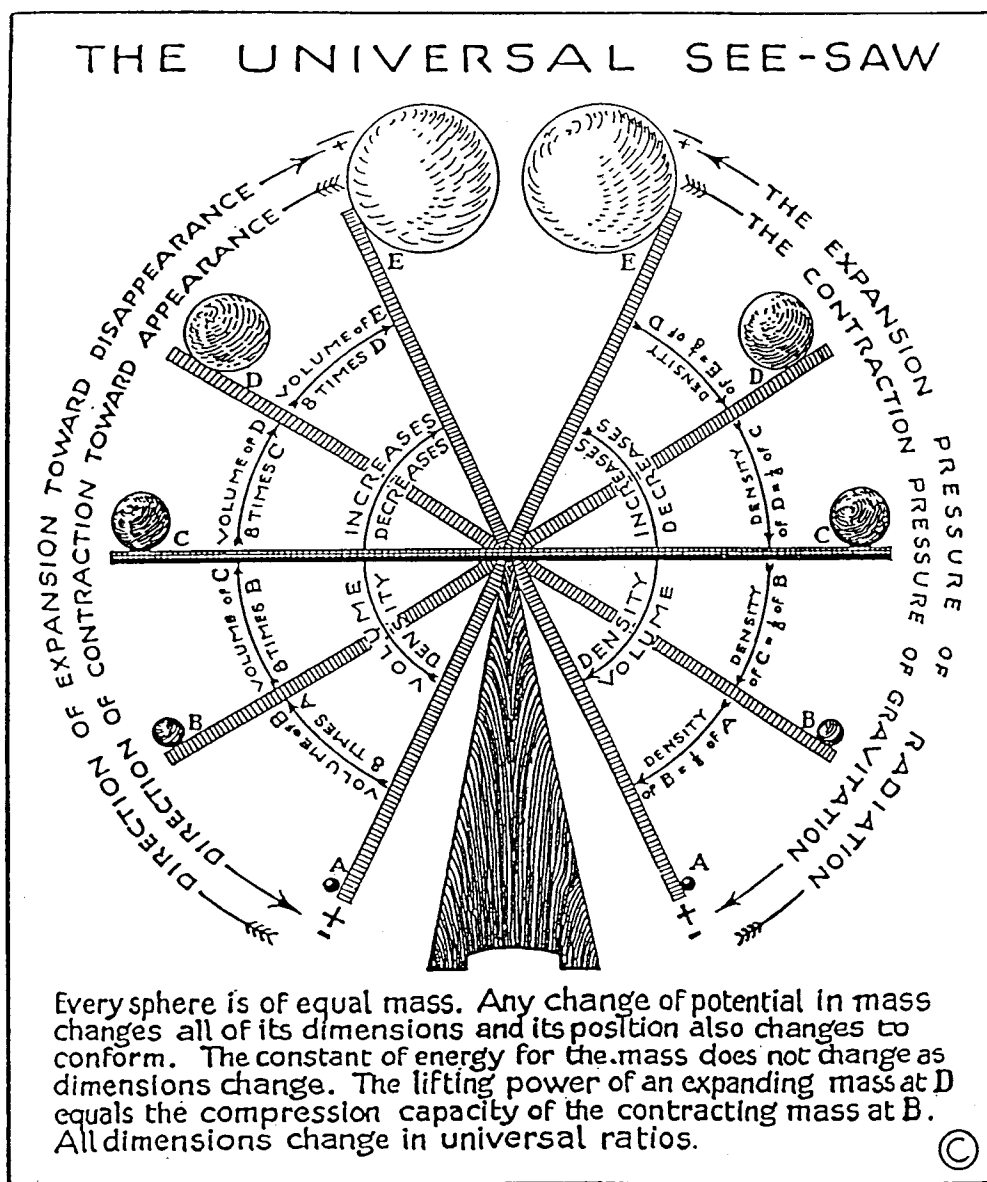


FULCRUM[©]

The Science Newsletter Of
The University of Science and Philosophy

Vol. 1, No. 2, August 1992



EVERY MASS FINDS ITS OWN POSITION ACCORDING TO ITS ABILITY TO DISPLACE OTHER MASS. A MASS OF GREAT VOLUME MUST SEEK A LOWER POTENTIAL POSITION THAN THAT REQUIRED BY AN EQUAL MASS OF SMALL VOLUME.

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GREETINGS!!!!!! We are happily into the 2nd edition of **FULCRUM** !!!!

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QUESTIONS

(1) In *The Universal One* (page 67) Dr. Russell defines electricity and magnetism as :

"Electricity is the active, attractive force within Mind which appears to concentrate, contract, and compress the non-compressible substance of Mind into the forms created by the process of thinking, and to evolve those forms by raising the potential, or power dimension, of energy by accumu-lation."

"Magnetism is the reactive, repellant force within the substance of Mind which appears to expand the forms created by Mind in the process of thinking, and to accomplish their dissolution through lowering the potential of energy by releasing the accumulation."

"Positive electricity is that state of motion in which electricity dominates magnetism."

"Negative electricity is that state of motion in which magnetism dominates electricity."

In *The Secret of Light* (TSOL) (pp. 139 & 148) Dr. Russell further defines electricity but never defines magnetism, referencing only to the "still magnetic Light":

"Electricity is the strain or tension set up by the two opposing desires of universal Mind thinking: the desire for balanced action and the desire for rest."

"Positive electricity winds the light of motion into dense solids around points of still magnetic Light. It compresses motion into incandescent spheres surrounded by the vacuity of negative electricity."

"Negative electricity unwinds the light of motion from dense solidity to tenuous vacuity by expanding it into cubic wave fields of space."

In *Atomic Suicide* (AS) Dr. Russell completes his redefinition of magnetism in chapter VIII. Herein he defines gravity and magnetism as different aspects of the One, much as a soul is unique yet still is God. "...electric effects..." are "...controlled by Magnetic stillness, which means Mind-stillness." So from AS I get a picture of magnetism belonging exclusively to the stillness, controlling both electric effects of generation and radiation.

The question I pose is whether I am correct or not in my conclusion Dr. Russell redefined the terms and functions of electricity and magnetism to be: Electricity belongs to world of multiplication/division, solidity/-vacuity, generating/degenerating effects while magnetism belongs solely to the unchanging world of Stillness, Oneness, Cause? Can anyone clearly define magnetism and its relation to gravity from the descriptions in *Atomic Suicide*?

(2) Dr. Russell cited universal ratios for distance, area, and volumes in *The Universal One* which shows distance ratios along the inertial axis as 1 : 2 : 4 : 8. Yet in TSOL, p. 278 he states "Each element is the square of the distance to and from its succeeding element, in accordance with its direction." Which distance ratio is correct?

As corollaries:

(a) In *The Universal One*, area and volume ratios (as shown below) are square and cubic, resp., ratios developed from distance ratios (i.e., a tripling of distance would yield an increase of area by 9 (3 squared) and an increase in volume of 27 (3 cubed). Does this change in tonal distance ratios necessitate rethinking of the area and volume ratios?

(b) What is the relationship of the 0.618:1 ratio of the Spiral Mirabilis to the shape, form, evolvment, unfolding of the 9 octave wave chart?

QUESTIONS AND ANSWERS

From the previous *FULCRUM* the questions asked were:

- (1) Voidance Principle: "Every action-reaction in Nature is voided as it occurs, is recorded as it is voided, and repeated as it is recorded. How can you reconcile the Voidance Principle with your experience of time and space?
- (2) What are the differences in "motion-in-inertia" and "motion-in-opposition" as used by Walter Russell to describe states of motion in the inert gases as compared to the elements?

From Chester Hatstat, Jr.

(1) "Every action-reaction in Nature is voided as it occurs" : Universal balance requires any action or reaction to be voided by its opposite. My experience is the voidance can be immediate or take 'X' amount of time. A yang action can initiate a yin response or can itself be transmuted into a yin action. As a pendulum swings one way its speed and momentum reach a maximum and the stage is set for the opposite to occur- slowing down to a minimum. The analysis precedes the synthesis, giving precedes receiving, start establishes finish and defines the process yet within the process is a simultaneous movement in time and action away from the start towards the finish. The voidance for me is thus simultaneous and continuous in time.

"Is recorded as it is voided" : The recording is in the motion. Motion is the record of God's thinking. Motion takes on different appearances and forms but is ultimately motion. Both action and reaction are motion. Any action (motion) I initiate is a recording of the idea I want to express or manifest. The voidance of the action I initiate must occur as motion also, thus in the motion of voidance is the recording.

To further expand on the concept of recording:

From TSOL p.50

"Thought is patterned idea electrically expressed and electrically recorded in matter by two pulsing, interchanging lights."

From TSOL p. 249

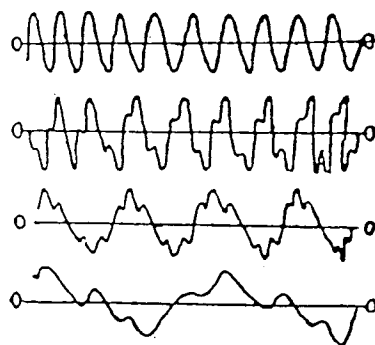
"Two-way sex-conditioned spirals.....are the electric workers which fulfill desire of Mind by interweaving threads of light into patterned form."

Further, the text on p. 249 constructs a picture of "still centering shafts". All motion rotates and revolves around these "shafts" or "wave lines" and the "wave line which records all effects of motion controls these effects". From TSOL p. 250

"Around the still shaft of the wave all motion of the wave spirals to interweave the patterns and forms of desire."

"All spiral forms must have intense individuality in order to express such amazing varieties of form and pattern. (Fig. 59)"

Fig. 59
Various patterns of
wave shafts recording
borrowed energy



My conclusion from Dr. Russell's discourse is the centering wave axis is a mechanism for recording thought or "patterned idea". The motion which revolves and rotates around the patterned wave axis is the recorded effect.

The "threads of light", being waves, are also centered by patterned wave axes. In the same manner we use optics and radio waves as carriers of information so too the "threads of light" and indeed all wave forms are spirals in motion recording "patterns of form" via their centering wave axes.

How these stored "patterns" are retrieved and made manifest is another delightful and mysterious process to solve!!

"Is repeated as it is recorded" : On a cosmic scale, God's thinking is repetitive and is recorded in motion. Motion thus repeats itself as action-reaction to image (record) the repetitive nature of God's thinking. My own experience of this ties in with another Walter Russell quote:

"This is a thought wave Universe, created solely for the transmission of and manifestation of thoughts."

My thinking and actions both have an effect in this relative universe and both are recorded and repeated. Awareness of the balance which must occur and the effects which will be initiated brings into focus my responsibility for the quality and structure of my life and the life on

planet Earth. Impeccability repeats as impeccability, in both thought and deed!!

(2) Motion-in-inertia is a word description of motion in its most dormant state. Each octave is a tonal level of pressures with the inert gases representing "minimum motion in the wave". The inert gases "surround the zero from which motion springs and to which it returns." (TSOL p. 271). The inert gases are three dimensional and within them are "the desire for expression and the patterned form of that desire" (TSOL p. 271-272). Desire of course is what powers the Universe and desire expressed through the inert gas determines the amount of 'borrowed' energy capable of manifesting in each octave (TSOL p. 249). 'Patterned form' is the record of idea and is made manifest through the power in desire, by way of "two-way sex conditioned spirals".

Motion-in-opposition is a word description for motion outside of the lowest state of motion within each octave. Motion characterised by opposition of generation and radiation forces (with preponderance of one over the other), oppositional forces moving to return to the motion-in-inertia state in spiral opposition paths.

Within the inert gases is some minimal "motion-in-opposition", for they do express volume (radiative pressures) and mass (generative pressures). Motion-in-inertia is represented by a conic basal plane, a plane of rest. The cone represents the surface which spiral path opposition will follow. The electric strains and stresses which arise from generative and radiative forces follow this spiral path. Once the motion is no longer planar it becomes opposed in rotational axes and revolutional equators.

From Laara Lindo:

The Voidance Principle: "Every action-reaction in Nature is voided as it occurs, is recorded as it is voided, and repeated as it is recorded." How can you reconcile the Voidance Principle with your experience of time and space?

This is an excellent question, as the action-reaction-voidance cycle is absolutely fundamental to understanding of *Universal Law, Natural Science and Living Philosophy*. So fundamental is it that its definition, explanation and illustration is to be found in some form on almost every page throughout the Russell Home Study Course. Our challenge, of course, as Russell students and advocates, is the creative application in every aspect of our lives of the knowledge we gain through understanding the principle.

How can we reconcile the principle with our experience of time and space? Quite simply, we realize that the essential is invisible to the outward eyes. That Understanding, of course, is not a new concept. It is contained within the fundamentals of all religions, Eastern and Western. Plato expounded it in his concept of the invisible "Form" being the eternal reality, an idea that has come through western thought with such inspired thinkers as Plotinus, and to Americans directly through the transcendentalists such as Emerson and Whitman.

But not until now has the principle been 'scientifically' presented. The Russells do that for us in defining and explaining the nature of the "electric thought-wave universe" and our place in the cosmos. Through this new knowledge we become more cosmically aware and more understanding of our potential, within our own sphere of experience, as co-creators with our Source.

On page 279 of the *Home Study Course* (please note that all quotations are from the Second Edition of the Course) the Russells state:

"Future generations must learn to readjust their thinking to the following new conceptions:

1. We live in two worlds - an invisible Mind-world and a visible body-world.
2. The Mind-world has all knowledge and all power. It thinks what it knows into imaged forms of light.
3. The visible body-world has no knowledge and no power. It is but Mind projection of light into moving forms of Mind thinking and imagining.
4. The Mind-world eternally exists. It is changeless and does not move.
5. The body-world eternally simulates existence. It is a supreme illusion of constant moving - and even its moving is but "seeming".

With many different wordings and varied examples, the Russells go on to define the concept that "This is a zero universe of rest from which motion seemingly extends from a measureless point and withdraws into it in pulsing sequences." (page 680). 'Reality' exists eternally in the centering fulcrum, MIND. From the centering fulcrum the appearing-disappearing visible universe is constantly creating/disappearing by means of electrical compression and expansion. All cause is within centering Mind.

Science has long searched for an 'ultimate particle' which is the basis of all matter. As the Russells explain on pages 342 and 343, "The ultimate particle is a thought ring....This Mind universe thinks thoughts. Its thoughts are patterned to idea. Creation is a Cosmic Idea made up entirely of electric thought-rings centered by thinking Mind. The hole which centers every electric thought-ring is the location of the invisible Mind which 'created' the ring." The nuclei of all atoms are mental, not

material. The universal 'body' cannot act until desire is extended from the fulcrum.

Expanding this idea, the Russells give many examples of the fact that all bodies are transient thought-wave-vibrations which extend from and return to the centering fulcrum, Mind.

But what about recording and repetition? These concepts have long been known, and are particularly central to some of the Eastern philosophies, who term 'eternal memory banks' the 'akashic records', and teach about life experiences in terms of 'karma', or balancing of life-to-life experiences. Again, the Russells explain this aspect of the nature of things in modern terms, as discussed, for example, on page 692, "The Mystery of the Inert Gases". "The inert gases are not elements. They will not mix with any of the elements, for they represent the spiritual universe as recorders of thoughts and actions. They are the 'books' of God's bookkeeping system. The unfolded patterns of all creating things are refolded in them for rebirth. Likewise they carry desire within them for unfolding from their seed-records that which they have recorded for aeons of repetitions for again repeating with the last added recording of every patterned growing thing..."

So in practical terms, every action in the visible, divided universe is simultaneously returned to (voided in) the invisible, undivided universe, where it is recorded. In other words, it is through this means Nature balances all divided cycles. In human terms it means we are all accountable for our every action. In human terms it also means that in this universe of seeming constant change, life is eternal and our potential for creative living and expression is vast, according to our understanding, desire and ability to work knowingly with the creative, centering Mind-Source.

Today, the science of holography aids us in understanding not only such seed-pattern recording in the inert gases, but also the nature of memory, archetypal experience and the reality of the idea that the universe itself is a kind of giant hologram (discussed in detail in Michael Talbot's book *The Holographic Universe*). Talbot draws heavily on the work of David Bohm, a quantum physicist whose dissatisfaction with standard theories of quantum physics led him to some original new thinking and interesting conclusions. These he expresses in terms so familiar to the Russell student that one wonders whether he has studied the Russell work or has come independently to varying aspects of the same truths.

That repetition is fundamental to life-forms is everywhere in evidence, from the progression of the seasons to the miracle of the emergence of life from a seed. In the words of the Russells:

"All bodies are continuous. They never cease. They merely reverse their potential twice in every cycle of their eternal journey within and

beyond the range of our sensing, by compressing into visibility and expanding into invisibility." (page 600)

"Both halves of our bodies (life/death, compression/expansion cycles) eternally live. They never die. There is no death in the universe, anywhere, nor in anything. The universe is a living universe." (pages 604-605) Eternal repetition is, as the Russells express it, "an inviolable law".

"You, and every moving thing in Nature, are walking constantly into mirrors of yourself. As you appear you simultaneously disappear but the sequences of it deceive your human senses by giving a feeling of continuity which is not justified. All is the result of 'seeming' motion."

In "seeming motion", the visible world, each action is its own reaction. Powerful thought brings powerful reaction.

In practical terms, a most important conclusion from the study and absorption of this concept is that here is a "truth that sets us free". Through this understanding we clearly can "create our own destiny". In fact, that is our challenge. No Russell student is able to consider himself or herself a 'victim' of anything external: others, environment, education, or circumstances.

Understanding of this principle means we KNOW that Mind is the builder, and that working knowingly as co-creators with our Source we can reverse or erase old patterns, act not react, develop our potential talents, and create the destiny of our desire. Not only is this our challenge, it is our responsibility! It may not be easy. New patterns take time to develop, and we all have our particular storms to weather. But what a new world is dawning when we even make a beginning. Let's do it!

I've certainly enjoyed thinking about the question you posed on motion-in-inertia and motion-in-opposition, a comparison which leads to mazes of consideration.

To begin with, I suppose the crux of this comparison can be stated in the axiom "A lever is powerless without a fulcrum, which never moves." Further, the interaction between the fulcrum, (the centering source of action) and the lever (the visible action) can be summed up in Walter Russell's words from page 16 of *A New Concept of the Universe* (NCU). "The division of undivided Light and its extension into oppositely-conditioned states of motion is the basis of the universal heart beat of pulsing thought-waves, which seemingly divide the one whole idea into many ones."

A consideration of this process leads to the understanding that the invisible 'source' of all in the observable universe may be considered a

state of inertia, but one which is nevertheless the one and only activator, for from this source springs all idea, desire and extended creating motion.

A simple experience, familiar to us all, can well illustrate this: when we relax our bodies and conscious minds to reach a state of calm such as experienced in meditation, we become highly aware of the inner, invisible 'Light' at work, for this is not a static condition, but a highly active one, leading to inspiration and varying kinds of illumination according to the individual situation. However, this could not be called 'motion' or action' in the usual sense, for it is invisible to the outward eye and world, and the body, our accustomed vehicle of action in the visible world, is not involved. It is a state which might be called "motion-in-inertia". It is when the ideas presented by this state of "motion-in-inertia" are put into action in the visible world that we can observe "motion-in-opposition", or in Walter Russell's terms, the electrical "two-way" pulsation that leads to visible production.

In a sense, then, as Walter Russell states, "The only actual energy source in the universe is the pulsing desire of Mind for creative expression of Mind Knowing." (NCU, p. 66) Motion-in-inertia is the recorder and seed idea of moving body forms, the energy Source within balanced, unchangeable magnetic Light, which, according to desire, "motion-in-inertia", leads to visible production through the process of electrical "motion in opposition."

In the Russell Cosmogony, the recording action is within the inert gases. The two-way pulsing of all in the eternal Life-Death cycle constantly moves from "motion-in-inertia" to "motion-in-opposition" to again return to the state of "motion-in-inertia", the source. However, these states are not mutually independent, but constantly in rhythmic exchange at varying levels within the life-death cycle.

Again to quote Walter Russell: "Inert gases (the spiritual elements' which born and reborn the physical elements) center all elements from within to control their unfolding cycles of polarizing-depolarizing form, and balance them from without by two poles of still Light to control their refolding of form into the zero seed." (NCU, p. 68).

From Larry Tiegs:

I feel it is important when reading Dr. Russell's works to remember Dr. Russell's "All Knowing" was instant at his illumination. His interpretation of this knowing into words and charts was never perfected to his

satisfaction. *The Universal One* was his first attempt, an enthusiastic rough draft of his youthful unscientific thinking process. While broader in scope than his later works, and very valuable to the serious student, it is not clean, clear nor accurate on many points... and he never wanted it republished. His concern at the time was to correlate his "knowing" with the science of the day, to gain acceptance of the scientific community, to help bring science more in tune with natural law for the betterment of the human race. Just as his thinking and expression changed from the start of *The Universal One* to it's end, so it did throughout his lifetime. His "knowing" was consistent! His expression evolved!

Case in point. Dr. Binder's excellent side by side comparison of traditional science and Russell's Cosmogony, item #20. The 18 dimensions were the basic outline for *The Universal One*, but Dr. Russell never again in the next 30 plus years mentions them as individual dimensions. He does mention them as aspects/effects of the dimensions. And in the NCU fully explains the three dimensions as only aspects/conditions/effects of the speed of axial rotation and plane of orbit. Which in turn are the effects of Mind thinking, the result of Mind Knowing - the only cause.

In your original series of questions I did not answer the one on conductivity. Needed time to think. It seems to me conductivity = tension. Greater tension = greater conductivity. Two tin cans and a string stretched taut will conduct sound waves. A slack string won't. Good conductivity in the metals = great tension/pressure/density/imbalance. The farther an element in its octave is from its zero rest position, the greater its conductivity. Hence the metals, greatly out-of-balance/under tension from their rest position are good conductors while the gases of the same octave aren't. Today's super-conductors are all extremely cold (out-of-balance/under tension) from the normal temperature of the planet... and they conduct readily with little resistance.

On a personal basis, when our bodies and minds are relaxed and at ease, we are slow to react to strong vibrations as a loud noise, etc. : little bothers us. When we are uptight/stressed/under tension, we react to our environment quickly. Under tension, our bodies become conductive to the vibrations around us.

Prompted by Dr. Binder's inert gas analysis, my thoughts are these.

In the *Home Study Course* Dr. Russell states that God only created two substances, fire and water. I think it can be said that he also created the inert gases. Since they are the gases of space, I think we can call them

the cosmic gases, in contrast to the elemental gases formed on this earth. Since they are the seed of all creation they must be eternal. Just as the keynote of a musical octave is always present - before and after any note is sounded - so the inert/inactive/cosmic gases are always present to manifest creation. They each are created alone - not in pairs - therefore they are sexless/chargeless (without polarity) and the exception to all the rules governing all the other elements on earth...even though they occupy three dimensional form in space. They are like the three basic colors from which arise the thousands of hues of the universe. From the inert gases arise the illusions of our universe to give form to Mind knowing. And into the inert gases dissolve all illusion for their eventual repetition.

Which brings us to the new questions, number 2 first; Motion-in-opposition vs. motion-in-inertia?

"Motion-in-opposition" refers to all the elements: Created from the inert gases; Created in balanced pairs; Created at resistance points by male/female opposites (where the male half of a divided inert gas atom/molecule interacts in and through the female half of another separate divided inert gas atom/molecule); Created by a specific pressure condition which gives rise to all the numerous specific qualities of that element as temperature, valence, weight, density, etc.

When the pressure condition changes, the element transforms (gold heated beyond its melting point will become an invisible gas). When all pressure is released, the elements disappear back into the inert gas of their octave from which they arose/unfolded.

"Motion-in-inertia" refers to the inert gases (cosmic gases) which, created by God, have no polarity and exist pressureless in three dimensional space eternally.

The "motion-in-opposition" elemental gases demonstrate maximum spin upon their axis (fast rotation/short days) and minimum orbit (slow revolution/long years). The "motion-in-inertia" inert/inactive gases probably demonstrate minimum spin and minimum orbit. Almost motionless, sexless and changless. Like a blank piece of paper to record the motion of writing, the near-motionless inert gases are able to record the motion of the universe.

Question #2 - the Voidance Principle: "Every action/reaction in Nature is voided as it occurs, is recorded as it is voided and repeated as it is recorded."

The Principle: All motion in the Universe is two-way. Not the one-way perceived by our senses. All wave motion arises from stillness/oneness. To create any wave motion, light/water/sound/electrical, you must divide the equilibrium of the One. Splash your hand upon the still surface of a lake and you create water waves. Strike a drumhead and you create sound waves. Swipe a metal rod through the magnetic field of magnet and you create electrical waves. All of these waves are two-way.

Example: Two men using an old fashioned two-man saw to cut down a large tree. As the first man pulls the other is pushing. At the end of the first stroke/point of rest/amplitude the polarity reverses and the other man pulls while the first man pushes until they return to the point of beginning. Both strokes make one complete cycle.

Each single stroke has a push/pull, positive/negative, compressive/expansive aspect. As the pull creates a compression, the push creates an equal amount of expansion. The sum total of any push/pull in any single stroke is always zero...they balance. This balancing of the push/pull within each stroke is the VOIDANCE PRINCIPLE.

Example: While filling a jar with water, the volume of air coming out of the jar is equal to the volume of water going in. Taken in absolute slow motion, each degree of motion in any single action is always perfectly balanced/voided in its positive/negative, compression/expansion, gravity/radiativity and always adds up to zero.

"The recording as it is voided" takes place in the inert gases, seed, brain, cell tissue, computer disk and probably in all at the same time. All motion in Nature is permanently recorded for eternity.

"Is repeated as it is recorded"---in reverse polarity to complete the cycle. This second half of every cycle REPAYS each negative discharge with positive charge and every positive charge with negative discharge, returning to the point of stillness and beginning.

On a personal basis this second half of the cycle is the familiar "What goes around, comes around". We as choosing human beings control the first half of the cycle only. God, with the recording principle (recording all our actions) controls the second half, automatically repaying back to us the echo of our previously chosen actions.

Now, just as a motion picture is a continuous stream of single/still frames, so all actions to our sensing eyes and ears appears continuous. But we can know the voiding/balancing and repeating of the many individual cycles that make nature appear continuous.

Examples: The electric light under which you are now reading is flashing on and off 60 times a second. You can't see it but you can know it.

All combustion engines demonstrate the voidance of compression/expansion in each stroke very clearly.

The charging ocean waves above the surface are balanced by discharging ones below the surface. Ask any surfer about the deadly action below the surface waves.

A tornado which has the compression down force to crush a house also has at its core the vacuum suction to lift heavy objects hundreds of feet.

A bazooka can shatter a tank from its front end explosion. The same shot can kill a dozen men if they get caught standing behind the gun when it discharges.

A camera, when taking a positive picture always produces a negative. Both actions are two halves of one action. All motion in the Universe is Two-Way!

Right now, watch your breath. As you breath in, which way does your diaphragm move? Which way does your stomach move? And when you breath out, which way does each move? Which half do you have control over? Which half cycle is the repayment half? How does zero feel?

FEEDBACK

IASOS writes: Two errors I see in *FULCRUM* V.1, N.1,
Page 25, bottom line:

"The direction to which radiation leads is to the condensing zones....."
should be expanding

Page 26, top line:

".....the expanding zones of heat and high pressure."
should be condensing

Dr. Binder replies: "The statements on pages 25 & 26 of *FULCRUM* you considered in error are not really in error, though it is easy to see why you

would have concluded so. To help reveal the clarity of the statement I suggest the following expansion of it: The direction to which radiation ultimately leads in the eternal cycle of two way motion is to the condensing zones of cold and low pressure. It is the office of radiation to expand and expansion to cool. The direction to which generation ultimately leads in the eternal cycle of two way motion is to the expanding zones of heat and high pressure. It is the office of generation to compress and compression to heat. The direction that radiates expansion must be away from heat and toward cold; the direction that generates condensation must be away from cold and toward heat; and yet, radiation is expansive principle and motion; generation is compressive principle and motion."

APPLICATIONS

In October 1991 Stan Meyer arrived at the Swannanoa Palace door. Stan told us "Someone up here must have been praying mighty hard" to have the "Holy Spirit" direct him out of his laboratory in Grove City, Ohio to visit at the U. of S. & P. Stan then proceeded to relate an inspiring and I'll add divine tale of his revelation from God concerning the production of hydrogen for energy usage.. Seeking to break America free of her dependence on foreign oil in the mid-70's, Stan sought God's inspiration. God answered with a process Stan calls the "Hydrogen Fracturing Process", a process which disassociates the water molecule into hydrogen and oxygen yet yields more energy out than in. Applying pulsed voltage rather than conventionally used amperage to disassociate the water molecule, the process is adaptable for conversion of gasoline powered engines to water (hydrogen) fuel and is transmutable into other processes for home and industrial energy production.

I have visited Stan's workshop in Ohio and discussed these patented processes at length with him. According to him and Dr. Russell every atom is centered by a point of Stillness which is God. Stan says "by subjecting the water molecule and H and O atoms to a high frequency pulsed DC voltage (50V up to 18,000V have worked) with milli-amp current, the atoms expand and contract around their centering point of Stillness. When expansion occurs energy from the 4th dimension leaks in and pumps or primes the atom with energy." Literally the energy of creation is tapped! The primed water molecule is easily popped apart into hydrogen and oxygen. The H and O atoms remain primed with excess energy and when reacted

(ignited) to reform into water release both the heat of fusion and the additional primed energy. His associate claimed 15 to 20 times over unity!

Stan Meyer and his associates are now developing "water fuel injectors" to enable gasoline powered engines to be converted to water fuel. By replacing the spark plugs with the "water fuel injectors" water will be converted to hydrogen and oxygen at the combustion chamber. Once ignited the H and O give a smoother and pollution free explosion. Thus the technology can immediately move into mainstream usage, disconnecting millions of pollution factories (our cherished automobile) around the world. They plan to retrofit a piston engine aircraft with the "water fuel" technology and fly around the equator and then the poles--non-stop--to dramatize the utility of this process. Bon Voyage and God's Speed!! I predict piston powered engines will go the way of the dinosaur!!

Spin-offs from the Hydrogen Fracturing Process include:

(1) An "Electrical Polarization Process" which produces a cold (room temperature), ionized gas also primed with extra energy. As with the "Hydrogen Fracturing Process", a high frequency, pulsed DC voltage with minimal amperage ionizes and then primes the gas atoms or molecules. When the ionized gas (N, O, or H) is passed through a copper coil not only is the magnetic field of the ion inducing a current in the coil, but the extra primed energy is released as additional current! Over unity devices are practical. First generation devices the size of a 19" TV can produce enough electricity to power an average home (heating and AC not included).

(2) Stan has also tested and patented a device which converts matter to heat energy in a safe, useful infra-red frequency! He ionizes the dissociated H and O atoms from the "Hydrogen Fracturing Process" and detonates the gas in an electron free environment while maintaining the voltage pulsing. The resultant water molecule is unstable (being devoid of some electrons) and under the effects of the pulsing and detonation begins to "unwind" its mass in an attempt to reach a stable state. According to Stan "It's like pulling on a thread of a sweater, once it starts to unravel you just keep on pulling and it unravels completely." 2.5 million barrels of oil equivalency can be produced from 1 gallon of water without radioactive decay products or high energy electromagnetic radiation! Power plants for all sizes of ships, industries, cities, buildings, space craft....etc. are possible!!!! Once the "unwinding" is harnessed transmutation of the elements becomes practical.

(3) A "Gas Management System" to safely store, transport, and use hydrogen when produced in bulk quantities. This technology is missing in present day equipment utilizing hydrogen for power.

(4) A "Steam Resonator" which uses pulsed voltage processing to heat water to steam and steam to super heat temperatures. The steam produced has the additional energy of the 'priming' effect at work in the 'Hydrogen Fracturing Process', thus more energy is produced than is consumed without any chemical or radioactive pollution.

Stan Meyer was able to secure patents on these processes because he never made any over unity claims. The U.S. Patent Office required a demonstration of the technology prior to issue. The review board stared in disbelief and turned a normal 20 minute review into a 3 hour question and answer session as hydrogen began bubbling from Stan's device without any production of heat or use of high currents. Other patents include equipment needed to make the processes work efficiently and safely. He owns all the patents and is committed to seeing the technology get into the world. Within two years you will be able to convert your car to water fuel for maybe \$1800. Within 3 years Stan will be disconnecting homes from the electric power company! This technology will revolutionize science, industry, energy interdependence, energy pollution, ad infinitum. From my perspective having water be the solution to our energy needs and our current fossil and nuclear fuel pollution crisis is incredibly Divine.

How does this technology relate to Walter Russell's concepts of the Universe? Stan's own description of God centering each atomic system is a start. Stan then utilizes the Bohr nuclear model and current atomic electronic theory to explain the physics underlying his "Water Fuel Cell". I leave it to you the students to give some insights and possible mechanisms based on the Russell science paradigm. It is apparent the processes are electrically conditioning the atoms. What happens to the atomic vortex during the voltage pulsing is a good point for discussion. How can the atomic vortex store extra energy? By changing rotation, revolution, axial-planar relationship, oblation????? Having given Stan a copy of Dr. Russell's books to peruse I will be sure to include him in these discussions.

Stan can be reached at 3792 Broadway, Grove City, Ohio, 43123.

CURRENT RESEARCH

To correct a misstatement in the last issue of FULCRUM, Ron Kovac is working with Dr. Binder and Toby Grotz in Boulder, CO on the transmutation experiments. Ron is an analytical chemist with Mountain States Mining and is eager to network with students of the Russell Cosmogony.

The report which follows was generated by Dr. Binder and his co-workers Toby Grotz and Ron Kovac to introduce potential investors to the Crystal Blue Group, a corporation formed to fund further research. We are publishing this report to inform you of their current research efforts.

RESEARCH REPORT: CONTINUATION OF THIS RESEARCH AND DEVELOPMENT PROJECT WILL BE FUNDED BY CRYSTAL BLUE ENERGY.

NOVEL MEANS OF HYDROGEN PRODUCTION USING DUAL POLARITY CONTROL AND WALTER RUSSELL'S EXPERIMENTS WITH THE MULTIPLICATION OF POWER PRINCIPLE OF NATURE, OR ZERO POINT ENERGY.

AUTHORS; Toby Grotz, Electrical Engineer of Theoretical Electromagnetics Studies and Learning Association, Inc.; Dr. Timothy A. Binder, President of The University of Science And Philosophy; and Ron Kovac, Analytical Chemist of Mountain States Mining.

Following is a report on the status of the experimental work that has been accomplished to date to confirm the Russell cosmogony in regards to transmutation and new energy sources. This is a report on an experimental re-examination of the data reported by Westinghouse Lamp laboratories on the work of Walter Russell. Nikola Tesla was so impressed with the concepts and experiments of Walter Russell that he advised Russell to lock his knowledge in the Smithsonian for 1,000 years until humanity was ready to use it wisely.¹

Recent research has been conducted by Ron Kovac, Toby Grotz, and Tim Binder in order to verify Russell's concepts and experiments. The experiments Russell conducted in 1927, which were verified by the Westinghouse Laboratories have been repeated. Russell reported at that time that he had found a novel way to change the ratio of hydrogen to oxygen in a sealed quartz tube containing water vapor or to change it to totally different elements.² The use of magnetic fields, and other factors was shown to produce this effect. The end result of the experiments was to demonstrate an inexpensive and efficient method of hydrogen production for a hydrogen based fuel economy. Experiments performed to

repeat these results have met with some success. This paper will present the concepts and results of experiments performed in an attempt to duplicate these tests.

Russell's work also involved the assembly of a device to produce energy from the background flux of fields designated by some researchers as zero point energy.³ Recent research has uncovered experiments that were conducted by Walter and Lao Russell in conjunction with Raytheon Corporation in Colorado Springs CO and General Chapman and his staff at NORAD. The blueprints were discovered to still exist in Colorado Springs and parts of the "Russell Optical Dynamo Generator" with complete descriptions for its construction were found this fall in the Swannanoa Palace basement, intact after 30 years.

INTRODUCTION

The purpose of this paper is to outline the research recently conducted to verify the concepts of Walter Russell. Russell was President of the Society of Arts and Sciences in New York City in the 1920's. During this time he met many scientists of that time and began to express his own revelations regarding concepts concerning the nature of matter and energy.⁴ In 1926 Russell predicted the existence and characteristics of deuterium, tritium, neptunium, plutonium and other as yet undiscovered elements. He devised a unique periodic chart of the elements showing the position of these elements.

In Russell's chart of the elements, the elements are placed along a continuous spectrum of increasing compression and resulting density, and are organized into octaves. The inert gases act as the beginning and end of each octave. Carbon placed at the center of the fourth octave is seen to be the balance point for the full chart and the point of perfect stability. Elements up to carbon are, according to Russell, preponderantly integrating or condensing until a maximum of pressure results in the formation of carbon. Elements past carbon on the chart are preponderantly expanding or disintegrating leading ultimately to the phenomenon of radioactivity.⁵

The concepts proposed by Russell, and later proven by experiment (see Westinghouse lab report) is that there is no such thing as transmutation from one element to another.⁶ One element can never become another for each is voided when another condition makes its continuance impossible and another one possible. The best example of this is to be seen upon the sun. "Hydrogen flames leap for thousands of miles into the sun's

atmosphere, yet there is no hydrogen at all on the sun's surface until the time of its leaping into flame. If the amount of hydrogen which explodes from the sun's surface in one week existed upon the sun, there would be no sun. The sun generates hydrogen and it burns simultaneously."⁷

Russell maintained that elements are not things, they are conditions. In order to prove this he set up a series of experiments which will be described below. In an attempt to verify these experiments, we are reproducing them as closely as possible. Our test data will be presented later in this paper.

INITIAL EXPERIMENTS

The experiments to prove the theory set forth by Russell were first done in the laboratories of the Westinghouse Lamp Company at the Bloomfield, NJ facility. A laboratory was supplied and a number of senior research scientists acted as consultants to the project. In Russell's words⁸, he:

"Demonstrated this principle of dual polarity control by arranging two pairs of solenoids - one with more windings than the other - in such a manner that the dual polarity of nature was simulated. With a steel or glass disc for an equator and steel rod for amplitude, I adjusted my solenoids to approximately a plane angle where I roughly calculated oxygen belonged in its octave. I improvised an adjustment apparatus which would enable me to fasten my adjustment securely at any angle I chose. I then inserted a few centimeters of water in an evacuated quartz tube which had electrodes at each end for spectrum analysis readings. Upon heating the tube in an electric furnace, and inserting it into the solenoid with the electric current turned on until the tube cooled, the first spectrum analysis showed over 80% to be hydrogen and the rest practically all helium. There was very little oxygen."

Each time the apparatus was reset for a different gas, a new spectrum analysis was obtained. The procedure was able to produce a preponderance of nitrogen, oxygen, or helium depending on the settings of the coils and their angular relationship.

The results of the Westinghouse lab test report of the transmutation performed in 1927 (reproduced herein) were reported in NCU.⁹ To quote the report: "It is clear that the experiment produced a significant change

in the gas in the tube. Where there had only been water vapor consisting of hydrogen and oxygen in the tube, the addition of nitrogen or inert gases in the amount of 69.1% was detected."

The analysis showed:	%
Oxygen.....	14.9
Hydrogen.....	16.0
Nitrogen or inert gases....	69.1

Russell was convinced the process could be refined by experiment and mathematically analyzed so that hydrogen, nitrogen, or oxygen could be obtained separately.



WESTINGHOUSE LAMP CO.

MANUFACTURERS OF
INCANDESCENT LAMPS

Bloomfield, N. J.
Sept. 20th, 1927.

Mr. Walter Russell:

Dear Mr. Russell:

The analysis of gas sample #5 was reported
by the Chemical Laboratory as follows:

Oxygen	14.9
Hydrogen	16.0
Nitrogen or Inert gases	:..... 69.1

Yours very truly,
WESTINGHOUSE LAMP COMPANY.

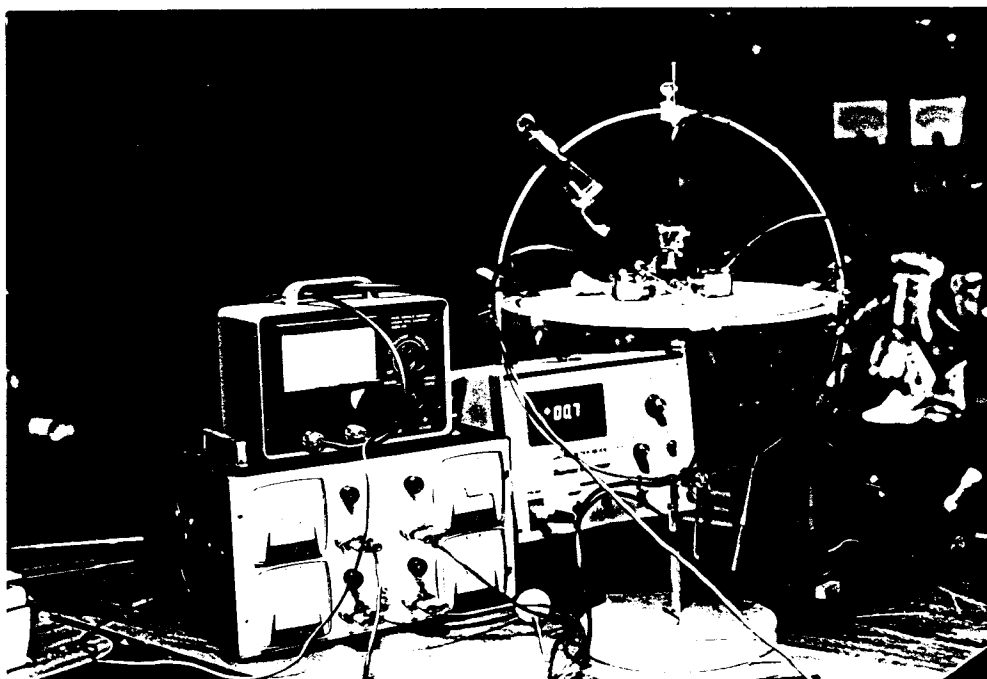
R. D. Hall
R. D. Hall, Supt.,
Div. 313.

RDH:KM

This is one of 17 different results
obtained from five cc of water in a sealed
quartz tube with electrodes on end for
spectrum analysis. In every case the
resultant gases differed

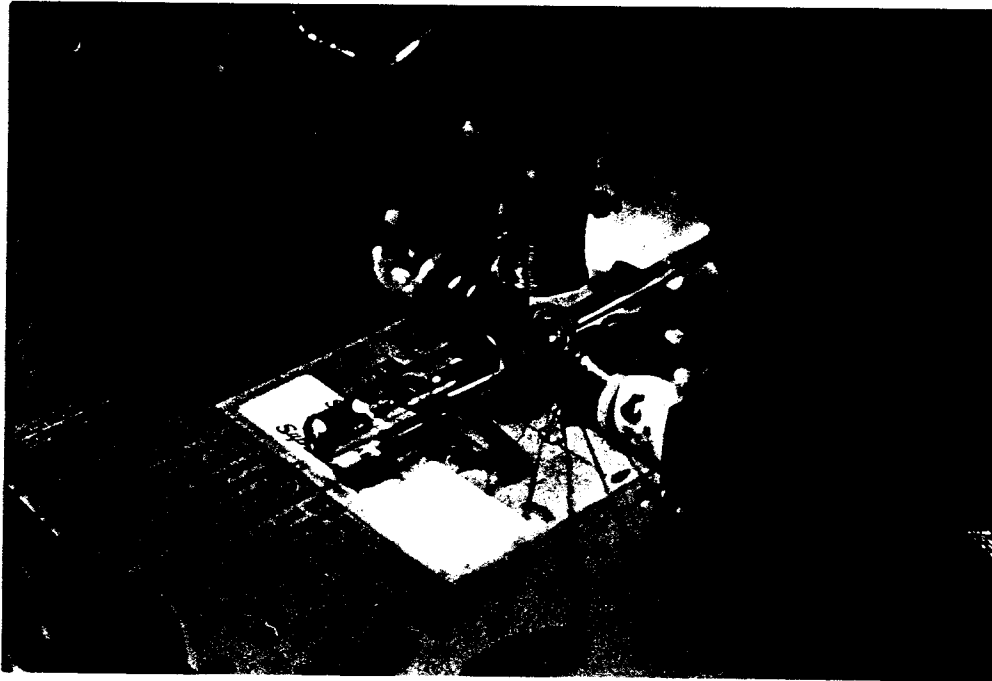
EXPERIMENTAL SETUP

The attempt to recreate the results reported by Westinghouse Laboratories used the equipment shown in photos accompanying this text. A fixture for holding four solenoids was designed to allow adjustment of the solenoids to the required angles. A power supply was built which allowed the current to each solenoid to be adjusted separately.



1st generation TRANSMUTOR

This allowed individual control of the magnetic fields of each solenoid. The magnetic fields required for the experiment were generated by modified Guardian Electric A240 intermittent duty solenoids. The solenoids were modified only by removing the factory standard actuator and inserting a core of the same diameter, but cut to fit so the core was flush at both ends. The magnetic fields were measured with a Thomas and Skinner model 7315 Gaussmeter. The field strength measured at the center surface of the solenoid core, with a 600 ma current, was 1450 Gauss.

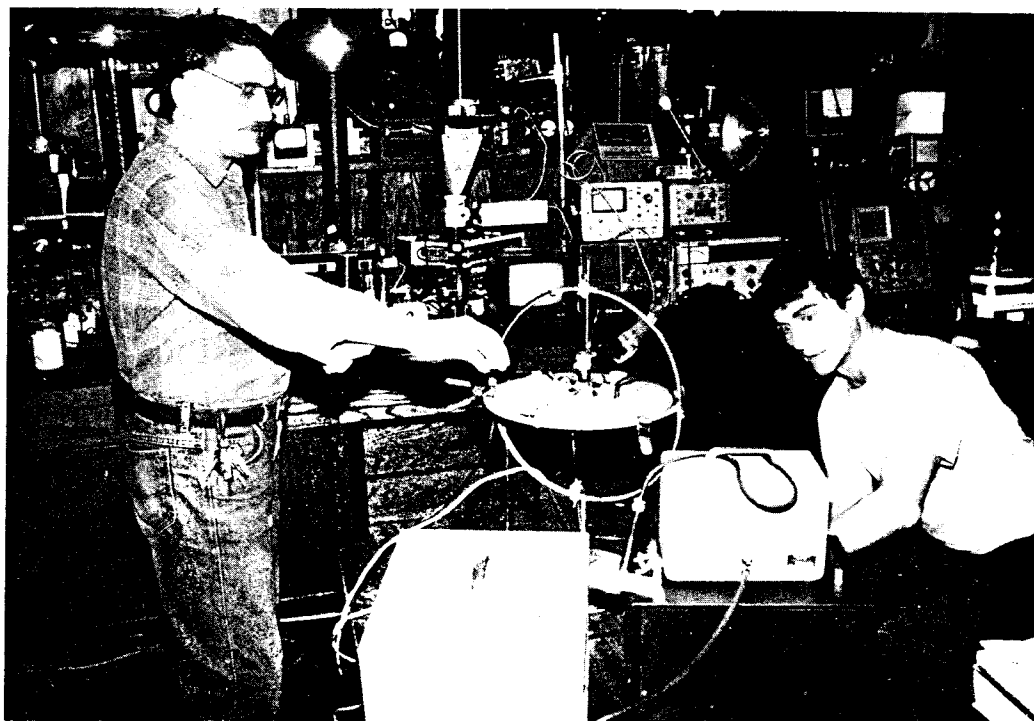


Close-up of quartz sample tube in TRANSMUTOR

The spectral analysis was conducted with a Varian AA 175 Atomic Absorption Spectrometer setup for emission spectroscopy. The analog output from the spectroscopy was recorded on an HP 7100B Strip Chart Recorder. Calibration of the spectrometer was done using spectrum tubes manufactured by Electro-Technic Products company and supplied by Edmund Scientific Company. Charts for hydrogen, nitrogen, oxygen, and water vapor were run using the standard tubes. The results were found to be consistent with and matched data presented in standard tables.¹⁰

EXPERIMENTAL PROCEDURE

The water vapor sample (treated according to Russell's work at Westinghouse Laboratories) was produced by heating a small amount of distilled-deionized water placed in a sealed quartz tube. The quartz tube was scrubbed chemically with nitric acid, washed repeatedly, baked out and pumped down, to remove any contaminants. The tube was equipped with a "T" fitting which allowed the tube to be evacuated before it was back filled with deionized water. Each end of the tube contained electrodes which served a dual purpose. Per the method used at the Westinghouse Lamp laboratory, the tube was heated to 300°C using the electrodes to excite the water vapor with a 5KV AC source.



Dr. Binder and Ron Kovac performing 'transmutation'!!

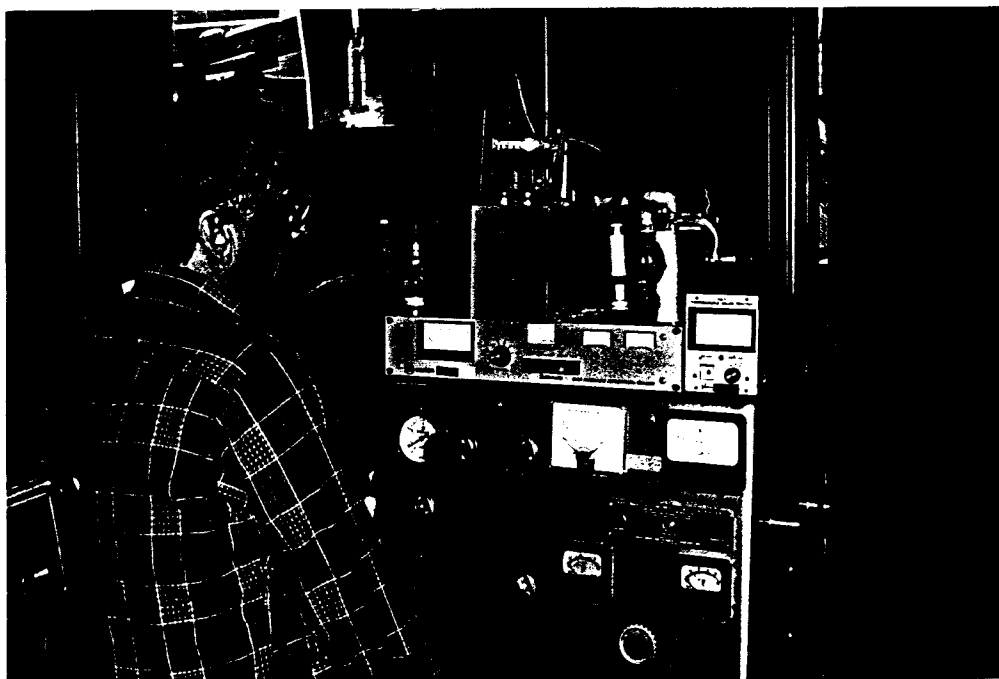
After the gas was heated, an emission chart was made using the Varian Spectrometer. The tube was then inserted into the solenoid holding fixture and magnetic fields were applied as the sample cooled. A second emission chart was then made of the treated sample.



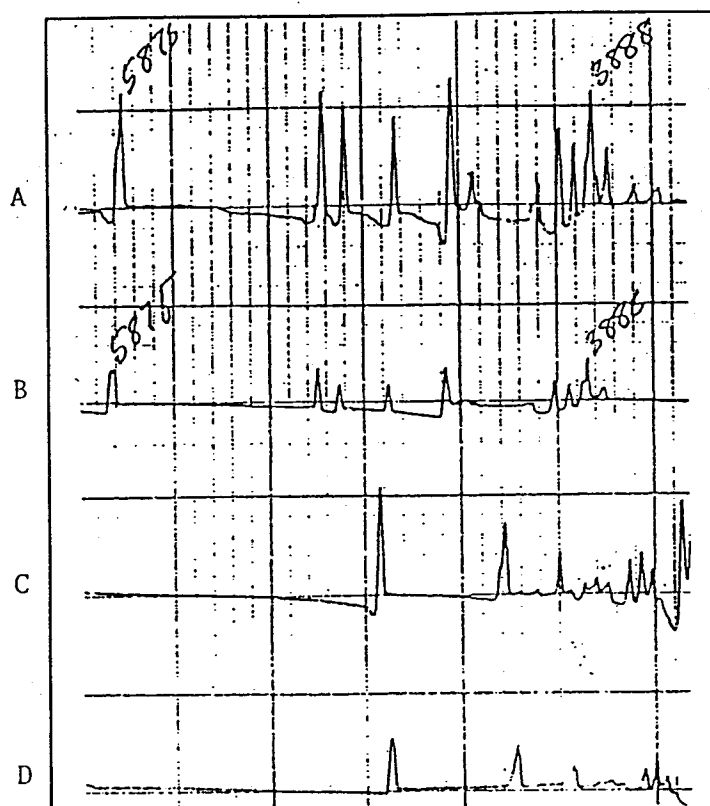
'Transmuted' sample being plasmasized at emissions analysis

The experimental method described previously by Russell, used solenoids "one with more turns than the other". Since this description does not give a definite explanation, the solenoids in this experiment were controlled using different currents, 500 ma on the vertical solenoids and 250 ma on the horizontal off-axis solenoids. This was an approximation at achieving the different field strengths that Russell obtained using turns-ratio control.

The angles necessary are described by Russell in a number of sources.¹¹ Because the physical size of the solenoids prevented them from use at the angles used by Russell in the original experiment for nitrogen formation, it was decided to use the angle that would allow the formation of flourine. According to the reference material, the angle necessary for the formation of flourine is 44 degrees from the vertical. Two of the solenoids were placed at this angle directly opposite one another. When the procedure for heating the tubes and allowing them to cool, as described above, was followed, the spectrum showed an increase in the spectral peak associated with flourine. See charts with text. The flourine peak was detected when the experiment was repeated.



Ron Kovac pulling vacuum on a quartz sample tube



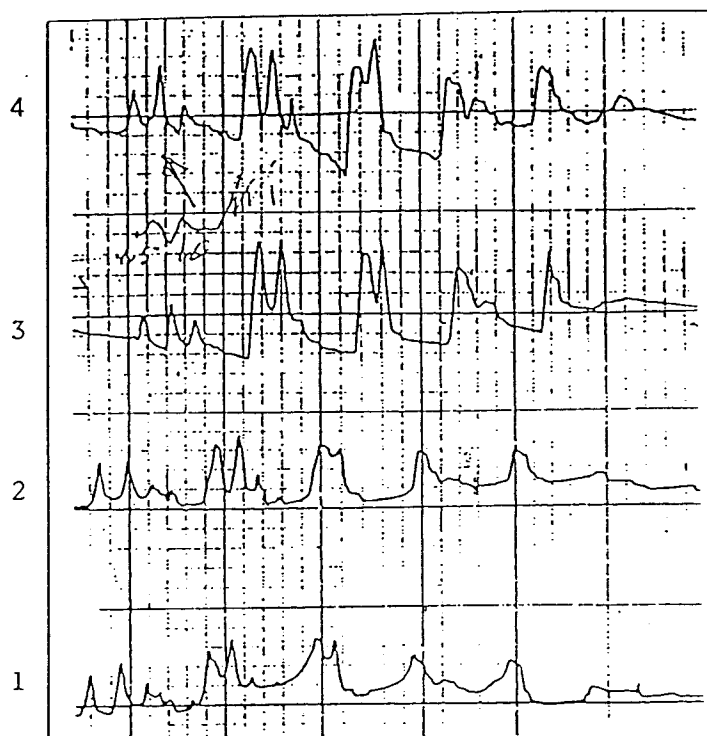
Spectrophotometer output for helium and water tube standards

Traces A & B are from the helium standard tube. Trace B was obtained when the standard tube was at a higher temperature, resulting in a lower amplitude tracing.

Traces C & D are from the water vapor standard tube. The lower amplitude trace D was obtained from the standard at a higher temperature.

Each time the test was run, the sample tube was cleaned and a fresh sample of water was added. A spectrum was obtained of the new sample. The sample was then subjected to magnetic fields. The fluorine peak was detected. The same sample was also subjected to increasing times or repeats in the fields with consequent increasing and/or varying amounts of fluorine detected.

The two charts which follow show spectral analysis of 'transmuted' water vapor samples. The first chart records a series of transmutations performed with the magnets aligned in an attracting field, i.e. the electro-magnets in each hemisphere were aligned with the north pole extending away from the specimen. The second chart records an opposing field transmutation with the vertical electro-magnet having north extending



Spectrum emission analysis of opposing magnetic fields

Trace #1 is a water vapor sample tube prior to transmuting.

Trace #2 is after first transmutation, Trace #3 is after 2nd transmutation of same sample, and Trace #4 is after 3rd transmutation of the same sample.

The spectral analysis shown are qualitative and not quantitative. Changes in relative quantities of nitrogen, hydrogen, and fluorine after each transmutation can be seen in these charts by changes in peak height ratios. The two peaks at the far left are fluorine at wavelengths 7311 and 7398. Although deionized and demineralized, the water vapor samples did show evidence of fluorine and nitrogen prior to 'transmutation'. The important point to note is the change in peak height ratios of these elements which indicates a change in quantity within the tube.

These preliminary tests indicate the Westinghouse Lamp lab reports may be valid and more tests are indicated.

FUTURE WORK

In order to duplicate the results described in the initial Westinghouse report, a new fixture is being designed and constructed. This fixture will allow the angles that Russell used for the formation of nitrogen and hydrogen to be reproduced. Results of these tests will be reported at a future date.

EXPERIMENTS WITH ZERO POINT ENERGY

The energy of the vacuum has been analyzed and described by many researchers.¹² Walter Russell reported to have found a means to harness this vacuum. In the fall of 1959, General Chapman, Col. Fry, Major Sargent, Major Cripe, and others from NORAD in Colorado Springs CO, attended a meeting at Swannanoa Palace, home of the Russells in Virginia, at the invitation of Walter Russell. At this meeting Russell explained the workings of a device he proposed to build to take advantage of the vacuum state energy, and the two directional movement of energy from "negentropy" (gravitation-generation) to entropy (radiation-degeneration). During the following year Russell, his wife Lao, and their assistants built the device. General Chapman was advised of their progress on a routine basis.

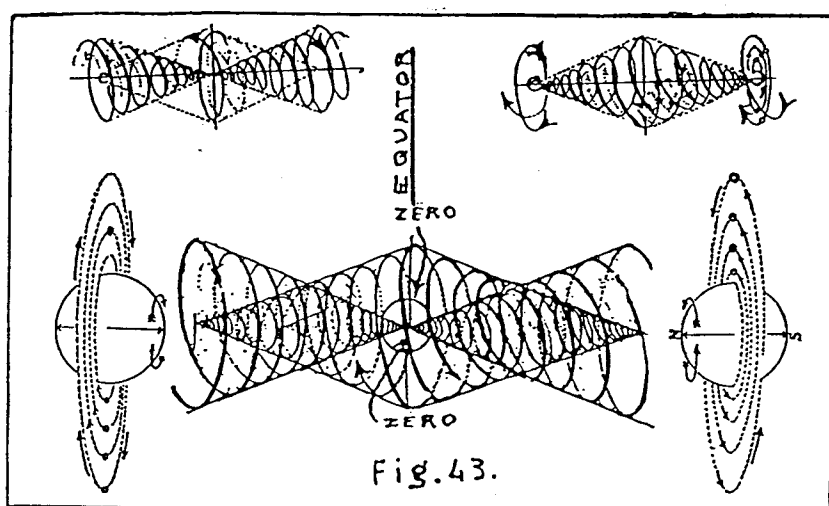
The device was based on the "power multiplication principle" discussed in the many books Russell had written, many of which have been previously footnoted in this paper. From a memo dated March 16, 1961, the following description is given:

"This new power and light generator employs the power multiplication principle of nature.....which multiplies gases of minus zero melting points into solids of over 3000 degrees; or multiplies the cold of space into hot stars and novas of incredibly high temperatures.

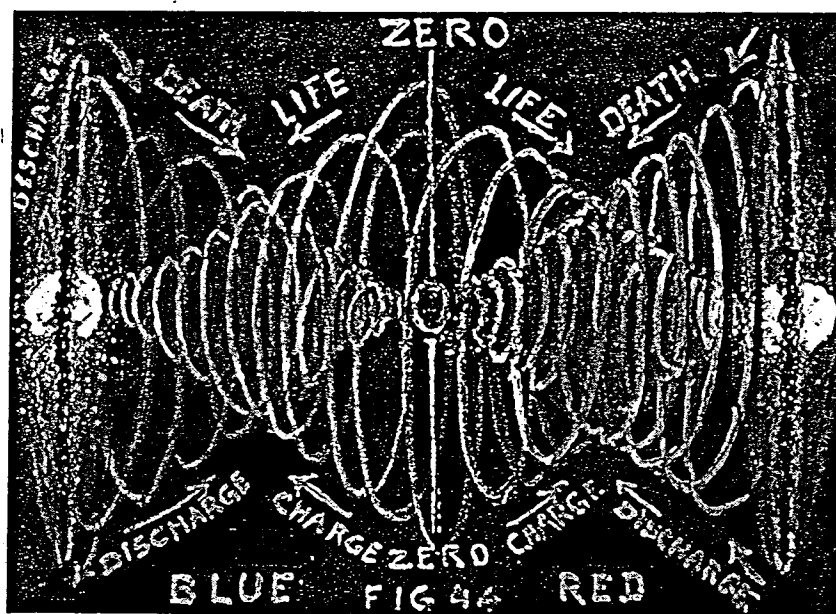
The reason it has never been known is because of the false concept of gravity which assumes it to be a force of attraction which pulls inward from within instead of a cyclic force which controls the compression of cold into heat, and the expansion of heat into cold...Nature's first principle of power production and the construction of matter is to produce heat from the cold of space. The heat thus generated radiates back into cold to complete the wave cycle which automatically repeats itself in this ageless universe of infinite continuity.

Every wave is a perfect dynamo, but the very purpose of waves is to generate heat in its armatures at wave amplitude points. That is the only way waves create matter."

The prototype that was built consisted of two sets of dual coils. The coils were wound as shown in Figs. 43 and 44 (reproduced herein). This design best simulates the life cycle of the electric current as depicted by Russell.



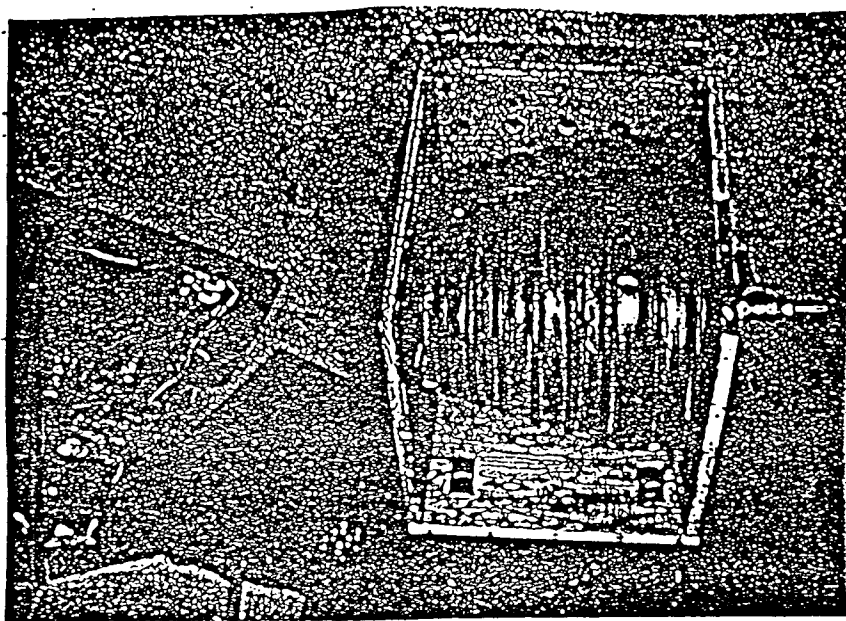
Complete life-death cycle as manifested in the electric current.



Complete life-death cycle as manifested in the heavens.

On September 10, 1961, Walter and Lao Russell reported to their contacts at NORAD that the coils had worked and that the President of the United States could announce to the world that a "greater, safer power than atomic energy" could be provided for industry and transportation.

The Russells were convinced they had found and demonstrated a new source of energy, a conversion process for what is now known as zero point energy, which they described as copying Nature's winding up and unwinding process; a cycle that is only half comprehended by pre-Russell thermo-dynamics and entropy-only laws.



Photograph of a coil built by Dr. Russell during his work with NORAD

NOTES

- 1 Russell, Lao; from the archives of the University of Science and Philosophy (U. of S.&P.), Swannanoa, Waynesboro VA 22980.
- 2 Russell, Walter; *A New Concept of the Universe*, U. of S.&P., VA, 1989, [129,130].
- 3 Puthoff, H.E.; "Source of Electromagnetic Zero Point Energy", *Physical Review A*, Nov. 1 1989, Vol. 40, No. 9.
- 4 Clark, G.; *The Man Who Tapped the Secrets of the Universe*, U. of S.&P., VA, 13th edition, 1980.
- 5 Mann, J.D.; "The Genius of Walter Russell", *Solstice*, No. 36, May/June, 1989.
- 6 Russell, W.; "Space and the Hydrogen Age", address to the Annual Convention of the Electronic Association, May 13 1989.
- 7 Ibid
- 8 Russell, W.; *A New Concept of the Universe, A Brief Treatise on the Russell Cosmogony*, U. of S.&P., VA, 1989.
- 9 Ibid
- 10 *Handbook of Chemistry and Physics*, CRC Press, 1979.
- 11 Russell, W.; *The Secret of Light*, 1947, *The Universal One*, 1926, *A Brief Treatise of the Russell Cosmogony*, 1953, *A New Concept of the Universe*, 1989, U. of S.&P., and *The Russell Genero-Radiative Concept*, L. Middledtich Co., 75 Varrick Street, NY, 1930.

- 12 Bearden, T., Sweet, F.; "Utilizing Scalar Electromagnetics to Tap Vacuum Energy", *Proceedings of the 26th Intersociety Energy Engineering Conference*, Vol. 4, [376].
Hathaway, G.D.; "Zero Point Energy: A New Prime Mover?", *Proceedings of the 26th Intersociety Engineering Conference*, Vol. 4, [376].
King, M.; *Tapping the Zero-Point Energy*, Paraclette Publishing, Provo, UT, 1989
Puthoff, H.; "Source of Vacuum Electromagnetic Zero-Point Energy", *Physical Review A*, Vol. 40, #9, Nov. 1 1989, [4857].
- 13 Documents, Letters, etc. from the Archives, U. of S.&P., Swannanoa Palace, Waynesboro VA 22980.

For information concerning the Crystal Blue Energy Group please contact Dr. Timothy A. Binder at the University of Science and Philosophy, 703-942-5161. Thank You And God Bless!

1,2

OCT./POS.	= octave/position	AT. NO.	= atomic number
AT. WT.	= atomic weight	ELEC. RES.	= electrical resistivity, ohm-cm at 0°C (reciprocal of conductivity)
SP. GRAV.	= specific gravity	VAL.	= valence
MP	= melting point, °C	BP	= boiling point, °C
AT. RAD.	= effective atomic radius, angstroms		
CRYS. STRC.	= crystal structure at 0° C		

	OCT./	AT.	AT.	ELEC.	SP.				AT.	CRYST.
ELE.	POS.	NO.	WT.	RES.	GRV.	VAL.	MP	BP	RAD.	STRC.
D*	3/+2	1	2.01	-		1				-
Tr*	3/+3	1	3.02	-		1				-
H	3/+4	1	1.01	-	0.089**	1	-259	-252		-
He	4/0	2	4.0	-	0.177**	0	-272	-268		-
Li	4/+1	3	6.94	8.55	0.53	1	186	1220	1.51	BCC
Be	4/+2	4	18.5	426	1.8	2	1350	1500	1.05	HCP
B	4/+3	5	10.8		3.33	3,5	2300	2550	0.90	-
C	4/++4	6	12.00	3500	3.51	±4,2	3550	4200	0.77	C
N	4/-3	7	14.01	-	1.25**	-2,3,5	-210	-196		-
O	4/-2	8	16.00	-	1.43**	-2	-218	-183		-
F	4/-3	9	19.00	-	1.69**	-1	-233	-187		-
Ne	5/0	10	20.2	-	0.899**	0	-249	-245		-
Na	5/+1	11	23.0	4.3	0.971	1	97.5	880	1.86	BCC
Mg	5/+2	12	24.3	4.35	1.74	2	651	1110	1.62	HCP
Al	5/+3	13	26.98	2.65	2.699	3	660	1800	1.43	FCC
Si	5/++4	14	28.09	58	2.42	4	1420	2600	1.18	C
P	5/-3	15	31.0	-	1.82	±3,5	44.1	280		O
S	5/-2	16	32.07	-	2.07	-2,4,6	112.8	444.6		-
Cl	5/-1	17	35.46	-	3.2**	±1,5,7	-102	-34.6		-
Ar	6/0	18	39.94	-	1.78**	0	-189	-185		-
K	6/+1	19	39.10	6.1	0.87	1	62.3	760	2.23	BCC
Ca	6/+2	20	40.08	4.6	1.55	2	20	810	1.97	FCC

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<u>ELE.</u>	<u>OCT./</u> <u>POS.</u>	<u>AT.</u> <u>NO.</u>	<u>AT.</u> <u>WT.</u>	<u>ELEC.</u> <u>RES.</u>	<u>SP.</u> <u>GRV.</u>	<u>VAL.</u>	<u>MP</u>	<u>BP</u>	<u>AT.</u> <u>RAD.</u>	<u>CRYST.</u> <u>STR.</u>
Sc	6/+3	21	45.10	-	3.02	3	1200	2400	1.51	HCP
Ti	6/+3.1	22	47.90	3.2	4.51	6	1650	3290	1.49	HCP
V	6/+3.2	23	50.94	26.	6.05	2,4,5	1880	3395	1.32	BCC
Cr	6/+3.3	24	52.00	13	7.2	2,3,6	1837	2672	1.25	BCC
Mn	6/+3.4	25	54.94	5.0	7.3	2,3,4,6,7	1241	1962	1.29	FCC
Fe	6/+3.5	26	55.85	9.9	7.87	2,3	1536	2745	1.26	BCC
Co	6/++4	27	58.94	9.7	8.83	2,3	1495	3000	1.26	FCC
Ni	6/-3.5	28	58.71	6.93	8.9	2,3	1454	2725	1.24	FCC
Cu	6/-3.4	29	63.55	1.69	8.92	1,2	1083	2566	1.27	FCC
Zn	6/-3.3	30	65.38	5.75	7.1	2	420	907	1.31	HCP
Ga	6/-3.2	31	69.72	53	5.9	3	30	2403	1.33	O
Gr	6/-3.1	32	72.59		5.36	4	937	2830	1.22	C
As	6/-3	33	74.92	35	3.7	5,±3	500	615	1.16	R
Se	6/-2	34	78.96		4.8	-2,4,6	220	688	1.13	H
Br	6/-1	35	79.92	-	7.59**	±1,5	-7.2	58.78		-
Kr	7/0	36	83.8	-	3.78**	0	-157	-159.2		-
Rb	7/+1	37	85.48	11.6		1	38.5	700	2.47	BCC
Sr	7/+2	38	87.62	24.8	2.6	2	770	1384	1.95	HCP
Y	7/+3	39	88.91		4.47	3	1522	3338	1.75	HCP
Zr	7/+3.1	40	91.2	141	6.47	4	1853	4376	1.61	HCP
Nb	7/+3.2	41	92.9		8.7	3,5	2468	4742	1.24	BCC
Mo	7/+3.3	42	95.94	5.6	10.2	3,5,6	2610	5560	1.36	BCC
Tc***	7/+3.4	43	98.91		11.5	7	2171	4876	1.35	HCP
Ru	7/+3.5	44	101.1		12.11	3,4,6,8	2310	3950	1.27	HCP
Rh	7/++4	45	102.95	4.69	12.44	3,4	1963	3700	1.34	FCC
Pd	7/-3.5	46	106.4	11	12.16	2,4	1551	3140	1.38	FCC
Ag	7/-3.4	47	107.87	1.47	10.49	1	1410	2355	1.44	FCC
Cd	7/-3.3	48	112.41	7.5	8.65	2	321	765	1.49	H
In	7/-3.2	49	114.82	8.37	7.31	3	157	2078	1.62	FCT
Sn	7/-3.1	50	118.69	13	7.29	2,4	232	2270	1.40	C
Sb	7/-3	51	121.76	41	6.69	3,5	630	1380	1.45	R
Te	7/-2	52	127.61	200000	6.24	-2,4,6	452	1390	1.43	H

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<u>ELE.</u>	<u>OCT./ POS.</u>	<u>AT. NO.</u>	<u>AT. WT.</u>	<u>ELEC. RES.</u>	<u>SP. GRV.</u>	<u>VAL.</u>	<u>MP</u>	<u>BP</u>	<u>AT. RAD.</u>	<u>CRYS. STRC.</u>
I	7/-1	53	126.91	-	4.93	-1,5,7	113	185		-
Xe	8/0	54	131.3	-	3.5*	0	-112	-107		-
Cs	8/+1	55	132.91	19	1.88	1	28	678	2.63	BCC
Ba	8/+2	56	137.4	9.8	3.5	2	850	1140	2.17	BCC
La	8/+3	57	138.92	61.5	6.14	3	826	1800	1.88	HCP
Ce	8/+3.1	58	140.2	74.4	6.77	3,4	798	3493	1.85	FCC
Pr	8/+3.2	59	140.91	70.0	6.77	3	924	3512	1.82	HCP
Nd	8/+3.3	60	144.24	64.3	7.00	3	1016	3068	1.82	HCP
Pm***8/+3.4	61	(145)	75	7.26	3	1042	3000	1.81	HCP	
Sm	8/+3.5	62	150.35	94	7.52	3	1073	1794	1.80	R
Eu	8/+3.6	63	151.96	90.0	5.24	2,3	822	1529		BCC
Gd	8/+3.7	64	157.25	131	7.9	3	1313	3273	1.80	HCP
Tb	8/+3.8	65	158.92	115	8.23	3	1365	3230	1.78	HCP
Dy	8/+3.9	66	162.50	92.6	8.55	3	1412	2567	1.77	HCP
Ho	8/+3.10	67	164.93	81.4	8.80	3	1472	2700	1.77	HCP
Er	8/+3.11	68	167.26	86	9.07	3	1529	2868	1.76	HCP
Tm	8/+3.12	69	168.93	67.6	9.32	3	1545	1950	1.75	HCP
Yb	8/+3.13	70	173.04	25	6.97	2,3	819	1196	1.94	FCC
Lu	8/++4	71	174.97	58.2	9.84	3	1663	3402	1.74	HCP
Hf***8/-3.11	72	178.5		13.3	4	2207	4602	1.56	HCP	
Ta	8/-3.10	73	180.95	15.5	16.6	5	2996	5427	1.43	BCC
W	8/-3.9	74	183.85	5.48	19.05	6	1131	3818	1.37	BCC
Re***8/-3.8	75	186.2		20.5	-1,4,7	3178	5600	1.37	HCP	
Os	8/-3.7	76	190.2	9.0	22.5	4,6,8	2700	5300	1.34	HCP
Ir	8/-3.6	77	192.2	6.08	22.4	3,4,6	2410	4130	1.35	FCC
Pt	8/-3.5	78	195.09	9.83	21.4	2,4	1772	3725	1.38	FCC
Au	8/-3.4	79	196.97	2.42	19.32	1,3	1064	2805	1.44	FCC
Hg	8/-3.3	80	200.59	95.8	13.55	1,2	-39	357	1.50	-
Tl	8/-3.2	81	204.37	18.2	11.85	1,3	303	1460	1.72	HCP
Pb	8/-3.1	82	207.19	22.0	11.35	2,4	327	1740	1.75	FCC
Bi	8/-3	83	208.98	115.	9.8	3,5	271	1562	1.54	R
Po	8/-2	84	(210)		9.4	2,4	254	962	1.67	C

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<u>ELE.</u>	<u>OCT./ POS.</u>	<u>AT. NO.</u>	<u>AT. WT.</u>	<u>ELEC. RES.</u>	<u>SP. GRV.</u>	<u>VAL.</u>	<u>MP</u>	<u>BP</u>	<u>AT. RAD.</u>	<u>CRYS. STRC.</u>
At***	8/-1	85	(210)	-		-1,5,+1	302	337		-
Rn TM	9/0	86	(222)	-	9.72**	0	-71	-62		-
Fr***	9/+1	87	(223)		2.4	1	26	676		
Ra	9/+2	88	226		5	2	700	1140		
Ac	9/+3	89	(227)			3	1050	3500	1.88	FCC
Th	9/+3.1	90	232		11.5	4	1740	4780	1.79	FCC
Pa* TM	9/+3.2	91	231			5	1600		1.60	BCT
U	9/+3.3	92	238		19	3,4,5,6	1131	3818	1.38	
Np*	9/+3.4	93	237		18	3,4,5,6	629	3900	1.30	O
Pu*	9/+3.5	95	(244)			3,4,5,6			1.51	FCC

Elements Am, Cm, Bk, Cf, Es, Fm, Mv, No, & Lw (#95 thru 103, resp.) all occur in the Actinide series. They were not identified by Walter Russell on the 9 octave wave chart published in 1947. Am (1945) & Cm (1944) were discovered prior to the 1947 publication of the 9 octave wave chart.

Notes:

1/ Van Nostrand's Scientific Encyclopedia, 6th edition, 1983.

2/ Handbook of Engineering Fundamentals, Esbach, 3rd edition, 1974.

3/ Crystal structure abbreviations:

C = cubic H = hexagonal O = ortho-rhombic R = rhombic

BCC = body centered cubic FCC = face centered cubic

HCP = hexagonal close packed BCT = body centered tectragonal

FCT = face centered tectragonal

* Denotes elements identified by Walter Russell in the 1926, 10 octave and 1947, 9 octave wave periodic charts.

** Density is given as weight in grams/liter of gas at 0°C, 1 atm.

*** Denotes elements identified on 1926 Mendeleev and Russell period charts as undiscovered and unknown. The 1947, 9 octave wave chart mistakenly indicates these elements as still unknown and discovered by Walter Russell. Year of discovery is as follows: Rhenium (1925), Hafnium (1923), Promethium (1947), Technetium (1937), Astatine (1940), and Francium (1939).

TM Radon is present day name for what was known in 1926 as niton.

*TM Protactinium (Pa) was discovered in 1917 but was named Uranium XII by Walter Russell in 1926. He kept Uranium XII as its name in the 1947, 9 octave wave chart.

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Editor's note: My assumption is Walter Russell used a chemical textbook published before 1917 when he made his first 10 octave wave periodic chart in 1926 resulting in the misidentification of Protactinium. Evidently he did not fully investigate the scientific literature prior to the revision of the 10 octave to 9 octave wave periodic chart published in 1947, thereby leaving as "unknown" many elements whose discovery had filled in the blanks of the Mendelev periodic table. Dr. Russell is correct when he claims identification of deuterium (1932), tritium and the actinide series elements, plutonium (1940) and neptunium (1940) all of which were completely unknown to the Mendelev periodic charts of 1926.