

VOLUME 4, NUMBER 11 ISSN 1075-0045 MARCH 1997

Web Page: www.padrak.com/ine/ E-mail: ine@padrak.com

#### **LETTER from WATER FUEL CELL™**

Note from Dineh Torres, *NEN* Publications Director and writer:

We received the following letter from Stanley Meyer in complaint of an article published in the December 1996 issue of *New Energy News*. This *NEN* "article" was a four sentence summary of a newspaper article published in the *London Sunday Times* (which was sent to us by Mark Goldes, he did not write any of it). There were no comments made by *NEN* about the content of the *Times* article. However, I do apologize fully for the title of the article. The master copy of that issue is being changed and subsequent copies will be printed with the title "Legal Problems for WFC."

As far as the other points that Meyer mentions in his letter, the summary in NEN made no implications concerning the veracity or marketability of his Water Fuel Cell technology, since it was merely a summary of a news item. In fact, the *Times'* mention of "expert witnesses" was printed in quotation marks because we do know how expert some witnesses can be, from our own Cold Fusion experiences. We had no indication of any appeal being made by Meyer, any court order that had been made, any patentability questions, or about any independent test evaluations, because we have not received information about any of this from Meyer's WFC company until now. A complete copy of the WFC Public Notice (12 pages) will be made available to anyone requesting it and sending a Self-Addressed Stamped Envelope (\$.55 postage) to the *NEN* office. In the Public Notice, WFC explains the entire issue.

We are truly sorry that Mr. Meyer has taken such offence at our summary, and we note here that the information that WFC has just sent to NEN indicates that WFC has issued a formal complaint against the London Sunday Times concerning the article. NEN and the Institute for New Energy do not wish to denigrate any serious inventor or scientist who is working on New Energy solutions, and we will continue to

do all we can to support their efforts. To that end we need the input of these researchers so we can more exactly represent their endeavors. Our best wishes to Mr. Meyer and his company in their legal problems and in their continued research and development of the Water Fuel Cell.

[the following letter reproduced as received]

RE: Article titled "Fuel For Fraud or Vice Versa" Courtesy of Mark Goldes Contents for December 1996 issue Subject: WFC Notice To Retract

Dear Sir,

We are enclosing:

WFC technical Supplemental Report (issue No. 11A, pages 1 thru 12), titled WFC setting Industry Standard denoting WFC "Mode of Operability" to cause "Particle oscillation as an energy generator" by way of pulsating electrical stress to instantly convert water droplets into thermal explosive energy (gtnt) and subscribed therein many independent governmental and university laboratories test-reports confirming WFC technology of Inventions; WFC Public Notice To Inform (pages 1 thru 12), Supreme Court of Ohio Disciplinary Counsel filing of events denoting therein WFC charges of judicial default by presiding Judge, Corzine, in preventing WFC Evidence of Records to be submitted to the Fayette County Court by switching off the court audio sound recording equipment: The German Association of Vacuum Field Energy correspondence letter to WFC by Dr. H.A. Nieper ... stating "I refer to the tested overunity effect of

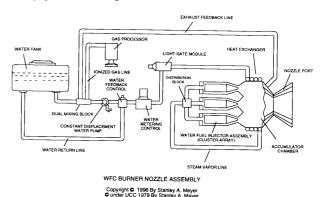
<u>your (WFC)</u> technology" ... "We will present there (Expo 2000 World exhibition, Hannover, Germany) the modalities of the conversion of Vacuum Field Energy on which <u>your (WFC)</u> <u>procedure is based</u> on"; and a copy of *New Energy News* article titled "Fuel For Fraud or Vice Versa," page 17, as per WFC Evidence of Records; and that,

- WFC Major Complaints Against Mark Goldes Article
- 1) that the article was unbalance as it did not mention the fact that WFC is appealing against the decision of the presiding Judge on the grounds of judicial default; and that,
- 2) that the article wrongly implies that the court order WFC to stop developing the Water Fuel Injection System; and that,
- 3) that the article wrongly implies that the WFC technology of inventions has no technological merit of truth; and that,
- 4) that the article wrongly implies that the *Sunday Times* Journalist, Tony Edwards, has the technical expertise in the field of physics and chemistry background to properly evaluate WFC tech-base; and that,
- 5) that the article wrongly implies that no independent test evaluation reports confirming the "Mode of Operability" of WFC technology exist in the scientific community, worldwide; and that.
- 6) that the article wrongly implies that the U.S. Patent Office has not the ability to rule on the technical merits of issued U.S. Patents, as so granted to inventor, Stanley A. Meyer, under 35 USC 101 ... as so duly noted in context as so subscribed in attached WFC documents titled WFC Public Notice To Inform as in reference to WFC Technical Supplemental Report; and that,
- 7) that the article wrongly implies that the Plaintiff's three experts had the necessary scientific background to properly evaluate the various stages of the tech-development of the WFC technology; and that,
- 8) that the article wrongly implies that WFC process of particle oscillation as an energy generator by way of pulsating electrical stress to cause instant conversion of water droplets into thermal explosive energy (gtnt) is nothing more than conventional electrolysis; and that,

WFC Notice To Retract and WFC Cease & Desist Order Hereby Given

Due to the New Energy News article above distorted and unbalance bias statements, WFC

hereby demand that The New Energy News Editor, Hal Fox, print an article in the next issue of the New Energy News with regard to the confirmation of WFC tech-base by the many independent Governmental and University testing laboratories, worldwide, as herein so duly noted... demonstrating the "Mode of Operability of using water as a new fuel source, as so subscribed in above attached WFC Technical Supplemental Report ... as so further elucidated by the enclosed attached German Association of Vacuum Field Energy letter to WFC by Dr. H.A. Neiper confirming the tested overunity effect of WFC technology, as herein to be included therein WFC charges of judicial default as so outlined above against the presiding judge; as herein WFC Notice To Comply is herein given; and that,



One of Mr. Meyer's WFC systems as shown in his News Release, available from WFC, Inc..

It is hereby to be noted that above said WFC documents were in the public domain prior to the publishing date of said *New Energy News* article. Concealing information to promote public deception is punishable both by <u>fine and imprisonment</u>, or both, as so specified under U.S. Federal Security Laws To Inform. FedEx tracking No. 2092559394.

Respectfully Submitted For Compliance, Stanley A. Meyer, Inventor Water Fuel Cell, 3792 Broadway Grove City, Ohio 43123

#### NOTICE

D: Hans A Naper of the Garman Association of Vacuum Field energy will be speaking in March in NMC and in Philadelphia at the Temple University Institute of Frontier Sciences. He states he will show a video of the ML converter working. NEN will try to get a copy of the video.

## **Fusion Briefings**

PRESS RELEASE

### NUCLEAR SCIENTISTS REACH AGREEMENT ON NEW ENERGY TECHNOLOGY

Clean Energy Technologies, Inc. (CETI) has signed a Memorandum of Understanding (MOU) with the Desert Research Inst. (DRI) to jointly pursue research and development for advanced energy technologies and secure, clean energy production.

CETI<sup>TM</sup> has developed some patented technology for energy production with the Patterson Power Cell<sup>TM</sup> which has been featured on ABC's Nightline and was ABC's top science story for 1996. Dr. James Patterson of Sarasota, Florida is one of the USA's most respected scientists with over 150 U.S. patents held in a variety of technical disciplines.

The secret to the Patterson Power Cell<sup>™</sup> is in the <u>CETI Spheres™</u>, uniform microspheres with special coatings that appear to contribute to the remarkable energy production of the power cell. The high energy production has captured the interest of several major U.S. corporations as well as several major universities.

As the *Wall Street Journal* reported, "The Patterson cell can be turned on and off seemingly at will. Several working devices have been made available to two teams."

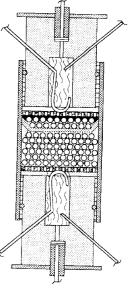
"This is the first time that we have a system that seems to work every time," says a nuclear chemist who consults with utilities. The cell's reliability, which would allow scientists to manipulate it, 'Gives us our first chance to see if this **phenomenon** involves a nuclear reaction," he explains.

And it is not the same old cold fusion story... The U.S. Patent and Trademark Office, which has maintained that cold fusion is impossible and unpatentable, have issued Dr. James Patterson several patents on this device.

In addition to the clean energy production, the Patterson Power  $Cell^{TM}$  appears to have inherent potential for radioactive waste remedi-

ation. Desert Research Inst. will be a key research partner in exploring this tremendous opportunity by the demonstration and verification of patented CETI<sup>TM</sup> technology.

Created in 1959 by an act of the Nevada Legislature, the Desert Res. Inst. was established as a unit of the Univ. of Nevada. DRI pursues a full-time program of basic and applied environmental research on a local, national, and international scale. DRI's 400-plus



PATTERSON POWER CELL<sup>TM</sup> U.S. Patent No. 5,318,675

scientists, technicians, and support staff conduct some 100 research projects annually.

Over its 35 year history, the DRI has grown to be one of the world's largest multi-disciplinary environmental research organizations. With five major research centers – Water Resources, Atmospheric Sciences, Energy and Environmental Engineering, Biological Sciences, and Quaternary Sciences – DRI has conducted research in every state and on every continent of the world.

"We are pleased to be in partnership with such a distinguished research partner as the Desert

Research Institute," said James Reding, president and CEO of Clean Energy Technologies, Inc.

## Space Energy

#### SPACE PROPULSION BY PUTHOFF

Courtesy of Hal Puthoff

H.E. Puthoff, "Space Propulsion: Can Empty Space Itself Provide a Solution?" *Ad Astra*, Jan/Feb 1997, pp 42-46.

#### **EDITOR'S SUMMARY**

Hal Puthoff looks at alternative propulsion methods by first reviewing the development of the current concept of the ZPF (zero-point fluctuations). Maxwell reduced the luminiferous aether to a set of electromagnetic equations. Experiments attempting to measure the earth's motion through the aether were negative and interpreted (for a time) to mean there was no aether. Einstein in 1905 produced Special Relativity with a void. Ten years later in General Relativity the void was replaced by a spacetime metric. Modern quantum theory established the quantum vacuum endowed with particles appearing and disappearing - a process now called ZPE. The quantum vacuum has been found to be highly energetic (at least as full of energy as the heart of nuclear matter). The article discusses whether this energy can be tapped to be used for space propulsion.

Discussing the development of the understanding of gravity and inertia (strongly added to by Puthoff and others during the past decade), Puthoff states: "There is experimental evidence that vacuum fluctuations can be altered by technological means. This leads to the corollary that, in principle, gravitational and inertial masses can also be altered." discusses the implications of this approach and finds that "the engineering requirements rely on the generation of macroscopic, negativeenergy-density, Casimir-like states in the quantum vacuum... Unfortunately, meeting such requirements is presently beyond our technological reach." That leaves us still searching for a deeper understanding of the

quantum universe in which we live. Perhaps the Russian work on Torsion Fields (see page 11 of this issue) can provide us with a further understanding.

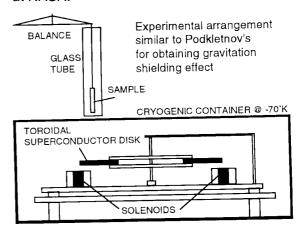
#### **MORE ON ANTIGRAVITY**

Courtesy of Dick Shamp & Steve Roen

Otis Port, "Antigravity? Well, It's All Up In The Air," *BusinessWeek*, 17 Feb 1997, p 97.

#### **EDITOR'S SUMMARY**

John H. Schnurer, director of physics engineering at Antioch College (located in Yellow Springs, Ohio) claims about a 5% reduction in gravity. The experiment uses the Meissner effect. Schnurer chills a one-inch diameter superconducting disk, levitates the disk with electrified coils, and measures the force of gravity above this experimental A small plastic sample is arrangement. supported on a balance scale which contains no The interpretation of the metal parts. experimental results is that the plastic sample weighs less by about 5% when the experiment is "ON". If the disk is not "in the Meissner state" or if the power is off, there is no detectable weight change in the plastic sample. experiment, together with the earlier reports of similar results by Eugene E. Podkletnov, a Russian materials scientist, has created considerable interest in various laboratories, including at NASA.



### T. HENRY MORAY AND THE TRANSMUTATION OF ELEMENTS.

By Toby Grotz

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

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

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

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

[Editor's Comment: It has been many decades since any educated person would seriously consider transmutation by "knocking out one electron." However, we **are** achieving low energy transmutation by adding one or more protons to the nucleus.]

#### **NOW: THE COMPLEX ELECTRON**

Courtesy of Richard Shamp

Otis Port, "Subatomic Physics: Quantum Theory Takes a Leap," *BusinessWeek*, 10 Feb 1997, p 77.

#### **EDITOR'S SUMMARY**

If you thought that an electron was a fundamental particle, you may not be correct. David S. Koltick, Purdue University has provided some deeper insights into the electron. The explanation is that an electron has a cloud of "virtual" electrons and positrons popping in and out of reality and immediately annihilating each other. Near the core of this activity (that we would label an electron) may be a totally new type of matter and a new realm of physics, suggests Koltick. We suggest that a swirl (vortex or toroid) in the aether may be a good description of what we call an electron. Whatever an electron is, they make good charge clusters.

### **Miscellaneous**

#### TO THE STARS

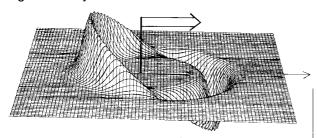
Courtesy of Hal Puthoff and Ed Pangman

Marc G. Millis, "Breaking Through To The Stars," *Ad Astra* (Magazine of the National Space Society). Jan/Feb 1997, pp 36-40, illus.

See also Leonard David, "Warning Mind Fields – NASA looks into breakthrough physics," *Final Frontier*, Jan/Feb 1997, pp 19-23, illus.

#### **EDITOR'S SUMMARY**

Marc Millis leads the Breakthrough Propulsion Physics Program for NASA at the Lewis In this article the author Research Center. describes the need for investigation of several new technologies: Differential Collision Sails, Field Drives, Possible Negative Energy and Spacetime Perturbations, Propellantless Transport, Worm-Hole Transport, and Abundant On-Board Energy Converter. NEN believes that we are on the verge of providing the last critical The pioneering theoretical work item: energy. of Hal Puthoff on gravity and of Haisch, Rueda, & Puthoff on inertia are among the theoretical works that deserve a more substantial investigation. Throwing away mass (ranked as the least efficient method of transportation) just won't get us very far out of the solar system. Therefore, we must find a better way to push against **nothing**. Fortunately, after seventy years of the denial of an energetic aether, we now are on the verge of proving that the aether can give up enormous amounts of energy - now all we need is an aether tread on our space wheels and we can climb to the stars. Although not among the propulsion modes being considered, there must be a way by which a craft can couple to the energetic aether. Man's ingenuity will not limit mankind to surfing a single solar system.



Graphing an example of the possible Spacetime Perterbations that might be used to drive a spaceship beyond the speed of light.

The second article in *Final Frontier* provides the names of the NASA scientists at the Marshall Space Flight Center, Huntsville, Alabama, who are working on gravity shielding. The group pictured include Tony Robertson, Neil Tyson, Whitt Brantley, David Noever, Jerald Oakly, Ronald Koczor, and Ning Li (the theoretical phycist behind the work). This group is working on reducing gravity in a manner similar to the work of the Russian scientist Eugene Podkletnov at the Tampere University of Technology in Finland in 1992. As Whit

Brantley remarks, "...many months of tedious, painstakeing work is ahead."

#### PRESS RELEASE

Johns Hopkins University

### POWER FROM PLASTICS: HOPKINS SCIENTISTS CREATE ALL-POLYMER BATTERY

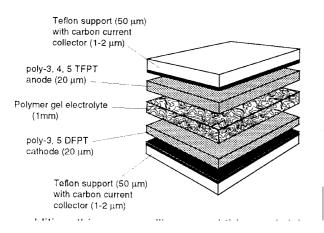
Researchers at The Johns Hopkins University have developed an all-plastic battery, using polymers in place of the conventional electrode materials. The battery, which is rechargeable and environmentally friendly, has space applications and may soon be suitable for small consumer devices, such as hearing aids and wristwatches. *Popular Science* magazine honored the battery today with a "Best of What's New" award, naming it one of the top 100 new products, technology developments and scientific achievements of 1996.

The Hopkins project was initiated and funded by Rome Laboratory, a U.S. Air Force research and development center in upstate New York. Air Force officials asked Hopkins to create lightweight plastic batteries that could be molded into almost any size and shape for use in satellites and important military equipment. Supervising the research at Hopkins were materials science and engineering professors Theodore O. Poehler and Peter C. Searson. Along with researchers Jeffrey Killian, Hari Sarker and Jossef Gofer, they have produced polymer that can generate up to 2.5 volts in cells that potentially could compete with the 3-volt lithium batteries now on the market.

As part of this collaborative effort, engineers at Hopkins' Applied Physics Laboratory, led by Joseph Suter, have been paving the way for practical systems applications by linking the batteries with an innovative solar cell charging system. They also have contributed important technology and fabrication know-how to the project.

Building an all-plastic cell was difficult because most polymers that conduct electricity lack sufficient energy difference to serve as electrodes. Batteries consist of three main components: an anode (the positive electrode), a cathode (the negative one), and an electrolyte (the conductive material between the electrodes, such as the liquid in a car battery). Although other researchers have used a polymer for one of these components, Hopkins scientists are among the first to create a practical battery in which both of the electrodes and the electrolyte are made of polymers.

Lab tests indicate that the Hopkins cells can be recharged and reused hundreds of times without degradation. Yet unlike nickel-cadmium rechargeables, the all-polymer batteries contain no heavy metals which can contaminate soil and water. The polymer batteries also contain no liquids, which can leak and pose safety hazards. The all-plastic battery operates efficiently in extreme heat or cold. "A lot of battery materials vary with temperature," said Poehler, who spearheaded the five-year research project. "For example, your car battery doesn't start well when it's cold. But you can cool the polymer battery much colder than you're ever going to cool your car, and its properties don't change."



In addition, this power cell's unusual thin sandwich design makes it highly adaptable. The anode and cathode are made of thin, The electrolyte is a foil-like plastic sheets. polymer gel film placed between the electrodes. holding the battery together. The cell can be as thin as a business card, although a more powerintensive application would require a larger unit. This thin, flat design could allow battery users to cut a cell to fit a specific space. "You can make it into whatever configuration you want," said Searson. "You can imagine using it in a large sheet form, so that you could have a battery that occupied an entire wall, for example, but had very little thickness. Or you could roll it up into a tube, like AA-size batteries."

These characteristics may be particularly useful in space satellites, where polymer battery sheets could be slipped into crevices without adding much extra weight, the researchers say.

If they were connected to solar cells, they could be recharged by the sun's rays while the satellite is in orbit. In recent months, the Hopkins researchers have applied for patents and fielded dozens of inquiries from battery manufacturers who are considering mass production of the all-polymer cells. "These batteries are very easy to make, and they use simple stuff — organic compounds," Poehler said. "It's no more complicated than what they're making now. The process is simple. I don't see why they would cost any more money to make."

#### PROTOTYPE BATTERY STRUCTURES

- I. Anode Polyphenylthiophene (3,4,5 TFPT) Graphite Composite
  - Cathode Polyphenylthiophene (3,5 DFPT) Graphite Composite
  - Electrolyte 3.7 w/w% PAN in 0.25 M TBABF<sub>4</sub> / PC
- II. Anode Polyphenylthiophene (3,4,5 TFPT) C/Teflon Composite
  - Cathode Polyphenylthiophene (3,5 DFPT) C/Teflon Composite
  - Electrolyte 3.7 w/w% PAN in 0.25 M TBABF<sub>4</sub> /PC

#### **AS IN U.S., ALSO IN TAIWAN**

Courtesy of Richard Shamp

Jonathan Moore, "A Radioactive Hot Potato," *BusinessWeek*, 17 Feb 1997.

#### **EDITOR'S SUMMARY**

This article ends with "Nuclear waste will dog the governments of East Asia for years to come." Taiwan needs to get rid of 60,000 drums of low-level radioactive waste, which would provide room for added storage. Eventually, Taiwan will have to find means of getting rid of high-level radioactive waste. The situation has become an Asian international problem. China does not want Taiwan dealing with other countries, only with China. Korea does not want North Korea to receive the \$1,000 per barrel of money. The result: radioactive waste creates power politics in action. None of the high-level officials realize that new technology is being developed by which radioactivity can be ameliorated.

In the U.S., a similar situation is developing. Some anguished Nevada citizens have threatened to lie down in front of any trucks bringing radioactive waste into Nevada. Oregon politicians do not want Hanford radioactive waste being hauled through Oregon on its way to Nevada, etc. Meanwhile, *NEN* readers are aware of new technology that appears to be able to reduce the level of radioactivity. The only thing lacking is **independent replication of the reduction of radioactivity.** We predict that such independent verification will soon be provided.

### TULSA COMPANY MAKES SYNTROLEUM Courtesy of Steve Roen

William MacDonald, "Gas Reaction," *Financial Times*, 4 Feb 1997.

#### **EDITOR'S SUMMARY**

Syntroleum, a Tulsa, Oklahoma company founded in 1984, makes synthetic crude oil from natural gas at competitive prices to oil – at \$15 to \$20 per barrel. The article reports that Texaco has licensed to develop this technology. The process is an improvement on the Fischer-Tropsch process used by Germany during the second world war and also used by South Africa to make Sasol. A plant to produce 5,000 bpd is planned to be completed within the next six months. Natural gas is more plentiful than crude oil and is expensive to ship. Turning the natural gas into synthetic crude oil could be one method of extending the life of existing oil fields.

From the viewpoint of new-energy technology, synthetic crude oil is still a fossil fuel, still would cause pollution, and is not deemed to be a real threat to the rapid development of new-energy inventions. However, if the process can produce synthetic crude oil at competitive prices, the process should be rapidly commercialized in the United States so as to reduce the enormous outflow of dollars going to the foreign oil-producing countries.

There is no bar to knowledge greater than contempt prior to examination.

-Herbert Spencer

## **ARTICLES**

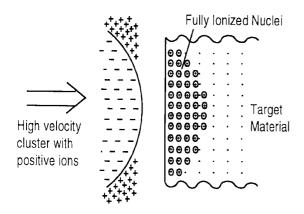
### RADIOACTIVE VS. STABLE NUCLEAR REACTIONS

By Hal Fox & Shang-Xian Jin

For the purpose of this discussion, we will use a proton as the accelerated particle and palladium as the target material. By knowing the conservation laws, we can determine what type of nuclear reactions are possible [1]. As described in reference [1] there are 32 possible nuclear reactions involving p + Pd. Among all of the possible (permitted) nuclear reactions, the count of stable and unstable reactions are: elements = 8; Stable plus  $\acute{a}$  = 9; Decay by  $\ifmmode 8+ \fi$  = 4; Decay by G- = 12; Decay by G+ +  $\dot{a}$  = 1; Decay by  $\beta$ - +  $\dot{a}$  = 3; and one reaction stabilized by electron capture. This list of possible or permitted nuclear reactions of p + Pd says nothing about the **probable** nuclear reactions. Although there are some theories that help predict some nuclear reaction byproducts, we are ultimately dependent on experimental evidence.

Assume that we have the experimental apparatus by which we can bombard a target of palladium with protons at various energy levels. The experimental evidence is that there are different nuclear reactions which are most probable at different energy levels. This is well-known nuclear physics. The number of nuclear reactions per sec per cubic centimeter on the target material is proportional to  $n_1$ ,  $n_2$ , and  $oldsymbol{o}_{12}$ , where  $n_1$  is the number density of the protons in the proton beam and  $n_2$  is the number density of the palladium target nuclei, and  $oldsymbol{o}_{12}$  is the reaction cross-section between proton and target nuclei (i.e., the probability that a nuclear reaction will occur at the given energy level).

Please note that the above mathematical relationship says nothing about the elements that may be produced by the bombardment. By consulting a textbook or articles one can learn more about which elements are produced by the proton bombardment under various experimental conditions. Some theories are used to attempt to predict the fission or fusion byproducts.

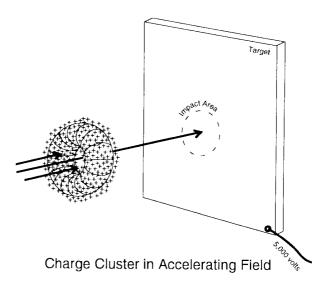


Charge Cluster Impacting Target

The following question has been asked: "Why is it expected that the plasma-injected transmutation will result in lessening radioactivity when our bombardment experiments produce radioactivity?" If one bombards a stable target element, such as palladium, there will be an increase in radioactivity. Any small amount of radioactivity is an increase over zero radioactivity. However, when one uses highdensity charge clusters to interact with radioactive heavy nuclei, the probability of creating increased radioactivity is very low. If one looks at a chart of radioactive nuclei, the heavy element isotopes are almost all radioactive. Among the lighter elements, many of the isotopes are stable. Therefore, it is reasonable to expect that whatever means are used to cause spontaneous fission, the daughter products are more likely to be stable than are the heavy, radioactive, parent nuclei. Our experimental evidence shows that with a special reactor, we can reduce radioactivity by about half in a few tens of minutes of processing time.

Ultimately, the answer must be based on experimental evidence plus the fact that there is a fundamental difference between a charge cluster carrying protons and a proton beam. In the case of the charge cluster (electrons plus protons) there is also a large number of electrons which produce a very strong electromagnetic field in precisely the area of the target where the nuclear effects are produced. The presence of this very strong local electromagnetic field will fully ionize the nuclei of the target material in the vicinity of the impact point and greatly modify the Coulomb field around these target nuclei.

The theoretical paper by the authors [2], computes the strong electrical charge that is characteristic of the moving charge cluster. The end result is that the local conditions for the production of nuclear reactions in charge-cluster-produced nuclear reactions is considerably different from the proton-bombardment-produced nuclear reactions. It remains to be determined what nature will provide, in terms of the elements produced from the charge-cluster-induced spontaneous fission. The best answer is that we must depend on further experimental evidence. Therefore, the independent replication of Plasma-Injected Transmutation is important.



#### REFERENCES

- 1. Shang-Xian Jin and Hal Fox, "Possible Palladium-Related Nuclear Reactions", *J. New Energy*, Fall 1996, vol 1, no 3, pp 193-209.
- 2. Shang-Xian Jin and Hal Fox, "Characteristics of High-Density Charge Clusters: A Theoretical Model", *J. New Energy*, Winter 1996, vol 1, no 4.

# EXPERIMENTAL INDICATIONS THAT THE SECOND LAW OF THERMODYNAMICS MAY NOT ALWAYS HOLD.

By Donald S. Ross

Brownian motion and heat pumps very temptingly invite experiments toward possible useful harnessing of molecular energy which is seemingly mainly traceable to the sun, but, being largely in stored form, is merely diminished by clouds and nightfalls.

That any Maxwell's Demon approach to such harnessing would probably be more operationally energy demanding than energy delivering is not disputed by Artificial Intelligence pioneering physicist Thomas Ross, once semi-famous for creation and co-creation of supposedly impossible apparatus successfully demonstrated at Yale University and The University of Washington, respectively. (Scientific American, April 1933, etc.) That is not the slightest shadow on the genius of Professor Maxwell who warned against regarding his "Demon" concept as more than an intellectual Physicist Ross feels, however, that curiosity. probable failure of useful harnessing through a "gate-keeper" approach should not create mental blocks against experiments on his "molecular check-valve" which had positive results.

An ordinary-appearing little "squeeze-tube" of dry graphite lock lubricant casually selected from a Seattle-neighborhood hardware store's stock was fastened vertically, nozzle-up. steel sphere about 1.5 mm. diameter was perched atop the nozzle from which the stopper had been removed. When a tiny air-admitting pinhole was punched into the tube's bottom, the sphere began moving and re-seating perhaps eight cycles per minute. Hour-after-hour cycling consistency plus stability of room temperature seemed to rule out Charles's law explanation (thermal expansion of a gas). Later that night or the early morning following, apparently due to nozzle blockage, the apparatus harmlessly blew the little sphere away and emitted a "puff" of graphite flakes that blackened a surface several inches distant, indicating substantial pressure.

Physicist Ross had theorized that due to flake structure of graphite dust, apparently air molecules entering the pinhole worked their way upward through the flakes more easily than they could return, somewhat as a "pushy" person might make way through a dense crowd toward

an open field more readily than toward a high brick wall, due to different patterns of interacting opposition.

The astounding uniqueness of the casually-selected sample was not suspected in time to have a good analysis. Had Ross known, it might have led to an economical production model for possible spinning of air turbines by 24-hour solar energy. Some unusual ratios of graphite flake sizes, as from the start or end of a production run, seems likely. Analysis might have led to more effective molecular check-valve means, for a possible energy revolution.

Leisure time for experiments having largely ended, the investigation went "back burner" except that for several years until accidental breakage, readily obtainable graphite flakes in much larger quantity, in less-simple set-up, consistently seemed to demonstrate weak self-compression of air.

About ten 4' glass tubes of one-inch inside diameter were heat-flared at the ends for proper reception of rubber corks pierced by stubby slender connector tubes of glass. Each large tube was filled with slightly separated prisms of readily obtainable fine-grained graphite dust about two inches deep, resting on filter disks kept from sliding downward by friction of roughly three-inch lengths of flat TV cable bent into slightly broken "0" shape. The large tubes thus charged were placed vertically in a wooden rack slightly under two-foot diameter, on three short wooden legs. The tubes were series-connected, closed-circuit, using short lengths of rubber tubing and slender, four-foot glass tubes. A very sensitive (unfortunately not calibrated) pressure-differential indicator shunted by a glass valve was included in the closed circuit. If my memory serves correctly, gentle upward air flow through the graphite dust for a short time, for "conditioning" was caused just before excluding the ambient air. Soon thereafter, with the valve closed, the needle moved slightly and remained displaced until opening of the valve. Return to full displacement following valve reclosing required about ten minutes, consistently for several years of occasional checking, until accidental breaking of the glass.

Other than for helping "condition" the flakes' arrangement in hopes of furthering check-valve functioning, only atmospheric pressure was tried Gases other than air offer fascinating experimental possibilities. Finely ground mica instead of, or with, graphite should probably be tried. Physicist Ross (my brother) regrets not having had time to let the graphite particles fall from about 10 feet into the large tubes, for smaller flakes on top. Fewer prisms might have worked better. Possibilities for thesis-directed meaningful experiments seem substantial, even if the outcome would indicate no need for finer-grained expression of The Second Law of Thermodynamics, let alone hopes for an energy revolution potent enough to help revitalize The American Dream.

Donald S. Ross, 41 NE Schooner Pl., Belfair, WA 98528-9257

[Editor's Note: Readers, is this a freak event or is there an adequate explanation? If you want to try a simple (and somewhat similar experiment) take a newly-emptied glass bottle (of any soft drink or beer). Moisten the top of the bottle. Place a dime on the top so that it is sealed by moisture. Grasp the bottle in your hand so that you will provide some heat to the bottle. The dime will cycle through many "burps" as the air is heated and expands. This is an example of Charles gas law. What Ross observed was a different and interesting phenomena. Any suggestions?]

## NEW CONFIRMATIONS OF KEN SHOULDERS' CONDENSED CHARGE STRUCTURES

By Don Reed

A recent discovery has been made in experimental electrostatics that may not only have astounding implications for a re-evaluation of the edifice of classical electrodynamics, but may help validate Ken Shoulders' EV charge cluster unit [1] and the ionic fireball phenomenon noted by S. Faile [2], placing them both on a solid scientific foundation.

The new finding pertains to unique topological electromagnetic configurations which are produced with intense charge densities and super-high field potentials. Specifically, the existence of electromagnetic soliton-like singularities has been demonstrated, attendant with the key observation of closed spark loops

in high-voltage electrostatic discharges at the Holifield Heavy Ion Research Facility at Oak Ridge National Laboratory [3,4,5]. Below 10 MV (Megavolts), the discharges resemble those of normal forked lightning. However, above this threshold the discharges' topology changes dramatically. Here, at peak machine voltage (@ 20 MV), these structures have been ascertained as genuine multiply-connected closed-loop configurations, and not the accidental visual superposition of simply-connected spiral discharges [3]. Traditionally, Maxwell's linear theory is supposed to subsume all exhibits of classical electrodynamics, regardless of energy level or charge density of the field. However, the new spark discharge evidence and the Shoulders' research indicate that there may actually exist hitherto unsuspected, separate regimes of classical electrodynamics in highenergy density plasmas, circumscribed by a voltage phase transition [5]. Above this barrier of potential, finite closed energy wavestructures may exist which cannot be codified by the linear symmetries described by the standard Maxwell-Heaviside equations.

Moreover, the existence of such soliton-like structures is supported theoretically with the work of V. Buerakov [6]. He has shown, using a classical nonlinear extension of Maxwell's equation set, that above a critical charge density (about 109 volt/cm) in a spherically symmetric charge distribution, Coulomb's relation governing the repulsion of like charges, is abrogated. This results in the concentration of the charged field in a sphere of finite critical Remarkably similar to the empirical radius evidence presented by the Shoulders' phenomenon, and that demonstrated by the closed-loop discharges, the field outside the critical radius approaches an infinitely small value, whereas the field concentration inside this sphere grows. Buerakov calls the entity generated by this process (electromagnetic "cocoon"). It has topological features similar to Shoulders' charge clusters. and is a quasi-stable state whose lifetime is specified by the integrated balance of forces. Despite the fact that Buerakov's EC state was derived from a purely theoretical model, he demonstrated its viability by making a quite favorable comparison of this phenomenon with the known behavior of ball lightning [6]. addition, using this non-linear classical model he derived all

the formulae known from quantum mechanics pertaining to the hydrogen atom. The results obtained from the solution were found to totally coincide (to an adequate level of approximation) with those well-known and thoroughly checked by experiment.

#### References

- 1. K. Shoulders, U.S. Patent # 5,018,180, "Energy Conversion Using High Charge Density."
- 2. S. Faile, "3-cm Fireball Produced," *New Energy News*, vol 4, no 6, Dec. 1996, p. 17.
- 3. I. Alexelf, M. Rader, "Observation of Closed Loops in High-Voltage Discharges: A Possible Precursor of Magnetic Flux Trapping," <u>IEEE Trans. Plasma Sci.</u>, vol 23, no 6, Dec. 1992, pp. 669-671.
- 4. I. Alexelf, M. Rader, "Possible Precursors of Ball Lightning-Observation of Closed Loops in High-Voltage Discharges," *Fusion Technology*, vol 27, May 1995, pp 271-273.
- 5. I. Alexelf, M. Rader, "Observations of Closed Current Loops in High Power Arcs," <u>Proc. 19th Int. Conf. Plasma Science</u>, Tampa, FL, June 1992, p 158.
- 6. V. Buerakov, <u>Generalization of the Maxwell Equations to the Case of Super-High Electromagnetic Field</u>, Research Institute on Anomalous Phenomena (RIAP), P.O. Box 4684, 310022 Kharkov-22, Ukraine (RIAP Preprint No. 7-93), 1993.

#### **TORSION FIELDS - A NEW SCIENCE**

Courtesy of Alexander Frolov

A.E. Akimov & G.I. Shipov, "Torsion Fields and Their Experimental Manifestation," <u>Proc. of the Internat. Scientific Conf. on New Ideas in Natural Science</u>, St.-Petersburg, Russia, June 1996.

#### **EDITOR'S SUMMARY**

The Torsion Fields (Spin Fields) theory has been formulated using the ideas of Eli Cartan, who was first to clearly establish the concept of fields generated by the spin angular momentum density. To date over a thousand articles by about 100 authors (half of them Russian) constitutes the literature of Torsion fields. This technology was only theoretical until the 1970s.

Early theory indicated that torsion fields would be about 10<sup>-30</sup> times the force of gravity. Later it was shown that this result was only for one type of static torsion field generated by spinning sources without radiation. Now it has been shown that much larger torsion fields occur with dynamic torsion (spinning source with emission). It was not until the 1980s that Russian scientists developed torsion field generators with the resulting experimental work yielding many practical results.

Because of the reluctance of the Western scientists to consider a Physical Vacuum as having a real energetic structure, the Russian scientists are the leaders in this new science. Some aspects of the P. Dirac electron-positron model of the physical vacuum have been retained in the development of the model for torsion fields. The big difference is that the vacuum is considered as consisting of annular wave packets of electrons and positrons rather than electron-positron pairs. The development of the model supports the experimental findings that the vacuum forms an orderly structure with linear packing with spin transverse polarization.

This model has led to better models for the gravitation field (characterized by frequencies extending from 10<sup>20</sup> to 10<sup>40</sup> Hertz). Under appropriate conditions the polarized state of the vacuum can be turned into a spin field. So interdependent are the fields of the physical vacuum that Ya.I. Pomeranchuk has said, "The entire physics is the physics of the Vacuum." As stated in this article, "Modern nature does not need any **unifications**. There is but Vacuum and its polarized states existing in Nature, whereas the **unifications** only reflect the degree of our understanding of fields' interconnection."

Here are some of the listed properties of torsion fields:

- 1. Like charges attract.
- 2. The field can extend without loss.
- 3. The fields cannot be screened.
- 4. The group velocity is not less that 10<sup>9</sup> times the speed of light.
- 5. All substances possess their own torsion field.
- 6. The torsion field has memory. (This may explain the Aspden Effect).

The concepts of the torsion fields are consistent with Wheeler's estimation of the energy of the vacuum as being about 10<sup>95</sup> gms per cubic centimeter. By comparison, the density of an atomic nuclei is about 10<sup>14</sup> gms per cu cm. Therefore, it is expected that the development of torsion field technology will yield methods of creating energy that are 300% to 500% efficient, or more.

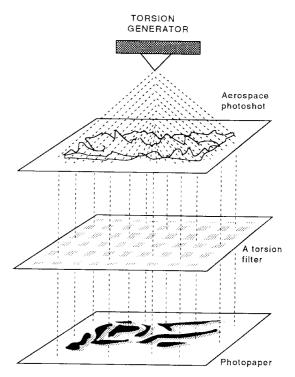
This new technology has led to the development of the **inertioid**, a kind of a "four-dimensional gyroscope with self action. This device was first accomplished by Vladimir Nikolayevich Tolchin, a Russian engineer. Work is expected to result in a new type of **propeller** or perhaps an inertial propulsion mechanism.

Another finding is that the nature of a metal element going from molten to solid state can be changed by the effect of a torsion field. Instead of a metal lattice of the usual type, various metals have been induced to form a type of quasi-glass structure. This work has been confirmed by the Ukraine Academy of Science's Institute of Materials Technology. Such types of structural rearrangement of steel in amounts up to 200 kg have been achieved using a torsion generator consuming only 10 milliwatts of electric power.

Torsion field communication has also been demonstrated. Digital signals were sent over a 22 km distance in which a hill and concrete apartment buildings intervened. This was further evidence that the torsion fields are neither absorbed nor diminished. Superluminal velocities of communication have been demonstrated.

Perhaps the most astounding discovery is that a photograph taken of the earth's surface (such as from a plane or satellite) leaves an imprint of the torsion field on the picture emulsion. By proper treatment this torsion field image can be made into an image. Because the earth's substances have their own characteristic torsion fields, the use of selected screening can show the type of earth substances that are reflected to the earth's surface by the torsion fields. Mineral and oil prospectors can have new tools for discovery.

Consider the application of this technology to astrophysics. Because all stars rotate and have



A structural scheme of a torsion processing of aerospace pictures. After a paper by A.E. Akimov and G.I. Shipov

torsion fields, it is possible to find the current position of such stars and not just where they were when the photons captured by normal celestial photography left such a star. For example, a star image that is cited as being 10 million light years distant could be seen in its near current position. With torsion fields having a group velocity of 10<sup>9</sup> times the speed of light, then a star at 106 light years away would only have emitted its torsion field about onethousandth of a year or about 8 hours ago. Although not explicitly mentioned in the article, the comparison of a star field with normal pictures compared to torsion field pictures would provide an excellent tool for the motion of distant stars.

#### **AUTHORS' CONCLUSIONS**

Not only theoretical but also numerous experimental results testify to the fact that torsion fields are an emphatic reality of Nature. Aforementioned evidence reflects but a mite of the accomplished large-scale research work involving over fifty scientific establishments. The acquired results

considerably change our ideas of the organization of the world. This indicates that the formulated scientific concepts form a new scientific Paradigm which is probably destined to play a more critical role than the breakthrough in the physics of the elapsing 20th century. The already achieved results prompt a conclusion that the 21st century technologies will be torsion technologies.

[Editor's Comments: Those who are searching for Extra-Terrestrial Intelligence (SETI) must be using primitive communications technology. Why would ETs use radio communication when they could communicate much faster and better with Torsion Field Communication? Hey SETI, you may be listening in on the wrong **band** and using the wrong **communicator**.]

## Conferences

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON NEW IDEAS IN NATURAL SCIENCES, compiled by Anatoly P. Smirnov and Alexander V. Frolov, c1996, St.-Petersburg, Russia, June 1996. For copies (\$50 International Money Order) contact Alexander V. Frolov, P.O. Box 37, 193024, St.-Petersburg, Russia.

Tel: 011-7-812-2747877 Email: alex@frolov.spb.ru

#### **Contents**

### I. Contemporary Problems in Physics. Theoretical Investigations.

Economic Effects of Space Energy Technologies (SET) on Individuals and Society, *Josef Gruber* 

Editorial "On the History of the Event"

Magneto-Voltaic Technology, A Solid State Approach for Tapping the Zero-Point Energy Field (ZPE), A. Zielinsky

Researchers on New Technologies, Address List The Structure of Problems and Misconceptions in Modern Physics. Methods for Solution, Possibilities and Consequences, A.P. Smirnov

On Physical Space Structure and New Interaction in Nature, Yu.A. Baurov

The Hypothesis and The Equations of The Unified Matter Field, A.A. Nassikas

Classical & Modified Electrodynamics, *P.A. Zhilin*Tetra Space Co-ordinates (A tetrahedron-based system of space co-ordinates), *Josef Hasslberger* 

Galilei and Relativity Principle, A.G. Chirkov A New Theory of the Unified Physical Field, V.L. Groshev

Physical Essence of Gravity Constant and its Consequences, V.V. Vasil'ev

The Ether Model as Result of the New Empirical Conception, *A.M. Mishin* 

De Broglie Wave Physics, *Kyrill P. Butusov* Expansion of Bor's Quantum Postulates, *J.G. Klyushin* 

The Concept of Mass Process, A.V. Frolov

Thermal Electromagnetic Wave Generator, B.M. Lebed, S.A. Petrov

Saha-Equation – Undeniable Evidence for the Physical Nature of Chemical Bonding, *M. Mueller* 

Quantum Electron Hydrodynamics Under Charge Neutralization Conditions, A.L. Sanin

Energies, Impulses, and Forces Arising at Moving Electric Charges in Vacuum, V.A. Fogel, M.A. Shepsenvol

Formula for Relatively Stable Carbon Clusters,
A. Volkov

On the Anisotropy of Electron, A.A. Efimov

Kozyrev-Dirak Emanation Method of Detecting and Interaction with Matter *I.M.*Shakhparonov

Non-Dissipative Closed Electrical Current Process in Normal-State (Non-Superconductive) Electroconductive Media,

G.S. Turchaninov, I.G. Turchaninov

A Proposed Experiment of Direct Detecting of The Vector Potential within Classical Electrodynamics, V. Onoochin

Torsion Fields and Their Experimental Manifestations, A.E. Akimov, G.I. Shipov

A Generalized Formula for the Lorentz Force Density and Maxwell Equations, J.G. Klyushin

#### 2. New Energetics. Practical Results.

Cold Fusion Research: Models and Potential Benefits, J.J. Hurtak, P.G. Bailey

Use of Regauging and Multivalued Potentials to Achieve Overunity EM Engines: Concepts and Specific Examples, *T.E. Bearden*.

About the Local Tapping of Energy, G. Galeczki, P. Marquardt

The Secret of The "Cold Fusion", Ph.M. Kanarev

- A New Direction In The Energetics, J.A. Becklemeshev, G.J. Becklemesheva
- Microscopic Acceleration Mechanism: The Cold Fusion in Deuterated Materials, *D. Chicea*
- Free Energy Generation by Water Decomposition in Highly Efficient Electrolytic Process, *I.V. Goryachev*
- A New Beginning for Thermodynamics, J. Hasslberger
- Thermodynamic Principles and Problems of Self-Organizing in Physical Systems, A. Berezovsky, V. Rosenblum.
- Energy Transformation Dynamics, G.A. Mikhailovsky, V.G Mikhailovsky
- Mechanisms of Energy Inversion and Self-Organization in Real Systems, A.P. Smirnov, A.A. Smirnov
- On the Second Beginning of Thermodynamics, G.N. Buinov
- N. Tesla's Unique Experiments in Colorado, *G.F. Ignatyev*
- The Work is Created by Means of Potential Field, A.V. Frolov
- Thermal Engine With a Single Heat Source, A. Serogodsky

#### 3. Gravitation and Adjacent Technologies

- Free Fall of Elementary Particles: On Moving Bodies and Their Electromagnetic Forces, N. Rognerud
- Construction an Engine for Free Space on the Base of a Pondemotor Effect, G.F. Ignatvev
- Experimental Fundamentals for Determination of the Nature of Gravitation Interaction Carrier,

A. Simakov

- Gravitation Results from Interaction of Substance with Gradient of Ether Density, V.G. Shulgin
- The Quantum Gravitation, P.D. Shpakov
- A Gyroscope Video Workshop Set Up to Observe & Determine Mechanical Gyro Properties of Forces, Torques & Motions, F.J. McCabe
- Rotating Hemisphere: Center of Mass Shift, E. Jeong
- Diffraction of Gravitational Field, K.P. Butusov
- About Experimental Proofs of Gravitational Sun to Earth Influence by Screening of the Part of Inflowing Surrounding Space Neutrinos, M.G. Vinogradova, A.E. Khod'kov

Gravitational Technology, G.R. Uspensky

- Possibility for the Existence of Anti-Gravity and the Complete Parity Breaking of Gravity: Evidence from Free-Fall Experiment Using a Spinning Gyro, H.Hayasaka, H. Tanaka, T. Hashida, T. Chubachi, T. Sugiyama
- The Concept of Gravitation, A.V. Frolov

The Antigravitation Force in The Balanced Rotating System, V. Kashuba

15

- The Beginning of Experimental Gravitonics, S.M. Poliakov, O.S. Poliakov
- Principles and Bases of the Support-less Movement and Realization of it in Nature, Y.G. Belostotsky
- The Inertial Propulson Drives, B.D. Shukalov

#### 4. Researches of Space and Time

- The Initial Principles of N.A. Kozyrev's's Causal Mechanics, L.S. Shikhobalov
- Equivalence of Mass and Time, A. Abita
- On the Question About Analytical Methods Those Reflect the "Substance-Space-Time" Unity of the Nature in the Laws of Natural Science, and about Main Properties of this Unity,

J.G. Goriachko

- Experiments on the Change of the Direction and Rate of The Motion, V.A. Chernobrov
- The Energy Anisotropy of Space, A.A. Efimov, A.A. Shpitalnaya
- On Some Properties of the Physical Time and Space, A.I. Veinik
- To a Question on Reserves of Information Interaction in a Nature, *V.I. Stavitsky*
- Generalized Golden Section and the Time Theory, A.R. Timashev
- Information-Energy Model of Matter and Universe, V.D. Plykia
- The United Holography Information Theory of the Universe, G.V. Dvorin
- The Lorentz Component of the Cosmological Red Shift, *M/R*. Sharipov

### Book. Reviews

#### **SPACE ENERGY RECEIVERS**

Courtesy of the publisher.

Richard A. Ford, <u>Space Energy Receivers.</u> <u>Power from the Wheelwork of Nature</u>, published by Simplified Tech. Service, P.O. Box 2140A, Champaign, IL 61825. 8 1/2 x 11, 40 pages, illus. \$8.50 postpaid.

This booklet is an interesting historical summary of inventions that would have changed the world except ... They didn't work, they weren't practical,

or they were prevented from being developed by some real or imaginary entity. The contents cover inventions by Tesla, Moray, Yglesias, Roy J. Meyers, Perriog, Ammann, Anonymous, Hans Coler, and the electric car supposedly made by Tesla.

In the introduction (page 3) the author/compiler cites work on measuring the speed of light. Here is a quote: "Michelson continued to believe in the existence of the ether, never accepting Einstein's interpretation, and he continued to devise new experiments to test the speed of light..." We suggest that the author include a reference to the following paper by Michelson: A.A. Michelson and Henry G. Gale, "The Effect of the Earth's Rotation on the Velocity of Light," *Nature*, **115**, pg 566, (1925). Also: Michelson, "The Effect of the Earth's Rotation on the Velocity of Light, Part I," The Astrophysical Journal, 61, pp 137-139, (1925), and A.A. Michelson and Henry G. Gale, "The Effect of the Earth's Rotation on the Velocity of Light, Part II," The Astrophysical Journal, vol 61, pp 140-145 (1925). **Somehow, these papers are** seldom quoted by modern writers and yet they show that the false interpretation of the original Michelson-Morley experiment was a fiasco.

These reports of marvelous inventions are of considerable historic interest. However, after many decades of efforts, why haven't any inventors been able to duplicate such inventions? Don't tell me that it is because someone doesn't want these inventions duplicated. Americans include talented and stubborn people who are not going to let any real or imagined entity suppress their efforts. Readers: Here is a challenge. Show me something that works - besides carburetors. Any good mechanic can lean out a carburetor and get up to 100 miles per gallon but it won't work winter to summer, up mountain and down to seashore like the good American dependable cars have done for decades.

Here is a hypothesis about suppression of inventions: For every true suppression of an invention, there are nine other inventors who trashed their own labs or claimed suppression because they failed to do what they were so sure they could accomplish!

Moray's invention wasn't suppressed. Some greedy guys tried to steal it and Moray wouldn't let them. That was part of Moray's paranoia. Tesla had a great idea of feeding power into the

atmosphere and picking it up anywhere. I don't believe that his wasn't practical. broadcast power could co-exist with today's radio and TV broadcasts. Sure, there have been some inventions suppressed; some ideas have died with their inventors; probably many other ideas died of natural causes. historic inventors, some of whom were of genius category, are no better than we have today. Our scientific knowledge has increased from six to twelve times since some of these inventors lived. We have the science now to solve the world's energy problems. We have better math, we have high-speed, low-cost computers. All we need is more engineers and scientist who are not fooled by seventy years of mistaken interpretation of the Michelson-Morley experiment. There is an energetic aether. Let's tap it! Maybe this book will give you some ideas.

[Hal Fox, Ed.]

#### **SAFE AS HOUSES**

Review by Hal Fox

David Cowan & Rodney Girdlestone, <u>Safe As Houses?</u> Ill Health and <u>Electro-Stress in the Home</u>, paperback, 212 pages, illus, indexed, c1995, published by Gateway Books, ISBN 1-85860-037-5, \$13.95.

The background of the authors makes a good combination for writing about electromagnetic health risks and about geopathic stress. Our readers will find that this book provides considerable discussion about both health risks and health aides of electromagnetic fields, the expertise of Rodney Girdlestone. Ranging from the risk of house wiring, household appliances, and Video display units to power lines and electric trains, this book provides an array of questions as to how much our high-tech civilization may impact our health. In America the high voltage transmission lines are often provided with wide corridors where domestic buildings are not permitted. In England, such power lines may be very close to houses, with sometimes strong affects on health.

On the other side of the scale of energies are the geopathic energies stemming from subtle energies that appear to follow various tracks through the countryside. Often called ley lines (in England) and dragon lines (in China and parts of Asia), these energy lines seem to be a combination of both healthy and unhealthy lines and spirals of subtle energy. Such earth energy sources are not measurable with standard electromagnetic equipment but still, as the authors show, appear to be the cause of a considerable number of unhealthy environments. In one unhealthy case, a house built over a former abattoir (slaughter house) caused ill health to the occupants. accumulation of subtle energy effects of animal slaughter is anything like the results of human slaughter that I experienced in visiting Dachau (where thousands of Jews were slaughtered) soon after the end of World War II, I wouldn't want to live anywhere near a slaughterhouse.]

This book is unusual in dealing with recognized scientific fields of electromagnetism for about half of the book and the not-as-yet-accepted-byscience subtle energies of the earth. The book also provides considerable detail of how dowsing is being used to detect these subtle energies. If you doubt the ability of dowsers to detect subtle energies, you may find this book quite revealing. David Cowan, the dowser, found that he could dowse or sense the energy emanations from some of the famous standing stones in various parts of the United Kingdom. The story behind some of these famous stones (such as Stonehenge) makes one wonder what the ancient inhabitants of England, Scotland, and Wales knew that we don't, as yet, understand.

The authors do a bit better than just to point out problems. The book offers solutions, or at least partial solutions, to both electromagnetic emanations and the geopathic stresses. If you have wondered about ley lines, this book will give you a good overall view of such earth-based phenomena. For the practical scientist, you would do well to read the first half of the book about the potential problems and some of the solutions for reducing stress on those who are sensitive to electromagnetic radiation. At least you will probably agree with this summary paragraph: "Let us face this fact also: there are more people on the planet than she can sustain, feed, clothe and house, without being destroyed

by chemical, electromagnetic, sewage, and radio-active pollution in the process. It is a rather silly parasite which suffocates and poisons its host as homo sapiens is doing to mother Earth."

[For more information, contact Barbara Pinto, Gateway Books, 17470 Sonoma Highway, Sonoma, CA 95476. Phone 707-939-1953. Fax 707-938-3515.]

## **LETTERS**

#### to the Editor & Others

#### AN ASTUTE LETTER

Courtesy of John Sinclair

To: IEEE US Activities Board Piscataway, N.J. 08855-1331

Friends,

As a Life Member of IEEE I have a strong interest in the advice we give President Clinton or Congress. I note that we have not, to my knowledge raised objection to the recent DOE policy of opposition to research on cold fusion. DOE is not funding research on cold fusion and is threatening to cancel other kinds of contracts with groups who undertake cold fusion work. There is also a stop order preventing the U.S. Patent Office from issuing patents on cold fusion, though a single patent was issued to Patterson before the shutdown.

The patent offices in Japan, Europe, and elsewhere are doing a landrush business. Many workers in the field report positive results and fully expect large scale commercial production in less than five years.

Cold fusion is being developed by relatively small entities with limited funding. It seems to offer an energy source with negligible pollution, small levels of radiation, low capital cost per unit of energy production, and negligible cost of materials. It also lends itself to the production of

very small units suitable for automobiles and individual residences.

We at IEEE will look like fools if we don't get off the dime and back this important work. The U.S. Magnetic and Inertial confinement experiments have cost in the billions and are unlikely to produce a practical working system for another 10 years at least. The Department of Energy should be helping to fund cold fusion. Otherwise the U.S. is likely to be farther behind other industrialized countries than it is already.

I would appreciate a response from the Board.

Sincerely, John G. Sinclair Jr. Life Member IEEE

[Two Editorial comments:

Patterson has received three or more patents from the U.S. Office of Patents and Trademarks, because he asked for special handling due to his age. His first cold fusion patent was issued long after the "mole" was placed in the patent office to prevent the issuance of cold fusion patents.

Now that we know how much of the thermal energy is produced in cold fusion, we can shortcut the cold fusion process and go directly to the creation of nuclear reactions. (Shoulders paper presented at the second conference on Low Energy Nuclear Reactions, Sept.13-14, 1997, College Station, Texas). This discovery puts the production of energy right in the hands of all **electronikers**. The IEEE ought to be highly interested.]

#### DR. GOZZI TO DR. MORRISON

Copy courtesy of Dr. Gozzi

Dear Dr. Morrison,

I read your Cold Fusion Update No. 12, ICCF-6 report. I have no time to make comments to each statement of your long report. However, I wish to draw your attention to two points:

- 1. Paragraph 4.2 (g)
- 2. Chap. 9 COURT CASE ...

In the first point you attribute to me a statement that is completely false. It is: "Dr. Gozzi concluded that the 4He channel "is not the principal source of energy being about 0.5% of

the energy measured by calorimetry". Your report continues: "Dr. Bressani did not mention this very important statement ... ".

This is a very clear proof of your attitude to generate misinformation about cold fusion and about the people involved. If you check the booklet of the ICCF-6 abstracts at the bottom of page 25, you can see that I could not have made the statement you attributed to me. In fact, if you substitute "4He" with "X-ray", the statement would be correct. Therefore, it is correct that: "Dr. Bressani did not mention this very important statement ... " because I stated exactly the contrary of what you probably wished to hear.

I realize that you are deeply interested in all the things that fit your cold fusion scheme (let me say, your quite pathological scheme) but your "holy war" in favor of establishing the "Truth in Science" cannot be one way. [Morrison fails to recognize some of the truth that is clearly evident in many cold fusion experiments. Ed.]

The second comment concerns your infantile excitement to inform everyone around the world about the verdict (1st level) of an Italian court that did not sentence a journalist for libel as requested by Fleischmann, Pons, Preparata, Bressani, and Del Giudice. It seems to me to be very serious that you are using this argument in an ambiguous way as if the verdict of the court concerned the scientific aspects of cold fusion. I realize that for a "crusader" (which you are) the end justifies the means, but, please, try to moderate yourself.

**Best Regards** 

D. Gozzi [Dr. Gozzi is a well-respected Italian scientist. Ed.]

[Note: The court merely upheld the right of the journalist to write negatively against cold fusion because many of the persons interviewed by the Italian journalist provided that type of slanted information. Dr. Morrison was an expert witness for the defense of the Italian journalist and apparently finds great pleasure in reporting the judgement against the plaintiffs, Pons, Fleischmann et al. Dr. Morrison is bright,

articulate, and an excellent scientist. Several years ago, I told Dr. Morrison that he had done more than any other single person to destroy cold fusion. He brightly asked, "Can I quote you on that?" I said, "Yes. But you won't want it on your gravestone." Dr. Morrison is a strong supporter of the **hot fusion** community of scientists who recognized that if cold fusion were real science, it could mean the death of **hot fusion** funding.]

#### LETTER FROM GERALD LINDLEY

[After an exchange of correspondence relating to charge clusters, Gerald Lindley (P.O. Box 2552, Manchester, CT 06045-2552) has sent us the following investment advice. We thought *NEN* readers might be interested.]

"I send cc's [carbon copies] so others can see that there is an alternative to electron clusters. The *Journal of New Energy* and *NEN* are fast becoming the Journals of Electron Clusters. No other view is allowed. Perhaps this is because you have patents based on electron clusters. Have you considered the possibility of conflict of interest? In that regards I see the IPO [Initial Public Offering] of FIC as excellent short sale candidate. All one has to do is wait a couple of weeks after the IPO, short sell FIC and wait for the inevitable price collapse. Perhaps you can get FIC on the market just before the stock market crashes this year as this will enhance the collapse in FIC's price.

"Sincerely, /s/ Gerald Lindley"

[Just for the record: NEN and the Journal of New Energy welcome and publish articles on new-energy sources with an emphasis on experimental results. We look forward to publishing experimental results about supergravitons (Lindley's favorite physical phenomenon) as fast as these results are achieved and data made available to us. For short sellers, I offer the advice attributed to the English economist John Maynard Keynes: "He who sells what isn't his'n; Buys it back or goes to prison."]

#### A LETTER ABOUT PATENTS

as sent to Pat Bailey, President of INE

Patrick,

Did a little checking around, partially with an ex-Examiner I work with.

It is true - all patent applications go thru a security scan. The way it works is that the various agencies identify 'sensitive' areas, and the Patent Office splits them out to be forwarded to appropriate designated classifiers. For example, an application on radar may go to an Air Force classifier, whereas a cryptography application goes to the NSA. The criterion is, roughly, "If we'd classify it going out of here, it gets chosen for a Security Order".

When you boil it down, it's still a keyword-based system, and, as such, is pretty easy to avoid getting trapped inadvertently.

The problem with the idea of filing foreign first is that, if the invention is invented in the US, it is illegal to file for a foreign patent without getting a Foreign Filing License from the PTO. (Unless months have passed from the time a US application is filed.)

It is perfectly OK to publish the details of an invention in another country before filing US. But what that does is eliminate any chance of getting any foreign patent (foreign patents will be barred by the publication), and the USPTO will still issue a Secrecy Order, even if the material is public. (This is like Gov't classification of information that has already been published in *Popular Science*.) The feeling is that confirmation of the information by the Gov't makes the info more real, so they often refuse to do that, even though it can make them look silly.

Laws are like this. If you try to power your way through in terms of formulae and rights, you get nowhere, because that's the easy stuff for the legislators to think about. Finesse, tho... if no security flags are raised, that's not the inventor's responsibility.

Dr. Brian Dodson PatentWorld raven@swcp.com

#### LETTER FROM PETER MOBBERLEY

Mainstream physisists cannot have it both ways, in certain circumstances the holy grails of conservation of **Momentum** and conservation of **Energy** cannot both be right.

Consider a one pound mass traveling at 10 feet per second in collision with another stationary one pound mass whereby the masses stick (they are magnets or have Velcro attached)...

<u>Velocity</u>

10 fps + 0 fps = 5 fps

 $\underline{Momentum = mv}$ 

 $10 \text{ lb. fps} + 0 \text{ lb. fps} = 2 \times 5 = 10 \text{ lb. fps}$ 

Kinetic energy ½ mv<sup>2</sup>

½ x 1 x 100 + zero K.E. ½ x 2 x 25

= 50 foot poundals = 25 foot poundals

Notice that momentum is conserved, it always is (as postulated by Newton).

However, Kinetic Energy is not conserved in this case of inelastic collision. (If the Velcro were missing, the collision would have been elastic and K.E. conserved). It is not possible that heating up of the Velcro could account for the 25 foot-poundals of K.E. lost during the inelastic collision.

We have to conclude therefore, that some of the K.E. initially given to the system is no longer available for recovery.

The above macroscopic argument can be applied to the molecular, atomic or sub-atomic scale.

A monatomic or molecular gas will remain at a constant temperature if contained in a static insulated vessel, because all collisions will be perfectly elastic.

If, however, one wall of the insulated vessel is a piston which moves to increase the volume, some inelastic collisions will take place, cooling the gas and lowering the available Kinetic Energy of the system. It is for this reason that low level heat is less useful and cycle efficiencies are lower at lower temperatures.

In the above we have used the Newtonian expression relating energy, mass and velocity, namely K.E. =  $\frac{1}{2}$  mv<sup>2</sup>. This is of the same form as Einstein's equation, E = mc<sup>2</sup>. However, Einstein's brilliant realization was that where there is a mathematical or theoretical equality, there is a real equivalence.

Experiment has proved the mass/energy equivalence at relativistic velocities, but this must also be true at non-relativistic velocities when  $v \neq c$ , hence the K.E. loss in inelastic collisions manifests itself as an increase in mass, albeit tiny and immeasurable (although on the cosmic scale, innumerable inelastic collisions would aggregate to produce the substantial amounts of matter we see being created in the expanding universe).

The above tells us that mass/energy equivalence is not exclusively related to the so-called fundamental constant "the velocity of light in vacuo," but that the real fundamental constant is buried within the dimensions of velocity  $(\frac{L}{T})$  and is time.

After all, the velocity of light is modified by, for instance, the vicinity of matter. Velocity of light in vacuo = c, in an low pressure gas it is somewhat slower, its velocity decreasing as the matter density of the propagating medium increases. The flow of time, however, is not subject to manipulation.

Well, my present hands-on research is with the Correa patent. Of all the papers given at Denver, this is the future because they have identified a means of extracting energy from the **flow** of time, which is the fundamental constant of nature (not velocity).

Peter Mobberley E-mail 101373.3232@compuserve.com

[Readers, please comment. -Ed.]

Doubtless no law of chemistry is broken by the action of nervous cells, and no law of physics by the pulses of the nervous fibres. but something requires to be added to our sciences in order that we explain these subtle phenomena. (William Jevons, 1873)

# Meetings

### INTERNATIONAL SYMPOSIUM ON NEW ENERGY

Memorial Day Weekend May 23-26, 1997 Marriott Denver Tech Center Call for information on presenting papers.

Registration fees: \$150 through March 15, 1997, \$180 until May 22, \$200 at the door. \$75/day, \$45/half-day.

216 Commerce Drive #4, Fort Collins, CO 80524

Phone 970-482-3731, Fax 970-482-3120 Website: www.acad4newenergy.com Cust. Service: csrep@acad4newenergy.com

Marriott Denver Tech Center: Reservations 800-228-9290 or 303-779-1100

Intersociety Energy Conversion Engineering Conference

**IECEC - 1997** 

July 27 to August 1, 1997 Hilton Hawaiian Village, Honolulu, HI

Abstracts in the area of "Innovative Concepts – Cold Fusion" and other Advanced Energy Conversion Technology areas were accepted until January 17, 1997. Draft papers due March 1997, and Final papers are due in May 1997.

More info. available at: <busassist@aol.com>

#### ICCF-7

International Cold Fusion Forum Vancouver, B.C., Canada April 19-24, 1998

With the maturation of the field, ICCF-7 seeks to attract a more diverse audience including additional scientists, research institutes, students, national funding agencies, commercial interests, journalists, and spouses. It is the objective of ICCF-7 to provide a productive international forum for communication and education.

#### Calendar:

<u>June 1997</u>: Local Organizing Committee call for 1-2 paragraph abstracts for sampling of potential presentations. Selection rules and evaluation criteria will be provided at this time.

<u>September 1997</u>: Official call for full, one-page abstracts. Final peer review process begins.

<u>December 1997</u>: Final notification to all presenters regarding the format of their presentation.

<u>January 1998</u>: Deadline for final abstracts to be published in <u>ICCF-7 Program Manual</u> and Website.

<u>April 1998</u>: Conference. All presenters must hand in their final papers during the conference for timely inclusion in the publication <u>ICCF-7 Proceedings</u>.

A different topic is planned for each day at ICCF-7. An invited presentation with summary review or global implications for the entire field will begin each day's topic, followed by five oral presentations on the topic. Afternoons will be entirely devoted to enhanced poster sessions, which include a 3-5 minute oral preview and summary. A "Top Ten" poster presenters will be selected by the attendees, and each will conduct an expanded 15 minute presentation to the full audience on Thursday afternoon. Three evening workshops will also be held.

Topics include: Heat & Related Products, Nuclear Processes & Products, Materials & Innovative Approaches, and Theory & Nuclear Physics.

For more information or to get on mailing list, contact:

ICCF-7 c/o ENECO

391-B Chipeta Way, Salt Lake City, UT 84108

Phone (801) 583-2000 Fax (801) 583-6245 jaeger@ENECO-USA.com

Conference on the Fundamental Structure and Mechanisms of the Universe

May 30 - June 1, 1997

at the Gold Rush Country, about 2 hrs. from San Francisco in the foothills of the Sierras.

"The conference will be a search for a common structure that will clearly explain the behavior of electromagnetism and matter, forces, space, time, entropy, at a fundamental level, and remove the wave particle duality, and should allow physics to move forward again." Organized by the Alexandria Foundation.

For further details, refer to web site: www.kcbbs.gen.nz/users/rtomes/conf-l.htm

An AETHER Conference is being planned for July or August 1997 at Stanford, CA. Its purpose is to bring together contacts, researchers and theorists on the subject of the Aether. For further info contact: Plasmatronics, Int., P.O. Box E, Menlo Park, CA 94026, Tel. 415-569-3299.

### **Commercial Column**

The following companies (listed alphabetically) are commercializing cold fusion or other enhanced energy devices: [Listings with your additional copy, boxed, for small annual service fee.]

#### **COMPANY: PRODUCT**

American Pure Fusion Engineering and Supply: Warren Cooley, 1-800-789-7109 or 503-585-6746. Email to: Coolwar@aol.com

**CAI, Inc.,** CAI has acquired rights to develop and produce a new-type of thermal power based on the controlled production of clean nuclear reactions from micro-miniature tokamaks (provided by nature). Contact through FIC, Voice 801-583-6232, Fax 801-583-2963.

**CETI** (Clean Energy Technologies, Inc.): Dallas, Texas. Voice 214-982-8340, FAX 214-982-8349.

ENECO: is in the business of commercializing the exciting new field of low energy induced nuclear reactions in solids via patent licensing, joint-ventures, and co-operative research. ENECO, University of Utah Research Park, 391-B Chipeta Way, Salt Lake City, Utah 84108 USA. Contact Fred Jaeger, Voice 801-583-2000, Fax 801-583-6245. Email: jaeger@ENECO-USA.com

**Clustron Sciences Corp.**: Contact: Ron Brightsen, 703-476-8731.

**E-Quest Sciences**: Contact Russ George, FAX 415-851-8489.

**Holotec AG**: Clean Energy Technology, contact André Waser, Gen. Mgr., Bireggstrasse 14, CH-6003, Luzern, Switzerland. Phone 011 41-41 360 4485, or Fax 011 41-41 360 4486.

**Hydro Dynamics, Inc.**: Rome, Georgia. Contact James Griggs, Voice 706-234-4111 Fax 706-234-0702.

Fusion Information Center (FIC): Research and development of new energy systems. The world's most complete resource depository for cold fusion research information, as well as other new energy research including zero-point energy; space energy research; electronic, electromagnetic, and mechanical over unity devices and transmutation. We are the publishers for *New Energy News*, and *the Journal of New Energy*. Voice 801-583-6232, Fax 801-583-2963. Contact Hal Fox.

**JET Energy Technology, Inc.**: Weston, MA. Contact Dr. Mitchell Swartz, Voice 617-237-3625. Fax 617-237-3625.

**Labofex, Experimental and Applied Plasma Physics**: Ontario, Canada. Contact Dr. Paulo N. Correa. Tel 905-660-1040 Fax 905-738-8427

Magnetic Power Inc.: Sebastopol, CA. Contact Mark Goldes, voice 707-829-9391, Fax 707-829-1002.

**Nova Resources Group, Inc.**: Denver, CO. Call Chip Ransford, Phone 303-433-5582.

**UV Enhanced Ultrasound**: Hong Kong. FAX 852-2338-3057.

"YUSMAR"- Scientific-Commercial Company: President: Dr. Yuri S. Potapov, 277012 Kishinev, Moldova. Phone and Fax 011-3732-233318.

**Zenergy Corporation**: 390 South Robins Way, Chandler, AZ 85225. Contact Reed Huish: 602-814-7865, Fax 602-821-0967, e-mail: info@zenergy.com

Note: The Fusion Information Center has been acting as an information source to many of these companies. We expect to augment our international service to provide contacts, information, and business

opportunities to companies considering an entry into the enhanced energy market.

#### **INFORMATION SOURCES**

Academy for New Energy (ANE) 216 Commerce Drive, Ste. 4, Fort Collins, CO 80524. Tel. 970-482-3731

ANE Newsletter, quarterly publication of ANE, edited by Robert Emmerich.

Advanced Energy Network Newsletter, quarterly. Advanced Energy Network, P.O. Box 691, Rondebosch 7700 Capetown, Rep. South Africa.

Cold Fusion, monthly newsletter, edited by Wayne Green; 70 Route 202N, Petersborough, NH 03458.

Cold Fusion Times, quarterly newsletter published by Dr. Mitchell Swartz; P.O. Box 81135, Wellesley Hills M A 0 2 1 8 1 . H o m e P a g e : http://world.std.com/~mica/cft.html

Cycles, a R&D newsletter, published by Dieter Soegemeier, Editor, GPO Box 269, Brisbane, QLD.4001, Australia. Phone/Fax: +61 (0)7 3809 3257.

Electric Spacecraft Journal, quarterly, edited by Charles A. Yost, 73 Sunlight Drive, Leicester, NC 28748.

Electrifying Times, 3/year magazine. 63600 Deschutes Market Rd, Bend, OR 97701 Phone 541-388-1908,

Fax 541-388-2750, E-mail <etimes@teleport.com> www.teleport.com/~etimes/

**Fusion Facts** is now a section in the *Journal of New Energy*.

Fusion Technology, Journal of the American Nuclear Society, edited by Dr. George Miley, 555 N. Kensington Ave., La Grange Park, IL 60525.

Infinite Energy, bi-monthly magazine. P.O. Box 2816, Concord, NH 03302-2816. Voice: 603-228-4516. Fax: 603-224-5975 E-mail 76570.2270@compuserve.com

Journal of New Energy, quarterly, presenting papers representing the new areas of energy research, leading-edge ideas in the development of new energy technology, and the theories behind them. Published by the Fusion Information Center, Inc. Editor: Hal Fox.

KeelyNet BBS - Jerry Decker, 214-324-3501

Internet: www.keelynet.com

**Institute for New Energy (INE)**, organization to promote and help find funding for new energy research. Salt Lake City, Utah.

Visit our **Home Page**: www.padrak.com/ine/which contains many important scientific papers and current reports on all areas of research.

E-mail: ine@padrak.com

Voice 801-583-6232, Fax 801-583-2963.

**New Energy News** monthly newsletter for INE, highlighting the research and development in the worldwide new energy arena. Edited by Hal Fox.

E-mail: jdecker@keelynet.com

Planetary Association for Clean Energy Newsletter, quarterly, edited by Dr. Andrew Michrowski. 100 Bronson Ave, # 1001, Ottawa, Ontario K1R 6G8, Canada. Web page: http://energie.keng.de/~pace

Space Energy Journal, quarterly, edited by Jim Kettner & Don Kelly, P.O. Box 1136, Clearwater, FL 34617-1136.

The above list of commercial and information sources will be growing. New listings will be added as information is received. Send information to *NEN*, P.O. Box 58639, Salt Lake City, UT, 84158.

### **CONTENTS FOR MARCH 1997**

LETTER from WATER FUEL CELL 1 FUSION BRIEFINGS 3 CETI™ PRESS RELEASE 3 SPACE ENERGY 4 SPACE PROPULSION BY PUTHOFF 4 MORE ON ANTIGRAVITY 4 H.T. MORAY & TRANSMUTATION 5 THE COMPLEX ELECTRON 5 MISCELLANEOUS 5 TO THE STARS 5 ALL-POLYMER BATTERY 6 TAIWAN RAD-WASTE PROBLEM 7 SYNTROLEUM FROM TULSA 8 ARTICLES 8 RADIOACTIVE VS. STABLE NUCLEAR REACTIONS 8	SHOULDERS' EV'S CONFIRMED
REACTIONS	COMMERCIAL COLUMN