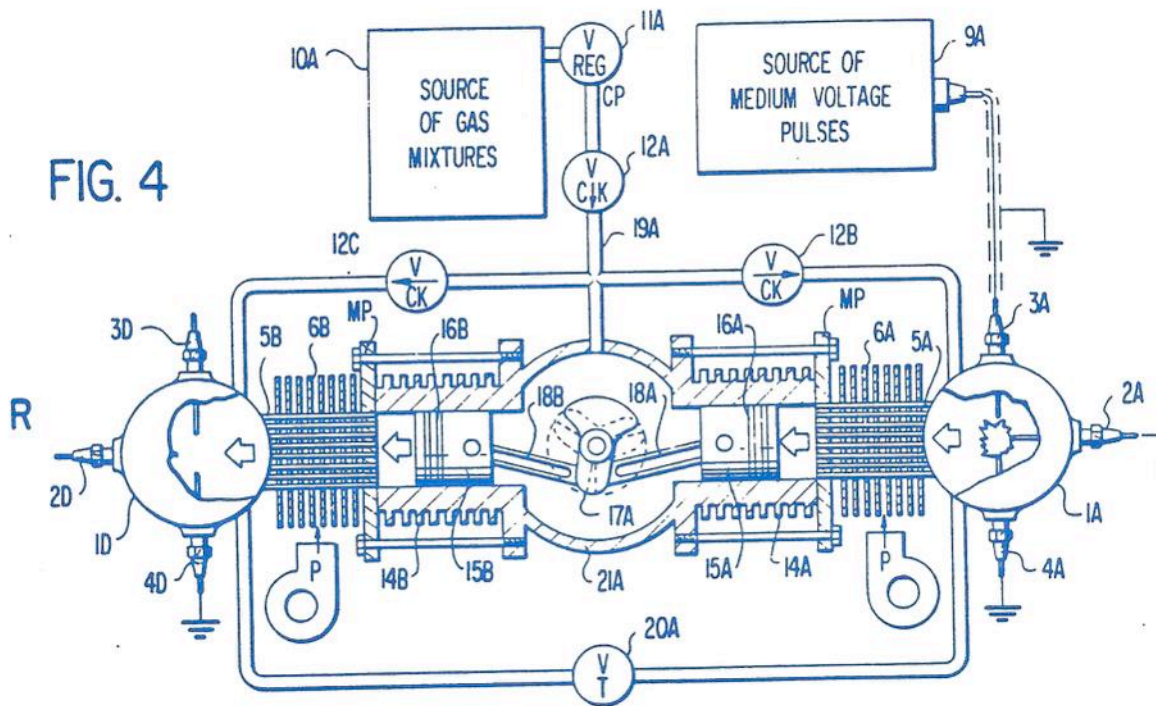
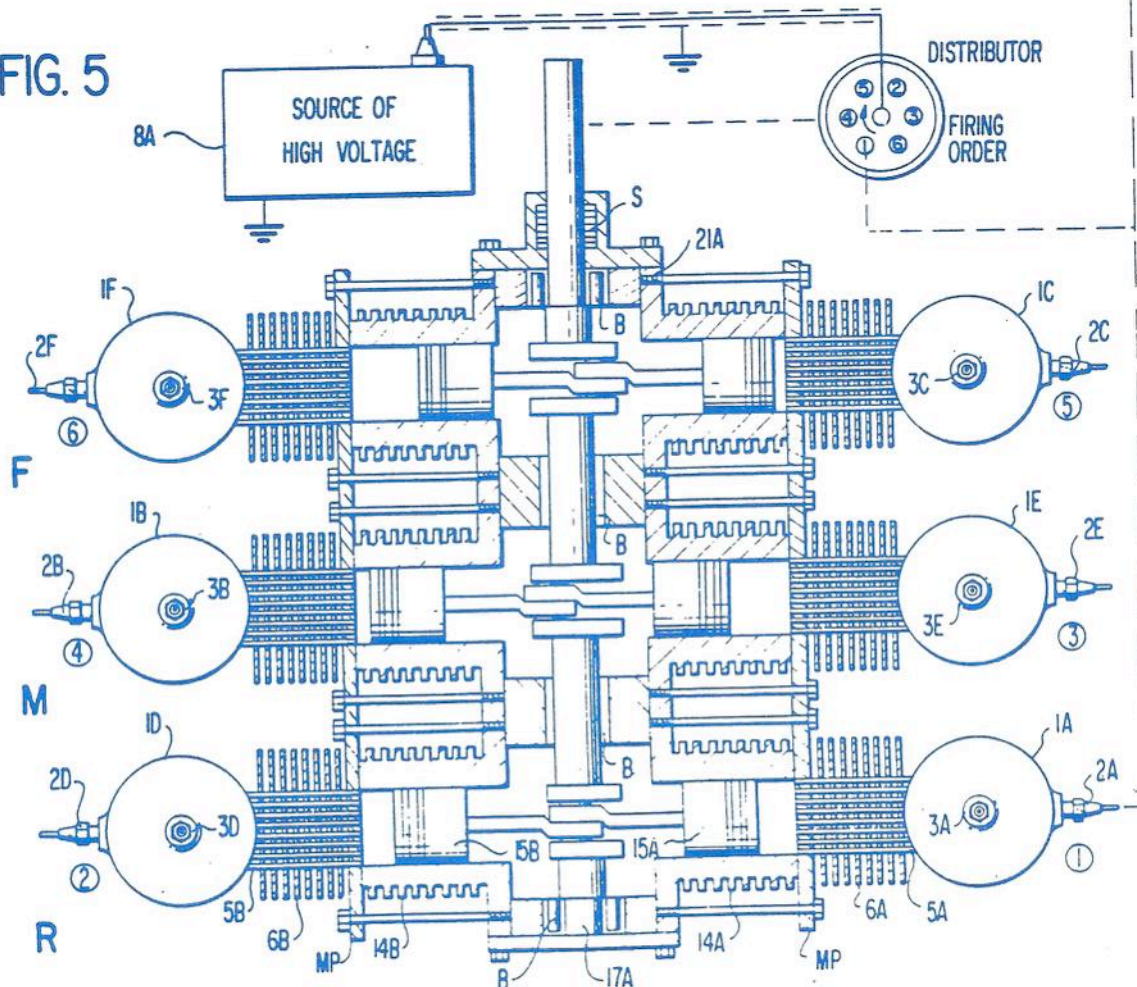
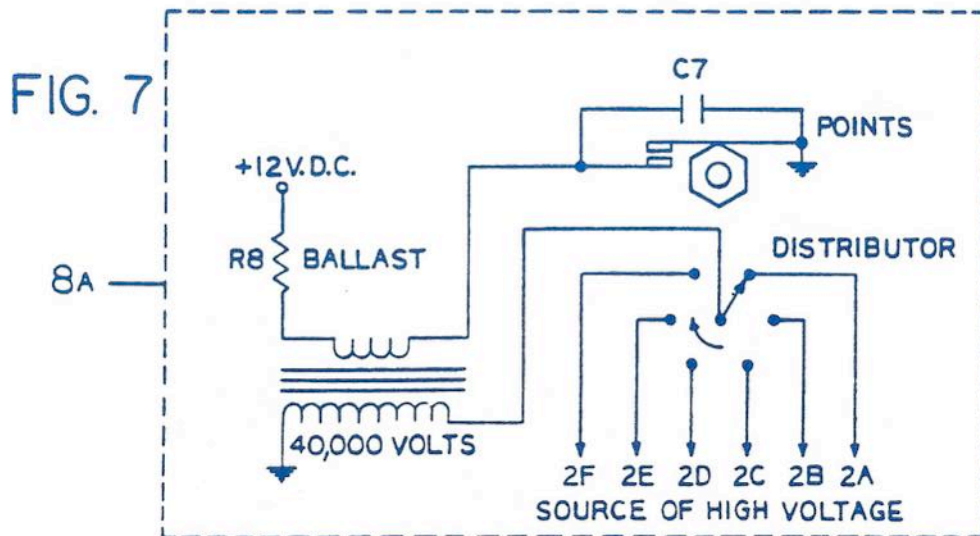
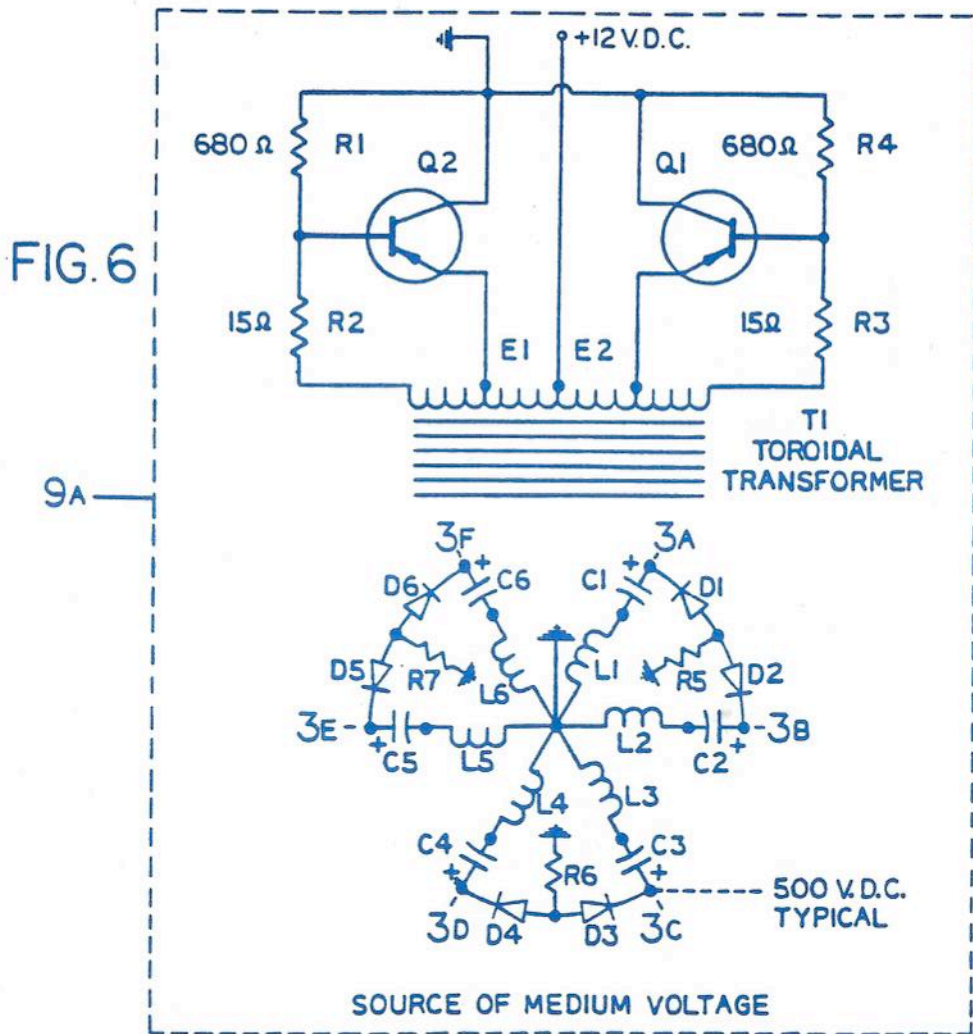


FIG. 5









## ATOMIC EXPANSION REFLEX OPTICS POWER OPTICS POWER SOURCE (AEROPS) ENGINE

### SUMMARY OF INVENTION

An atomic expansion reflex optics power source (AEROPS) engine, having a central crankshaft surrounded by a crankcase. The crankcase has a number of cylinders and a number of pistons located within the cylinders. The pistons are connected to the crankshaft by a number of connecting rods. As the crankshaft turns, the pistons move in a reciprocating motion within the cylinders. An assembly consisting of a number of hollow spherical pressure chambers, having a number of electrodes and hollow tubes, with aircooling fins, is mounted on the top of each cylinder. The necessary gaskets are provided as needed to seal the complete engine assemblies from atmospheric pressure. A means is provided to charge the hollow spherical pressure chamber assembly and the engine crankcase with noble gas mixtures through a series of valves and tubes. A source of medium voltage pulses is applied to two of the electrodes extending into each of the hollow spherical pressure chambers. When a source of high voltage pulses is applied from an electrical rotary distributor switch to other electrodes extending into each of the hollow spherical pressure chambers in a continuous firing order, electrical discharges take place periodically in the various hollow spherical pressure chambers. When the electrical discharges take place, high energy photons are released on many different electromagnetic frequencies. The photons strike the atoms of the various mixed gases, e.g., xenon, krypton, helium and mercury, at different electromagnetic frequencies to which each is selectively sensitive, and the atoms become excited. The first photons emitted are reflected back into the mass of excited atoms by a reflecting mirror surface on the inside wall of any particular hollow spherical pressure chamber, and this triggers more photons to be released by these atoms. They are reflected likewise and strike other atoms into excitation and photon energy release. The electrons orbiting around the protons of each excited atom in any hollow spherical pressure chamber increase in speed and expand outward from center via centrifugal force causing the atoms to enlarge in size. Consequently, a pressure wave is developed, the gases expand and the pressure of the gas increases. As the gases expand, the increased pressure is applied to the top of the pistons in the various cylinders fired selectively by the electrical distributor. The force periodically applied to the pistons is transmitted to the connecting rods which turn the crankshaft to produce rotary power. Throttle control valves and connecting tubes form a bypass between opposing hollow spherical pressure chambers of each engine section thereby providing a means of controlling engine speed and power. The means whereby the excited atoms are returned to normal minimum energy ground-state and minimum pressure level, is provided by disrupting the electrical discharge between the medium voltage electrodes, by cooling the atoms as they pass through a heat transfer assembly, and by the increase in the volume area above the pistons at the bottom of their power stroke. The AEROPS engine as described above provides a sealed unit power source which has no atmospheric air intake nor exhaust emission. The AEROPS engine is therefore pollution free.

### BRIEF OBJECTIVE OF THE INVENTION

This invention relates to the development of an atomic expansion reflex optics power source (AEROPS) engine, having the advantages of greater safety, economy and efficiency over those disclosed in the prior art.

The principal object of this invention is to provide a new engine power technology which will greatly reduce atmospheric pollution and noise, by providing a sealed system engine power source which has no exhaust nor intake ports.

Engine power is provided by expanding the atoms of various noble gas mixtures. The pressure of the gases increases periodically to drive the pistons and crankshaft in the engine to produce safe rotary power.

The objects and other advantages of this invention will become better understood to those skilled in the art when viewed in light of the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWING VIEWS

Other objects, advantages and features should become apparent from the following disclosure wherein:

FIG. 1 is an elevational view of the hollow spherical pressure chamber assembly, including sources of gas mixtures and electrical supply.

FIG. 2 is an elevational view of the primary engine power stroke.

FIG. 3 is an elevational view of the primary engine compression stroke.

FIG. 4 is a rear elevational view of a six cylinder AEROPS engine.

FIG. 5 is a top view of the six cylinder AEROPS engine.

FIG. 6 is an electrical schematic of the source of medium voltage.

FIG. 7 is an electrical schematic of the source of high voltage.

### DETAILED DESCRIPTION

Referring now to FIG. 1 of the drawings, the AEROPS engine comprises a hollow spherical pressure chamber 1 having an insulated high voltage electrode 2 mounted on the top, an insulated medium voltage electrode 3 mounted on the right, and an insulated common ground electrode 4 mounted on the left, as shown in this particular view. Electrodes 2, 3, and 4 extend through the wall of the hollow spherical pressure chamber 1 and each electrode forms a pressure seal. A plurality of hollow tubes 5 arranged in a cylindrical pattern extend through the wall of the hollow spherical pressure chamber 1, and each hollow tube is welded to said pressure chamber to form a pressure seal. The opposite ends of hollow tubes 5 extend through the mounting plate MP and are welded likewise to form a pressure seal. A plurality of heat transfer fins 6 are welded at intervals along the length of said hollow tubes 5. A bright reflecting mirror surface 7 is provided on the inner wall of the hollow spherical pressure chamber 1. A source of high voltage 8 is periodically connected to the insulated high voltage electrodes 2 and 4. A source of medium voltage 9 from a discharge capacitor is connected to the insulated medium voltage electrodes 3 and 4. A source of noble gas mixtures 10, e.g., xenon, krypton, helium and mercury is applied under pressure into the hollow spherical pressure chamber 1 through pressure regulator valve 11 and check valve 12.



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Referring now to FIG. 2 of the drawings, the complete assembly shown in FIG. 1 by reference to dotted line 13, is mounted on the top of the cylinder 14 via mounting plate MP. The necessary gaskets or other means are provided to seal the engine and prevent loss of gases into the atmosphere. The piston 15 located within cylinder 14 has several rings 16 which seal against the inner wall of said cylinder. The piston 15 is connected to the crankshaft 17 by connecting rod 18. The source of noble gas mixtures 10 is applied under pressure into the crankcase 21 through pressure regulator valve 11, check valve 12 and capillary tube 19. The piston 15 is now balanced between equal gas pressures. Assuming that the engine is running and the piston 15 is just passing top-dead-center (TDC), a source of medium voltage from a capacitor discharge system 9 (FIG. 6, a single typical capacitor section) is applied to electrodes 3 and 4. A source of high voltage pulses from a standard ignition coil 8 (such as shown in FIG. 7) is applied to electrodes 2 and 4 and the gases within the hollow spherical pressure chamber 1 are ionized and made electrically conductive. An electrical discharge takes place between electrodes 3 and 4 through the gases in the hollow spherical pressure chamber 1. The electrical discharge releases high energy photons on many different electromagnetic frequencies. The photons strike the atoms of the various gases, e.g., xenon, krypton, helium and mercury at different electromagnetic frequencies to which each atom is selectively sensitive and the atoms of each gas become excited. The first photons emitted are reflected back into the mass of excited atoms by the reflecting mirror surface 7. This triggers more photons to be released by these atoms, and they are reflected likewise from the mirror surface 7 and strike other atoms into excitation and more photons are released as the chain reaction progresses. The electrons orbiting around the protons of each excited atom increase in speed and expand outward in a new orbital pattern due to an increase in centrifugal force. Consequently, a pressure wave is developed in the gases as the atoms expand and the overall pressure of the gases within the hollow spherical pressure chamber 1 increases. As the gases expand they pass through the hollow tubes 5 and apply pressure on the top of piston 15. The pressure pushes the piston 15 and the force and motion of the piston is transmitted through the connecting rod 18 to the crankshaft 17 rotating it in a clockwise direction. At this point of operation, the power stroke is completed and the capacitor in the medium voltage capacitor discharge system 9 is discharged. The excited atoms return to normal ground state and the gases return to normal pressure level. The capacitor in the medium voltage capacitor discharge system 9 is recharged during the time period between (TDC) power strokes.

Referring now to FIG. 3 of the drawings, the compression stroke of the engine is shown. In this engine cycle the gases above the piston are forced back into the hollow spherical pressure chamber through the tubes of the heat transfer assembly. The gases are cooled as the heat is conducted into the fins of the heat transfer assembly and carried away by an air blast passing through the fins. An example is shown in FIG. 4, the centrifugal air pump P providing an air blast upon like fins.

Some of the basic elements of the invention as set forth in FIGS. 1, 2, and 3 are now exhibited in FIGS. 4

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and 5 of the drawings which show complete details of a six cylinder horizontally opposed AEROPS engine.

Referring now to FIGS. 4 and 5 of the drawings, FIG. 4 is a view of the rear section of the engine showing the crankshaft center axis and two of the horizontally opposed cylinders. In as much as the rear R, middle M and front F sections of the engine possess identical features, only the rear R engine section will be elaborated upon in detail in order to prevent repetition and in the interest of simplification. The crankshaft 17A consists of three cranks spaced 120° apart in a 360° circle as shown. Both connecting rods 18A and 18B are connected to the same crank. Their opposite ends connect to pistons 15A and 15B, located in cylinders 14A and 14B respectively. Each piston has pressure sealing rings 16A and 16B. The hollow spherical pressure chamber assemblies consisting of 1A and 1D are mounted on cylinders 14A and 14B via mounting plates MP. The necessary gaskets are provided as needed to seal the complete engine assemblies from atmospheric pressure. The source of gas mixtures 10A is applied under pressure to pressure regulator valve 11A and flows through check valve 12A, through check valve 12B to the hollow spherical pressure chamber 1A, and through check valve 12C to the hollow spherical pressure chamber 1D. The gas flow network consisting of capillary tubes below point 19A represents the flow of gases to the rear section R of the engine. The middle section M and the front section F both have gas flow networks identical to that consisting of capillary tubes below point 19A, while the gas flow network above is common to all engine sections. Throttle valve 20A and the connecting tubing form a variable bypass between hollow spherical pressure chambers 1A and 1D to control engine speed and power. Engine sections R, M and F each have this bypass throttle network. The three throttle valves have their control shafts ganged together. A source of medium voltage pulses 9A is connected to medium voltage electrodes 3A and 3D. In one particular embodiment the medium voltage is 500 volts. A source of high voltage pulses 8A is connected to electrode 2A through the distributor as shown. Electrode 4A is connected to common ground. Centrifugal air pumps P force air through heat transfer fins 6A and 6B to cool the gases flowing in the tubes 5A and 5B.

FIG. 5 is a top view of the AEROPS engine showing the six cylinders and crankshaft arrangement consisting of the rear R, middle M and front F sections. The crankshaft 17A is mounted on bearings B, and a multiple shaft seal S is provided as well as the necessary seals at other points to prevent loss of gases into the atmosphere. The hollow spherical pressure chambers 1A, 1B, 1C, 1D, 1E and 1F are shown in detail with high voltage electrodes 2A, 2B, 2C, 2D, 2E, 2F and medium voltage electrodes 3A, 3B, 3C, 3E and 3F. The common ground electrodes 4A, 4B, 4C, 4D, 4E, 4F are not shown in FIG. 5 but are typical of the common ground electrodes 4A and 4D shown in FIG. 4. It should be noted that the cranks on crankshaft 17A are so arranged to provide directly opposing cylinders rather than a conventional staggered cylinder design.

FIG. 6 is an electrical schematic of the source of medium voltage 9A. The complete operation of the converter is explained as follows: The battery voltage 12VDC is applied to transformer T1, which causes currents to pass through resistors R1, R2, R3 and R4. Since it is not possible for these two paths to be exactly equal in resistance, one-half of the primary winding of



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Referring now to FIG. 2 of the drawings, the complete assembly shown in FIG. 1 by reference to dotted line 13, is mounted on the top of the cylinder 14 via mounting plate MP. The necessary gaskets or other means are provided to seal the engine and prevent loss of gases into the atmosphere. The piston 15 located within cylinder 14 has several rings 16 which seal against the inner wall of said cylinder. The piston 15 is connected to the crankshaft 17 by connecting rod 18. The source of noble gas mixtures 10 is applied under pressure into the crankcase 21 through pressure regulator valve 11, check valve 12 and capillary tube 19. The piston 15 is now balanced between equal gas pressures. Assuming that the engine is running and the piston 15 is just passing top-dead-center (TDC), a source of medium voltage from a capacitor discharge system 9 (FIG. 6, a single typical capacitor section) is applied to electrodes 3 and 4. A source of high voltage pulses from a standard ignition coil 8 (such as shown in FIG. 7) is applied to electrodes 2 and 4 and the gases within the hollow spherical pressure chamber 1 are ionized and made electrically conductive. An electrical discharge takes place between electrodes 3 and 4 through the gases in the hollow spherical pressure chamber 1. The electrical discharge releases high energy photons on many different electromagnetic frequencies. The photons strike the atoms of the various gases, e.g., xenon, krypton, helium and mercury at different electromagnetic frequencies to which each atom is selectively sensitive and the atoms of each gas become excited. The first photons emitted are reflected back into the mass of excited atoms by the reflecting mirror surface 7. This triggers more photons to be released by these atoms, and they are reflected likewise from the mirror surface 7 and strike other atoms into excitation and more photons are released as the chain reaction progresses. The electrons orbiting around the protons of each excited atom increase in speed and expand outward in a new orbital pattern due to an increase in centrifugal force. Consequently, a pressure wave is developed in the gases as the atoms expand and the overall pressure of the gases within the hollow spherical pressure chamber 1 increases. As the gases expand they pass through the hollow tubes 5 and apply pressure on the top of piston 15. The pressure pushes the piston 15 and the force and motion of the piston is transmitted through the connecting rod 18 to the crankshaft 17 rotating it in a clockwise direction. At this point of operation, the power stroke is completed and the capacitor in the medium voltage capacitor discharge system 9 is discharged. The excited atoms return to normal ground state and the gases return to normal pressure level. The capacitor in the medium voltage capacitor discharge system 9 is recharged during the time period between (TDC) power strokes.

Referring now to FIG. 3 of the drawings, the compression stroke of the engine is shown. In this engine cycle the gases above the piston are forced back into the hollow spherical pressure chamber through the tubes of the heat transfer assembly. The gases are cooled as the heat is conducted into the fins of the heat transfer assembly and carried away by an air blast passing through the fins. An example is shown in FIG. 4, the centrifugal air pump P providing an air blast upon like fins.

Some of the basic elements of the invention as set forth in FIGS. 1, 2, and 3 are now exhibited in FIGS. 4

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and 5 of the drawings which show complete details of a six cylinder horizontally opposed AEROPS engine.

Referring now to FIGS. 4 and 5 of the drawings, FIG. 4 is a view of the rear section of the engine showing the crankshaft center axis and two of the horizontally opposed cylinders. In as much as the rear R, middle M and front F sections of the engine possess identical features, only the rear R engine section will be elaborated upon in detail in order to prevent repetition and in the interest of simplification. The crankshaft 17A consists of three cranks spaced 120° apart in a 360° circle as shown. Both connecting rods 18A and 18B are connected to the same crank. Their opposite ends connect to pistons 15A and 15B, located in cylinders 14A and 14B respectively. Each piston has pressure sealing rings 16A and 16B. The hollow spherical pressure chamber assemblies consisting of 1A and 1D are mounted on cylinders 14A and 14B via mounting plates MP. The necessary gaskets are provided as needed to seal the complete engine assemblies from atmospheric pressure. The source of gas mixtures 10A is applied under pressure to pressure regulator valve 11A and flows through check valve 12A, through check valve 12B to the hollow spherical pressure chamber 1A, and through check valve 12C to the hollow spherical pressure chamber 1D. The gas flow network consisting of capillary tubes below point 19A represents the flow of gases to the rear section R of the engine. The middle section M and the front section F both have gas flow networks identical to that consisting of capillary tubes below point 19A, while the gas flow network above is common to all engine sections. Throttle valve 20A and the connecting tubing form a variable bypass between hollow spherical pressure chambers 1A and 1D to control engine speed and power. Engine sections R, M and F each have this bypass throttle network. The three throttle valves have their control shafts ganged together. A source of medium voltage pulses 9A is connected to medium voltage electrodes 3A and 3D. In one particular embodiment the medium voltage is 500 volts. A source of high voltage pulses 8A is connected to electrode 2A through the distributor as shown. Electrode 4A is connected to common ground. Centrifugal air pumps P force air through heat transfer fins 6A and 6B to cool the gases flowing in the tubes 5A and 5B.

FIG. 5 is a top view of the AEROPS engine showing the six cylinders and crankshaft arrangement consisting of the rear R, middle M and front F sections. The crankshaft 17A is mounted on bearings B, and a multiple shaft seal S is provided as well as the necessary seals at other points to prevent loss of gases into the atmosphere. The hollow spherical pressure chambers 1A, 1B, 1C, 1D, 1E and 1F are shown in detail with high voltage electrodes 2A, 2B, 2C, 2D, 2E, 2F and medium voltage electrodes 3A, 3B, 3C, 3E and 3F. The common ground electrodes 4A, 4B, 4C, 4D, 4E, 4F are not shown in FIG. 5 but are typical of the common ground electrodes 4A and 4D shown in FIG. 4. It should be noted that the cranks on crankshaft 17A are so arranged to provide directly opposing cylinders rather than a conventional staggered cylinder design.

FIG. 6 is an electrical schematic of the source of medium voltage 9A. The complete operation of the converter is explained as follows: The battery voltage 12VDC is applied to transformer T1, which causes currents to pass through resistors R1, R2, R3 and R4. Since it is not possible for these two paths to be exactly equal in resistance, one-half of the primary winding of



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T1 will have a somewhat higher current flow. Assuming that the current through the upper half of the primary winding is slightly higher than the current through the lower half, the voltages developed in the two feedback windings (the ends connected to R3 and R2) tend to turn transistor Q2 on and transistor Q1 off. The increased conduction of Q2 causes additional current to flow through the lower half of the transformer primary winding. The increase in current induces voltages in the feedback windings which further drives Q2 into conduction and Q1 into cutoff, simultaneously transferring energy to the secondary of T1. When the current through the lower half of the primary winding of T1 reaches a point where it can no longer increase due to the resistance of the primary circuit and saturation of the transformer core, the signal applied to the transistor from the feedback winding drops to zero, thereby turning Q2 off. The current in this portion of the primary winding drops immediately, causing a collapse of the field about the windings of T1. This collapse in field flux, cutting across all of the windings in the transformer, develops voltages in the transformer windings that are opposite in polarity to the voltages developed by the original field. This new voltage now drives Q2 into cutoff and drives Q1 into conduction. The collapsing field simultaneously delivers power to the secondary windings L1, L2, L3, L4, L5 and L6. The output voltage of each winding is connected through resistors R5, R6 and R7 and diode rectifiers D1, D2, D3, D4, D5 and D6, respectively, whereby capacitors C1, C2, C3, C4, C5 and C6 are charged with a medium voltage potential of the polarity shown. The output voltage is made available at points 3A, 3B, 3C, 3D, 3E and 3F which are connected to the respective medium voltage electrodes on the engine shown in FIG. 4 and FIG. 5.

Referring now to FIG. 7 of the drawings, a conventional "Kettering" ignition system provides a source of high voltage pulses 8A of approximately 40,000 volts to a distributor, which provides selective voltage output at 2A, 2B, 2C, 2D, 2E and 2F, which are connected to the respective high voltage electrodes on the engine shown in FIG. 4 and FIG. 5. The distributor is driven by the engine crankshaft 17A (FIG. 5) at a one to one mechanical gear ratio.

Referring again to FIGS. 4 and 5 of the drawings, the operation of the engine is as follows: Assuming that a source of noble gas mixtures, e.g., xenon, krypton, helium and mercury is applied under pressure to the hollow spherical pressure chambers 1A, 1B, 1C, 1D, 1E and 1F and internally to the crankcase 21A through pressure regulator valve 11A and check valves 12A, 12B and 12C; and the source of medium voltage 9A is applied to electrodes 3A, 3B, 3C, 3D, 3E and 3F; and a source of high voltage pulse 8A is applied to electrode 2A through the timing distributor, the gas mixtures in the hollow spherical pressure chamber 1A is ionized and an electrical discharge occurs immediately between electrodes 3A and 4A. High energy photons are released on many different electromagnetic frequencies. The photons strike the atoms of the various gases, e.g., xenon, krypton, helium and mercury at different electromagnetic frequencies to which each is particularly sensitive and the atoms of each gas become excited. The first photons emitted are reflected back into the mass of excited atoms by the internal reflecting mirror surface on the inside wall of the hollow spherical pressure chamber 1A. This triggers more photons to be released by these atoms and they are reflected likewise

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from the mirror surface and strike other atoms into excitation and more photons are released as the chain reaction progresses. The electrons orbiting around the protons of each excited atom in the hollow spherical pressure chamber 1A increase in speed and expand outward in a new orbital pattern due to an increase in centrifugal force. Consequently, a pressure wave is developed in the gases as the atoms expand and the overall pressure of the gases within the hollow spherical pressure chamber 1A increases. As the gases expand they pass through the hollow tubes 5A applying pressure on the top of piston 15A. The pressure applied to piston 15A is transmitted through connecting rod 18A to the crankshaft 17A rotating it in a clockwise direction. As the crankshaft 17A rotates it pushes piston 15B via connecting rod 18B in the direction of a compression stroke, forcing the gases on the top of the piston through hollow tubes 5B into the hollow spherical pressure chamber 1D. As the gases pass through the hollow tubes 5A and 5B the heat contained in the gases is conducted into the heat transfer fins 6A and 6B, where it is dissipated by a blast of air passing through said fins from the centrifugal air pumps P. At this point of operation the power stroke of piston 15A is completed and the capacitor in the medium voltage capacitor discharge system 9A is discharged. The excited atoms return to normal ground state and the gases return to normal pressure level. The capacitor in the medium voltage capacitor discharge system 9A is recharged during the time period between the power strokes of piston 15A. The above power stroke cycle occurs exactly the same in the remaining cylinders as the high voltage firing order progresses in respect to the position of the distributor switch. In as much as the AEROPS engine delivers six power strokes per single crankshaft revolution, the crankshaft drives the distributor rotor at a one to one shaft ratio. The complete high voltage firing order is 1, 4, 5, 2, 3, 6, whereas, the high voltage is applied to electrodes 2A, 2B, 2C, 2D, 2E and 2F respectively. A means of controlling engine speed and power is provided by a plurality of throttle control valves and connecting tubes which form a bypass between opposing hollow spherical pressure chambers of each engine section.

The AEROPS engine as described above provides a sealed unit power source which has no atmospheric air intake nor exhaust emission and is therefore pollution free.

What has been set forth above is intended an exemplary to enable those skilled in the art in the practice of the invention. It should, therefore, be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described.

What is new and therefore desired to be protected by Letters Patent of the United States is:

1. An atomic expansion reflex optics power source comprising:

60 a plurality of pressure chambers, each having a reflecting mirror surface on its inside wall, and each having heat transfer fins and tubes as an integral part thereof, said plurality of pressure chambers having a plurality of electrodes extending into the inside of said pressure chambers, said electrodes being connected to a source of electrical voltage pulses, said pressure chambers being charged with a noble gas mixture under pressure, and



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means to generate heat, pressure and power in said noble gas mixture within said plurality of pressure chambers.

2. The power source as set forth in claim 1 wherein said heat transfer fins and tubes comprise a system of pressure tubing leading from said pressure chambers through which said noble gas mixture is free to pass, said pressure tubing having said fins acting as a heat sink.

3. An atomic expansion reflex optics power source (Aerops) engine comprising:

a central crankshaft surrounded by a crankcase; said crankcase having a cylinder as an integral part thereof;

a piston disposed within said cylinder;

said piston having rings forming a pressure seal against the inside wall of said cylinder;

said piston having a connecting rod communicating with said central crankshaft;

a hollow spherical pressure chamber having a reflecting mirror surface on its inside wall, and having heat transfer fins and tubes as an integral part thereof, mounted on the open end of said cylinder opposite said crankcase forming a seal against atmospheric pressure;

a plurality of electrodes extending into the inside of said hollow spherical pressure chamber, said electrodes having insulators and seals against atmospheric pressure;

a source of high voltage pulses connected to and communicating with said plurality of electrodes;

a source of medium voltage pulses connected to and communicating with said plurality of electrodes;

a source of noble gas mixture under pressure connected to said hollow spherical pressure chamber, said noble gas mixture under pressure within said hollow spherical pressure chamber having ionized atoms, excited atoms and expanded atoms responsive to cyclic electrical discharges and reflecting photon radiation within said hollow spherical pressure chamber, and

means for periodically increasing the pressure of said noble gas mixture within said hollow spherical pressure chamber communicating with said cylinder thereby exerting driving forces on the top of said piston communicating with said crankshaft producing rotary power.

4. The engine as set forth in claim 3 wherein said source of high voltage pulses connected to and communicating with said plurality of electrodes comprises means to ionize said noble gas mixture within said hollow spherical pressure chamber causing said noble gas mixture to become electrically conductive.

5. The engine as set forth in claim 3 wherein said source of medium voltage pulses connected to and communicating with said plurality of electrodes comprises means for generating cyclic electrical discharges through said noble gas mixture within said hollow spherical pressure chamber for releasing photon radiation on different electromagnetic frequencies which selectively strike the atoms in said noble gas mixture within said hollow spherical pressure chamber causing said atoms to become excited atoms, said excited atoms releasing additional said photon radiation.

6. The engine as set forth in claim 3 wherein said hollow spherical pressure chamber having a reflecting mirror surface on its inside wall, comprises means for reflecting photon radiation through said noble gas mix-

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ture within said hollow spherical pressure chamber developing more said excited atoms and photon radiation in a chain reaction.

7. The engine as set forth in claim 6 wherein said excited atoms in said noble gas mixture within said hollow spherical pressure chamber become expanded atoms subject to increasing centrifugal force responsive to said photon radiation increasing the speed of electrons orbiting around the protons of each said excited atoms comprising means for increasing the pressure of said noble gas mixture.

8. An atomic expansion reflex optics power source (Aerops) engine comprising:

a central crankshaft having a plurality of cranks surrounded by a crankcase;

said crankcase having a plurality of cylinders mounted thereon;

a plurality of pistons disposed within said cylinders; said pistons having rings forming a pressure seal against the inside wall of the said respective cylinder;

said pistons each having a connecting rod communicating with said central crankshaft;

a plurality of hollow spherical pressure chambers, each having a reflecting mirror surface on its inside wall, and each having heat transfer fins and tubes as an integral part thereof, mounted on the open end of each said respective cylinder opposite said crankcase forming a seal against atmospheric pressure;

a plurality of electrodes extending into the inside of each said plurality of hollow spherical pressure chambers;

a source of high voltage pulses, and a distributor of said high voltage pulses connected to and selectively communicating with said plurality of electrodes in a predetermined order;

a source of medium voltage pulses connected to and communicating with said plurality of electrodes;

a source of noble gas mixture under pressure connected to each said plurality of hollow spherical pressure chambers, said noble gas mixture under pressure within each said plurality of hollow spherical pressure chambers having ionized atoms, excited atoms and expanded atoms responsive to cyclic electrical discharges and reflecting photon radiation, and

means for selectively increasing the pressure of said noble gas mixture within each said plurality of hollow spherical pressure chambers communicating with each said respective cylinder thereby exerting driving forces on the top of said pistons communicating with said crankshaft producing rotary power.

9. The engine as set forth in claim 8 wherein said source of high voltage pulses and said distributor connected to and communicating with said plurality of electrodes comprises means for selectively ionizing said noble gas mixture within any said plurality of hollow spherical pressure chambers in a predetermined order causing said noble gas mixture to become electrically conductive.

10. The engine as set forth in claim 8 wherein said source of medium voltage pulses connected to and communicating with said plurality of electrodes comprises means for electrical discharges through said noble gas mixture within any said plurality of hollow spherical pressure chambers for releasing photon radia-



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tion on different electromagnetic frequencies which selectively strike the atoms in said noble gas mixture within any said plurality of hollow spherical pressure chambers causing said atoms to become excited atoms, said excited atoms releasing additional photon radiation.

11. The engine as set forth in claim 8 wherein said plurality of hollow spherical pressure chambers each having a reflecting mirror surface on its inside wall, comprises means for reflecting photon radiation through said noble gas mixture within any said hollow

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spherical pressure chambers developing more said excited atoms and photon radiation in a chain reaction.

12. The engine as set forth in claim 11 wherein said excited atoms in said noble gas mixture within any said plurality of hollow spherical pressure chambers become expanded atoms subject to increasing centrifugal force responsive to said photon radiation increasing the speed of electrons orbiting around the protons of each said excited atoms comprising means for increasing the pressure of said noble gas mixture.

\* \* \* \* \*

UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,977,191 Dated August 31, 1976

Inventor(s) Robert Gordon Britt

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet (Item 54) should read:

-- Atomic Expansion Reflex Optics Power Source  
(Aerops Engine) --.

Signed and Sealed this

Seventh Day of February 1978

[SEAL]

Attest:

RUTH C. MASON  
Attesting Officer

LUTRELLE F. PARKER  
Acting Commissioner of Patents and Trademarks



## Some Of Our Current State (+ & -)

**HEALTH & HEALING** - The World Health Organization (WHO) announced this April that they believe we are on the brink of another health disaster with the resurgence of old scourges such as tuberculosis and the old plague as well as with new plagues of mutated viruses and bacteria. Gordon Michael Scallion predicted in 1992 that in the nineties plagues and new diseases will occur. I have been telling this to my patients and other interested folks for years. The reasons are complex, but include the fact that our present civilizations' agricultural, energy production and medical practices have been setting us up for it for years. Here are some facts to back up what I have just said: In the last two hundred years we have destroyed most of what was several feet of pure rich topsoil in this country. We have eroded it away and have poisoned not only the remaining few inches with insecticides and herbicides, but we have put so many of these poisons in the air we breathe and the water we drink that in a 1990 newsletter by John Robbins he quoted a Dr. from UCLA who said already at that time one meal of fish caught off the California coast would give you what used to be a lifetime exposure to pesticides! The use of chemical NPK fertilizers has effectively mined the few remaining inches of topsoil of all the trace minerals as well as other macro-minerals so that the vegetation that still can grow on it is sickly and without life enhancing vitality. In spite of the fact that so many people, such as Rachel Carson author of *Silent Spring* and Joseph Rodale founder of *Prevention* and *Organic Gardening* magazines, alerted us to the dangers of chemical agribusiness so many years ago, this is what we have done to ourselves with it. Our fossil and nuclear fueled energy produced economy has also left a heavy burden of poisons for all life to reckon with. As Dr. Earnest Sternglass pointed out at our last Symposium, high cancer rates, lowered thyroid function, lowered intelligence, social upset, crime and delinquency are all associated with atomic testing and nuclear power plants. The medical professions' own statistics place them as the third leading cause of death in the United States! This is through negligence. What if they considered all deaths and not just from negligence? Perhaps the paradigm medicine is using is flawed mightily and also causing deaths that the statisticians are unaware of. I think that is likely. Back in the sixties when the doctors in Los Angeles went on strike the death rate went down! I know I am prejudiced as an alternative physician, but facts are facts. I also believe that medicine as we have known it is finished. Health care is in a state of crisis and this means

change. I read in the *Denver Post* in April that the numbers of uninsured people in Colorado has increased about three times in the last few years. I have never had health insurance and do not generally recommend it for any of my patients. The only way I can win with insurance is if I lose; I have to get sick to collect. I figure I will bet on my truly preventative lifestyle to avoid disease and natural medical expertise to care for the unavoidable. Both of these will cost me less than insurance even if I were to see a practitioner such as myself every month for preventative maintenance! People are turning to alternative physicians and natural health building practices by the millions and so are insurers. In October 1996 *USA Today* began a story with, "Slowly but surely, alternative medicine is gaining credibility". The news story talked about an HMO in Connecticut, Oxford Health Plans, that has offered its 1.4 million enrollees payment for services for 1,000 alternative practitioners including chiropractors, acupuncturists, homeopaths, naturopaths, massage therapists and yoga teachers! Stock prices for herbal remedies and other dietary supplements rose 54% in the first nine months of 1996. I graduated from the only four year in residence training school of natural medicine in the United States in 1973 when we had only a couple of hundred practitioners. Today we have three such schools and over 2,000 practitioners. The ex mayor of Scottsdale AZ when commenting to a newspaper about the high caliber of medicine available to the people of Scottsdale proudly listed the Southwest College of Naturopathic Medicine and associated clinic along with the other conventional medical therapies available in that city. The past few years more and more states are licensing naturopathic physicians because the public is demanding it and insurance companies and state agencies are paying for their services. You will read more about the positive changes occurring in agriculture and in power production in their sections. I believe that the sickness in our world is also from the stress we experience and the stress is due to belief systems and attitudes. I will defer discussion on these for another article, but will end with the prediction that within five years life as we have created it in the modern world will have changed dramatically. We are not able to physically, mentally, emotionally and spiritually continue it. People are leaving high paying high stress meaningless jobs, unfulfilling relationships and other destructive activities for whatever they envision as their true desire.

**EARTH CHANGES** - After what appeared to be a quiescent period our Earth is experiencing major changes



again. The worst flooding in 500 years hit North Dakota and into Canada. Flooding will likely continue throughout the Northwest, Mississippi flood plain and the Northeast this spring. I have heard that Edgar Cayce predicted the Mississippi would become a great wide waterway as has Gordon Michael Scallion. Cayce was also to have said that if we did not normalize our human relations, thinking and actions by 1998 the Earth would change things for us. Strong 6 and 7 Richter scale quake activity has occurred in Iran, Pakistan, the Philippines and other places. California and Japan have begun to shake feverishly again with Japan having over 10,000 quakes within the last two months, some close to the 7 Richter scale range. After the first solar storm occurred in January for this year, there was a second in April that swept across our planet. Solar storms are expected to increase the next few years with eruptions ten times bigger occurring daily and those one hundred times bigger every two to three days. Gordon Michael Scallion in his Earth Changes Report predicts that these storms will have major effects on our power systems, health, and the earth's magnetic field as well as influencing our intuition. I find it interesting that in the Home Study Course Walter Russell tells us that he had his great illumination during an intense solar storm that disrupted power systems in the US. he also charted an exact solar map at the time that was later judged by astronomers to be fully accurate as to the planetary positions on the day he did it.

**GOVERNMENT/POLITICS** - Of the sixty nine crisis areas/wars going on in the world today 57 are in the area Richard Maybury has named "Chaostan" This area includes the greater upper or North half of Africa, most of Asia and part of Middle Europe or the area from the Arctic ocean to the Indian ocean and Poland to the Pacific. The splintering of the former Soviet Union like the fall of Rome has resulted in hundreds of warlords who will likely use nuclear, chemical and biological weapons. RJ Rummel in his 1994 book Death By Government claims that in the 20th century alone governments have killed 170 million people - not including troops killed in war. Walter Russell in The Divine Iliad stated that government was the most imbalanced of our institutions. We need statesmen and stateswomen that will heed the message of their hearts and spirits and be guided by wisdom. What is the US governments' history? Like all things and governments it is a complex of good and bad. According to a story in the Wall Street Journal 1/15/87 p. 24 by L. Gordon Crovitz titled Presidents Have a History of Unilateral

Moves, between 1798 and 1970 there have been more than 100 cases of US military forces being used against foreign nations that have never made the slightest move to invade the US. We were recently told that the Gulf War was to save the democracy of Kuwait, to preserve the American way of life. Kuwait was and is a monarchy and very far removed politically and socially from the American way of life, but it has rich oil fields. I guess preserving oil fields is an American way. That is what Vietnam appeared to be about as well as Somalia. We have created a lot of enemies around the world by our military meddling. I need to hear more about what we have done to help the world to balance my attitude, but hear little real music there. Within the last year Henry Cisneros as Secretary of the Department of Housing and Urban Development issued rules concerning the ownership of pets by the elderly and disabled in public housing, including a section on how many times a week pet owners might be required to change their kitty litter. The US Government does not just meddle in foreign nations affairs! The Federal Code of 1,113,000 pages of print would take the average American 23,000 years to read. The average American is legally responsible to comply with each and every law, rule and regulation in this Federal Code. I love my country, I love my planet, my Universe and will do what I see I can do to make a difference. I want us to move beyond simply seeing what is wrong in government/politics to what is a positive solution to the problem. I think it lies in a change in consciousness first, then we will change the institution. If consciousness is demonic it will demonize any institution. If consciousness is angelic it will angelize any institution. Thus all of us working to spread the Russell's' message and the messages of other spiritually illumined peoples that give opportunity to better human consciousness are effecting change in government/politics. The Natural Law Party that grew out of the work of Maharishi Mahesh Yogi is a wonderful example of this change in consciousness effecting politics. Meditators are becoming legislators, statesmen and stateswomen! Now that does balance and change my attitude about politics. I believe (in) (there is) a Natural Law Party in every state.

**RELIGION** - I was told by an acquaintance that you can now believe in reincarnation and still be a Catholic. If this is true then Catholicism has certainly changed. Gordon Michael Scallion in his Earth Changes Report says he believes there will be a major spiritual awakening in 1998 for people collectively and that there will be a spiritual leader emerge to galvanize this. I know that



fundamentalist Christians in the US believe that such an occurrence will be a manifestation of the Anti-Christ. Hamid Bey was a Coptic priest I knew from Egypt who corresponded with Lao Russell. In his book *My Experiences Preceding 5,000 Burials* (Available from the USP supplementary book list) he says that he was amazed upon arriving in America to learn that Christianity here did not teach reincarnation. He was taught reincarnation was a fact of existence in his Coptic temple training. The Coptic Christian church is the oldest Christian sect there is. The oldest Christian church is in Cairo Egypt built around 112 A.D. I have pictures of Hamid Bey with his master at this church and pictures of him with Paramahansa Yogananda great Indian yogi and author of *The Autobiography of a Yogi* giving Kriya Yoga initiations together in the 1930's. This was evidence of the mutual support of two ancient religious traditions working together. I look for more and more of a recognition of what is common in religious traditions as opposed to differences to manifest a new religious faith consistent with a growing human consciousness.

ART - I read where Ralph Nader quoted John Adams an early US President who said, "Our generation is made up of politicians and statesmen, so that our children can be physicians and scientists, so that their children can be musicians and artists". What a deep recognition of the need for art and what nurtures art. We need all these generations right now, right here, and everywhere all the time.

SCIENCE/TECHNOLOGY - There have been so many advances from the groups of scientists/inventors that I am connected to since the last Fulcrum that it is simply impossible to even enumerate them all. If you want to stay abreast of all of these changes then you need to subscribe to all of the newsletters/periodicals that I list in Fulcrum. With that caveat here are some of the highlights: Transmutation or alchemy has been the subject of several articles in the Planetary Association for Clean Energy newsletter vol. 9 #1 New Energy News Vol. 4 # 7 and in Journal Of New Energy VOL. 1 # 3. Many of these articles center around processes that use "charge clusters" as pioneered by scientists since 1980 and reported on and patented by Ken Shoulders and others since then. Charge clusters in sciences' terms are highly organized, micron sized clusters of electrons with number densities equal to Avogadro's number. Natural charge cluster phenomena science recognizes include ball lightning, and atomic nuclei and elementary

particles. There appears to be a similarity between the different discharge methods used to produce the observed effects. In general the particles are generated from a cathode and directed to an anode of different materials. There are electrolytic, sonic, electro-chemical, and gaseous discharge methods used to generate the electron clusters. Other nuclides can be gathered into the cluster and accelerated with the charge to strike the various targets. From the Russell Science Researchers viewpoint the similarity between the different discharge methods to produce these phenomena and all the transmutation phenomena observed with them are due to vortex formation and can be explained by the Russell Cosmogony. Researchers are puzzled by the appearance of "foreign" materials showing up in the vicinity of the target strikes. The method used by Ron Kovac, Toby Grotz and I to produce the Mass 5 transmutation phenomena was gas discharge. This is discussed in an update that Ron Kovac has worked on as one of the featured articles in this issue. We created a moving vortex in a nitrogen plasma that in the process of moving from cathode to anode in the magnetic field with relatively low temperature and low magnetic field gauss strength resulted in the "formation" of "foreign" material of mass 5. Ken Shoulders has been credited with discovering charge clusters over a decade ago and recently with showing that they can produce nuclear reactions. Walter Russell did this at Westinghouse in 1927 and the Russell Science Research team has done it in various experiments between 1992 and 1994. Shang-Xian Jin and Hal Fox in an article titled, *Characteristics of High Density Charge Clusters: A Theoretical Model*, in the *Journal of New Energy* Vol.1 #4 show that geometry/structure of the charge clusters is unlikely to be spherical and more likely to be toroidal. Jin also shows that the cluster can be characterized by dimensional, charge and velocity parameters. These ideas are all compatible with the 18 dimensions of matter that Walter Russell gave in *The Universal One* in 1927 and in *A New Concept Of The Universe* in 1953 where he said the control of the shape of the vortex ("angle of gyroscopic rotation") by magnetic fields, temperature and pressure were the secrets to transmutation. Russell's concepts would suggest that only the amplitude elements are spherical. So avant garde science is now saying "This dynamic toroid of electrons is Nature's answer to the hot fusioners' Tokamak". Different language - same fundamental Russellian concepts. Fox and Jin are also claiming to have a prototype method using these concepts to create stable nuclear isotopes from radioactive isotopes. They say, "Our experimental evidence shows



that with a special reactor, we can reduce radioactivity by about half in a few tens of minutes of processing time". This claim bears further investigation and likely research/development and I will get a report for the next issue on this process and the "special reactor" if possible. Don Kelly editor of Space Energy Journal in an article published in New Energy News February 1997 talks about the Papp engine. I have published the patent papers on Papp's engine in this issue because it appears to be undergoing a revival if Don is correct. And, it may be related to the charge cluster concepts discussed in that they might provide the energy necessary to expand the noble gas mixture in the closed cylinders that power the engine. Don says that Papp died from apparent neutron radiation exposure from his engine and that one person was killed and another injured in a demonstration of this engine to representatives from the Stanford Research Institute. For whatever worth they might be to researchers here are the patent papers! As always in this work be careful.

**BUSINESS/COMMERCE** - "US consumer debt is now about \$1.5 trillion. It is growing at an annual rate twice as fast as Americans' wages. Credit card delinquencies are the highest in history, over a million U.S. families will file bankruptcy this year, and the average American family does not have \$2,000 cash. And, these are good times." R.E. McMaster Jr. The Reaper 1/8/97

Richard Maybury in his Early Warning Report Feb., 1997 says, "The Big upheavals that blindside investors - and create huge opportunities for those in the know - are the work of governments". He recommends a list of 47 investments expected to rise from the fast spreading wars in Chaostan ( see govt./ politics this section). These are largely in the defense industries or war production materials. Call 1-800- 509-5400 for info on his newsletter & books.

Gordon Michael Scallion in his Earth Changes newsletter has repeatedly said he feels that we will see a major decline in world markets in 1997 from market cycles, wars, a major quake in Japan and a possible US major nuclear accident East of the Rockies. He also said he feels that the collapse of world markets would only occur from major earth changes. I believe another major overlooked factor will be disease. Disease due to planetary poisoning from nuclear power plant and bomb production/testing radiation, chemical agribusiness, household, industrial and power production toxic wastes as well as the stress of our economic system have brought humanity into the pit of disease we witness. Humanity

is now incapable of conducting business as we have any longer. We are too sick to carry on as we have. Where are the good investments now? I think they lie in the new sustainable pollution free technologies this newsletter reports on, in traditional natural healing, its medicines and modalities, in fundamental education to create "comprehensive generalists" and healthy vital humans through an understanding of what really creates health as well as the real origins of disease ( see my article in a past Fulcrum Vol.4, #1 titled (A Universal Education for Children of All Ages) and in supporting the change in consciousness that will change all of our institutions through new knowledge and values. I believe an investment in my daughters' education at the Southwest College of Naturopathic Medicine in Scottsdale AZ is an investment in the future of humanity. I think an investment in the University of Science and Philosophy is an investment in the future of humanity. So I invest my time and finances in these. My Russell Science Research partner Toby Grotz and I are looking for investors in a new technology that saves electrical power costs in certain types of light technologies. Next Fulcrum will have an article about this new power saving light use technology.

**AGRICULTURE** - There is an ancient deposit of plant and sea animal remains from a collapsed ocean canyon that a volcano brought back to the planets' surface in Utah millions of years ago that I have known of and worked with for over 35 years. It is large enough to regenerate all the farmlands in the United states with the missing trace and macro-minerals. This deposit and others I know of can physically rejuvenate our soils, plants, animals and humans that depend upon these for the constitution of their bodies. Their and our bodies are the instruments of the spirit flowing through them. We must not neglect the instrument of our soul, nor must we be neglectful of the instrument of the souls whose safekeeping we have been entrusted with. All are vitally connected to our soils. What is this ancient deposit? It is called A to Z of minerals and I will publish an article on its history, uses, possibilities and my experiences with it in the next issue of Fulcrum. Bees as well as the frogs and toads are disappearing around the world. I believe this is due to insecticide/herbicide uses by agribusiness/chembusiness all connected with "government business". This is a disaster in the making as the bees are the pollinators for all our vegetation. Radioactivity also may play a part in this deathly scenario. It is time for all of us to WAKE UP and get active like busy bees in reclaiming our Earth and in being wise stewards of the planet.



**EDUCATION** - Our education system has been fragmented and specialized and with the computer age it has created another class of specialization. In October of 1996 STB accounting systems of San Rafael CA released a study showing that typical PC users spend 43% of their time messing around with the computer such as loading or changing software, organizing the disk and figuring out glitches or new applications. Thomas E. Landauer Professor of Psychology at the University of Colorado has said, "The information revolution has yet to produce fast and obvious economic benefits or bring widespread and major improvements in the quality of life". I believe that the solution to this lies in an education revolution. Education needs to assist development of the creative process in individuals and to teach subjects from the perspective of fundamental knowledge. We need comprehensive generalists in Buckminster Fullers' terms. The Russells taught we need a University to teach the science of humanity, natural law and a living philosophy. It exists now in and through their teachings and needs to multiply itself into the thousands while adapting itself to the present. There is an opportunity for you and for the USP to fulfill this need!

**MISCELLANEOUS** - The comet Hale-Bopp has passed its closest approach to us about the latter middle of March. As in ancient times many people considered it a fearful portent of terrifying events to come as witnessed by the mass suicides in California. Others have considered it a portent of a long awaited positive change in human consciousness. By Rob Cox's ideas as he expressed them at our last two symposiums and in his book *The Pillar of Fire and The lost Science of the Ancient Seers* ( Available through USP) I can consider the possibility that the comet was a harbinger of (and a generator of) the subtle energy extension of our galaxy that we are swiftly approaching. In this way it has increased consciousness and demanded positive change from all of us - or we might choose to leave.



## Newsletters/Periodicals

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### NEW SCIENCE/TECHNOLOGY/FREE ENERGY

*Electric Spacecraft Journal*. Published quarterly, annual subscription rate \$24, Canada/Mexico \$29, other countries \$39. ESJ publishes research articles on new science, inventions and network notes from the ESJ network of individuals sharing ideas about these topics. Devoted especially to discovering the means/mechanisms for "electric" spacecraft and all that such understanding would mean for our civilization. I have known the editor Charles A. Yost the last few years and he spoke at our 1995 symposium. I find Charles' ESJ to be interesting and informative, and although most articles are very technical there are aspects of the journal that the average reader should find comprehensible and of interest. Charles A. Yost editor. ESJ, 73 Sunlight Drive, Leicester, North Carolina 28748. Phone 704-683-0313 Fax 683-3511.

*The Space Energy Journal* Published Quarterly. \$35 U.S., \$40 Canada & Mexico, \$50 elsewhere. Jim Kettner and Don Kelly editors. This journal publishes the positive and the negative results of testings of free energy machines and other new science experiments. The discussion of new science ideas is technical and yet also very down to earth so that the average reader should follow most of it. I have met Don Kelly through my association with the International. Assoc. for New Science/ International. Symposiums for New Energy and he is familiar with the Russell work too. Space Energy Association, P.O. Box 11422, Clearwater FL 34616. Phone/ Fax 813-461-7119.

*New Energy News* is the newsletter from the Institute for New Energy. It is a collection of reports on inventions, ideas and of publications relating to alternate and free energy. Monthly free to members with member fee of \$35 and \$60/yr. to corporations, libraries and universities. Hal Fox Editor, P.O. Box 58639, Salt Lake City, UT 84158-8639. Phone 801-583-6232 Fax 583-2963.

The *Planetary Association for Clean Energy* newsletter publishes articles to facilitate the development of a wide range of clean energy technologies including free energy technologies. Usually quarterly \$35/yr. Canada, \$40 USA, \$45 elsewhere. Andrew Michrowski, editor, Planetary Assoc. for Clean Energy, Inc. 100 Bronson Ave. Suite 1001, Ottawa, Ontario, Canada K1R 6G8. Phone 613-236-6265 Fax 235-5876.

### INVESTMENT/INTL. POLITICS/ ETC.

*The Reaper*. 36 issues per publishing year. 1 year- \$195. 10 issue trial - \$60. *The Reaper* is a no holds barred newsletter examining our current global and national economic/political status with an eye towards assisting investors in commodities, currencies, real estate, etc., etc. Publisher R.E. McMaster Jr.

is an acquaintance of mine who I introduced to the Russell's work and I have subscribed to his NL off and on over many years - not because I am an investor ( I should be and if I would have followed much of his advice would have made some cash, but I'm too involved in other work), but because I have been fascinated with R.E.'s analysis of our world situation. Called the Indiana Jones of the Christian economists by some he has a 'Christian' point of view but it is not conventional in my estimation. He is aware of new energy and natural health/healing practices and reports on these areas at times. P.O. Box 84901, Phoenix, AZ 85071. Phone 800-528-0559.

### EARTH CHANGES/ESOTERIC

*The Earth Changes Report* 12 issues/yr. \$36; Canada, Mexico, Alaska & Hawaii \$46/yr.; \$56/yr. elsewhere. Published by futurist/psychic predictor Gordon Michael Scallion gives Gordon's psychic predictions and a review of his hits and misses as well as articles in the new age spiritual genre and a report of earthquake, climate changes, etc. worldwide. I have watched Gordon Michael's predictions for the last several years and while he is not 100% on target he has been close enough on enough times to be much more than just coincidence. Published in the spirit of better to be prepared for what does or does not happen than to be unprepared for what does happen, the ECR is a good monthly review of earth changes as they happen and of what might happen beyond most folks wildest dreams - both pro and con. Matrix Institute, P.O. Box 336, Chesterfield, NH 03443. Phone 1-800-628-7493.

### ESOTERIC/NEW SCIENCE

*New Science News*

published by the International Association for New Science (IANS) addresses metaphysical and esoteric perspectives on pro-social topics such as sociopolitical, new age, and new science concepts. I have spoken at several of their conferences on the Russell's work as well as alternative healing topics. Quarterly, \$35 membership. Bear Jack Gebhardt, editor, IANS, 1304 South College Ave., Ft. Collins, CO 80524

### KEELYNET NEWSLETTER/INFO EXCHANGE

P.O. Box 870716, Mesquite, Texas 75187

Subscription price unknown - Published Quarterly - Info on new energy science and health information exchanges. The publisher is Jerry Decker a long time Russell student, Keely student and investigator into all kinds of unusual phenomena.

### RATBAG ANTIPHYSIC NEWSLETTER.

New Energy Science, anti-establishment news. Subscription price unknown. The publisher goes by the name of Millenium Twain, Plasmatronics Inc., P.O. Box E, Menlo Park, CA 94026



# *In The Wave Lies The Secret Of Creation*

by Dr. Timothy A Binder

This soft cover treatise on the Russell Cosmogony with 44 color charts, 10 black & white charts and 31 diagrams is now available. The book presents a Universal Systems Model that is applied to language in order to facilitate greater comprehension of the Russell Cosmogony. A comparison of Russellian Science and the Science of his time is given as is a description of the chief elements of the Cosmogony including: the eighteen dimensions, formula of the locked potentials, wave mechanics, the cube and the sphere, periodic charts, thermodynamic laws, and Newton's first and third laws versus the Russell Cosmogony to give a firm basis to understand Walter Russell's scientific paintings and charts.

An analysis of the paintings and charts comprises the second half of the book. Most of the paintings included in this volume have never before been published. The cover of this issue of *Fulcrum* has one of these paintings as its front cover piece.

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