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"COMING IN FROM THE COLD"

Dr. Harold Aspden

I refer to the Bose-Einstein Condensate item on p. 7, *NEN*, August 1995 and ask how 'spreading wave functions' associated with the cooling of atoms can help us probe new sources of energy. Very little heat energy is expelled in cooling a few rubidium atoms to a 10 billionth of a degree above absolute temperature but a vast amount of energy is on tap if we can cool our space environment a little below its 2.7K cosmic background temperature.

Einstein never succeeded in unifying magnetism and gravitation but the fact that rubidium condensate was formed by magnetic trapping using forces akin to those of our cosmic background that we recognize as gravitation and which, thankfully, confine us and the air we breathe to our own trap on body Earth.

Magnetocaloric super-cooling has a connection with gravitation as I explained on p. 1 of the August 1995 issue of *NEN*, so readers may wonder if what I said there extends, in some way, to the element rubidium. This requires the near-to-102 nucleon resonance to conform with the mass quantum of the virtual lepton system that I call the 'supergraviton.'

It seems reasonable to suggest that when a metal cools from vapor or liquid the atoms forming the solid metal could tend to cluster in optimum groupings which prefer supergraviton resonance allowing them to shed heat at a faster rate. Rubidium is then particularly interesting, indeed exceptional, because it has two isotopes, being 72% by weight composed of isotope 85 and 28% by weight composed of isotope 87. Note that 6 atoms of Rb 85 is 510 nucleons, which is 5 x 102. Also 7 atoms of Rb 87 is 609 nucleons, which is 6(101.5).

Einstein may have said that atoms, if cooled sufficiently, will combine so as to share common quantum states, a kind of synchronized oscillatory motion spread over a group of several atoms, but that link with gravitation eluded him and he could not have realized why it was that rubidium would be a very good candidate for such an experiment.

By coming further in from the cold, I suggest that one can actually generate excess heat by tapping into the heat resource of that synchronized zero-point background field system to which the supergraviton state itself belongs.

To do this, one begins with a metal such as palladium and increments the effective mass of the palladium isotope by forming hydrides. For example, the mass of palladium isotope 106 can be incremented to 108 nucleons by adding a deuteron. I note that each palladium atom would have its own dedicated supergraviton to assist its inertial balance with the Heisenberg Zitterbewegung but collectively 17 PdD units of 108 nucleons would need to share one additional supergraviton, because 17 x 108 is precisely 18 x 102.

The main point I wish to make, however, is that, according to the level of absorption of hydrogen isotopes into the palladium, one can, without cooling, fine tune the effective nucleon mass of a group of atoms to assure near-to-perfect supergraviton resonance.

This implies the quasi-superconductive state, at least in small pockets of the cathode in the cold fusion cell and this means that even a small current flow axially along a deuterated palladium cathode will set up a circumferentially-directed magnetic field which acts on axially-directed heat flow to set up, by the Nernst Effect, a radial electric field in the metal. Though very weak this field acting inside pockets of a superconductor can in turn set up significant Maxwell charge displacement in the manner which involves 'vacuum field spin' and this reaction is powered by that synchronizing action with the surrounding zero-point field. In the N-machine the rotation of a magnet about its axis of magnetization sets up the vacuum field spin or 'virtual inertia' [the Aspden Effect - Ed] effect by inducing radial electric fields in a rotating conductive disc.

The resulting scenario is a sustained deuteron charge density inside the metal neutralized by Maxwell charge displacement, thereby making it feasible to imagine close merger of deuterons with prospect of their fusion and, additionally, an internal field spin powered, as in the N-machine, by energy drawn from the cosmic environment.

The question then needing answer is how this spin state can be made to collapse in a controlled way to trigger that fusion or in any event release the spin energy as heat, rather than this heat generation being something that occurs sporadically and sometimes after the current fed to the cell has been switched off.

NEN readers, including 'Dr. Positive of Tokyo' (see *NEN*, p. 12, August 1995) will, I hope, understand from this brief note why I believe cold fusion, warm superconductivity, permanent magnetism, and now the rubidium super-atom are all phenomena connected with our free energy quest, the underlying catalyst being the inertial mass quantization of the gravitational action. To solve our energy problems we should be looking at the realm of the super-cold rather than the super-hot, because if Nature has a way of cooling something it has a related way of delivering the surplus heat at tolerable temperatures. Magnetism and gravitation characterize states which shed heat. We cannot yet control gravitation, but certainly we can control magnetism, and once we understand the supergraviton connection we will see the way forward.

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Fusion Briefings

BUCKY FUSION?

Charles Bennett (The Fullerene Fusion Group), "Fullerene Fusion Electrodynamic Generator," Patent application. Courtesy of the author.

AUTHOR'S ABSTRACT

This invention relates to the production of electricity and heat energy by means of an electrodynamic fusion plasma utilizing the material Buckminsterfullerene. Co-inventor Warren L. Cooley worked from a theoretical basis established by the late Buckminster Fuller and experimented with the concept that energy can be harvested to do useful work from shape, and that certain shapes are inherently energetic. The invention herein described demonstrates that shrinking these characteristics and principles to the scale inherent in naturally occurring structures, i.e., carbon fullerenes, results in a catalyst and means of confinement for a fusion reaction.

Accordingly, several objects and advantages flow from the invention herein described. The elements of the invention are combined in a manner that could be described as emulating, to some extent, the natural stellar fusion processes that exist in the universe. A primary element of the invention is, in fact, a naturally occurring phenomena of the universe, i.e., $Carbon_{60}$. Another advantage of the invention is that the raw materials necessary for the production of energy in the invention are abundant and cheap. They also are converted to energy by a means that produces no environmentally harmful side effects or by-products.

Fig. 1 is a cross sectional diagram of the essential elements comprising the apparatus of the invention, a fullerene fusion electrodynamic generator.

Fig. 2 is a cross-sectional diagram of a fullerene fusion fuel capsule viewed perpendicular to the magnetic axis running through the concentric center of the fuel cell when positioned for ignition.

Fig. 3 is a cross sectional view of a plasmoid showing the axis of the magnetic field and the axis of the electric field with streamlines showing the plasma vortex flow patterns.

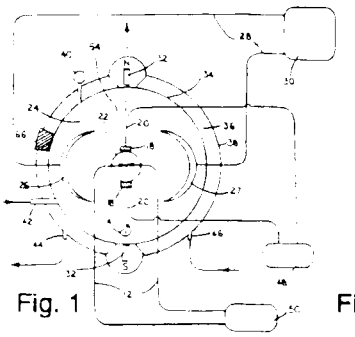

Fig. 1

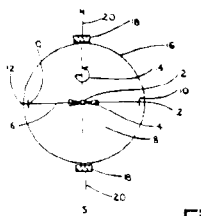

Fig. 2

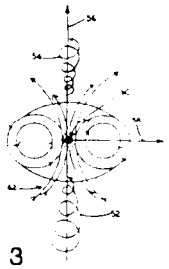

Fig. 3

A fullerene fusion electrodynamic generator designed to produce a direct conversion of fusion energy to electricity and excess heat energy of sufficient temperature to be useful for the production of steam. The carbon sublimes and converts fusion energy release into a mitigated self-holding toroid of supercharged plasma. This fusion-powered combined cycle co-generation unit can be scaled to any level from very small to a central power plant producing multiple megawatts of power. The generator will burn a fuel cell (22) comprising a seed catalyst (4) of $ND_2@C_{60}$, endohedrally deuterated fullerene molecules, formed in a donut shape (4) around an air bubble (2) and suspended by conductive filament (6) and encapsulated by a shell (16) in a surrounding solution of $LiD+D_2O$ (8). The fuel cell (22) is loaded into a plasma burn chamber (64) that is configured with the axis of a magnetic field (14) is ignited by a phased resonance of electromagnetic waves and acoustic waves to produce a toroid plasmoid that spins around the axis of the generators magnetic field (14). The seed catalyst (4) of deuterated fullerene molecules allows the fusion plasma to take an electrodynamic shape that holds itself together around a spinning vortex (60). This vortex action not only provides a means for pulling fuel into a fusion region but also eliminates the requirement for large power consuming magnetic fields of containment, as typical of current hot fusion experimental protocol.

[NOTE: At press time, we received information that the patent application had been bucked up to the DOE and DOD for classification review. -Ed]

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GETTING LITHIUM INTO CARBON

Staff, "Increasing the Lithium Capacity of a Carbon Electrode," *NASA Tech Briefs*, July '95. vol 19, no 7, pg 52.

EDITOR'S SUMMARY

Lithium added to carbon anodes can be used in rechargeable lithium battery cells. This article explores methods by which lithium can be implanted into the commercial graphite carbon electrodes. Two techniques for loading lithium into carbon have been developed. The first is to use an electrochemical with an electrolyte composed of a $LiAsF_6$, ethylene carbonate and 2-methyl tetrahydrofuran. The cell then is taken through slow discharge/recharge cycles for four cycles. Then the lithium can be introduced (intercalated) into the carbon at very near theoretical maximum amount of 1 part lithium to 6 carbon. The second technique is similar except that different discharge cycles and rates were used.

[This article may be of interest to those who are interested in the concept of "loading" electrode with hydrogen such as being done for cold fusion electrochemical cells. Ed.]

MIT FUSION-LIKE PATENT

Brian S. Ahern, Keith H. Johnson, Harry R. Clark, Jr. (MIT), Patent title: "Method of Maximizing Anharmonic Oscillations in Deuterated Alloys," granted May 5, 1995. Articles in *Deseret News*, July 22, 1995, p A-1 (from interview) and *Salt Lake Tribune*, July 23, 1995 (AP news item).

Professor Johnson, of Materials Science, says the heat produced is the result of a chemical reaction releasing the "latent heat energy of water," an energy conversion process. "Its due to a chemical recombination of hydrogen and deuterium within the material, to form molecular hydrogen and deuterium," says Johnson.

The theory that this patent is based on was published in 1989, shortly after the Pons and Fleischmann announcement. Johnson had been experimenting with high-temperature superconductors, and found that a palladium device charged with deuterium reacted at one degree Kelvin warmer than did the same device charged with hydrogen. Not much of a difference, but the explanation was the important thing. "When Palladium has enough hydrogen and deuterium in it, the hydrogen and deuterium atoms undergo rather severe vibrations," Johnson states, "These are vibrations that are said to be anharmonic; that is, they do not obey the conventional laws of vibrations..."

"I thought maybe the effect they [P&F] were observing at room temperature and above, mainly the product of apparent excess heat, might have something to do with these vibrations. **However, my theory does allow for very, very low levels of nuclear activity, such as a slight increase in the probability that deuterium will fuse.**" That could produce the very low levels found in successful cold fusion experiments. Johnson also predicted that if his theory were true, then the effect was also possible in light water.

There is criticism by other scientists that no conventional chemical reaction can produce energy in the quantities that have been measured. "However, this theory and patent explain why this catalytic reaction can occur many times per second and lead to apparently large amounts of heat." This is where the latent hydrogen heat energy of water comes in, extracted through an electrolytic process. Johnson believes the heat phenomenon has next to nothing to do with nuclear fusion. Summary by D. Torres

Abstract of Patent: For a condensed-matter system containing a guest interstitial species such as H or its isotopes dissolved in the condensed-matter host lattice, the invention provides tuning of the MO degeneracy of the host lattice to enhance the anharmonicity of the dissolved guest sublattice to achieve a large anharmonic displacement amplitude and a correspondingly small distance of closest approach of the guest nuclei. The tuned electron MO topology of the host lattice creates an energy state giving rise to degenerate sublattice orbitals related to the 2nd nearest neighbors of the guest bonding orbitals. Thus, it is the nuclei of the guest sublattice that are set in anharmonic motion as a result of the orbital topology. This promotion of 2nd nearest neighbor bonding between sublattice nuclei leads to enhanced interaction between nuclei of the sublattice. In the invention, a method for producing dynamic anharmonic oscillations of a condensed-matter guest species dissolved in a condensed-matter host lattice is provided. Host lattice surfaces are treated to provide surface features on at least a portion of the host lattice surfaces; the features have a radius of curvature <0.5 μm. Upon dissolution of the guest species in the treated host lattice in a ratio of at least 0.5, the guest species undergoes the dynamic anharmonic oscillations.

JAPANESE COLD FUSION PATENTS

JP 95 104,080, "Reaction Apparatus for Generating Cold Fusion by Using Heavy Hydrogen-Containing Gas," Tadahiko Mizuno, Araki Masao, appl. 05 Oct. 1993; issued 21 Apr. 1995, 6 pp. The reaction apparatus contains a proton conductor. The reaction apparatus is manufactured by sintering a mixture of powdered metal oxides to form a proton conductor, and an electrode layer is formed on it. An a.c. [current] is applied to the reaction body in a heavy hydrogen-containing atmosphere to bring about cold fusion. Cold fusion can be initiated and run continuously with high efficiency and good controllability.

JP 95 104, 081, "Apparatus for Generating Heat Similar to Cold Fusion," Hiroshi Kubota, appl. 05 Oct, 1993, issued 21 Apr. 1995, 4 pp. In hydrogen or heavy hydrogen gas, a cathode is coated with a hydrogen-permeable material such as a proton conductor, a high-temperature superconductor, a solid electrolyte, or a ceramic, then a thin metal film is applied to adhere to the surface and form an anode. Then, electricity

is passed through the 2 electrodes to generate heat. Both the cathode and anode can be Pt, Pd, Ti, Ni, or a hydrogen-occluding metal. The electric current can be d.c., pulsed current, intermittent current, triggered current or a.c. Stable nuclear fusion can be carried out with a higher probability.

FUSION & NANOSCALE ROBOTICS

Courtesy of Dana Rotegard

Mark Goldes (Magnetic Power, Inc.), "Supercold Fusion and the Pion Drive -- Is Nanoscale Robotic Exploration of the Stars a Realistic Possibility?" *Futurics*, vol 19, no 3&4, pp 22-23, 10 refs.

EDITOR'S SUMMARY

Dr. Robert L. Carroll in 1971 had his patent application for supercold fusion rejected by the patent office. Carroll was one of the first physicists to applaud Pons and Fleishmann on their discovery as he believed that the fusion was a catalytic reaction between platinum and hydrogen. As a non-believer in some aspects of relativity, Carroll has been struggling for years to register his objections to the invariability of the speed of light. Light speed is a function of the amount of matter in the vicinity. In interstellar space an object should be able to travel at many times the near-earth speed of light according to Carrollian mechanics. Thus the concept of a small robotic craft to examine the nearby stars for life (or for new worlds to colonize). As a propulsion means, Carroll has specified the use of a pion drive. Based on experiments at Lawrence Berkeley Lab in 1947 that demonstrated that proton, anti-proton annihilation yields highly energetic pi neutral mesons (pions), Carroll has specified the development of a pion space drive.

In his search for ways to travel faster than the local speed of light, Carroll has detailed his dissenting interpretation of many key experiments that are used to support relativity. The combination of a nanotechnology spacecraft and robotic sensors could be sent to the nearer stars to return data for proof of the non-constant speed of light and perhaps for proof of life in other parts of the local universe.

COMMENT ON MORRISON

Robert Bass, "CERN's Disinformation Agent, Douglas Morrison," *"Cold Fusion,"* issue 12, pp 19-22.

EDITOR'S COMMENT

Dr. Bass carefully, but joyously, takes the statements of Dr. Douglas Morrison, the perennial pathological skeptic of cold fusion and reduces them to near nonsense. Bass uses his extensive background in cold fusion, ranging from his experience as a registered patent agent, a student of high-energy physics, and a world-class theorist, to demolish Morrison's perennial attack on cold fusion. Then Bass challenges Morrison to carefully study the materials that Bass has written in his development of the Lattice Induced Nuclear Transmutation (LINT) theory. Bass concludes with a comment and a challenge that many of the cold fusion community would gleefully support, **"Instead of repeating your monologue about polywater & N-Rays and pathological science...**

> ***"Why don't you do some real science for a change, and either refute my QM theory or admit to having been a fountain of pathological skepticism!"***

We suggest that our readers read both the Morrison comments on the ICCF-5 conference and Dr. Bass's comments to Morrison in this issue of "Cold Fusion." Having become a personal friend of Dr. Morrison and found him to be learned, articulate, and full of excellent scientific knowledge, we will welcome him with friendly good humor and glad acceptance when he finally awakens to the fact that cold fusion is a viable new science. He will be a great ally in making this a better world with abundant clean energy.

Space Energy

EXPERIMENTS ON POTAPOV DEVICE

By Darryl Edwards of N.J.

Response to: Test of Yuri Potapov Device by Puthoff, *NEN*, 7/95, pg 10.

The device as tested appears to follow the 1st Law of Thermodynamics. I performed a simple fluid mechanical analysis of the model as presented in Dr. Puthoff's article. The system was treated as an internal incompressible fully developed viscous flow with smooth pipes.

The data presented yields some points to note:

- The flow is very turbulent in the two pipe diameters mentioned, 2" and 1.5"; the Reynolds numbers are 109,500 and 279,400 respectively. The transition from laminar to turbulent flow in internal flow occurs at approximately 2300 Reynolds numbers.

- The flow is still developing; the flow is undeveloped.

This means that the velocity profile at a cross section of pipe is changing along the length of the pipe.

In turbulent flow it takes from about 25 to 40 pipe diameters along the length of the pipe for the flow to fully develop. The implication of this is relevant to the Energy Equation (the First Law for pipe flow) for control volume. The head losses, ie; the loss of mechanical energy per unit mass to thermal energy (internal energy of the fluid), will be greater than in the model calculations, which assumes fully developed flow.

The analysis assumes the following:

1) The entire reservoir is at atmospheric pressure.

2) The change in potential energy of the fluid due to the different heights of the reservoir inlet and outlet pipes is neglected.

The analysis considers the following:

1) The pipe friction factor *f* is for smooth pipes.

2) The losses in the:
   a) straight lengths of pipes,
   b) the bend in the inlet pipe,
   c) the inlet re-entrance
   d) the contraction adapter, inlet to the Potapov Device.

3) The Potapov Device was initially treated as a right angle bend for a first approximation. This equates to a Loss Coefficient K of 30, Equivalent Lengths of pipe to the pipe dia. ratio, a dimensionless constant, for use with

head losses = $K\ (V^2 / 2)$
head losses = $f\ (Le / D)\ (V^2 / w)$

RESULTS:

Using this information yields about 18 m of head loss, or using round numbers, roughly 20 J/Kg loss per cycle of the water through the system. The time duration of test #2 results in about 29.24 cycles of the water through the system - about 30 cycles. For the entire duration of the test this yields about 600 J/Kg. For the 166.2 Kg of water used (366.5 lbs.) this is about 100 KJ total for the entire test.

This corresponds to a temperature rise of ~0.14° C.

The temperature rise measured for test #2 was 4.3° C. This required about 3 MJ of energy added to the internal energy of the water. This is about 30 times this model's results.

CONCLUSION:

The Potapov Device has about 50% more losses than a lift check valve. This seems reasonable given the nature of the Potapov Devices's geometry ie; rectangular input port transition form a previously round cross section, swirling action, 90 degree change of direction to outlet. Could it be called the Potapov Turbulator? Converting mechanical energy to internal energy of the fluid through viscous friction in the turbulence?

Darryl Edwards

See Flow of Fluids through Valves, Fittings, and Pipes., Crane Co., NY, NY., technical paper #410, c1982. Adapted from Introduction to Fluid Mechanics, Fox and MacDonald, 5th Ed.

EDITOR'S COMMENTS

This is a good introduction, from classical fluid mechanics, as to why a Potapov Device would not be expected to work. The important part of this message is that the calculated temperature rise (0.14°C) and the measured (experimental) temperature rise is 4.3°C. The source of the anomalous temperature rise needs to be explored. Is it from the pump or does Potapov have a valuable discovery? Also, all experimenters should determine of cavitation occurs in a test.

NOTE ON POTAPOV DEVICE

In a recent communication with Dr. Peter Glück of Romania, he stated his opinion that the tests being done with the Potapov vortex heater suffered from fatal engineering errors. He stated that the side pipe recirculates the water flow from below the cavitation region to the top of the vortex chamber and that the heat is produced from the injection of that flow into the vortexing and cavitating region. The by-pass pipe is "the core and heart of the machine," says Dr. Glück who has visited with the factory and strongly believes that the development of heat is a real phenomenon. --Ed.

THREE-SIDED EFFECT
By Alexander V. Frolov

Frolov has sent *NEN* a paper with the following introduction:

The theory for gravity as an induced effect that exists thanks to other forces of Nature is developed mainly for quantum level. This approach uses the term "zero-point fluctuation" as the description of a process of virtual electron-positron pair creation and annihilation [H.E.Puthoff, *Speculations in Science and Tech.*, Vol. 13, No. 3, p 247]. In the present paper, the author tries to find the reason for the existence of gravity without application of quantum mechanics since gravity displays itself mainly for the macrosystems level, as gravitational field of planet, for example. The conclusion is made that Conservation of Energy, in a general sense, is Conservation of zero-point of energy level, or Conservation of Rest.

If any of our readers have a specific interest in this topic, send a self-addressed legal-size envelope to *Fusion Facts* and we will send you a copy. [Hal Fox, Ed.]

LATEST FROM MARINOV
Courtesy of Stefan Marinov

Stefan Marinov (editor), *Duetsche Physik*, vol 4, no 16, October-December, 1995.

EDITOR'S COMMENTS

Every issue of *Deutsche Physik* contains challenging reading. Although original contributions are printed in Russian, German, and English, most of the important facts are presented in English for the benefit of we who are not so multi-lingual as Marinov. In this issue Marinov explains further work with his Siberian Coliu machine as he searches for ways to make it operate continuously without power input. In addition are several articles:

"The tide lung of Heinz Kalmus" on an ingenious method of obtaining power from tides.

An article in German about an amazing experiment with the static charge buildup in falling water, "Hochspannung aus fallendem Wasser." This article is followed by "The water drops influence perpetual motion machine CLEPSYDRA" by S. Marinov telling how Stefan will try to harness this electrical charge accumulation effect to make a perpetual motion machine.

"About the density of the potential and radiation electro-magnetic energy," by S. Marinov.

This issue concludes with copies of letters written by and to Marinov in attempts to have some of his articles that challenge the current model of science to be printed in peer-reviewed scientific journals. The letters of rejection are also included.

As always, Marinov makes us think about the status-quo of current science. He loves to find experiments that are contrary to accepted scientific belief. We of the cold fusion community find this topic to be highly appropriate in today's world.

SURPRISING EFFECT OF EM-RADIATION

The July 1995 issue of *Popular Science* reports an observation that the red pines near the 55-mile-long Navy communications antenna in the Upper Peninsula of Michigan grow taller than red pines in other parts of the forest. Also, it was discovered that the trunks of both aspen and red maple trees near the antenna are thicker than normal. New discoveries seem to be rampant and not controversial except to the pathologic skeptics.

PROBLEMS WITH MAXWELL'S EQUATIONS?

Gerald N. Pellegrini (Worcester, MA), Arthur R. Swift (Dept. of Phys. and Astronomy, U. of Mass.), "Maxwell's Equations in a Rotating Medium: Is There a Problem?" *Am. J. Phys.*, vol 63, no 8, August 1995, pp 694-705, 20 refs, 3 figs.

AUTHORS' ABSTRACT

In 1908 Einstein and Laub used special relativity to predict that a moving magnetic dipole develops an electric dipole moment. The classic 1913 experiment of Wilson and Wilson on a polarizable, permeable medium rotating in an external magnet field has long been cited as verifying this prediction. We argue that since the experiment involved rotation rather than uniform translation, it did not test special relativity. The analysis should properly be done in a rotating coordinate system. The field equation for a rotating object are well known and the analysis is straightforward, but the result disagrees with the Wilson experiment. After carefully examining all steps in the derivation, we conclude that either the experiment is wrong or the theoretical analysis must be modified. One possible resolution of the conflict is the hypothesis that the dielectric constant ε and permeability μ are well defined only in a frame in which the medium is a rest and time and space are orthogonal coordinates. © *1995 American Association of Physics Teachers.*

EXCERPTS

Since electromagnetic theory is so well established, it is surprising that there could exist such a flagrant conflict between theory and experiment. Before drawing any dramatic conclusions, we must be absolutely sure of the correctness of our analysis of the rotating cylinder. For example, the constitutive equations were used for a moving medium.

The effect of this change is that when the fields are transformed back to the laboratory frame, the radial electric field becomes

$$E_\rho = \omega \rho \left(\frac{1}{\epsilon} - \mu \right) B_0$$

This is the prediction of special relativity. The potential difference calculated from this field agrees with the result of the Wilson experiment.

[Calculations from theory predict no magnetic field which is contrary to the experimental results. Ed]

Changing the definition of magnetization fixes one conflict with experiment and introduces another. There is no consistent redefinition of the magnetization and polarization that resolves the inconsistencies. *We are left with an irreconcilable conflict between theory and experiment.*

Underlying our theoretical analysis is the assumption that the standard rotating coordinate system describes the electrodynamics of real rotating systems. An important feature of these coordinates is the existence of a universal time coordinate.

The authors state "We must thus introduce a new time differential in the rotating system which removes this term. We are forced to a new definition of simultaneity." Both magnetization and polarization are inherently nonlocal effects. Magnetization is a response to torques acting on a current loop, and polarization is associated with the separation of charge. The electric dipole moment of a moving current loop is a consequence of the lack of simultaneity across the dimensions of the loop. It is reasonable to ask whether it is possible that the standard rotating coordinate system is not

applicable when magnetization and polarization are a result of forces acting simultaneously on extended objects.

We have a different set of Maxwell equations to use in the rotating coordinate system.

There is a conceptual difficulty with the proposed modification of the field equations in the rotating coordinate system. A magnet that is not rotating has no charge density; but a magnet that is rotating has a charge density in its local rest frame! Intuitively we would expect that a magnet should be locally neutral whatever its state of motion.

CONCLUSIONS

A careful analysis of the electromagnetic fields associated with a rotating material object reveals an apparent conflict between theory and experiment. If the Wilson experiment is wrong, the standard analysis of electrodynamics in a rotating coordinate system survives. If the experiment is correct, we must modify our theoretical analysis of the phenomena involved. It is our opinion that the solution to the problem lies in a better understanding of the conditions under which the constitutive equations $\mathbf{P} = [(\varepsilon - 1)/4\pi]\mathbf{E}$ and $\mathbf{M} = 1/4\pi(1 - 1/\mu)\mathbf{B}$ are valid. There is no ambiguity in an inertial frame, but the situation is more complicated in a rotating frame. It might be necessary to focus on the definition of the time coordinate and simultaneity.

We definitely conclude that the conventional theory applied in the conventional way does not describe the results of existing experiments.

REFERENCES

A.A. Michelson. "The Effect of the Earth's Rotation on the Velocity of Light, Part I," *Astrophys. J*, 61. 137-139 (1925); A.A. Michelson and H.G. Gale, "The Effect of the Earth's Rotation on the Velocity of Light, Part II," *ibid* 61, 140-145.

KUSHELEV/MAXWELLIAN MODEL OF THE AETHER

By Alexander Nikonov
"Help Yourself to Tea. It Has Been Boiled Up Already," *Ogonyok*, no 29 (4408), July 1995, pp 80-81.

Translated & Summarized by Igor Goryachev

In general, Kushelev has improved the Maxwell model of the ether. If Maxwell imagined ether as tiny gear-wheels, Alexander's model represents it in the form of infinite net of vortex-rings interlinking with each other. The dimensions of the vortex-rings are 25 orders of magnitude less than the dimension of an atom. Alexander created a wonderfully beautiful, harmonious, and internally noncontradictory model allowing him not only to explain many unexplainable facts, but to predict various effects and features and also create a computer software which already saved millions of dollars for molecular biologists.

According to Kushelev's theory the electromagnetic wave is simply a wave of ether excitation like a sea wave. An electron is not an object but a process - the same wave just running along a closed trajectory. It means that Kushelev's electron is not a small ball which rotates around an atom nucleus, as we were taught in school, but a ring around a positively charged nucleus. Physicists could not understand how this small ball could simultaneously be located everywhere around the nucleus. Kushelev answers that the electron is not a ball, it is like a wheel which exists everywhere around the axis.

When magnetized these electron-rings locate around the nucleus forming some crystal-like ring polyhedrons. When he developed his model of DNA, he realized why the molecule forms itself into spiral; he explained why the electron density is the same along the whole surface of the DNA molecule (which was the experimental fact). After DNA he modeled the molecules of proteins.

Within the program of "Genome of Man" the Oxford University is carrying on deciphering of DNA nucleonic succession. So far, about 20,000 codes of various proteins have been deciphered.

The deciphered proteins are subject to highly expensive Roentgen structural analysis to determine their structure. Until now the forms of approximately 1,000 protein molecules have been determined. It could take a lot of time to make this determination for the great number of other protein molecules. Now this structure can be determined easily with Kushelev's approval.

Based on his theory Kushelev composed an algorithm which forms the structure of protein molecule. This algorithm and corresponding computer program have been verified with application to well determined proteins. Even biologists now have come to use this program.

In parallel with this work, Kushelev is now studying so-called open UHF resonators. Naturally... apart from the fact that those resonators are more simple and lighter than regular ones, they don't need complicated systems of cooling (which is an accomplishment by itself).

Kushelev states that these devices provide for converting the energy of ether into electromagnetic energy, based upon his theory.

A documentary about Kushelev has been released by the Central Studio of Scientific films and demonstrates a wonderful experiment. In a closed bottle a device consisting of wire crosses and metal bulbs is hanging from a thin filament. The bottle is being influenced with a pulsating voltage and the device inside the bottle begins rotation without pushing itself away from anything. The official science can not explain this phenomenon. Kushelev himself insists that the device pushes itself away from ether and that if enlarged it would be able to fly and transport cargo.

MRA2: MAGNETIC RESONANCE ANTENNA?

"Tapping a New(?) Ambient Power Source by Resonant Excitation," courtesy of Robert D. Taylor

Further research by Norman Wootan, Joel McClain, Robert D. Taylor and Tim McCracken into the Wootan/McClain/Taylor MAGNETIC RESONANCE AMPLIFIER (MRA) discloses that their discovery works even in a radically or drastically stripped-down and simplified version.

It has been discovered that an apparently hitherto unknown or unexploited source of ambient power exists everywhere on earth (extrapolating from experiments in Atlanta, GA and Austin, TX) and from which essentially "FREE" energy can be extracted at almost no cost, merely by using the Key Concept in the Wootan/McClain discovery, namely **external harmonic excitation of a saturable core transformer, which causes it to act like an Antenna that extracts ambient energy in amounts 19 times or more than the energy required for the harmonic excitation.** Indeed, the original MRA designs continues to work and to exceed all original expectations.

In the MRA2 configuration, even when the piezoelectric capacitor has been removed and even when the primary resonant circuit has been cut, it still continues to produce verifiable output power! All that is required is a single wire from the AC Signal Generator to the saturable-core transformer of the original MRA disclosure in order to cause useful power to be generated in the secondary circuit in amounts vastly greater than the power input from the harmonic Signal Generator.

Retired physicist Greg Hodowanec, who duplicated the MRA independently after learning about it from the *New Energy News* newsletter, which reproduced the Internet announcement of Wootan and McClain, suggests that the ambient energy comes from the earth's gravitational field and is somehow being converted into electrical energy.

Former BYU professor of Physics & Astronomy, Dr. Bob Bass speculates that MRA2 (as was the original MRA1) may be some how tapping the ambient electromagnetic energy known to exist in the Earth-Ionosphere Cavity in the form of Schumann Resonances which are continually resupplied every time a lightning bolt from a cloud strikes the earth. "As explained in the Second Edition of Jackson's classical book on Electromagnetism, the great genius Nikola Tesla discovered the Schumann resonances experimentally 50 years before Schumann predicted them theoretically," says Bass, who adds that he once calculated that "every cubic meter of space near the surface of the earth contains on the order of one kilowatt of standing waves, similar to those in a microwave oven except at vastly reduced frequencies, which no one knows how to extract efficiently." Or do they? The late Utah inventor Henry Moray, author of a book entitled "The Sea of Energy in Which the Earth Floats," astounded famous scientists in the 1920s and 1930s with never-explained demonstrations of his ability to extract 3 kilowatts from "nowhere" at will, anywhere (even randomly selected points in the desert), using his unexplained Moray Valve. Moray submitted a Patent Application but withdrew it and his secret died with him. Admirers of Moray point out that his writings (and one of his patent application's) included the words "Germanium triode" decades before the Transistor was discovered by Bell Labs scientists (who won a Nobel Prize) and who had been directed into solid-state physics by the late Harvey Fletcher, who had earlier witnessed Moray's work and been shown every detail except the secret of the vest-pocket-sized Moray Valve.

> ***Whatever the nature of the Ambient Energy reservoir into which the MRA is tapping, the novel phenomenon is real and deserving of exhaustive further investigation.***

Whatever the nature of the Ambient Energy reservoir into which the MRA is tapping, the novel phenomenon is real and deserving of exhaustive further investigation, according to elated inventors Wootan, McClain, Taylor and McCracken, who urge independent investigators to seek to replicate their discovery.

SWISS M-L CONVERTER UPDATE

By Don Kelly, Space Energy Assoc.
August 20, 1995

I would like to update you on some late thinking and progress on the Swiss M-L Converter project work, at this time.

Bob Piekiel of Marcellus, N.Y. has straightened me out about the basic flaw in my proposed multiple spark gap jump setup, and says that it is highly unlikely that most of the spark jumps will be uniform, and only about two or three will predominate. I now believe him on this point.

Also, we must take the evidence of successful high voltage step-down with the twin perforated cylinders of the twin stacks, as proof that the high voltage step-down does occur this way. Pierre Sinclaire, of Canada believes that ionization occurs between these two internal large cylinders, which accounts for the high voltage step-down, in his 1992 analysis of this SMLC system.

I have not yet contacted Pierre S. about his excellent past work with the SMLC yet, but hope to contact him soon, since his input could be most helpful to this project work. In case you may wish to get involved with it, his phone number is: (604) 888-8678, pager no. 645-1486.

The focus on this project work must now be on the solid-state, conversion/amplification stage, since this successful resolution will make every other aspect of this system workable, at this point.

The only tangible, and yet incomplete, data that we have on this major component comes from Albert Hauser, and his info, ie: "in the center a bifilar coil around magnet tube (stacks)," and a later sketch which showed the magnet stacks made up of standard disc magnets with their polarities up and down, N and S, respectively.

I've tested this arrangement here, and found that it did not work, mainly because the circuitry is **incomplete**, as described.

I'm now starting to believe that the resultant motional "E" field produced by the bifilar windings has an affinity for the magnetic domains within the twin magnet stacks, and further that the recombining of the "E" field with the magnetic flux of the BaFe magnetic particles in a **high impact way!** I suspect that the E.M.F. produced is a much higher level than originally went into the bifilar windings, but who knows, at this point.

There are major and unmistakable similarities between "Sparky" Sweet's V.T.A. project work and the SMLC.

And now we seem to be compelled to review and study the past work of "Sparky" Sweet in connection with the SMLC, since there are major and unmistakable similarities between his V.T.A. project work and the SMLC, at this point!

In his paper, "Nothing is Something," "Sparky" extolled the virtues of the motional "E" field, and the use of non-inductive (bifilar) windings, and yet in all of his most recent releases before his passing, these non-inductive/bifilar winding were nowhere to be seen in these supposed updated circuits!

We know that "Sparky" considered the motional "E" field to be of major importance to his V.T.A. project work since it was specified cited or/and described in seven pages (2, 6, 7, 9, 12, 13 & 14) of his above mentioned paper "Nothing is Something."

Therefore, it is now imperative that we try to understand his gradual replacement of these non-inductive, bifilar or Hooper windings with ordinary single wound helical coils!

The first recorded use of non-inductive, bifilar windings is in the work of Hans Coler (Germany, 1940's), in which he clearly stated the use of these windings over magnets in his so-called "Magnetostormapparat."

I have gone through all of his descriptions many times, but have failed to note any **clear rationale** from Coler about the use of these special winding for his project work.

It would be most helpful if we were able to find someone or group with further information on Coler's work, specifically in this area of his use of bifilar winding over magnets!

William Hooper is credited for the development of the motional "E" field Generator, (U.S. Patent No, 3,610,971), and the introduction of the flat, Hooper type of non-inductive winding, as shown in this patent.

It is now becoming apparent that these flat, Hooper type of non-inductive windings are applicable to the latest of "Sparky" Sweet's (V.T.A.) design releases, but are not indicated in them.

We must observe that the bifilar winding in the Swiss M-L-C appeared after the first introduction of them in Hans Coler's project work, but before the use of them in "Sparky" Sweet V.T.A. units, so that this adoption sequence may be of some significance to the technology.

It would now appear very worthwhile to follow up on this past project work, towards a final resolution of both "Sparky" Sweets projects, and the Swiss M-L Converter project, as these seem to have great promise for the new energy field, at this time.

MORE INFO ON BRAIDED COILS

Mr. Reiter Sends Notes: "Sign of an Energy Source?"
By Samuel P. Faile

On August 20, Nick Reiter ran the coils with an attached diode in the Faraday Box. The diode which was soldered across the plug on the coils was then used in an attachment to plug into the coil socket. The table is in reference to use of the IN34A germanium diode plug, the various knotted coils, the 2 1/2" OD 1/4" TH iron pipe, and the measurement with the Kiethley 175 meter.

	Coil Connected to Diode unless otherwise stated		DC mV (Voc.) Open air	In pipe	A.F.
A.	1 Conductor Cad. Braid 22 (BL)	↑	7.97	14.05	1.76
B.	----- diode plug alone -----	↓	4.89	2.97	--
C.	4 Conductor Cad. Braid 32 (BL)	↑	1.38	4.03	2.92
D.	2 Conductor Cad. Braid 20 (BL) "original caduceus"	↑	2.21	7.14	3.23
E.	2 Recursive Cad. Braid 20 (BL)	↑	1.47	3.42	2.33
F.	2 Conductor Cad. Braid 20 (XL)	↑	2.52	7.65	3.04
G.	Celtic Superstructure *	↓	2.71	2.47	--
H.	repeat item A.	↑	6.05	12.22	2.02

(BL) = Braid Link (XL) = Crossover Link A.F.= Amplification Factor
* gave strong headache during testing.

The Cad. (3 coordinated structures) often can be enhanced in regard to output if placed in a pipe. In open air only, the one conductor Cad knot enhances over the diode alone.

In other experiments when the - 1 conductor cut Braid 22 (Braid Link) was inserted into the pipe to get 12.35 millivolt, some modifications were tried. A capacitor placed across the array output decreased the DC about 30%. Another test where a 2.0 KΩ is used across the array the potential drops to about 0.2 millivolts. This means the developed voltage has little power.

Electric Vehicles

BERTONE Z.E.R ELECTRIC VEHICLE SETS NEW WORLD SPEED RECORD

Electrifying Times, vol 3, no 2, Fall Edition, pg 5

On March 21, 1995, the Bertone ZER, EV prototype smashed the World Speed Record for EVs at Italy's high-speed Nardo circuit. Driven by racing driver Oscar DeVita, the Bertone ZER - Zero Emission Record - single seater reached a speed of 303.977 Km/h (188.88 mph), beating the previous EV absolute speed record of 295.3 Km/h (183.5 mph) set by the GM Impact in '94.

OIL INDUSTRY CAMPAIGN FIGHTS CLEAN VEHICLES, STUDY SAYS...

Electrifying Times, vol 3, no 2, Fall Edition, pg 23
CALSTART Connection, vol 3, Issue 2, 1995

"We oppose provisions that subsidize on the backs of taxpayers the development of alternative fuels and the vehicles."

Last November, Charles J. DiBona, president of the American petroleum Association, said, "We oppose provisions that subsidize on the backs of taxpayers the development of alternative fuels and the vehicles." Ironically, the DFA study found that the oil industry received more than $123 billion in preferential tax benefits from 1919 to 1973. Additionally, some economists estimate that subsidies to the oil industry so far in the 1990s, measured by market and external costs, currently amount to $300 billion [sic] annually, the study revealed.

ZINC BROMINE BATTERY

Courtesy of Trevor Osborne

Monica Videneiks, "WA Battery Offers 'Green' Alternative," *Sunday Times*, Australia, Aug 13, 1995.

Sixteen years of research and design will culminate with the major trial of an environmentally friendly WA battery.

The first major trial of the battery, which has a 400 Kilowatt hours capacity, will be run at Nunawading, Victoria.

Using zinc and bromine - a non-metallic element found in the sea- the battery generates heat. When an electrical conductor is placed between zinc and bromine, electricity is generated.

During the trial, the battery will store excess power generated from a Victorian public utility during low demand periods and transfer it to a regional power grid during peak demand.

Dr. Singh said the idea for Zinc Bromine Battery emerged in the 1970s when it was realized the world needed alternative energy to fossil fuels.

"The ZBB is being manufactured for installation and testing over the next 12 months in Victoria and hopefully, it will be on the market in the next two to three years," Singh said.

'95 A.P.S. ELECTRICS ELECTRIC CAR RACE RESULTS

Electrifying Times, vol 3, no 2, Fall Edition, 1995, pg 6.

With the change of venue from a 1-mile oval at the Phoenix International Raceway to a 1.1 mile, 12-turn road course at the Firebird International Raceway, competitors at the '95 APS Electrics got a chance to race under conditions which resemble normal driving conditions, including breaking and sharp turns. Forty-one high schools competed in the High School Challenges Series, which included design, handling, braking, pit crew, acceleration, distance and oral competition.

D.O.E. - L.A. CLEAN AIR ROAD RALLY

Electrifying Times, vol 3, no 2, Fall Edition, 1995, pg 7.

The U.S. Department of Energy came to So. California in late March '95 to join the International Electric Grand Prix Assn. in showcasing "state-of-the-art" alternative-energy vehicles in action. The '95 DOE Clean Air Road Rally was a classic point-to-point road competition designed to test the competitors on the streets of Southern California as they traveled through 31 cities. The Rally gave consumers a firsthand preview of the current and future clean transportation marketplace.

"We need to remember that each year, America shells out approximately $45 billion for imported oil," commented Energy Secretary Hazel O'Leary.

RENAISSANCE SHIPS TROPICAS TO DEALERS

Electrifying Times, vol 3, no 2, Fall Edition, 1995, pg 8.

The World's First Affordable Electric Sports Car
Palm Bay, Fl - June 5, 1995

Renaissance Cars Inc. (RCI), developer of a line of low-cost electric vehicles, began shipping its Tropica™ electric roadster to its dealer network. Initial RCI deliveries formally took place at a drive away for Florida dealers at the Edison Electric Institute's annual Chief Executive Conference in Orlando, June 5-7, 1995.

THE "WORLD'S FIRST EVER." GROUND-UP BATTERY-POWERED ELECTRIC STEP VAN

Electrifying Times, vol 3, no 2, Fall Edition, 1995, pg 14.

June 12, 1995 - Specialty Vehicle Manufacturing Corporation of Downey, CA (SVMC) unveiled the world's first electric step-van. The state-of-art, zero-emission, vehicle can be used for delivery and service routes. **An SVMC official reported that energy costs for operating it should be only a third of that of an internal combustion powered van and maintenance costs are about one-half of a conventional van.**

Miscellaneous

NON-CONVENTIONAL ELECTRICAL MACHINES: POWER AND ENERGY MEASUREMENTS

by George D. Hathaway, P. Eng.

ABSTRACT

Non-conventional energy systems encompass the production, transmission and conversion of all forms of energy derived from sources whose true nature is as yet not fully understood. Emphasis in this paper is on recent electrical generation and conversion technologies which are colloquially referred to as "Free Energy Generators," "Space Energy Converters," Self-Generating Machines," etc. The ultimate test of an invention's commercial viability is the degree to which it outperforms currently available devices, based on efficiency, weight, cost, complexity, etc. Therefore, new systems must be promoted using conventional engineering language and this means performing tests and publishing results. Special precautions must be taken when measuring energy efficiency, for example, when systems include storage and/or primary batteries, or produce arcs resulting in voltage or current spikes or other highly non-sinusoidal waveshapes.

Introduction

This paper presents a brief overview of engineering issues related to the research and testing of non-conventional energy technology (NCET).

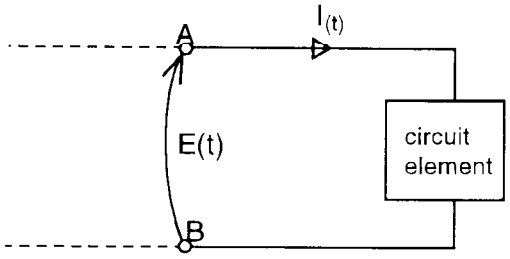
This paper is aimed principally at those who wish to investigate, engineer, and develop NCET systems.

During the last half century, many attempts have been made to design a device which would free mankind from its dependence on traditional energy resources. Some investigators have theorized about the source of energy but only a tiny fraction have seriously tried to confirm whether or not their devices actually perform as claimed. The different NCET configurations (including both two and four terminal devices plus rotating shafts and primary batteries) can lead to difficulties in measuring various parameters including power and energy efficiency.

Power and Energy

NCET systems are comprised of discrete circuit elements including passive elements, and current/voltage sources (the active elements), connected by wires through which current flows. Charge, denoted by q, by definition, is negative in sign. Current flow, I(t), is measured in amperes (one coulomb flowing per second, ie. I(t) = dq/dt). Historically, current flow is defined as negative if electrons flow toward the anodes in d.c. circuits.

Virtually all NCET circuit elements are 2 terminal-devices and many of these elements put together in an NCET machine can be reduced to a single equivalent circuit also with two terminals. In conventional analysis, net charge cannot accumulate inside these elements so current entering one terminal must exit the other. This movement of charge is associated with the absorption or generation of energy. Energy is absorbed by the following circuit element when a charge dq is moved through the element from A to B, driven by potential in volts E(t). The differential amount of energy is thus dw = E(t)dq. If energy is negative, the element is acting as an energy source. The sign of E(t) is positive if and only if energy is absorbed by the element when electrons move from the tail of the voltage arrow to the head, as shown in the figure below.



Power (the time rate if doing work)is defined as P = dw/dt, or energy flow per unit time. The power absorbed by a circuit element is P = E(t)I(t).

Power measured in watts or kilowatts. Mechanical power is usually measured in horsepower in North America, one horsepower being equivalent to 746 watts (mechanical).

Total energy is the product of power and time. Electrical energy is measured in watt-seconds or kilowatt-hours. Energy flow through an electrical device is usually expressed in watt-seconds but energy stored in capacitors or inductor is usually expressed in joules (one joule = one watt-second).

The above discussion applies when the power is constant over time. For time - varying power, the proper method of measuring the net energy supplied is to sum up all the "instantaneous" powers during short equal time intervals multiplied by the total time interval, known as integrating over

time. The instantaneous electrical power is defined as the products:

$$P(t) = E(t)I(t) = RI^2(t) = E^2(t)/R$$

where P(t) in watts is the instantaneous power at time t;

E(t) in volts is the instantaneous voltage at time t;

I(t) in amperes is the instantaneous current at time t; and

R in ohms is the value of a pure resistance which is absorbing the power.

Knowledge of the instantaneous power may be helpful when designing or optimizing a system but when comparing an NCET device with a competing conventional or other NCET device use power over long time intervals (average power). Of course, this average power is a constant even if the instantaneous values are fluctuating. It is defined mathematically as:

$$P_{avg} = \frac{1}{t_2 - t_1}\int_{t_1}^{t_2} P(t)\,dt$$

In the DC case, the instantaneous and average powers are identical.

In many instances, it is useful to know the average power, produced or consumed, in the non-DC case which is equivalent in heating ability to the DC case. Most NCET devices which do not operate on DC involve time-varying on alternating currents. The RMS or root-mean-square value of any periodic current, I_{RMS}, is a constant equal to the DC current which would produce the same average heating value in a pure resistance. This current produces a periodic voltage with an RMS Value of E_{RMS}. Thus the average power produced by a current with period T (seconds) flowing through a pure resistance is a constant:

$$P_{avg} = RI_{rms}^2 = R_T\int_0^T I^2(t)\,dt$$

When it is known that the alternating current is periodic and flowing through a load impedance which has capacitance and/or inductance (which do not vary with time), the average steady-state power consumed by the load is:

$$P_{AVG} = E_{RMS}I_{RMS}\cos(\theta) \quad \text{(real power)}$$

Here, $\cos(\theta)$ is called the power factor and θ represents the phase angle between the current and voltage waveforms, usually measured in degrees between the points at which the E and I waveforms cross the time axis as can be depicted on an oscilloscope. A complete cycle of a waveform equals 360 degrees. If the crest of the current waveform comes later in time (lags) the voltage waveform, the phase angle is defined as positive, and the load is predominantly inductive. When the current leads the voltage, the phase angle is negative and the load is mostly capacitive. P_{AVG} is always a positive constant and represents the actual real power produced by a generator or consumed by a load to do work.

The power factor can also be defined as the average real power divided by the product of the absolute values of the current and voltage. This latter product of absolute values is called the apparent power, measured in volt-amps. **To reiterate, it is useless to simply multiply current and voltage to get power in AC circuits.** The power factor must be included as stated in the above equation.

Pure capacitors and inductor only store energy and do not dissipate it (energy is lost in resistance). This energy can oscillate back and forth between capacitive and inductive elements in the load, the transmission wires and the generators. An additional term called the **reactive power**, related to this stored energy, is defined as:

$$Q = E_{RMS}I_{RMS}\sin(\theta)$$

While P_{AVG} is measured in watts, Q is measured in volt-amps reactive or vars and is positive for inductor and negative for capacitors. Q is not associated with the dissipation of energy. For a fixed average power, P_{AVG}, a low power factor corresponds to large Q and necessitates supplying additional current to the load to perform the same work.

Power transmitted by rotating shafts in mechanical system is defined as the product:

$$P_{MECH} = M\varpi$$

where

P_{MECH} is the mechanical shaft power (watts)
M is the torque (in Newton-meters)
ϖ is the angular velocity (radians/sec)

and

$$\varpi = (2\,\pi\,RPM)/60$$

where RPM is the shaft rotational speed (revolutions per minute)

This power can be either instantaneous or average, as in the electrical power section above. Usually the torque on the shaft is constant, for example in a pump, fan or constant power generator. If RPM is also constant over time, P_{MECH} is an average value. If RPM varies over the measurement time interval, the instantaneous power can be measured at any instant in time. As in the electrical case, this is not an useful quantity when comparing competing systems and therefore the torque - speed product has to be calculated during many equal short time intervals and integrated over the whole measurement time interval to arrive at the average P_{MECH}.

TO BE CONTINUED *NEN* OCTOBER ISSUE

A NEW GENERAL THEORY
Courtesy of Dana Rotegard

Roland L. Hron, "Special and General Relativity, Competing Theories," *Futurics*, Vol 19, No 3&4, pp 24-27, 1 table.

EDITOR'S SUMMARY

By using four space dimensions plus time Hron has developed a theory which he compares to the Special Theory of Relativity (STR) and the General Theory of Relativity (GTR). The article presents a tabular array of Phenomena and cites the explanation under the Hron theory and under the STR & GTR theories. The phenomenon listed are as follows:

Description of the Universe
Time and the Velocity of Light in Moving Platforms
Time in the Vicinity of a Central Mass Object
The Twins Paradox
Maxwell's Equations
Black Holes
The Relationship Between the Universal Gravitational Constant, G, and the Distribution of Mass in the Universe.
Mass and Energy

With each of the above phenomenon, the author lists both his theory's explanation along with the standard Einsteinian explanation. Hron's concept of the speed of light is similar to Dr. Robert L. Carroll's.

Editorial

PRIMER ON NUCLEAR CHANGES

By Hal Fox, Editor-in-Chief

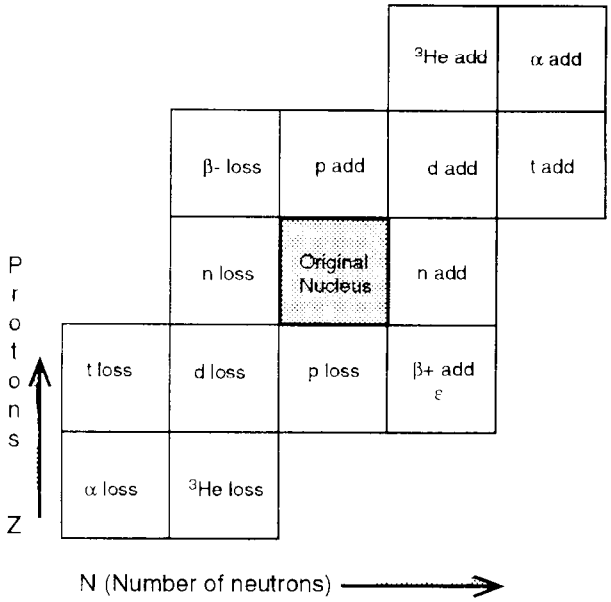
The recent historic conference on Low Energy Nuclear Reactions (Texas A&M, June 19, 1995) is expected to accelerate the acceptance of the concept that nuclear reactions can and do occur at low energy levels under specific conditions. This newsletter has, for some years now, used the terms **proton capture, nuclear catalysis,** and **catalysis of nuclear reactions on or within a metal lattice**. However, substituting names for events adds zero knowledge except to identify a suspected process.

For those who are new to the concept of low-energy nuclear reactions, one of the basic concepts is that by electrolysis (or some other means) a hydrogen atom is extracted and ionized (thereby becoming a proton). Under conditions that we do not fully understand, usually near the surface of a metal lattice (or possibly within a metal lattice), the proton appears to be able to combine or fuse with another element. For example, in light-water electrochemical cells, the current from anode to cathode creates protons at or close to the surface of the nickel cathode. Also present is the electrolyte, such as potassium carbonate. Something in the process of the production of the proton, in the vicinity of the nickel cathode surface (or, perhaps, slightly below the surface) and in the presence of an ionized element of the electrolyte (especially, the alkali elements) promotes or catalyzes a fusion between an electrolyte ion and the proton.

The fusion of protons with relatively heavy elements (heavy with respect to say lithium) has been considered to be highly unlikely. However, a recent paper by Yeong Kim [1] shows that such a nuclear event to be up to fifty orders of magnitude more likely than fusion of protons with lithium! Here we have the newest theoretical work supporting the observations of the more recent experimental work, as is highly appropriate.

In the Fig. 1 that follows, is presented a graphical description of the changes that can be made to an original nucleus by various fusion (added) or fission (loss) of various elemental particles ranging from protons to alpha particles (ionized helium-4 nuclei). It is important to understand that if the original nucleus is stable, the nucleus formed by the addition or loss of a particle may or may not be stable. If not stable, then the new nucleus will decay (most often by ß emission) to a stable element. At the present time the only recognized ways in which such an original nucleus can be easily changed is by particle bombardment with a high-energy beam of particles ranging from protons to alpha particles.

The newly-found ways in which the original nucleus can be transformed is through the use of cold-fusion type electrochemical cells using light water (and producing protons) or using heavy water (and producing deuterons). It would be expected, but not as yet reported, that tritium water as the electrolyte would produce tritons and provide for suitable nuclear transformations.



Symbols: α = alpha particle; ß- = electron; ß+ = positron; ε = electron capture; d = deuteron; n = neutron; p = proton; t = triton (tritium).

Fig. 1. GRAPH OF NUCLEAR CHANGES TO ORIGINAL NUCLEUS

In a recent paper, Dr. Robert T. Bush [2] reports on the experimental findings made by himself and his associate (Robert D. Eagleton) wherein they measured the presence of transmuted elements produced in a light-water electrochemical cell using rubidium in the electrolyte. Mass spectroscopy analysis of the scrapings from the nickel cathode showed the presence of transmuted elements from strontium through tin. Among the many isotopes developed by proton capture there are many unstable elements produced that decay by the emission of a beta particle. It is important to notice that there are very few such nuclear reactions that emit neutrons. Nearly all of the neutron-emitting unstable elements are in the high-Z end of the periodic table. Therefore, it is expected that these electrochemical cells (cold fusion cells) can be operated with little or no neutrons being emitted. All other emitted particles are easily controlled or are benign.

More studies on the transformation of nuclei using light-water electrochemical cells have been made than those using heavy-water cells. It is strongly suggested that the key to the reduction of radiation in radioactive nuclear wastes lies in this byproduct of cold fusion experiments. The following steps are suggested for the proposed experimental work:

1. Obtain a radioactive alkali element and use this material to form a carbonate as the electrolyte in a light-water cold fusion electrolytic cell.

2. Operate the cell at relatively high currents. Although the power amplification factor may not be as high, it is expected that the number of atoms transmuted per hour will be higher than at lower current densities.

3. Use a closed cell system with a catalytic devices to ensure that the generated hydrogen and oxygen are recombined to drip back into the operating cell.

4. Observe all of the proper safety precautions when using a closed cell so that excess pressure cannot develop and damage the cell.

5. Make careful measurements of the electrolyte on a before and after basis to determine the degree of radioactivity per unit volume of the electrolyte.

6. Make careful measurements of the nickel electrode on a before and after basis to determine the degree of radioactivity for the cathode.

7. Make careful measurements of the amount of the element that is expected to be the result of transmutation that is contained within or on the surface of the cathode before the experiment is run.

8. Carefully abrade the cathode surface and make accurate measurements of all elements present in the abraded material removed from the cathode. If transmutation is occurring by proton capture, there may be a series of elements deposited on the cathode surface all of which began with the radioactive element in the electrolyte.

9. The experimenter must take great care to ensure that there are no contaminating chemicals in the light-water cell that would prevent the normal cold fusion effect. Therefore, it is important that this experimental work be done by those who have been successful in previous light-water experiments. The development of excess heat should be monitored as the experimental verification that the cell is performing as expected.

It is hypothesized that the following results will be found with a successful experiment:

The radioactivity of the electrolyte will decrease and the rate of decrease will be proportional to the total number of Coulombs of current.

Little or no radioactivity will be found in the abraded material removed from the cathode.

Evidence of a series of transmuted elements will be found after the cell has run and the amount of materials will be proportional to the number of Coulombs of current passed through the cathode.

In view of the enormous need for methods to reduce the radioactivity of byproducts from both weapons and energy related nuclear experiments, this type of experiment should receive the highest national priorities.

The biggest difficulty that will be found in obtaining funding for this research is that the reviewers will probably reject the experiment as being impossible **because the current model used to explain nuclear reactions does not apply to low-energy experiments.** Therefore, funding may have to come from sources outside of the government offices where professional skeptics impose there outdated models in evaluating new proposals.

REFERENCES

[1] Yeong Kim (Professor, Purdue Univ., Indiana), "Uncertainties of Conventional Theories and New Improved Formulations of Low-Energy Nuclear Fusion Reactions," Proceedings of the Conference on Low-Energy Nuclear Reactions, published by Fusion Information Center.

[2] Robert T. Bush (Cal Polytechnic Univ - Pomona), "Electrolytically Stimulated Cold Nuclear Synthesis of Strontium from Rubidium," Proceedings of the Conference on Low-Energy Nuclear Reactions, published by Fusion Information Center.

LETTERS

LETTER FROM HAROLD ASPDEN
August 21, 1995

More on the Energy Regenerative Power of Magnets
H. Aspden

Robert Adams of New Zealand updated me by phone on August 13, 1995, concerning his motor research using stronger magnets. This improves power rating but not the motor efficiency. He confirms our belief that any over-unity excess in mechanical power delivery depends upon design factors rather than the quality (or strength) of the magnets used.

As Adams mentioned his use of samarium cobalt magnets in adapting one of his early machines some years ago, I thought *NEN* readers might wonder how my 101-102 nucleon inertial resonance proposition (*NEN*, August 1995 issue) applied to samarium cobalt.

Concerning his motor research using stronger magnets, this improves power rating but not the motor efficiency.

The atomic masses of Sm and Co are 150 and 59 nucleons, respectively. Cobalt is ferromagnetic and has a hexagonal close packed structure, meaning that it forms crystals in groups of 6 atoms. Note that 12 Co atoms comprise 708 = 7(101.14) nucleons. Note also that the grouping of one cobalt atom and one samarium atom sums to 209 = 2(104.5) nucleons. Since the ideal resonance condition for the sustained magnetic-moment-producing current flow is in the upper sector of the 101-102 range, the combination of SmCo and 12 Co atoms offers high promise as a permanent magnet material. The result is 917 = 9(101.89). This composition has, by weight, the Co:Sm ratio 767:150, which is roughly 5:1.

This 5:1 composition is exactly that of one of the two commercially available forms of samarium cobalt magnets!

The above material is rated at 18 MGO (Megagauss-oersted) compared with barium ferrite at 3.5 MGO, but there is another samarium cobalt commercial composition with a 24 MGO rating.

To bring the critical factor in the 101-102 range a little closer to the 102 nucleon value we need to build the resonant complex to a higher mass level whilst keeping the sub-group resonance states. One way to do this is take N sets of the above 12 Co and SmCo groups with n sets of 12 Co plus as few extra Co atoms as are needed to get the optimum result. The answer is found to be the composition for which N = 3 sets of SmCo and n = 2 sets of extra Co, with only one extra Co atom added per set of the two n sets. This gives an overall composition of 65 Co atoms to 3 Sm atoms, which is a 17:2 mix in weight proportions, this being the composition of the SmCo magnet having the 24 MGO rating! The complex involves 42 supergravitons each absorbing the inertial reaction of 102.02 nucleons, this being 65 x 59 plus 3 x 150.

Harold Aspden
Sabberton Research
PO Box 35 Southampton
SO16 7RB England

LETTER FROM GERMANY
From Hans Werner Depcik

Now concerning "Searching Seeds for Transmutation" (*NEN* vol 3, no 3, pg 5), you wrote: "Louis Kervran of France first documented the occurrence of biological transmutation in 1962."

That is not right! To my knowledge, the first that was published was by A. von Herzeele Verlag von Hermann Peters, Berlin, 1976. Title: Entstehung der unorganischen Stoffe (in organics - my remark), published in Rudolf Hauschka Substanzlehre by Vittorio Klostermann, Frankfort, a.Main.

This was already published [reviewed] in *Aussendung*, no 30, Aug. 1993, by The German Association of Vacuum Field Energy. You can see that the statement of biological transmutation goes back to 1876, more than 120 years ago, and you should notice this remarkable work.

Kind regards, /s/ H.W. Depcik

LETTER FROM ROMANIA
From Emil Alexandrescu

I'm coming back to the Quaternions. They are a really difficult subject and they do not seem to be promising for the future. How could an old, historically obsolete theory be promising in a fast-growing future? The classical theory is indeed obsolete (today inadequate), but its core possesses fundamental ideas that can be usefully and worthily reintegrated within the modern theories.

When I had first read the two-volume old set of Maxwell's main work on electromagnetism, I felt the same insatisfaction as you. I did nowhere find quaternions. I used a translation into German, from the end of the 19th century: "Lehrbuch der Elektrizitat und Magnetismus" by J.W. Maxwell. However, a second and more minute reading revealed to me the truth: Maxwell treats all the matters using the analytical (Cartesian) method, as his forerunners or contemporaries, but he does often, supplementarily, write different important physical formulae, synthetically [i.e., as an alternative expression], resorting to quaternions. Especially, the great final synopsis on the laws of electromagnetic phenomena is made both

analytically and synthetically. I did not count the appearances of quaternions in Maxwell's books, as John Bearden did, and such a count is not important.

> *In the course of time, the quaternions "lost" their geometrical content, becoming a pure algebraic concept in most books and leaving the scene of physics.*

It is important that Maxwell and his first followers were aware of usefulness and physical significance of synthetical symbols and methods. The quaternions, as geometrical symbols, were a way of "concentrating" formulae and pointing out the physical meanings directly and clearly. Nowadays, we use vectors instead of quaternions for the same aim. In the course of time, the quaternions "lost" their geometrical content, becoming a pure algebraic concept in most books and leaving the scene of physics. Of course, after Hamilton, many mathematicians continued to study and improve them and generalize them.

The initial quaternion-calculus was converted and simplified into vector-calculus; neither Hamilton and Tait, nor their followers emphasize and exploit, outspoken and systematically, the true meaning of the quaternions: they are (geometrical) **operators between vectors** and not vectors themselves or vector-like entities. Geometrically, the quaternions describes the rotations of vectors in space; that is a "process" and not an "object." The "processes" and the "objects" belong to different and principally **irreducible conceptual levels.**

Even from the beginning of the quaternions-calculus, the permanent trend was to the analytical (four-component) expressions and then to the separation between the "scalar" part and the "vector" part, and to expressing in Cartesian standard method. This trend was actually a **reduction** and Maxwell used quaternions within this lower conceptual frame.

But, as operators, quaternions correspond to contemporary tensors and an explicit, consequent formulation of electromagnetic field laws in terms of quaternions, directly starting from experimental facts and data, would correspond to an approach of tensor-like (of higher "process" levels, I mean) for electromagnetic fields. Such a direct treatment is not the same as the (already standard) treatment of electromagnetic field in (relativistic or not) tensor-form, on the laws of vectorial quaternions, where the vectorial character of the potentials (in their effective physical content) is preserved. So, the two Maxwell's original books suggests to me a very tempting research: the direct treatment of electromagnetic fields using quaternions and exploiting their descriptive equivalence to field-potentials of tensorial levels, not simply vectorial. At least, from a formal point of view, the conceptual frame, being "higher," is larger in possibilities for physical meaning. This opinion of mine is different from John Bearden's opinion, but it is "synergistic" with it.

LETTER FROM TOBY GROTZ

Dear Editor,

Just before he made his final journey to the big "filled with magnets" research laboratory in the sky, "Sparky" Sweet asked me to pass on the following information to the readers of *NEN* and the *SEA Journal*. He asked that it be made known that the information that has recently appeared in print in both of these sources concerning his work is totally bogus, it is not his, he never saw it before, and if you knew "Sparky," you can imagine how worked up about it he was at this point in the conversation. This applies in particular to that which was purported to be from his diary. The most pertinent information in print concerning the VTA was put together with Sparky's permission by Mike Watson. Mike's paper in the proceedings of the 1994 International Symposium on New Energy is the best reference on the subject. Figure 1 in this paper also appeared in the *SEA Journal*. The modifications to the TV set were presented at the 1994 ISNE and were also printed in the *SEA Journal*. These drawings were made from original hand drawings that Sparky gave to me with the request that they be published.

There is much more to the circuitry that Figure 1 implies. There is, for instance, the frequency to which the front end of the TV set was tuned. Sparky was intrigued with the values of the permeability of vacuum, $\mu = 4\pi \times 10^{-7}$ Henries/meter, and the permittivity of vacuum, $e = 8.8542 \times 10^{-12}$ farads/meter. When he plugged these values into the standard equation for the resonance of LC circuit he came up with the frequency to which he tuned the front end of the TV set. He surmised that 47 MHz, derived from the known constants of free space, might just be the resonant frequency of the vacuum. The TV set and tuning circuit were used to impress this frequency into the magnets at the instant of conditioning.

Sparky was in the process of biological experimentation. He had just had made up for him a custom piece of glassware made of crystal. The center of the piece was a special mercury vapor lamp. The lamp was surrounded by an 8 turn spiral of tubing that penetrates an envelope of glass that surrounding the entire lamp. The whole assembly measured 14" long by 2.75" diameter. **If any readers know the purpose and use of this tube, we all would be interested.**

Sincerely,
/s/ Toby

EDITOR COMMENTS

NEN has received only one communication from Mr. Sweet - a mathematical description of one aspect of the VTA project forwarded to *NEN* by Don Kelly. The title was "Power Analysis Linking Electric and Magnetic Fields." The letter was received June 15, 1993, but was not deemed suitable for publication.

LETTER FROM GREG HODOWANEC

Just some lines to clarify the purpose behind my Cosmology Notes, especially with regard to the MRA, and to comment on some of the remarks made by Raymond Nectoux in the August 1995 *NEN* letters.

Cosmology Notes are issued to a very few (less than 8) of my colleagues who are versed in my cosmology (I), to keep them informed of my limited activity here, and (2), to try to get them to also try some of the simple experiments, which may (or may not) contribute to the New Sciences. Thank you for considering these simple experiments in *NEN*. Perhaps there may have been some 'hands on' experimenters out there who actually tried these types of tests?

While my primary interests are in cosmology, I also have strong interests in gravity and gravitation, as well as in the so-called 'space energy' concepts, which are definitely a part of my cosmology. My interest in the MRA was instilled by the fact that I could see that gravitational effects were also probably involved here. The reason for the crude tests simply are that my facilities, funds, and time are severely limited. However, I am now convinced that gravitational effects are definitely a factor in the operation of the MRA, especially the Mini-MRA. In due time, if interest in the MRA remains in *NEN*, I may prepare a simple article expanding on my views?

With respect to Mr. Nectoux's many valid comments, I would like to clarify some of them:

With respect to using digital meters, such as the Fluke 87, **outside** of their calibrated ranges, of course the **absolute readings** would be quite inaccurate. However, when measurements are made with essentially sinusoidal waveforms, **and on a relative basis**, where the input RMS sinusoidals are comparable to the output RMS sinusoidals, the **relative power gains noted may be quite valid**. This has been confirmed in tests of one of my early prototype units (similar in general to that shown as Ckt. FE-6B in the May 1995 issue of *NEN*) by **three well-known professional labs** (which I cannot name). These professionals, using sophisticated equipment and techniques, essentially verified my data. It should also be noted that the Radio Shack Item Mini-MRA test shown in the June 1995 issue of *NEN* was tested at 10KHz, well within the range of the Fluke 87, and the performance was generally quite similar to all the other cruder tests made at the higher frequencies. By the way, Mr. Nectoux is correct about the Q of that circuit -- it is about 18, (I used the wrong value for V_g).

With respect to the use of LED's -- they are primarily power out indicators. However, the LED RMS visual output power can be corrected to be comparable to the output power seen at DC levels. Thus, on a **comparative** basis, the relative visual LED outputs could compare quite well with that obtained with resistive loads.

There is such a thing as **reactive power**, we have a term for it, var, and it is equal to VI sin phi: The Mini-MRA is generally operated at resonance or near resonance. With the lower Q's seen with the Mini-MRA, resonance is fairly broadband and not too critical compared to the very high Q's in the McClain-Wootan MRA. Under such resonant conditions, reactive powers are essentially lossless, **but** the inductive 'reactive power' can be **dumped** into a resistive load by transformer action. For most experiments, the RMS power can be rectified to provide a DC power out.

The 'final proof' of MRA action will be in a 'stand alone' MRA circuit of the self-contained oscillator type as shown in the May 1995 issue of *NEN*. One prototype unit, where the MRA output was rectified in a voltage-doubler circuit and the DC output was then fed-back (through a steering diode) to the DC battery source, resulted in a 'self-sustaining' mode of operation where the NiCad batteries (three AAA cells) were only **very slowly** discharged over a period of about 1000 hours. Without the feed-back, the NiCads discharged in about 150 hours. This will be the only remaining Mini-MRA test that I plan here. I have made another prototype circuit which will be operated at 2-3 volts (two AAA NiCads), and thus will draw very little oscillator power. I hope that once operation is stable, I will be able to disconnect the NiCad supply and the unit may possibly continue to operate in the 'stand alone' mode. [not yet proven]

My final remarks are:

(1) These simple tests were primarily aimed at getting the 'hands on' experimenters, having limited equipment and resources, to become more involved here.

(2) I believe that much of my performance results are due to my use of essentially **resistive** oscillator sources to drive the Mini-MRA.

(3) **I believe the MRA is real, but needs many more inputs by many more 'hands on' experimenters. We wish them all well and good experimenting.**

Respectfully yours, /s/ Greg Hodowanec

LETTERS FROM GERALD LINDLEY

August 7, 1995

This in regards to the supergraviton mass concept of Harold Aspden as reported on page 2 of the August 1995 issue of *New Energy News*. By coincidence, the supergraviton mass that Aspden proposes is equal to the cube of the Feigenbaum constant 4.6692. That is $4.6692^3 = 101.795$. This suggests a possible connection with nonlinear dynamics otherwise known as chaos theory. This might be just a coincidence, but when you consider that mass exists in three dimensions, it is not unreasonable to cube the Feigenbaum constant to obtain the supergraviton mass.

Aspden's supergraviton concept also has another application. In the 1970's, Solomon Goldfein proposed a conformation of the biological molecule ATP which he claimed met the criteria for a microscopic cyclotron. He proposed this model to explain biological transmutations. The molecular weight of electroneutral ATP is 505 which is five times 101. That is

5(101) = 505. Since Aspden does not seem to be aware of this, it can be considered as a successful prediction of his theory.

August 8, 1995

This is a follow-up to my letter of August 7, 1995. First I need to make a minor correction. When I added up the molecular weight of ATP I forgot two hydrogen atoms. The correct molecular weight of electroneutral ATP is 507. This gives us five units of 101.4. That is 5(101.4) = 507.

A further review of the work of Solomon Goldfein shows that he used the fully dissociated form of ATP. The molecular weight of ATP^{4-} is 503.15178. He proposed stacking four molecules of ATP^{4-} around one Mg^{2+}. The molecular weight of this whole complex is 2036.91212. This is 20 units of 101.845606. That is 20(101.845606) = 2036.91212. This further supports Aspden's proposal of a supergraviton mass of 101-102.

August 10, 1995

This is a follow-up to my letters of August 7, 1995 and August 8, 1995. In those letters I hypothesized that the supergraviton mass proposed by Harold Aspden is equal to the cube of the Feigenbaum constant 4.6692. That is 4.6992^3 -- 101.795. The next question is what could account for the fractional atomic mass units?

One way of accounting for the fractional atomic mass units is by considering that the nucleons (i.e. protons and neutrons) which account for the atomic mass units are assembled from quarks. Protons are made from the combination of up-up-down quarks and neutrons are made from the combination of up-down-down quarks. The constituent mass of up quarks is roughly one third the mass of a proton or neutron. This is also true of down quarks.

If we subtract a quark from an atomic mass of 102 we have 102 - 0.33 = 101.67 which is approximately equal to 101.795. The slight difference between 101.67 and 101.795 could be due to something along the lines of perturbations or binding energies. At any rate, it appears that the quark theory will have to be used to explain Aspden's concept of a supergraviton mass between 101 and 102.

Sincerely, /s/ Gerald Lindley

LETTER FROM DON S. ROSS

Comments about Patent Office bureaucracy on page 16 of your Volume 3, Number 3, August 1995 issue reminds me of some mishandlings of possible use toward seeking reforms.

A. After much difficulty my physicist brother, Thomas Ross, obtained a seemingly strong patent on the world's first cathode ray memory tube. Ignoring existence of the Ross patent, the Patent Office permitted a major corporation to obtain an almost identical patent; said it was not responsible for such oversights.

B. When the same physicist sought patent on a motor mount adjunct to reduce vibration by distributing some strain away from the mounting clamps, patent was denied on grounds the device resembled a music rack!

C. When I sought patent on electro-magnetically holding secondary core to the primary core of a split-core transformer used as a debris-proof electric floor outlet, patent was denied on utterly false grounds the two halves would inherently stick together.

LETTER FROM UTAH CONGRESSWOMAN WALDHOLTZ
July 31, 1995

Dear Harold:

Thank you for contacting me to express your views about proposals to eliminate the Department of Energy.

The Department of Energy (DOE) was created in 1977 by President Carter to deal with the energy crisis the country experienced in the 1970s, facing gasoline lines and the prospect of inevitable energy shortages and ever-increasing energy prices. The crisis, however, was in large part the result of price and allocation controls imposed by the Federal government. As President Reagan observed, the country suffered not from a shortage of energy but from a surplus of government. Once unnecessary government controls were dismantled, the gasoline lines and natural gas shortages disappeared.

> ***The crisis, however, was in large part the result of price and allocation controls imposed by the Federal government.***

Today, the DOE has strayed from its original mission of energy oversight, while at the same time the Department has grown by 155 percent since its creation. Whereas, in the 1970s fully 80 percent of the DOE budget was spent on energy-related functions, today that activity is now at an all-time low of just 20 percent. **In fact over two-thirds of the DOE budget is related to national security functions.**

On May 18, 1995 the House of Representatives made history by passing a plan to balance the federal budget for the first time in a generation. Our seven-year plan will balance the budget and eliminate the deficit by the year 2002. **Included in that plan is a proposal to begin the orderly termination of the Department of Energy and transfer critical functions to other agencies.**

As we work to balance the budget, we must ensure that we receive a full and fair return on our energy dollars. By eliminating administrative and bureaucratic costs, we can direct our scarce resources toward basic research and other critical functions.

As part of the continuing budget process, the appropriate House committees will now consider the proposals outlined in the budget plan and combine those issues into a single reconciliation bill to be voted on by the House later this fall. Please be assured I will carefully consider your concerns as Congress considers the future of the Department of Energy.

Thank you again for the benefit of your views. I hope you will continue to let me know of issues that are important to you...

Sincerely, /s/
Enid G. Waldholtz
Member of Congress

[Emphasis added. -Ed.]

Meetings

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Send inquiries to the International Association for New Science, 1304 S. College Ave., Fort Collins, CO 80524, or call 970-482-3731 or Fax 970-482-3120.

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The conference explores the scientific, technological and engineering issues associated with controlled thermonuclear fusion. There will be papers, poster sessions, company exhibits, and a minicourse in Fusion Blanket Technology (8/30-9/1). Cold Fusion will be presented for the first time in a poster session by Hal Fox, and Edmund Storms will be on a panel. Three technical tours are offered to members, to: Argonne National Laboratory, McDonnell Douglas Aerospace (St. Louis), or to a boiling water nuclear power plant in Clinton, IL, on Oct. 6.

For more information in the conference contact their office from 8:00 am to 5:00 pm by phone or 24 hours by fax. Phone: 217-352-6667 Fax: 217-352-8108

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