ELECTRIC POWER FROM SPACE ENERGY

By Dr. Win Lambertson

Introduction

The purpose of this paper is to explain in layman terms how energy from space, known as zero-point energy or energy from the vacuum continuum, is converted into useful electric power. At the termination of 1993 there were two known operating methods for converting zero-point energy into electricity. In the last decade three U.S.A. patents have been issued having zero-point energy as their ultimate source. This article is directed instead towards a new and improved method known as the WIN Method. In it, the Casimir Effect is utilized to collect energy from space and then convert it into useful electric power. In order to understand how this is done we need to first review definitions of the vacuum, energy, matter and energy transfer.

Ultimate Energy Source

Ordinarily we think of an absolute vacuum as a void or nothing at all. Since nothing is the absence of everything, we have difficulty envisioning getting something from nothing. This is a problem of terminology. If we take a box and evacuate it completely so that it does not contain one molecule of air, and we then remove all of the thermal energy by cooling it down to absolute zero, we yet find that it is still **filled with energy** in the form of photons from the vacuum continuum. While this energy cannot be seen or measured, it does have an effect on the physical which can be measured. It is constantly interacting with all matter. The vacuum continuum has an energy content equivalent to that of the physical universe.

We all know about Einstein's work showing the equivalence of energy and matter. Matter is made up of atoms which are, in turn, made up of electrons, protons and neutrons. Protons and neutrons are made of still smaller particles called "quarks" but the electron may not be further divided. These solid particles are constantly exchanging energy with the vacuum (or space) energy, also known as zero-point energy.

Energy Collection

In the conventional generation of electricity, high temperature and high pressure steam is created from water in a boiler using heat from fossil or nuclear fuels. Molecules of water, in the form of steam, are injected through a turbine causing rotation of the turbine blades. The rotating turbine is connected to the rotor of a generator containing electric coils carrying electrons. Moving electrons form a magnetic field which exerts a force on the electrons in the stator part of the same generator and cause them to move. Electrons have a mass and in their movement they carry kinetic energy just as did the water molecule in the fast moving steam. However, as their force is carried with the magnetic field this is called action at a distance.

How does the electron in the stator know that an electron in the nearby rotor is moving? We do not really know. We know that it happens and accept that it does. A common explanation is that photons are given off by the moving electron and carry energy to the second electron. A photon is a subatomic particle having a zero rest mass. When it is moving it is pure energy with a zero thickness and a wave length which is a function of its energy content. Short photons contain more energy than long ones.

Energy Transfer

The $64 question is "how is zero-point energy transferred to an electron?" For a better understanding of this process we need to first review what is known about the photon and the electron.

As in the solar cell, we are dealing with both pure energy and mass.

As a point of comparison, visible light has a frequency of about 5×10^{15} cycles per second or Hertz (Hz), and a quanta of energy of 3×10^{19} Joules. When zero-point energy appears in the physical plane it does so as a photon. In that state it has a wavelength on the order of 10^{-33} cm., according to Wheeler. To illustrate energy transfer to a single electron, Boyle's example is a single electron suspended from a frictionless spring and gives it an average energy of 3.3×10^{-27} ergs per second. This is with photons coming from all directions.

The electron falls in the lepton class of elementary particles and circles around a nucleus to form an atom. As the electron circles around the nucleus at about 1/3 the speed of light, it makes the atom act like a solid sphere even though all of the electrons and the nucleus take up only a small portion of the total volume. The electron has a negative charge of one and spins as it moves through space. It has a rest mass of 9.1×10^{-31} kilograms and is often considered as a point particle in theoretical studies. Casimir gives it a diameter of 2×10^{-13} cm., about the same size as the nucleus.

The electron is an elementary particle which cannot be taken apart and studied. When energy is added to an electron, it increases in mass and size [according to some models]. Electron charges are used in the major zero-point energy conversion methods, including the WIN Method.

The wavelength of the zero-point photon will be greater than 3×10^{-23} cm. as it will be at $300°$ Kelvin rather than at absolute zero. It is estimated to be 1×10^{-22} cm. This size is relative to the electron diameter of 2×10^{-13} cm. and is one billion times smaller. Even though the zero-point energy photons have an extremely high frequency and are extremely small in wavelength, they do contain energy and exert a force on the electron. [Some models include a wide range or frequencies.]
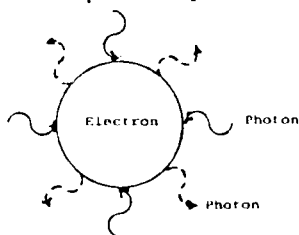

Figure 1. An electron receiving and losing zero-point photons.

Figure 1 illustrates an electron in space with photons moving into and from its surface. It is not shown to scale.

The atomic nucleus is also receiving and emitting photons just as does the electron. Important differences are that the nucleus is relatively fixed in space with the electron moving around it at 1/3 the speed of light and most atoms contain many electrons for each nucleus. For example, iron contains 26 electrons.

In order for the electron to gain energy, it has to be moved. The suspended electron receiving and losing photons from its total surface has a negligible energy gain. There is just enough to keep it in circulation around the nucleus. When the electron is moving in a specific direction in response to a positive attraction, it is then able to increase in energy as a result of the force differential upon it. Force from an electric field is well understood. Specific steps have to be taken in order to develop a force differential in zero-point photons.

Force Differential Method

H.B.G. Casimir was a Dutch physicist who in 1948 described how metal plates form a boundary condition for electromagnetic radiation, including zero-point energy. When the two plates are placed within one millionth of a meter to each other, the zero-point photons are excluded [lower frequency photons are excluded] and the external photons push them together at a force of 145 pounds per square inch. Johannson blocks used as length standards in quality control have such flat and smooth surfaces that when they are slid together, they cannot be pulled apart by hand. There is a pressure differential from the photons. Most of the shielding comes from the electrons in the metal blocks, as described earlier.

Semiconductors have electrical conductivity between that of metals and electrical insulators. Semiconductors contain impurities providing an excess of conductive electrons or conductive electron holes. A donor impurity is used to provide an electron excess and an acceptor impurity is used for holes.

Electron holes have a size similar to that of the electron and move through the semiconductor in the same manner. They have a positive charge of one. Electron holes are utilized in this energy conversion

method to aid in establishing force differentials upon the electrons.
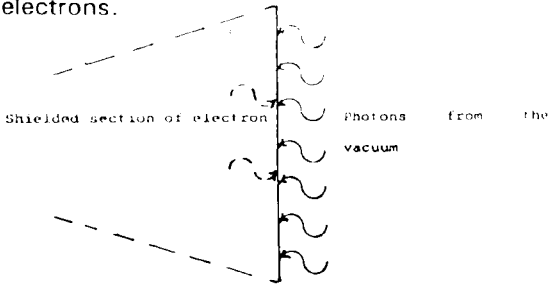

Figure 2.   Force differential from shielded and unshielded
              sides of an electron.

Figure 2 illustrates how a small section of an electron may appear with metal shielding on one side and not on the other. It shows seven photons entering the electron and only two leaving the electron. In order for the electron to retain the energy of the additional five photons, it has to increase in kinetic energy by that same amount.

Conduction electrons move about constantly in thermal motion at room temperature, moving about 100 angstroms before colliding with another electron and changing direction. These electrons are described as the electron cloud or plasma and provide an important part of the shielding action as well as the mechanism for electrical and thermal conduction.   Shielding from all of the electrons extends out from the metal surface 2×10^{-10} cm., a distance 1000 times greater than the electron diameter.

A thin oxide coating on the metal surface provides a semiconductor containing electron holes.   In an alternating electric potential these holes will alternate sides with electrons in the oxide coating. External electrons are accelerated into those shielded holes gaining kinetic energy from the zero-point photons as they move. These higher energy electrons are then moved out of the holes and into a resistive or inductive load where they release energy gained in the form of higher wavelength photons.

A variation of the Casimir effect is to use a relatively high conductivity semiconductor containing both donor and acceptor impurities. These result in a combination of conductive type electrons and electron holes in the same particle. Under an electric potential the electrons move to the positive side of the grain and the holes move to the negative side. In an alternating current field they change sides when the potential reverses. This action makes it

possible to create a high shielding area on one side of the grain and a hole area on the other side, ready to receive electrons. The entire grain is electrically neutral but the positive and negative sides change in each half cycle.
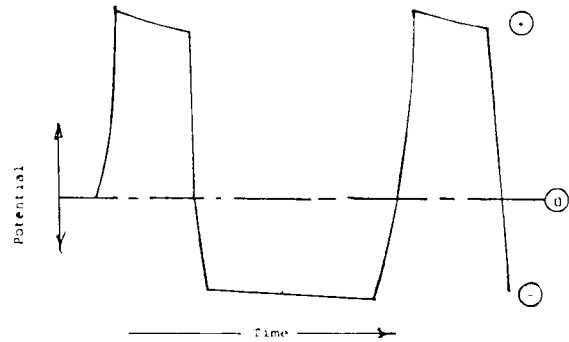
Figure 3.   Tank Current Flow.

Figure 3 illustrates how the current flows through a semiconductor grain with time. There is a rapid flow of current after the switch opens. Then a slower rate of current flow occurs at a lower potential after the switch closes with movement in the opposite direction. In Figure 4A a grain is shown after it has reached a maximum potential in one direction. The conduction electrons are on the right side with holes on the left.   When the potential reverses, they switch sides as shown in 4B. There is a division between the positive and negative sides so that extra shielding is always available. A close proximity is provided between the conduction electrons for shielding and the holes for receiving a new charge of electrons. Energized negative electrons are moved out of the grain and are replaced from outside in each half cycle.
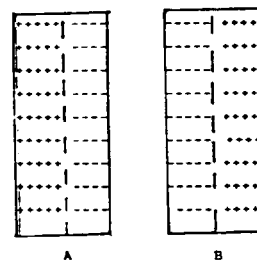

Figure 4.   Semiconductor Charge Movement With Potential.

Oxide-coated fine metal powder is used in combination with a coarser grain impure semiconductor to form a cermet [combination of ceramic and metal] energy collector and is called a dam. A typical dam will contain 6×10^{20} electron holes. As many dams may be used as are needed for the current being oscillated. Solid state switching makes it possible

to move large amounts of current into holes at rates up to 20,000 times per second (20 KHz). Photons from the vacuum move at the speed of light. The vacuum is an energy reservoir equivalent to 10^{94}gms. per/cm., so there is no limit to the amount of energy which may be transferred.

Important Factors

What is important is that a force differential be established making it possible to add energy to a single electron as it is moved into an electron hole. This force is a function of the distance of the electron from the shielded line, the distance the electron is moved and the mass of the electron being moved. When the electron moves into a hole, its distance from the shielding is constantly changing and photons in the opposite direction are decreasing. It is a complex dynamic process. Properly handled, this system can transform energy from space.

Fusion Briefings

TRANSPARENCY OF COULOMB BARRIER

Robert W. Bass (Sci. Ad. Board, ENECO, Inc., Salt Lake City, UT), "Bi-resonant Transparency of Quadruple Coulomb Barriers in Periodic Triple Potential Wells," paper submitted for proceedings of ICCF4.

AUTHOR'S ABSTRACT

Using the phase-integral method of Jeffries (1923), commonly called the WKB method for (qualitatively correct but only quantitatively approximate) solution of the wave equation, expressions are derived which would be, if exact, necessary and sufficient conditions for energy levels of a particle moving toward a triple potential well to encounter Resonant Transparency of all four Coulomb Barriers, i.e. to penetrate all four barriers with 100% probability. As a special case, a 6.3 eV deuteron trapped in a deuteron lattice (inside a $Pd \cdot D_{1.0}$ lattice) can readily penetrate the nearest two Coulomb barriers, to reach the vicinity of the strong nuclear force of either adjacent bound deuteron, even if it lacks the full 4.3

MeV energy proved here to be required for Resonant Transmission completely through the nuclear potential wells: so standard quantum mechanics actually PREDICTS "aneutronic cold fusion" in a (supersaturated, "beta" phase) $Pd \cdot D_{1.0}$ periodic palladium-deuterium lattice. [The misunderstood Coulomb Barrier has been cited often as the reason cold fusion cannot be practical. --Ed.]

NICKEL-HYDROGEN ACHIEVEMENT IN ITALY
Courtesy of Dr. Bruno Stella, Rome

FAX Received February 23, 1994

In a seminar at Siena University, three physicists (F. Piantelli from Siena, S. Focardi from Bologna, and R. Habel from Cagliari) have announced an astonishing result from their work on cold fusion.

A nickel bar (9 cm. long, 1 cm² in cross-section) heated to about 350 °C was filled with hydrogen [we assume **placed** in a hydrogen gas atmosphere because hydrogen is not normally considered to enter deeply into a nickel lattice]. After some short electromagnetic stimulation (patent pending), the temperature of the bar has definitely overcome [exceeded] the temperature from the heater, giving an **excess** of some 40 Watts (compared to about 120 input Watts.) The results seem to be well reproducible.

The authors consider as an interpretation the proton-deuteron fusion reaction; accounting for [taking into account] isotopic ratios and for reactions energy, the heat excess could be roughly compatible with the energy release in vacuum [from similar reactions.] The first attempt with deuterium has given a similar result. The paper [describing the experiments] has been accepted by *Nuovo Cimento* and will be published soon.

[Comments in square brackets are mine. We commend this group for adding another new cold fusion process for the creation and control of nuclear reactions. We look forward to the complete paper. Ed.]

Note: The Proceedings of the Rome Workshop on the Status of Cold Fusion in Italy, with **most of the papers written in English**, is available for $35. For copies contact Professor Bruno Stella, FAX 00396-495 7697, E-mail: VAXROM::STELLA

SOLID-STATE FUSION

Jean-Paul Bibérian (R&D Intl., Orinda, California and Dep. Phys., Fac. Sci. De Luminy, Marseille, France), "Solid State Cold Fusion: AlLaO$_3$," presented at ICCF4.

AUTHOR'S ABSTRACT

Since the discovery of cold fusion by Fleischmann et al., most of the experimental work has been done in liquid electrolytes. However as soon as 1989, Forrat proposed a solid state reaction that could achieve better results. There are several factors that make such materials more appropriate to the development of cold fusion reactors:

1. Oxides can be heated at high temperature, so that the diffusion time of deuterium ions in the solid is increased by several orders of magnitude.

2. The sample is placed in a gas environment and not in a liquid, so that there is no problem of impurities depositing at the surface of the sample, that can stop the diffusion of deuterium.

3. The fusion reaction works better at higher temperatures. In a liquid electrolyte, it is limited by the boiling of the heavy water. In a solid electrolyte such a limitation disappears.

4. The energy transfer is better with a high temperature heat source. This is an important point for practical nuclear reactors construction.

5. The handling of a solid state cell is much easier and less dangerous than a liquid cell.

8 IN, 1 OUT

Staff (Knight-Ridder News Service), "Scientists Set Record for Fusion Power," *Salt Lake Tribune*, Friday, Dec 10, 1993, page A10.

EDITOR'S SUMMARY

Exceeding a record set in 1991, scientists at Princeton Plasma Physics Laboratory set a record by producing 3 million watts of power out for four seconds. This article fails to mention that input power was eight times as large. While relatively inexpensive cold fusion devices are producing power gains of about four to one, the hot fusion device (costing $25 million) "an enormous metal doughnut" uses considerably more power in than power out. Later the Princeton group achieved over five million watts out. Earlier, the hot fusioneers had been working with the d + d reaction but this experiment used half deuterium gas and half tritium gas. The d + t reaction used in these tests produces intense neutron radiation. The article also reports that the 1989 report by two chemists achieving fusion resulted in initial fanfare which turned into derision and that the scientists left to pursue their work in France. "Last week", the article states, "the U. sold exclusive licensing rights to so-called cold fusion to a privately-held Utah company." Although not identified in the article, the company is ENECO, Inc. (formerly FEAT).

BIOLOGIC TRANSMUTATION
Courtesy of the author.

Hisatoki Komaki (Biologic & Agricultural Research Inst.), "An Approach in the Probable Mechanism at the Non-Radioactive Biological Cold Fusion or So-called Kervran Effect (Part 2)," Poster presentation at ICCF4, 4 pages, 4 tables, 14 refs.

AUTHOR'S ABSTRACT

In previous papers the author, with Prof. Dr. C. Louis Kervran, suggested the probable occurrence of the biological cold fusion or the biological transmutation of elements. In order to confirm the phenomena under more controlled condition than [reported at] ICCF-3, the author determined the content of potassium, magnesium, iron and calcium in the dried cells of *Aspergillus niger* IFO 4066, *Penicillium chrysogenum* IFO 4689, *Saccharomyces cerevisial* IFO 0308, *Tarulopsis utilis* IFO 0396, cultured in normal medium and media deficient in one of: potassium, magnesium, iron or calcium. The experimental results led the author to conclude the probable occurrence of the non-radioactive biological transmutation of elements or the non-radioactive biological cold fusion. [For earlier reports on biological transmutations, see Tompkins & Bird, The Secret Life of Plants, Chap. 17, c. 1973, Perrenial Liberary, Harper & Row. --Ed.]

NEUTRONS IN PROTON CONDUCTORS

A.L. Samgin, A.N. Baraboshkin, I.V. Murigin, S.A. Tsvetkov, V.S. Andreev, and S.V. Vakarin (Inst. High-Temp. Elec., Rus. Acad. Sci., Ekaterinburg, Russia), "The Influence of Conductivity on Neutron Generation Process in Proton Conducting Solid Electrolytes," manuscript of paper presented at ICCF4.

AUTHORS' ABSTRACT

It is mentioned that the nature and the mechanism of conductivity and the existence of multilayered structures with different conductivity types in solids appears to be the additional critical conditions of abnormally increased rate of nuclear-electron reactions in solid-state deuterium system.

FUSION BY NOBLE GAS BOMBARDMENT

Victor F. Zelensky, Victor F. Rybalko, Galina D. Tolstoulutskaya, Sergej V. Pistryak, Igor E. Kopanets and Alexander N. Morozov (Karkov Inst. of Phys. and Tech., Ukraine), "Initiation of Nuclear Fusion Reactions in Metal-Deuterium and Metal-Deuterium + Tritium Systems by Bombardment with Noble Gas Ions," *Fusion Technology*, vol 25, no 1, Jan. 1994, pp 95-102, 16 refs, 11 figs.

AUTHORS' ABSTRACT

An experimental study confirms the possibility of initiating nuclear fusion reactions in metal-deuterium targets by bombarding them with ions that are not the reagents of the fusion reaction, in particular, with noble gas ions. The yields of (d,d) and (d,t) reactions were determined as functions of energy (0.4 to 3.2 MeV) and mass of incident ions (He$^+$, Ne$^+$, Ar$^+$, Kr$^+$, and Xe$^+$). It is shown that at ion energies of approximately 0.1 to 1 MeV, the yields of these reactions are rather high (10^{-10} to 10^{-7} event/ion), and they can be increased by raising the incident ion energy, by an appropriate choice of the target. Practical applications of the effect are discussed.

Space Energy

INERTIA AS ZPF LORENTZ FORCE

Bernhard Haisch (Lockheed Palo Alto Research Lab., Div. 91-30, and Max Planck Institut Für Extraterrestrische Physik, Garching, Germany), Alfonso Rueda (Dept. Elec. Eng., Calif. St. Univ., Long Beach), and Harold E. Puthoff (Inst. Adv. Studies at Austin, Texas), "Inertia as a Zero-point-field Lorentz Force," *Physical Rev. A*, vol 49, no 2, Feb. 1994, pp 678-694, 122 eqa., 45 refs.

AUTHORS' ABSTRACT

Under the hypothesis that ordinary matter is ultimately made of subelementary constitutive primary charged entities or "partons" bound in the manner of traditional elementary Planck oscillators (a time-honored classical technique), it is shown that a heretofore uninvestigated Lorentz force (specifically, the magnetic component of the Lorentz force) arises in any accelerated reference frame from the interaction of the partons with the vacuum electromagnetic zero-point field (ZPF). Partons, though asymptotically free at the highest frequencies, are endowed with a sufficiently large "bare mass" to allow interactions with the ZPF at very high frequencies up to the Planck frequencies. This Lorentz force, though originating at the subelementary parton level, appears to produce an opposition to the acceleration of material objects at a macroscopic level having the correct characteristics to account for the property of inertia. We thus propose the interpretation that inertia is an electromagnetic resistance arising from the known spectral distortion of the ZPF in accelerated frames. The proposed concept also suggests a physically rigorous version of Mach's principle. Moreover, some preliminary independent corroboration is suggested for ideas proposed by Sakharov (*Dokl. Akad. Nauk* SSSR vol 177, no 70, 1968, [*Sov. Phys. Dokl.* vol 12, no 1040, 1968]) and further explored by one of us (H.E. Puthoff, *Phys. Rev. A.*, vol 29, 2333, 1989) concerning a ZPF-based model of Newtonian gravity, and for the equivalence of inertial and gravitational mass as dictated by the principle of equivalence.

INERTIA, FREE ENERGY AND THE AETHER
From Harold Aspden

Whilst I applaud the success of Drs. Haisch, Rueda and Puthoff in penetrating the Editorial barriers of *Physical Review A* with their "heresy" on the topic of inertia, I do think it worth drawing attention to my own heretical utterings on this question.

The sea of energy in the aether is, of course, the vital player in determining all electrodynamic effects and this includes the inertial property of an isolated charge. One does not need to dwell so much on the quantum behavior of atoms, because the inductance familiar to electrical engineers plays a role.

My own (previously published) research on the subject was summarized in my 1972 book <u>Modern Aether Science</u> and those who posses or acquire a copy of this work should refer to Chapter 11, pp 100 to 109.

Long ago, I discovered the solution by spotting an error in the Larmor derivation of the formula for energy radiation from accelerated electric charge. The Larmor radiation formula holds only for a collective action involving many charges sharing the same components of acceleration. The isolated individual charge (and all matter is composed of isolated individual charges) does not radiate its own energy E and in conserving that self-energy, it exhibits inertia and mass m in accordance with a formula $E = mc^2$. Note that I have not mentioned Einstein.

In an atom, the several electrons have somehow to avoid collective action that radiates energy. They do this by taking up special directional states of motion expressly to avoid the condition that any two electrons share a motion about a common center that is synchronous in frequency and in-phase in the sense that it induces a net energy effect by mutual induction. Anti-phase motion is allowed, because that cancels Larmor radiation anyway, and so electrons have two non-radiating atomic states for each frequency mode. In other words, the Pauli Exclusion Principle or the Principle of Inertia both stem from (a) self-energy conservation, (b) the avoidance of a net mutual inductance effect, and (c) the consequent avoidance of energy radiation into the aether.

To bring this back to the real world, we are dealing here with a question of deployment of energy associated with self-inductance and mutual inductance at the most fundamental level. Note that the self-inductance of an energized solenoid is really a composite of the self-inductance (or inertia) of the individual electrons that carry that current and the inductance of their mutual interactions. It is the latter that dissipates into the thermal background of the aether energy sea and is recoverable by the diamagnetic-gyromagnetic reaction of the aether.

Our task in "free energy" research is to exploit this relationship between aether energy and mutual inductance and this is where the action in atoms in ferromagnetic substances offers us a point of entry. The reason is that ferromagnetism is a collective electron action that has found a way of exploiting the two-state non-radiating phase in a common bond with corresponding electrons in surrounding atoms. That means that the mutual inductance energy has asserted a negative potential by tapping the aether energy sea and our task is to find a way of enhancing the release of more of that energy.

So, may I say, first, that your statement "inertia has never been adequately explained, until now" is open to challenge. The very heart of the problem is the need to undo the damage that Einstein has done by bringing his formula $E = mc^2$ into physics as a formula that depends upon a "no-aether" four-space philosophy. The problem is simply that of switching to a better explanation by understanding inductance without just quoting as the starting point the laws of Faraday and Lenz. It is simply that of realizing that Larmor's theory contained an error, in effect, in thinking that n electrons accelerated together radiate energy in proportion n^2 whereas, in fact, they radiate energy in proportion to $n(n-1)$. That negative n component might be minute in relation to the overriding n^2 component, but it is that which, on the grand scale, gives the neutral mass property which adds for all matter to account for the mass of the whole universe.

This theme is at the very core of all the books I have written since 1966 and in each of those books I did explain inertia by proving the no-radiation feature on electron acceleration.

Secondly, and to underline the state of fever that is now developing in the "free energy" field, I mention that, whereas I have my long-standing aether theory of published record, a scientist in Switzerland named Oliver Crane has also advocated aether theory and, following his decease, a public company has now

been funded to exploit the "free energy" consequences of that work.

The January 1994 issue of the magazine *Magnetik*, that the company sponsors, recites how Crane's aether theory attracted interest by a few researchers and led to an open discussion of the theory at a meeting in Zurich on 16 March 1990. Then in the years 1990/91, there were developments which led to the building of a laboratory model of the space quantum motor. It involved an energy coupling between the space quantum medium and standing waves said to be of ultra-high frequency. The text describing this [achievement] then states that the optimum machine implementation is not possible pending expenditure of "a six figure sum" on the necessary electronic control circuitry. From there the commentary recites how the newly-formed company was funded on 24 February 1993 and the capital increased by 3 million Swiss francs on 28 October 1993, with option formalities, etc., due by end March 1994. The rest was news about people and premises and publicity events saying how much interest there was in the venture and how great our energy world would be in the future, ending with listing of the contents of the next February 1994 issue. Promised in that issue are the first results of tests on the RQM prototype, a review of all the verifying space-quantum experiments and some research on transient waves which are active in the space medium and are explained by Crane's theory.

So, we see initiatives mounting in USA and Switzerland, **all based on an aether that the main body of our scientific community says does not exist!**

For my part, and in my collaboration with Robert Adams of New Zealand, I shall now be taking our own research forward to extract that energy from the aether.

I begin by making available my first Energy Science Report entitled "Power from Magnetism." It is 41 pages in length and is a substantive account of experimental work. It is not for general publication but **I have offered, so long as stocks of my 1972 book last, to supply this first of my Energy Science Reports free to any individual who purchases from me personally, that book <u>Modern Aether Science</u> by sending me a check for $25 U.S.** (or £15 if paid in U.K. pounds).

[Dr. Aspden, my apologies. I was not aware of your 1976 paper about inertia. Readers, please see page 17 in this issue for a report on Aspden's derivation of $E = mc^2$. --Ed.]

ATTENTION ON INERTIA

Robert Matthews (writer for *The Sunday Telegraph* in London), "Inertia: Does Empty Space Put Up the Resistance?" *Science*, vol 263, 4 Feb. 1994, pp 612-613.

EDITOR'S SUMMARY

Since Galileo first named the concept of inertia in the 17th century, some scientists have wondered if inertia may be an acquired trait of matter, and not intrinsic. Other scientists were satisfied to build on the concept that inertia "was," simply an attribute of matter. Mach, Feynman and Einstein have tried to explain inertia with respect to the other forces in the universe, or to the arrangement of the matter in the universe. None of these explanations has been completely successful. Now Haisch, Rueda and Puthoff are mathematically hitching inertia to space energy, and to an older concept used by Andrei Sakharov to explain gravity. In this article in *Science* magazine, a good look is taken at the background and underpinnings of the trio's new paper, as well as the way it is being received.

Haisch et al. set aside conventional quantum theory, using instead an approach called stochastic electrodynamics (SED), which accepts the concept of space energy as a basic fact, in a non-quantum approach based on particle physics and electromagnetism. Using SED, the trio sets forth a theory that inertia results from a Lorentz force field.

Peer reaction to this theory is predictably mixed, but the general feeling is good that inertia is again drawing theoretical curiousity. Haisch and his colleagues agree that more work is needed in refining, and experiments need to be done to further back up the theory. Other researchers will be attracted by the implications of the theory: that by altering the properties of vacuum energy, inertia may be controlable. This is an attractive possibility, that research is not likely to stagnate in the near future, and forseeably large strides could be taken in understanding and manipulating both inertia and gravity.

RANDOM ELECTRODYNAMICS

Timothy H. Boyer (Dept. Phys., City College of City Univ. of N.Y., N.Y.), "Random Electrodynamics: The Theory of Classical Electrodynamics with Classical Electromagnetic Zero-point Radiation," *Physical Rev. D*, vol 11, no 4, 15 Feb. 1975, pp 790-808, 36 refs.

AUTHOR'S ABSTRACT

The theory of classical electrodynamics with classical electromagnetic zero-point radiation is outlined here under the title random electrodynamics. The work represents a reanalysis of the bounds of validity of classical electron theory which should sharpen the understanding of the connections and distinctions between classical and quantum theories. The new theory of random electrodynamics is a classical electron theory involving Newton's equations for a particle motion due to the Lorentz force, and Maxwell's equations for the electromagnetic fields with point particles as sources. [Although 20 years old, this paper is important for those following the development of the concept of space energy. --Ed.]

THE INERTIALESS DRIVE CONCEPT
By Hal Fox

Dr. Hal Putoff et al. have been writing about the source of space energy (zero-point energy); gravity being a byproduct of space energy; and lastly, inertia being caused by the interaction of the high-frequency electromagnetic radiation of space [1]. It may be interesting to seriously consider the idea of an inertialess drive.

Dr. Raymond Bernard in Chapter XII of his book, The Hollow Earth [2] (I hasten to add that I know of no scientific evidence for a hollow earth) writes about Flying Saucers, Propulsion and Relativity. However, Bernard does present a good case for the concept of an inertialess drive. He makes the statement, "Thus Einstein illustrated the fact that inertia and gravity have exactly the same effects on the observer and cannot be distinguished on the basis of local observations." He also notes that if you were to build a flying saucer and it were to fly in the way flying saucers are reported to fly, i.e. abrupt changes of directions, then the flying saucer must have overcome inertia. In other words, a good flying saucer would have an inertialess drive. This book is cited not to encourage your belief in hollow earths or flying saucers but to illustrate that in 1964 there were writers who seriously considered the concept of inertialess drives.

If we study carefully the derivation in Haish, Rueda, and Puthoff's paper [3], we find that according to their theory and equations, it is the higher frequency components of the space energy electromagnetic Lorentz field forces that are most responsible for inertia. This would suggest that we need to develop a local shielding or a local electromagnetic field that would cancel the existing space energy field, say around a spacecraft. We need to search for some combination of effects, in dealing with space energy, that will give us some indications that inertia can be affected.

There are several adequately described experiments in which combinations of the space energy parameters of magnetism, electricity, motion, mass, force, temperature, and gravity interact. Few, if any, are directly related to inertia (as far as I know) but the following are some of those interactions:

1. Electrical induction (Faraday 1831): When a conductor is moved through a volume of space in which a magnetic field is present, current flow is induced in the conductor. [Motion, Magnetism, Electricity]. This effect appears to be related to a space energy field that is modified by a magnetic field.

2. Magnetic Field (Faraday 1831): When a direct current flows in a coil a magnetic field appears in the center of the coil and the orientation of the magnetic polarity can be determined if the direction of the current is known. [Electricity, Magnetism]. This effect appears to be a byproduct of electrical current modifying space energy.

3. Magnetic Materials (Faraday, 1831 and after): Some atomic and/or molecular structures can acquire temporarily or sustain permanently, a strong magnetic field, especially when such a magnetic material is placed within an electric coil in which current is flowing. [Electricity, Magnetism, Ferromagnetic material.] This effect appears to be an interaction between space energy and only certain types of materials (which we name as ferromagnetic materials).

4. Levitation with Conducting Sphere (George S. Piggot, 1904): When a conducting sphere is rotated and high-voltage electricity is applied, levitation of small objects can be achieved. [Electricity, Motion, Gravity]. It is probable that levitation or anti-gravity could be related to a modification of inertia in matter. This experiment should be repeated and careful attention made to a measure of the inertia of an object.

5. Gravity & High Voltage (Dr. Francis Nipher, 1916-1917): When a mass is connected to high-voltage, gravitation attraction is affected. [Electricity, Mass, Gravity]. Here again, this experiment should be repeated and careful measurements made of inertia.

6. Gravity & Gyroscope (dePalma): When a spinning gyroscope falls along its axis of rotation, the rate of fall in an earth's gravity field is slowed. [Mass, Motion, Gravity]. Again, this effect appears likely to make a difference in the inertia of the spinning mass.

7. Gravity & Magnets/Coils (Kelly, 1993-4): When coils are wound around magnets, and the coils are energized, then the rate of fall is decreased. [Mass, Motion, Magnetism, Electricity]. First, we need to replicate Kelly's work and then make attempts to measure any changes in inertia.

8. N-Machines (dePalma, Tewari, Inomata): When layers of magnets and conductors are rotated, electricity is produced (as in an N-machine.) This is a specific embodiment of example 1. [Motion, Magnetism, Electricity]. However, in this special case, more energy can be obtained than is used to drive the magnetic/conductive disks. Part of the reason is that there is no countering mechanical forces (torque) changes when the output is switched from an open circuit to a full load condition.

9. N-Machine No Back Torque (Tewari, Inomata): When an N-machine is operated in a no-load condition, the input torque is measured. When the N-machine output is switched to a full-load condition, the input torque is the same. This is a dramatic difference between N-machines and classical electric motors/generators. [Motion, Magnetism, Electricity] See also example 1 and 8.

10. Force by High Voltage (T. Townsend Brown): When high-voltage is applied to an air foil, mechanical forces are produced. This is the discovery of T. Townsend Brown. [Electricity,

Motion, Force]. It would be of interest to replicate Brown's work and determine if there is a change in inertia on or near the electrified device.

11. Energy Stored in Magnetic Field (Aspden, 1993): Under certain conditions, magnets can store energy in space and that energy can be recaptured and used. This is believed to be the conditions responsible for the over-unity measurements of the Adams magnetic motor. [Magnetism, Electricity, Motion]. It would be of interest to establish a strong magnetic field and make measurements of inertia on non-magnetic objects within the magnetic field. We are speculating that any magnetic field is a distortion of space energy.

12. Electric Charge Clusters (Shoulders, 1985): When a high-density charge cluster is produced it travels at about 0.1 the speed of light in the electric field between cathode and anode. Under certain conditions, more energy can be extracted from the moving high-density charge cluster than required to produce the charge cluster. This is the Shoulders' effect as shown in U.S. Patent 5,018,180. [Electric Field, Electromagnetic Forces, Motion]. It is taught in the patent that high-density charge clusters consist of a few million to a few trillion electrons and that such a charge cluster can be directed around square corners (traveling toward a positive electrode). One could speculate that this would be evidence for lack of inertia. However, it takes about 2,000 electrons to weigh as much as one hydrogen atom and the electric fields are so strong that it would take clever experimental design to determine if there is any change in inertia with high-density charge clusters.

13. Electric Generator & Levitation (Searl 1970): When magnetic forces are produced at right angles in the presence of rotary motion, high voltage electricity is generated, the temperature is reduced, and gravity is reduced. At least, this effect is reported by Searl in his discussion of "levitating disks". [Magnetic, Motion, Electricity, Gravity, Temperature]. First, it is important to have an independent verification of the Searl "levitating disks". They are reported to reduce the inertia of objects placed inside the disk. Perhaps, this is the best place to begin in seeking experimental evidence for a change in inertia.

14. Space Energy not Isotropic (Toby Grotz report 1994 in NEN): When massive cylinders are rotated, the time for slowing down is different depending on

the geographic alignment of the rotating cylinders. Note: This may be an effect of interaction with earth's magnetic field. More data is needed. [Motion, Alignment]. Possibly, this is experimental evidence for a change of inertia. It appears to be a simple experiment to perform.

15. Electric Generator, Cermet (Lambertson, 1993): When electric current flows in "an accelerated fashion" in ceramic-metal semiconductor devices (cermets), a circulating current can be produced that provides excess energy to a tank circuit. [Electricity, Magnetism, Motion of electrons].

The above is a list of reported (but not always replicated) experimental evidence that should be considered in a search for further evidences of an energetic space and in searching for changes to inertia in massive objects. It is strongly suggested that the experimenters among the readers of *New Energy News* replicate selected experiments and send us your results.

We should now consider how can we detect that inertia has been affected. Newton's second law is stated in the equation $F = ma$ (Force equals mass times acceleration.) One could suggest that a massive pendulum and its timing would be an indication of change in inertia, however, it might be an indication of a change in gravity (which is an acceleration.) Of course, it would be a most interesting result if we find that the acceleration of gravity is affected.

Here is a possible device: Use a spring to launch a small mass mounted on a stiff metal blade so that the mass and blade would vibrate. The rate of vibration should be a function of the apparent mass and its inertia (resistance to the forces of the stiff metal blade to change its direction of motion.) The rate of vibration would be expected to change (become higher if inertia were reduced.) This is similar to an experiment suggested by dePalma in which a vibrating tuning fork (driving an Accutron watch) is placed near a rotating mass. It was suggested that time may be affected but it may be that it is inertia that is changed and not time. Suggestions anyone?

REFERENCES

[1] Hal Fox, "Space Energy - Peer Reviewed," *NEN*, Feb.'94, page 2.
[2] Raymond Bernard, The Hollow Earth, Field Crest Publishing, 210 5th Ave. NY, NY c1964.
[3] Haisch, Rueda, and Puthoff, page 6 this issue.

Space-Energy Miscellaneous

REPORT ON VISIT TO HYDRO DYNAMICS
by Jed Rothwell

AUTHOR'S ABSTRACT

A Hydrosonic Pump, an excess energy device, was observed during three test runs. The first test was a control run to verify the calorimetry, which yielded a Coefficient of Performance (C.O.P.) of 59% compared to apparent electric power, or 98% after adjusting for known electrical and mechanical inefficiencies. The second two tests both yielded massive amounts of excess heat at levels very easy to detect. Test 2 gave a C.O.P. of 110% compared to apparent electric power, or 168% adjusted; and Test 3 yielded 109% or 157% adjusted.

Rotating Space-Energy Machines

ANOTHER VIEW OF POLARITY
By Bruce dePalma, Papakura, New Zealand

The male and female polarities of electricity may be developed out of the properties of a magnetized rotating conducting disc. With the disc rotated by an axle the apparatus becomes a rotating magnetized gyroscope, (fig. 1).

Mechanical rotation of a disc as shown elicits the fundamental mechanical polarities of <u>motion</u> and <u>no motion</u>, with respect of the edge and the center of the rotating disc to each other. The mechanical polarity of motion is designated male and the mechanical polarity of no-motion is designated female.

When the rotating disc is magnetized, one face north and the other south, an electrical potential is found between the center and the edge of the disc. One interpretation of the phenomena would be to say the

male-female polarization of the disc superposed on the direction of the flux lines through the disc invokes the positive and negative poles of electricity from the universal spatial energy or primordial field.

The usefulness of an idea is the number of creative ideas it will invoke. The idea of the male-female polarization developed out of spatial distortion of an isotropic primordial field can reinterpret electrical phenomena.

Consider the following situations:

An electrical generator connected to a resistor.

The contemporary interpretation is that a generator of V volts connected as shown to a resistor of R ohms will allow a current of V/R = I ampères to flow and cause a heating effect in the resistor of V^2/R = watts to occur.

Applying the male-female paradigm we could also interpret the same situation, to wit:

The idea of electrical current was probably suggested by the physical evidence of a spark when an electrical circuit is interrupted, and also by the thought of conservation. Obviously one had to do work to turn a generator which was propelling a current of quantized electrical charges, electrons, through a load. The heavier the load, i.e. the lower the electrical resistance, the more current would be drawn.

The idea that an electrical current was flowing was reinforced by the actions of electricity on electrolytic solutions where the anions and the cations of the electrolyte were observed to flow in opposite directions. Thoughts about fluids of positive and negative electricity were abandoned because no fluid could be conceived which had exactly equal and opposite properties to another fluid.

The principal use for electricity has been in powering electric motors. What could be more practical than putting one in series with electrical power lines and calling the stalled armature torque exerted against a spring balance, the current. This together with the agreed upon polarities and units, would always flow toward the load in one arm (of the circuit) and flow away from the load in the other.

The idea of "efficiency" was developed to evaluate electrical systems in terms of their fulfillment of the conservation paradigm in electrical form.

I would suggest we unload the heavy baggage from the steam engine days when efficiency was judged on how many miles you could get from a ton of coal.

We simply distort space to elicit the basic male-female energetic polarization. Through magnetism we obtain the electrical polarities (+) and (-). The polarizations are conveyed to the "load" by "conductors", materials wherein the recombination of polarities is minimized. The male-female polarizations thus conveyed to the load recombine within the load to produce heat.

In conclusion, the general idea is to suppose the application of the male-female polarization to a particular situation, we would obtain from:

1)	a resistor	-heat
2)	a motor	-torque
3)	a capacitor	-an electric field
4)	an inductor	-a magnetic field
5)	an L-C circuit	-an electrical oscillation
6)	an electrolyte	-ionic separation
7)	a lead-acid cell	-storage battery
8)	an L.E.D.	-coherent light
9)	hydrogenated Pd electrodes in a D_2O solution	-cold fusion
10)	Milliken Oil Drop Experiment	-the electron*

* The implication here is that the (electrical) polarization applied to the Milliken apparatus creates the electron. The electrons thus created cannot be assumed, without proof, to be the mechanism for the transferrence of electrical "charge" through a conducting wire.

N-machines, Space Power Generators, are suitable instruments for separating the spatial polarities because they address the separation of the polarities directly through mechanical distortion of the primordial field.

The possibility of an alternative explanation for electrical phenomena may open the door for further experimental studies, motivated by the suggestion of new phenomena, uncovered, in the exploration of the male-female polarizations as applied to the study of natural phenomena.

[Although maleness-femaleness is a popular topic, I wonder if we can change 160 years of positive and negative. Or is this a negative comment? --Ed.]

GENERATOR AND MOTOR

Stephan Marinov (Inst. Fundamental Phys., Graz, Austria), "The Generator Venetin Coliu with a Robert Adams Motor."

Recently (after the visit of Toby Grotz who came from New Zealand) I drove myself-accelerating generator VENETIN COLIU VI (see its description in my journal DEUTSCHE PHYSIK, 2(7), 21 (1993), or in my book DEVINE ELECTROMAGNETISM, P. 216) not by a conventional d.c. motor but by a Robert Adams motor (the report is given in DEUTSCHE PHYSIK, 3 (10), 37 (1994).

The most characteristic photograph of the machine is shown in fig. 1: A disk with 24 cylindrical ferrite magnets with interchanging polarity rotates in the gaps of four motor coils (two can be seen in fig.1) and four generator coils (they cannot be seen in fig. 1). I made an optical steering of the current flowing to the motor coils. As the magnets on my rotating disk were with changing polarity (not as in Adams motor with one polarity only!), I had to change the polarity of the current. The requirement led to a pretty complicated electronics of the steering mechanism which can be seen at right of fig. 1. One sees in fig. 1 five of the


permanent cylindrical magnets on the rotor, three light interrupters (LIR) and four radial shutters on the rotor's disk (the fifth is under the third LIR - if counting the light interrupters from left to right). The first LIR changes the polarity of the current sent to the stator's coils, the second LIR "opens the door" and current flows into the coils, and the third LIR "closes the door" and stops the flow of the current. The energy of the magnetic field of the coils via rectifiers returns to the sources.

When applying to the input a tension U_{mot} = 30 V and choosing the most favorable positions of the second (on) and third (off) light interrupters, so that the velocity of the rotor was the highest and the current consumption, I_{mot} = 10 mA, the lowest, the current flowing in any of the four generator coils was I_{gen} = 6.2 mA, when every coil was short-circuited. As the resistance of any of these coils was R = 1600Ω , the

electrical power released as heat was $P_{out} = 4 I_{gen}^2$ R = 246 mW. Meanwhile the input electrical power was p_{in} = $U_{mot} I_{mot}$ = 300 mW. The power of the friction and eddy current losses at this velocity was about P_{losses} = 800 mW. Thus the total power output was P_{out} + P_{losses} = 1046 mW. One thus sees that the generator VENETIN COLIU couples with a Robert Adams motor violates drastically the energy conservation law (the commercial d.c. motor could do this by consuming η = P_{out}/P_{in} = 82% and the output power was dissipative power (heat) which could not be returned to the input.

These results convinced me once more that the most easy was to close the energetic circle in the self-accelerating generator VENETIN COLIU is to make it with ferrites having no eddy currents and to suspend it on magnetic bearings reducing thus the friction losses practically to zero.
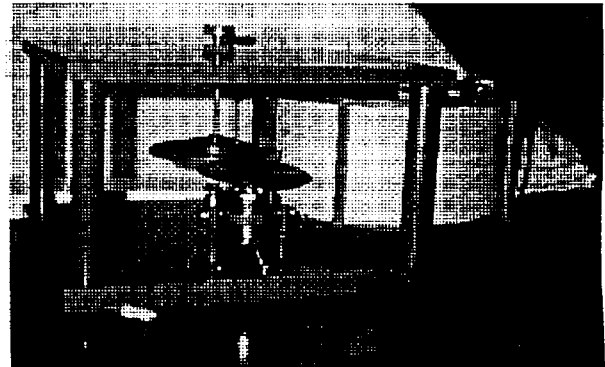
In fig. 2 is presented my machine VENETIN COLIU VII which consists of one big coil (one can have three such big coils, as one side must be free for the driving motor) having 27,000 turns of wire of thickness 0.6 mm. The rotor of the generator is driven by friction by a commercial d.c. motor. As table 1 on p. 6 of DEUTSCHE PHYSIK 3(10), 5 (1994) where this generator is presented shows, the anti-Lenz effect (or the self-accelerating effect) is huge.

The essence of th anti-Lenz effect is well explained in my article in the Proceedings of the Denver 1993 Free Energy Conference: The differential equation describing any a.c. generator (such as my VENETIN COLIU generator) shows that at $\omega L \gg R$, where ω is the circular frequency of the induced current , L is the inductance of the coil and R its resistance, the generator works with zero Lenz effect, i.e., the produced electrical power is free, as there are no magnetic forces braking the motion of the rotor. The Ewing effect (I call so the retardation in magnetization) makes that the angle between the dead position of the rotor's magnets (i.e., their position when they are exactly in the middle of the gap make by the soft ferrites of the stator) and the maximum of the induced current is not 180°, as it must

be at ωL $))$ R and momentary magnetization of the soft ferrites, but more than 180° and this leads to the appearance of magnetic forces which support the rotation of the rotor (at ωL $<<$ R this angle is 90° and the appearing magnetic forces brake the rotation - Lenz effect!),

If my d.c. motor in fig. 2 is driven by 10 V, it consumes 22 mA when the coil is open. The power of the friction losses is 65 mW and the power of the eddy current losses is 69 mW. When short-circuiting the generator coil, the consumed current falls to 19 mA. Thus the anti-Lenz power is 30 mW. If the sum of the friction and eddy current losses will be made less that 30 mW, the machine will rotate eternally, if it will be less than 30 mW, the machine will become self-accelerating. If the friction and eddy current losses will remain always less than the anti-Lenz power, the machine will explode by the appearing centrifugal forces.

If somebody can help me in making magnetic bearings and in finding soft and hard ferrites with resistance not less than 100 kΩ at a distance of 1 cm between the probes of ohmmeter, than by suspending the rotor in fig. 2 on such magnetic bearings and by exchanging the soft and hard ferrites by the better ones, the machine will run as a perpetuum mobile. Otherwise I shall cut my tongue!

If the soft ferrites will have a good μ and if the hard ferrites will be strong enough, then the magnetic bearing is not necessary - the anti-Lenz effect will cover the friction losses.

Les Adams (AZ-Industries, MAGNETS IN YOUR FUTURE) whom I met at the free energy conference in Einsiedeln, in 1989, promised to do for me magnetic bearings. After numerous phone calls and faxes, nothing came. The big Austrian Company "Treibacher Chemische Werke" promised to do for me such bearings, requesting a prepayment of $3,000. After a month I received my money back.

The German Company "Tridelta," Hermsdorf, Thüringen promised to deliver hard and soft ferrites practically without eddy currents. I went personally to take the material. The resistance at 1 cm between the probes was 5 kΩ. These are the ferrites in fig. 1 and fig.2.

There are no theoretical or technical problems in the machine VENETIN COLIU. All is absolutely clear, measurable, explainable. But I have only two hands, 24 hours and no money.

[On February 25, 1994, I talked to Les Adams about the use of permanent magnets for magnetic bearings.

He stated that no one has yet made a successful magnetic bearing using permanent magnets. The problem is that the magnetic force around such a circular magnet is characterized by hills and valleys. Les Adams likened the effect to driving along with 16 bumps in your wheel. He stated that they were able to make a small permanent magnet bearing but that it would support only a very small mass. My reaction is: "When someone tells me that something can't be done, that is a great challenge to go solve the problem." Okay, readers of NEN, try your brains on this one. The only successive magnetic bearings, so far, use electromagetic fields with sophisticated feedback control systems. Hal Fox, Ed.]

FIRST TRIAL OF CRUDE N-MACHINE
By Hal Fox

FARADAY'S TESTS
In 1831 Faraday discovered that an electrical voltage could be induced into a conductor by moving the conductor (either a wire or a rotating disk) in a magnetic field. We have all be taught this "cutting lines of force" phenomena.

Faraday also decided that he should repeat the experiment when the conductor and the magnet were both rotated. He reported that there was essentially no difference [1]. His test was conducted by gluing a copper disk to the magnet; applying a sliding electrical lead to the center and to the rim of the copper disk; and rotating the assembly of magnet and conductor. He reports that the results were about the same [insofar as his crude instruments could detect] as he had observed when having the disk rotated in the magnetic field. This phenomena has seldom been taught in high schools, colleges, or universities. In fact, if you want to amaze your friends tell them that the conductor does not have to "cut lines of force." Bruce dePalma found this fact and made himself unpopular by informing others.

Here at the Fusion Information Center, we have tested (using a week-end construction out of miscellaneous parts) this Faraday phenomena -- the beginning of an N-machine. Don Casull obtained four 9 cm. dia. magnets from reject loudspeakers. He placed them on a shaft with a copper disk in between the four magnets. He connected a commutator to the shaft and another commutator to the rim of the copper (using two balance copper strip conductors). He used a ball-bearing from an old automobile generator to support one end of the shaft (after making sure that there was no electrical conducting path.) He then used a plastic coupling (to

insulate the shaft electrically) to hook the assemble to the end of a 3500 rpm electric motor.

The results: When the motor is turned on the voltage measured across the hub to rim of the totaling copper disk measures 6.4 millivolts. The voltage drops rapidly when the motor is turned off and slows down.

CONCLUSIONS:
1. Faraday was right. You can create an electrical voltage without the normal "cutting lines of force."
2. The low voltage was not a surprise because we had looked carefully at the data published by Dr. Inomata [2]. His data showed that for 10 cm dia magnets and copper disk, there was a very low voltage as a function of rotational rpm until he got up to about 3,000 rpm. From that speed of rotation up to the maximum of 6,000 that he reported, the voltage level increased rapidly with speed of rotation.
3. The next test will be with a more refined device using stronger magnets and a means to provide higher rotational speeds. As taught by Inomata and Tewari [3], the voltage produced is directly proportional to magnetic strength, rotational speed, and the area of the rotating conductor.
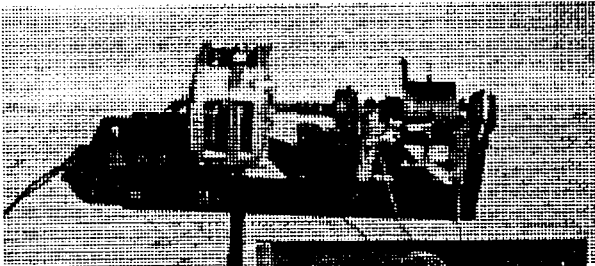
Don Casull

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[2] Shiuji Inomata, "Small Deodymium Magnet Twin N-machine," Proceedings of 28th Intersociety Energy Conversion Engineering Conf., 1993, pp 347-352.
[3] P. Tewari, "Generation of Cosmic Energy and Matter from Absolute Space (Vacuum)," Proceedings of the International Symposium on New Energy," pp 291-303.

Electricity

AMPÈRE TENSION REVISITED

Peter Graneau (MIT, Francis Bitter Nat. Magnet Lab., Cambridge, MA), "First Indication of Ampère Tension in Solid Electric Conductors," Physics Letters, vol 97A, no 6, 5 Sept. 1983, pp 253-255, 6 refs, 1 fig.

AUTHOR'S ABSTRACT

An empirical law for the mechanical force between two current-elements, originally deduced by Ampère from a series of classical experiments, asserts that an electric current flowing along a straight wire should place the wire in tension. The existence of longitudinal Ampère forces at solid-liquid conductor interfaces has been demonstrated by various investigators during the past 160 years. This letter contains the first report of pulse currents creating sufficient tension to cause fracture in hot copper and aluminum wires.

ELECTRODYNAMIC EXPLOSIONS

Peter Graneau (Ctr. Electromag. Res., N.E. Univ., Boston, MA) and P. Neal Graneau (Phys. Dept., King's College London, The Strand, London, UK), "Electrodynamic Explosions in Liquids," Appl. Phys Lett., vol 46, no 5, 1 March 1985, pp 468-470, 6 refs, 4 figs.

AUTHORS' ABSTRACT

This letter reports experimental results which show that electric arc currents through salt water produce explosions by electrodynamic forces rather than by the thermal expansion of gases generated in the arc column. The explosive phenomena can be explained with the aid of longitudinal Ampère forces but not with traditional Lorentz forces. This represents the first experimental evidence indicating that the Ampère forces law may be valid for dense plasmas.

[These two articles should be read by experimenters because they prove that our generally accepted electrical equations are not fully correct. --Ed.]

NANOWIRE ARRAY COMPOSITES
Courtesy of Dr. Samuel P. Faile

C.A. Huber (Res. & Tech. Dept., Naval Surface Warfare Ctr., Silver Spring, MD), T.E. Huber, M. Sadoqi (Dept. Phys., Polytechnic Univ., Brooklyn, NY), J.A. Lubin (Laser Chem., Howard Univ., Washington, DC), S Manalis, and C.B. Prater (Digital Instruments, Santa Barbara, CA), "Nanowire Array Composites," *Science*, vol 263, no 5148, 11 Feb. 1994, pp 800-902, 18 refs, 3 figs.

AUTHORS' ABSTRACT

Long, nanometer-size metallic wires can be synthesized by injection of the conducting melt into nanochannel insulating plates. Large-area arrays of parallel wires 200 nanometers in diameter and 50 micrometers long with a packing density of 5×10^8 per square centimeter have been fabricated in this way. When charged, the ends of the wires generate strong, short-range electric fields. The nanowire electric fields have been imaged at high spatial resolution with a scanning force microscope.

AUTHOR'S DISCUSSION

The channel matrix used for the synthesis of the nonowire composite is an inorganic matrix commercially sold for microfiltration under the trade name Anopore. It consists of an Al_2O_3 plate 25 mm in diameter and about 55 μm thick, which supports an array of parallel, noninterconnected, cylindrical channels running perpendicular to plate surface.

The nanowire composites create substantial electric field patterns over the sample surface. We used a scanning probe microscope to measure electric fields at the surface of a nanocomposite. In a NanoScope (Digital Instruments, Santa Barbara, CA) scanning force microscope, the sample is mounted with conductive epoxy to a metal holder and is held at a few volts relative to a conductive cantilever tip that is grounded. The metal-coated, etched, single-crystal silicon tip has a radius of curvature of about 5 nm. The tip is set to oscillate at a frequency near its resonance frequency (78 Khz). When the cantilever encounters a vertical electric field gradient, the effective spring constant is modified, shifting its resonance frequency. By recording the amplitude of the cantilever oscillations while scanning the sample surface, we obtain an image that reveals the strength of the electric force gradient.

Applications of the metal nanowire composites include high-density electrical multi-feedthroughs and high-resolution plates for transferring a two-dimensional charge distribution between microelectronic devices. The semiconductor nanowires can be used in photodetector arrays of high spatial resolution, where each wire acts as a pixel of submicrometer dimensions.

Miscellaneous

NEW ENERGY FOCUS FROM CHINA

Staff writer, "Will Coal and Oil become Obsolete?" *Machine Design*, 23 July 1993, p 16.

Researchers at Beijing University have converted water to hydrogen using neodymium, a "rare earth" as a catalyst. Although no details of the experiments have been published as yet, evidence hints at sunlight being the trigger that causes the water to split into hydrogen and oxygen. The corporation reporting this effect claimed that the significance of the development is especially important because a process which produces hydrogen cheaply and easily enough may signal a major shift in energy use.

Successful new technology for hydrogen separation could spell the end of the energy dominance of coal and oil. "An energy source that is readily available, inexpensive to produce and nonpolluting, would be irresistible," said a company representative. China is already reported to be planning to downsize its coal industry, and in Japan, the Ministry of International Trade and Industry (MITI) is stressing new hydrogen energy.

SOLAR CELL BREAKTHROUGH

Jerry Bishop (staff reporter), "New Silicon Cell can Halve Cost of Solar Energy," *WSJ*, 19 Jan. 1994, p B5.

SUMMARY

United Solar Systems Corp. (a joint venture of Energy Conversion Devices of Troy, Michigan, and Canon, a large Japanese company known for its copy machines) has produced a new type of solar cell that can cut the cost of home solar energy in half. The new photovoltaic cell is an ultra-thin sheet of silicon alloy that converts sunlight directly into electricity. It could, for daytime use, produce electricity at a cost of 16 cents per kilowatt-hour, as opposed to current costs of

solar energy ranging from 25 to 50 cents per kilowatt-hour.

In a standard thousand hour test, the new cell converted sunlight directly into electricity with an efficiency of 10.2%, a record for an amorphous silicon solar cell, according to the company. Higher conversion efficiencies have been achieved, but with crystalline silicon or other materials the cost is much higher.

The new material, which is produced in a continuous sheet, is much thinner and therefore cheaper than previous amorphous silicon photovoltaic materials. Its development was done over a three year cost-sharing program with the energy department's National Renewable Energy Lab. The research team was led by Subhendu Ghua, vice president of research and technology. Stanford Ovshinsky, the founder and CEO of the company, pioneered the development of amorphous silicon for use in electronics. High levels of skepticism met his claims that he could make inexpensive photovoltaic cells using amorphous silicon alloys. Now he is proven correct. Sound familiar?

CAL EPA TEST OF GUNNERMAN FUEL
Courtesy of Steve Roen

Rudolph Gunnerman has invented a method of mixing water and gasoline (stabilizing with an emulsifier), adding a nickel "catalyst" to the top of the piston, and using the fuel to obtain mileage results equivalent to gasoline only. Recently, the California Environmental Protection Agency, Air Resources Board tested a 1990 Ford Tempo GL which was modified to run on the water/gasoline mixture.

The Cal EPA tests begin with a "cold soak" at 73 degrees F. These tests showed relatively poor performance in the cold start and running soon after starting. The summary results of these tests indicated that there was little or no improvement, either in gas mileage (computed on basis of the amount of gas in the gas/water mixture) or in pollution. During cold running, the pollution levels were higher, apparently due to uncombusted fuel.

[These tests indicated much poorer performance as compared to the tests previously made at the Multifuel Research Laboratory at California State University, Fresno, CA. We would like to have seen much better results because any reduction in the use of gasoline would be of considerable benefit to the U.S. economy, especially in terms of balance of payments. There is still room for a vehicle to be designed and powered with space energy. Ed.]

LETTERS

ASPDEN ALSO DISCOVERS INERTIA
Peer Review Is Not Sufficient
Comments by Hal Fox

The question is often asked in college marketing classes, "How many of you had duck eggs for breakfast?" Zero response. "How many of you had chicken eggs for breakfast?" Many hands raised. "When the chicken lays an egg, it cackles. You see, it pays to advertise!" We are pleased to advertise the following that Dr. Harold Aspden has brought to our attention:

1975 PAPER ON INERTIA!

Harold Aspden, "Inertia of a Nonradiating Particle," *Int. J. of Theoretical Physics,* Vol 15, No. 8 (1976), pp 631-633, received 3 Nov 1975, 2 refs.

AUTHOR'S ABSTRACT

A solution of the Abraham-Lorentz equation of motion for a radiating particle is found to have nonrunaway form if its mass components are subject to nonuniform acceleration. By supposing that the energy radiated is absorbed by the particle's own field, inertia is found as a resulting property and the relation $E = mc^2$ follows as a consequence.

The following letter eloquently describes this important scientific contribution:

LETTER FROM DR. HAROLD ASPDEN
16 February 1994
Hal Fox, Editor, *New Energy News*

Dear Hal,

After reading the February 1994 issue of *New Energy News* it occurred to me that vast libraries of peer-reviewed scientific papers resemble, in some respects, the war cemeteries that are nurtured so well in memory of those who served but fell and eventually became mere numbered entries in a book of record.

I thought you might like to see the 'war record' of the 10th entry in my section of the 'scientific war' cemetery [his published papers].

It is brief. The 'peer-reviewed' ceremonial committed it to its grave in the 1976 volume of the *International Journal of Theoretical Physics*. In your February 1994 issue you now honour, as the most important of the century, the paper on INERTIA by Haisch, Rueda and Puthoff. You say "inertia has never been adequately explained until now," and so the 10th [paper] of the fallen on my own roll of honour is declared to be 'inadequate'. It has presumably failed in its duties!

I seek to defend the memory of the dead by drawing your attention to that paper of mine. Read it and you will note that its author gave a part of his life to resolving the great mystery of inertia. Then accept the possibility that there may be those who will come to say that the sacrifice was not in vain!

Harold Aspden, Acres High, Hadrian Way, Chilworth, Southampton, SO1 7HZ, England.

EDITOR'S COMMENTS

Aspden's complete article consists of two pages plus 2 references. The article shows in nine equations that $E = mc^2$! *New Energy News* is most pleased to bring this "tombstone" to light and to extend our plaudits to Dr. Harold Aspden for his most excellent contribution to science. We apologize for not having been aware of this important contribution. You need a press agent to cackle for you, and I am pleased to serve in that role. With the collective ingenuities of Aspden, Haisch, Rueda, Puthoff and the readers of *NEN*, let us now go the next step and learn how to control inertia and build that inertialess drive!

See page 8 this issue for further instructional material from Dr. Aspden.

LETTER FROM WOLFRAM BAHMANN
The Planetary Society for Clean Energy, Inc.
European Secretariat
Feyermühler Strasse 12, D-53894 Mechernich
Fed. Rep. of Germany

Dear Mr. Fox,

The recent developments in the hard science branch of the "space energy science" are highly exciting. Thanks for your interesting report and your summarizing comments in the last issue.

Please let me add a comment to your NEN Feb. 94 contribution on peer-reviewed space energy research: "...the concept of an energetic space is a relatively new one. Originally the ether was theorized to explain..."

Concerning the true origin: For thousands of years of human life on this planet, wise men know of the all-pervading energetic space. Their certainty of this energy as the very source of all other types of energy accompanied them through their spiritual studies of mind and matter. Particularly eastern philosophies still contain essential concepts which can be studied even today. So the linkage between mind and matter was already discovered, a knowledge that seems to become re-discovered in our lifetimes; e.g. modern particle physics, after centuries of probably intentionally misled approaches if one looks at the energy monopolies of today. Historic records report of groups which often had fought against new approaches and suppressed open-minded contemporaries. This is not the place to cite long references on that theme, but let me remind the reader of the Indian vedic concepts of yogis and later Greek philosophers and scientists. They know the fifth of the major states of matter as Akash, the Sanskrit term meaning space, ether, sky or simply void, as the initial state of material existence.

For scientists, studying philosophies of existence can provide deeper insight into the causes and forces ruling the universe and facilitate further paradigm shifts. Only a scientific culture not limited by a fixation on often uncertain "laws of nature" can be expected to benefit all mankind -- a development closely connected to the mental liberation of all people.

Kind regards, /s/ Wolfram Bahmann
Secretary of PACE Europe

Meetings

CALL FOR PAPERS
INE'S INTERNATIONAL
SYMPOSIUM ON NEW ENERGY
A symposium for Professionals, Industry,
Lay people and News Media

The Institute for New Energy will sponsor an International Symposium on New Energy to be held in the Denver Hilton South in Denver, Colorado on **Thursday, May 12, 1994 through Sunday, May 15, 1994.** Fees: Registration before April 1, $150; Registration between April 1 and May 1, $175; Registration after May 1, $200; Workshops $20 each, and Banquet $25. Checks should be made payable to

the Institute for New Energy and sent c/o *New Energy News*, to P.O. Box 58639, Salt Lake City, UT 84158.

Speakers: Robert Adams - Adams Motor/ Generator; Harold Aspden - Ferromagnetics; Pat Bailey - Other Voices: A summary of research not present; Terrence Barrett; Tom Bearden; Bob Beutlich, Tim Binder, Yull Brown - Brown's Gas; Bruce Cathie - Harmonics and the Earth's EM Grid; Melvin Cobb - The Energy Trimmer: An energy conservation unit; Bruce dePalma - N machine theory, operation and results; Hal Fox - Cold Fusion & Space Energy Update; Peter Graneau - Saving Us $1 Billion per Year; George Hathaway; Hurtak & ASA - The Alcon Levitation Technology and new advances; John Hutchinson; Shiuji Inomata - N machine experimental results; Ben Iverson, Don Kelly - The Gravity Drop Test Connection to Space Energy; Moray King - Vacuum Energy Vortices; Ron Kovak; Win Lambertson - Cermet; Stefan Marinov - The Perpetuum Mobile; Bill McMurtry; Ken McNeil; Andy Michrowski; Dale Pond; Harold Puthoff - Zero Point Energy; Bill Ramsay; Walter Rosenthal; P. Tewari - Space Power Generator N Machine; John Thomas - Prof. John Searl's Experiments with Electro-Gravity; Don Watson; Watson & Sweet - The Sweet Vacuum Triode and other devices; Dennis Weaver - Ecology & Economics.

Some of the speakers will present concurrent workshops on the evenings of May 12, 13 & 14, from 6:30 to 9:30 p.m. The Banquet will be held Sunday at noon.

In addition to invited papers, **Abstracts for papers to be considered** should be sent to the above address. Abstracts submitted before March 15, 1994, will be considered for presentation at the conference. Submitters will be notified of the acceptance of their papers by March 30, 1994 and be provided with complete details for the preparation of their papers. The papers will be printed in the Proceedings of the Conference and be provided for attendees at the beginning of the conference.

Subjects to be presented at the conference will include all types of **New Energy** topics such as those covered in each issue of *New Energy News*. Specifically, papers are solicited covering both theory and practice of energy producing devices and systems such as cold nuclear fusion, rotating N-Machines, Solid-State energy systems, Magnetic over-unity machines, Tapping Space Energy (Zero-Point Energy), gravity control techniques, energetic transmutations (nuclear reactions), and other new energy research.

FOCUS ON UNCONVENTIONAL ENERGIES:
A Symposium on Electrical Propulsion and the Technology of Electro-Gravity.
"A Philidelphia Experiment in advanced science networking for the researcher, university student, and the general public."

April 15-16, 1994
Friday, 11 a.m. to 9 p.m.
Saturday, 10 a.m. to 9 p.m.

Community College, Bannell Rotunda Auditorium
1700 Spring Garden Street, Philadelphia, PA

Among those speaking will be these outstanding representatives of energy sciences:

Patrick Bailey, Ph.D., Physicist; William Baumgartiner, authority on Schauberger technology; Richard L. Clark, Ph.D., Physicist; Arnold M. Gallub, Ph.D., Physicist; Don A. Kelly, Electronics Engineer; Moray B. King, Electronics Engineer; Ronald J. Kovac, Atmospheric Scientist-Engineer; Paul A. La Violette, Ph.D., Physicist; Richard McKie, Electronics Engineer; Henry Montieth, Ph.D., Engineering Physicist; Elizabeth A. Rauscher, Ph.D., Physicist; Charles Yost, Aeronautics Engineer. Stan Deyo may come from Australia, depending on the amount of response to pre-conference announcements.

Registration prior to April 5: $70. for 2 days and $35. for 1 day. Registration at door: $100 for 2 days and $50 for 1 day. Student fixed rate: $25. per day. Exhibit space available.

For more info call: 212-724-0739, or 718-256-0912 (between 10 a.m. and 2 p.m.). To pre-register contact H. Wealth, 170 West 74th Street, #904, New York, NY 10023.

NEXT MONTH

Summary of Dr. Harold Aspden's
"Power from Magnetism"

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