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DO THORIUM DAUGHTER PRODUCTS EXPLAIN LENT-1 EXPERIMENTS?

By Hal Fox, Editor-in-Chief, *New Energy News*

One tenth of a gram of thorium (from a freshly made mixture of thorium nitrate and distilled water) is introduced into the LENT-1 reactor. After thirty minutes of processing, following the protocols provided, the thorium is removed from the solution (in our lab before- and after-processing samples measured 4300 mg/liter and 9.3 mg/liter of thorium.) The disk electrode is radioactive (alpha, beta, gamma, but no neutrons) immediately after processing and gradually decays to less than one-half of the measured radioactivity within a few hours.

Here are the facts: Thorium-232 has a half life of 14 billion years. If the radioactivity were due to plating the thorium onto the electrode, the radioactivity of the thorium would provide the same level of measured radioactivity for months or years. The radioactivity of the disk electrode changes dramatically with time.

Therefore, **some skeptics say that the radioactivity can be explained by selectively plating the thorium daughter products onto the electrode.**

Is this a logical argument? Or, have the skeptics not considered the full experimental evidence?

One gram molecular weight of thorium contains 6.023×10^{23} atoms of thorium. The specific activity (the decay rate per gram per second) of the thorium is about 4071 atoms per gram per sec. resulting in the production of daughter elements. According to an expert, when you make thorium nitrate, "the thorium-228 follows the chemistry of the thorium-232." A handbook of physics and chemistry indicates that the intermediate element radium-228 also has a soluble nitrate. The expert

did not suggest what happens to the actinium-228 (however it has a short half life of 6.15 hours and then produces the thorium-228).

Here is a list of the original and the daughter products with their half life values: Radium-228, Actinium-228, Radium-224, according to the Handbook of Chemistry and

TABLE I. THORIUM DECAY DAUGHTER PRODUCTS

Element	Half-Life	α (MeV)	β (MeV)	$\bar{\alpha}$ (KeV)
Thorium-232	1.4×10^{10} y	4.01, 3.95	--	59(w)
Radium-228	5.76 y	--	.039, .015	14(w)
Actinium-228	6.15 h	--	1.2, 2.1	911, 969, 338
Thorium-228	1.91 y	5.42, 5.34	--	84, 216, 132, 166
Radium-224	3.66 d	5.69, 5.45	--	240
Radon-220	55.6 s	6.29	--	550
Polonium-216	0.145 s	6.78	--	805(w)
Lead-212	10.6 h	--	.331, .569	239, 300
Bismuth-212	60.6 m	6.05	2.25	40, 727
Polonium-212	298 ns	8.78	--	--
Thallium-208	3.05 m	--	1.8, 1.28, & 1.52	2615, 583, 511
Lead-208	stable			

SOURCES: Lapp et al., [3], Hunt [4].

Physics do not make highly-soluble nitrates. Radon-220 is a noble gas. Polonium-216, Lead-212, Bismuth-212, Polonium-212, and Thallium-208 also do not make highly soluble nitrates.

The editor is not a skilled chemist. Can a skilled chemist tell us how many atoms of the daughter products will be **in solution**, after the thorium nitrate (very soluble in cold water) is dissolved and the solution decanted or filtered to remove any precipitates? I would suggest that by making a

fresh batch of thorium nitrate, **after chemically separating the thorium from daughter products**, that the daughter products will be a very small percentage of the thorium for many months.

Even if we assume that there are thorium-daughter products in the solution, here is another hurdle that must be jumped by the skeptics. How does one selectively plate out daughter products (if present) using alternating current? Those experts I have asked suggest that nearly all alternating current is lop-sided and that one side is carrying more current than the other side, therefore plating can take place. Does this mean that with the many experiments that have been made in various parts of the U.S., the lop-sided a.c. always favors the disk electrode in the reactor? In the tests in our lab, we observe no difference in the **type** of post-processing radioactivity for either the disk or the cylinder electrode.

Here is another intellectual hurdle: The post-processing condition of both electrodes using the LENT-1 reactor is that considerable erosion takes place. The visual evidence is that there is some formation of an oxide layer interspersed with many pits which produces an eroded and rough surface. That does not appear to be any kind of plating that this author has ever seen. Also, if plating occurs, it would also be removed by the continued erosion of the electrode. If plated out, the thorium would then be in the precipitates. Our measurements find very little radioactivity in the precipitates.

Here is another hurdle: After thirty minutes of processing, almost all of the thorium is removed from the electrolyte. Now add another thirty minutes of processing time, consuming about 80 watts of input power (which appears to balance the power lost by radiation of the 375°F to 400°F reactor). After the reactor cools, the disk electrode is measured for radioactivity. The radioactivity is about twice as high as after a 30-minute processing time. This radioactivity peaks in a few hours and then diminishes quite rapidly over the next few days. The electrode shows further substantial erosion. Why aren't the daughter products eroded off? Where did the additional daughter products come from when the thorium in the solution had already been removed?

Here is another hurdle: In our lab we measured the radioactivity of the cylinder electrode **and then, using a 400-grit sandpaper wrapped around a dowel**, removed considerable material from the inner surface. There were still many erosion pits visible. After washing, wiping, and rinsing with

distilled water, the electrode was again measured for radioactivity. **The radioactivity measured by an alpha counter (with 31% efficiency) was slightly lower but within the error range.** This would suggest that the source of radioactivity was from the eroded pits and not from the surface that had been sandpapered. Plating is usually an area phenomena. Would one suggest that the erosion pits were the primary areas where daughter products are selectively plated?

Honest, open-minded skepticism is a valuable asset in scientific research. Dogmatic skepticism or intense struggles to protect an outmoded nuclear reaction model is a detriment to scientific research. Refusal to even consider the evidence is a sign of intellectual deprivation.

The obvious scientific approach is to submit a radioactive electrode to highly-sensitive measurements to determine what isotopes of what elements are present on the surface of the electrode. This process is expensive but is being accomplished.

In Memorium

Date: Sun, 05 Oct 1997 08:00:13 -0800
From: "M.Twain" <muse@mediacity.com>

Friends,

This is to confirm the news of the death of free-energy pioneer Bruce Eldridge DePalma. His final resting place is the soil of West Auckland, New Zealand. I received a confirming telephone call from the DePalma Institute late Friday night (California time). It will probably be a few days before a statement can be released to the Web.

Don't know any of the details, but would hazard to guess cancer, ulcers, or some related condition. Bruce strongly empathized with my reactivity to the conformist consumer world and to the resulting "ulcerated mess" seemingly "nurtured within" myself, as he said. He understood my situation of adversity and my goals of harmony, and thus concurred with New Zealand and the DePalma Institute as the solution.

I haven't had a chance to speak to Chris Tinsley's early death. Would like to respond to his post of January 22, 1997 on the subject of 'push' forces and the aether. I never got to meet or exchange correspondence with Chris. Furthering and extending his quest is all I can offer to do. As he said,

"This post is pure prattle, and I apologise in advance for it. I'm just trying to get some kind of a handle on this 'new physics'. And I want very much to avoid the clever stuff, just to look at the basics."

"We know that two ships parked close together in choppy seas will be pushed together by the fact that longer waves are excluded from the space between them, and the idea seems to be that this kind of action explains all the forces?"

My question to the discussion groups is -- this certainly explains the (electromagnetogravitic wave) Casimir phenomenon, but why do planets NOT fall into stars? Stars NOT fall into galactic cores? Clearly the stellar and galactic-scale standing aether (plasma-group) waves have equal repulsive components. And do not equal numbers of examples exist of expanding galactic systems, as opposed to contracting? Is not the micro-scale aether just like the cosmic-scale aether, in that sense? Does not repulsion exist as often, and in balance with attraction? Compression as rarification? Unraveling and decay as often as superposition, beading, and soliton creation?

That, I believe, is the nature of the ubiquitous EMG aenertial vortex wave of experience. Of action. Of spin and propagation flux density. Aether waves are repulsive from the outside, attractive on the inside? Repulsive from the outside slope so-to-speak, attractive to the inside slope?

Goodbye Chris. Goodbye Bruce. We will do all we can to clear up our minds, and strengthen our bodies. Whether we are in time to give this planet a chance, I largely doubt,

Millennium Twain

Chris Tinsley: IN MEMORIAM

by Robert Bass

Chris Tinsley was as much alive in my heart as anyone with whom I had ever shaken hands in person, although in truth, through what the ancients would have justly termed the 'miracle' of modern electronics, I knew him only via videotapes and many E-mail correspondences. Of course, having seen him giving a scientific lecture and a technical demonstration of an experiment on videotape, I knew what he looked and sounded like, but in his written messages his penetrating wisdom was even more apparent. I honestly believe that his wise advice may have tipped the balance between the CG faction wanting to hold their discoveries proprietary and those agreeing with the advice of Gene Mallove & Jed Rothwell to disclose everything for the benefit of mankind.

I am now listening to this uniquely humane spokesman & catalyst for progress as, for the last time, I read what he said to me on June 21: "Jed is, of course, exactly right. If the CG think that some Big Company will buy their process and build a plant, then they should realize that this just isn't going to happen. The reason is really quite simple, as Jed says; if you don't have a market (people who believe in your product) then you won't get any sales. ... Let me make one small effort to show the alternatives. CG can keep on with their efforts to sell their process to a slippery and disbelieving world with motorized goal posts. They can live on hope, which leaves their bellies empty and the world un-helped. Or they can let us help them, which will bring them solid money and 'make their other processes vastly more credible' when they want to sell those too. ... The choice is pretty stark and simple. It's a choice between a slice of an almost infinite cake, and the entirety of a cake of zero size. ... By the way, Gates doesn't have any patents. A patent is a license for others to steal your ideas, so the best thing is not to worry too much about that side of it all. Just set up your stall and sell into the open market. ... __Chris"

In the past few weeks Chris had been in direct contact with the CG regarding a process of theirs which they lacked time to pursue properly, and we

regarded him as our point man spearheading the effort in that awesomely-important direction: limitless, free [over-unity], excess energy! My feeling that Chris was indispensable and irreplaceable is so strong that when I first heard of his tragically premature passing, my reaction to the dreadful loss was not the sympathy due his loved ones (to whom I have apologized) but such anger at Fate that I literally cursed our luck & cried: 'the Men in Black' have struck again! After a little more time for composure, my reaction is that of a soldier in war who has lost a close comrade-in-arms who had been a major strength to all. How to carry on in the face of this staggering setback is not now apparent, but that is what our fallen comrade Chris would have wanted us to do.

Fusion Briefings

SUCCESS DUE TO SMALL GRAIN Pd

Scott R. & Talcott A. Chubb (Oakton Int. Corp. Arlington, VA), "Small Crystals Aid Cold Fusion," *Am. Phys. Soc. Bull.*, 20 March 1997, 14:42 session "O"18 2.

AUTHORS' ABSTRACT

The 1996 world meeting on cold fusion in Hokkaido, Japan (ICCF-6) provided strong evidence that the nuclear product of radiationless cold fusion in a lattice is ^4He . Arata and Zhang at Osaka Univ. observed ^4He in thermal desorption studies of deuterated Pd powder that had produced 5 kWh/g excess heat; non-deuterated powder showed no ^4He . Gozzi et al. at the Univ. of Rome observed ^4He correlating with excess heat power over a thousand hour time period in the gas flow from an open-cell D_2O electrolysis cell, using a bundle of 150 0.25-mm Pd wires as the cathode. Arata and Zhang used a "double structure" cathode consisting of a Pd-metal bottle, evacuated and filled with Pd black (0.4 micron) powder. They have recorded excess heat from 6 out of 6 cathodes. We attribute the cold fusion successes to the use of small Pd grains. Deuterons coherently occupying ordered regions in a metal matrix are predicted to produce heat at high power density with decreasing crystal size.

PAIRED-PARTICLE COHERENCE

Scott R. & Talcott A. Chubb (Oakton Int. Corp. Arlington, VA), "Paired-Particle Coherence in a Lattice," *Am. Phys. Soc. Bull.*, 20 March 1997, 14:30 Session "O" 18.

AUTHORS' ABSTRACT

The many-body wave function $\Psi(r_1, \dots, r_n)$ for non-interacting band state particles in an ordered solid preserve lattice symmetry: $|\Psi(r_1 + R_n, r_2 + R_j, \dots)| = |\Psi(r_1, r_2, \dots)|$ for arbitrary lattice vectors R_n and R_j . These states manifestly exhibit a form of coherence with respect to outside perturbations that preserve order. When two, initially non-interacting band state particles are allowed to interact with each other, it is possible for their mutual Coulombic repulsion to be constrained in a manner that also preserves periodic order. Implications associated with the resulting coherence are discussed.

2-DEUTERON WAVE FUNCTION

Scott R. & Talcott A. Chubb (Oakton Int. Corp. Arlington, VA), "2-Deuteron Wave Function," *Am. Phys. Soc. Bull.*, 20 March 1997, 14:30 Session "O" 18 6.

AUTHORS' ABSTRACT

The 2-particle wave function describing electrostatically interacting deuterons in an external field is a 6 degree-of-freedom function, describable in center-of-mass rcm and separation r_{12} vector coordinates. Consider the case where the external field is periodic and rcm and r_{12} can be treated as separable. Then, $Y(\text{rcm}, r_{12}) = F(\text{rcm})g(r_{12})$. The function $g(r_{12})$ can be called a dimming function since, when r_{12} approaches 0, $|Y(\text{rcm}, r_{12})|$ approaches a minimum value. $g(r_{12})$ has a cusp in separation space at $r_{12} = 0$. When $Y(\text{rcm}, r_{12})$ has lattice symmetry, $|F(\text{rcm} + R_n)| = |F(\text{rcm})|$, where R_n is any lattice vector. The question to be answered is whether lattice symmetry also requires $|g(r_{12} + R_m)| = |g(r_{12})|$, where R_m is any lattice vector, i.e., whether $g(r_{12})$ has a cusp in every unit cell in separation space. It can be shown that if $g(r_{12})$ has Bloch symmetry for band state deuterons in a metal crystal lattice and if the Coulomb repulsion interaction vanishes outside a screening radius r_{sc} less than half the edge of a unit cell, then the energy-minimizing 2-deuteron wave function provides d-d overlap and there is no Coulomb barrier to fusion.

ION BAND STATES, MANY BODY EFFECTS

Scott R. & Talcott A. Chubb (Oakton Int. Corp. Arlington, VA), "Ion Band States, Many-Body Effects, Implications for Cold Fusion (CF)," *Am. Phys. Soc. Bull.*, 1996 Session "H" 31 61.

AUTHORS' ABSTRACT

We have developed a model illustrating how the Coulomb barrier between deuterons can be overcome, based on known properties of hydrogen in metals. The N-body D+ wave function is studied at $N = 2$. The separation dependency in the 2-D+ wave function has cusps like those in the 2-electron wave function of the helium atom. Unbroken lattice symmetry requires a Bloch function "center-of-mass" wave function with coherently-kinked cusps in each unit cell. When electron screening is present, the energy-minimizing cusp amplitude varies as $(N\text{-cell})^{-1}$, implying CF possibility at large N-cell. Unbroken lattice symmetry in fully-loaded PdD (defined by $x \rightarrow 1$ in pdDx) trigger CF heating, requires CF energy release in each unit cell, and prevents de-excitation by energetic particles or gamma's. Change in the quantum of mass from 2 AMU to 4 AMU redistributes positive charge through occupation of ion band state He-4^{++} , initiating lattice shrinkage with generation of phonons. Ion band state helium with its neutralizing Bloch electrons is exothermically ejected from the lattice.

OVERLAP PROPERTIES

Scott R. & Talcott A. Chubb (Oakton Int. Corp. Arlington, VA), "Overlap Properties of D+ Ion Band State Matter: Implications for Cold Fusion," *Am. Phys. Soc. Bull.*, 1996 Session "H" 31 120.

AUTHORS' ABSTRACT

Although the "Barrier Penetration" paradigm forbids significant overlap between D+ within Pd or PdD, it explicitly excludes many-body effects resulting from coherence between D+ pairs, solid state effects, and the possibility of discontinuous changes in momentum that are permitted (through wave-function cusps) in bound state systems. By using an alternative framework, involving the occupation of ion band states, which is consistent with quantum diffusion of H and D in transition

metals, and using estimates of screening parameters that apply to fully-loaded PdD, we have performed variational calculations that include the effects of cusps in the separation dependence between two D+ ions but treat their center-of-mass dependence, using ion band state occupation. Our results show that overlap is affected by crystal size; when the number of unit cell $N\text{-cell} < 10 \exp 4$, negligible overlap occurs; for $N\text{-cell} > 10 \exp 4$ increased overlap occurs. Experimental results consistent with a number of the predictions of the underlying theory are presented.

RESULTS IN COLD FUSION

H. Kozima (Dept. Phys., Fac. Sci., Shizuoka Univ., Japan), "Cold Fusion Phenomenon (A Review)," *Intl. J. Soc. of Mats. Engr. for Resources*, vol 6, no 1, 60 refs. (1998, to be published).

AUTHOR'S ABSTRACT

Present status of cold fusion research is reviewed after almost nine years of its discovery. It is recognized that the events of the cold fusion phenomenon occurring at from room temperature up to about 3000°C , include not only initially supposed excess heat, neutron and tritium generations but also helium and gamma ray generations and the nuclear transmutation of the heavier nuclei. The experimental evidences of these events have been almost confirmed and primitive application devices have been worked out but theoretical explanation of the phenomenon is not accomplished yet. A trial of consistent explanation for the whole experimental data is introduced in the final section.

STATUS OF COLD FUSION

David J. Nagel (Naval Res. Lab., Washington, D.C.), "The Status of 'Cold Fusion'," paper was presented at the 7th International Symposium on Radiation Physics, Jaipur, Rajasthan, India, Feb. 1997. To be published in the proceedings by the journal *Radiation Physics and Chemistry*.

AUTHOR'S ABSTRACT

The question raised by reports of nuclear reactions at low energies, so called "cold fusion," are not yet answered to the satisfaction of many scientists.

Further experimental investigations of these and related questions seems desirable, at least for scientific if not practical reasons. Properly conducted, such investigations would be indistinguishable from normal research. They would yield information germane to accepted areas of scientific inquiry and technological utility.

Miscellaneous

"In Memorium"

A Final Tribute to Bruce E. DePalma

UNDERSTANDING THE DROPPING OF THE SPINNING BALL EXPERIMENT

Bruce DePalma

The beginning of this author's work with rotating objects began with moment of inertia measurements of constrained gyroscopes undergoing forced precession. The increased moments of inertia discovered for precessional motion were translated into a series of measurements on pendula with rotating bobs. Although the discoveries of the inertial effects associated with precession and pendulum oscillations of rotating bob weights were highly suggestive, this author greatly resisted attempts to force him to drop a rotating object for two reasons.

Firstly, he had no reason to be able to predict the motion of a freely falling object on the basis of the inertial alterations he had measured which had concerned themselves with constrained situations of rotating objects. Second, there was no reason to expect inertial alterations to affect the rate of fall of a released object and there was no available theory which could in any way be applied to the situation or a falling rotating object in a gravitational field. This is a situation known in religious terms as a "leap into the dark."

Since the author and his assistants are experts in the application of stroboscopic lighting techniques to the study of high speed motions, the first experimental cut at the situation was to photograph the trajectories of a steel ball bearing rotating at a high speed together with an identical control object moving at a similar initial velocity. The result of the experiment was so startling and anomalous as to have taken me five years to understand.

The original results of our experiments were circulated as a report [1] in 1974. Two years later the experiment was published in an appendix to a book of Christian exegesis [2]. In 1977, one of my former students performed a high precision verification of the dropping of a rotating object: "The Gyro Drop Experiment." [3] Actually the experiment has two parts, the spinning ball going up, and the spinning ball falling. Since I would be rather thought a fool than misrepresent results of experiments, I only attempted to analyze the portion of the experiment I thought I understood. Basically, the spinning object going **higher** than the identical non-rotating control with the same initial velocity, and, then falling **faster** than the identical non-rotating control; presents a dilemma which can only be resolved or understood -- on the basis of radically new concepts in physics -- concepts so radical that only the heretofore un-understood results of other experiments, (the elastic collision of a rotating and an identical non-rotating object, et al.), and new conceptions of physics growing out of the many discussions and correspondence pertaining to rotation, inertia, gravity, and motion in general. We should remember the pioneers in this field: Wolfe, Cox, Dean, Laithwaite, Rendle, Searle, Kümmler, DePalma and Delves, to name but a few.

In the beginning, I developed the concept of **variable inertia** to explain the behavior of rotating material objects, but since variable inertia in-itself contravenes the laws of physics in the sense of contravention of the laws of conservation of mass and energy. Of course the destruction of one thing is interesting -- but of course this is in-itself not a creative act and does not take us closer to the truth.

Because man is so interested in the Universe, and the motions in the universe depend so much on gravity, that the study of gravity takes us to the deepest foundations of human thought. I think it is a mind-bending experience to see every stone fall at the exact same rate as any other stone. And then when you spin an object -- why does it fall faster; and most mind boggling of all, why does it go higher than the identical non-rotating control released to go upward at the same initial velocity? Of course the experiment could be wrong, but also perhaps we could develop an hypothesis which would fit all experiments.

We know when we can alter the properties of mechanical objects, i.e. change their inertia, we have contravened the conservation of energy, because we have associated the properties of an object with the space which contains the object. The space which contains the object also contains energy and we can go at the project in two ways: we can attempt to extract the energy without worrying where it came from, or we can attempt to understand physics, ourselves, and the universe by a new formulation of reality.

Part of the difficulty of accepting free energy is the feeling we're getting something for free and that automatically makes it suspect. If however, on the other hand, we accept what we know as "energy" as something which is a natural part of our environment, and can be reached if we have the key.

Most of the difficulties in the location of this energy lie in the comprehension where it's coming from. If this can be comprehended then the understanding of the free energy experiment can be believed.

When reality came into existence, the time energy of the Universe was concentrated into a single form, the exactitude with which a single atom gave off a beat of frequency when excited as a spectral line. We have come to regard this as the only way of measuring time. The true way of measuring time is in the inertia of objects. Thus, a tuning fork watch or oscillator is a more **natural** way of measuring which can only exist and not be measured. That is, each measurement brings into existence that which is for being measured. In the case of Time, we can know the existence of it, but for whatever measurement we take to be indicating it -- we make our own determinations as to whether this measurement is more suitable or "accurate" for our purposes (we might prefer a crystal clock to a tuning fork but for what purposes or measuring is this "time" being used). If, for instance, we were interested in inertial processes -- like the motion and the orbits of the planets -- and we knew these were sensitive to inertial influences, we might consider a "time" which was also sensitive to these inertial influences to be more "accurate" than a time derived from another experiment -- which might have no relationship to the phenomena of importance.

Part of the difficulty of accepting free energy is the feeling we're getting something for free and that automatically makes it suspect.

Time as a manifestation of a much deeper and basic force is what we have a concern for here. The point of connection I want to make is the **inertia of objects relates to the time energy flowing through them.**

The rotational quanta drawn to a rotating body induce in that body a feeling of inertial anisotropy as well as **increased** inertial mass. Could this "mass" be thus somehow translated into energy for mass consumption? The first indications of that came when we dropped our spinning ball experiment but we were unwilling to interpret the increase in energy of a spinning to a non-spinning object dropped to fall over a controlled distance to some kind of energy principle we did not understand.

We also had a second series of experiments, elastic collisions of rotating and non-rotating identical controls which we could not interpret. It took a paper: "The Cause of Gravitation," by Bernard Rendle [4], to jar my mind into comprehension of the facts as I saw them.

We can only conceive of the inertia of objects, or inertial mass to be exact, to be representative of the time energy created when the Universe was created. Naturally the question of how old the Universe is becomes invalid then because a possible interpretation is that the Universe existed forever because inertial mass exists at all. Measurements of the age of the Universe are also invalid. All the time in the world is summed up in the inertial mass of an object.

How this relates to the spinning ball experiment is that the spinning of an object draws to it the quanta of inertial motion of rotation which are accumulated in the body of the flywheel and account for the altered inertial properties of the rotating object. These inertial quanta, R_0 , draw the time energy to themselves in proportion to the number of them present in the flywheel at a given time. If a rotating object is collided with an identical non-rotating one the non-rotating object is rebounded at a greater distance than would have traveled had it been struck with the same identical object non-rotating. A rotating object struck by an identical non-control rebounds **less** than it would had it not been rotating [5].

This explains why the spinning ball went higher than the identical non-rotating control (moving at the

same initial velocity), and also explains why the spinning object falls faster than the non-rotating control. The momentous fact is that there is **no special interaction** between rotation and gravity. The behavior of rotating objects is explained simply on the addition of free energy to whatever motion the rotating object is making. The spinning object goes higher and falls faster than the identical non-rotating control.

If we dispose of any special connection between rotation and gravity, I like the understanding of inertia growing out of the statement of Rendle: "... the immaterial medium of space itself is in motion-." The constancy of "G" then becomes the inertia of objects. The fact that all objects fall at the same rate (Earth normal acceleration) means that the substrate space is moving all objects along at the same rate. This we can define as Earth normal standard inertia, a unity factor to which all other conditions are compared. Thus rotating an object does not change its inertia (under the new standard) since the mechanical alterations in behavior of rotating objects do not affect their inertia but are the result of the additional (free) time energy flowing through the rotating object by virtue of its accumulation of rotational quanta R_o .

The question to be answered: is there any gravitational effect from rotation or is gravitation a special interaction of mass with its environment. I would tend to believe gravitation is a special interaction of real mass with its environment. This is not to say that artificial gravitational fields cannot be created but they would be always distinguishable from the real thing through some physical test. An artificial gravitational field would be non-isotropic and anisotropic.

In terms of the dropping of the spinning ball, the understanding of the experiment involves the results of many other experiments as well as the resolution of a mind picture of the Universe which is our best approximation to understanding at the present time. What makes it difficult for other experimenters to understand the experiment is that it is not simply the **results** which are important. Without a theoretical foundation of understanding to make the experiment comprehensible -- to fit the results into a context of rational understanding and harmony with the facts of other experiments -- the data become trivial and worthless, and, worst of all, subject to misinterpretation.

The availability of free energy from as simple an experiment as colliding a rotating object with a non-rotating one opens up the development of

other machines for energy extraction and propulsion which may be more convenient to handle than the extraction of energy from the collision of a rotating object with a non-rotating one.

Bruce E. DePalma
May 1977

References:

- [1] "The Effect of Gravity on Rotating Objects," Edward C. Delters and Bruce E. DePalma, 18 March 1974, Similarity Inst. reprint.
- [2] "Is God Supernatural," Robert L. Dione, Bantum Books, NY, 1976 (553-02723-150).
- [3] "Gyro Drop Experiment," Kenneth Gerber, M.D., U.S. Dept Health, Educ., & Welfare; Public Health Service; Nat. Insts. of Health, Nat. Heart, Lung & Blood Inst.; Bethesda, MD 20014, Richard F. Merritt and Edward Delters, 1977.
- [4] "The Cause of Gravitation," A. Bernard Rendle, Modal Research, 51 Dorking Road, Gt. Bookham, Surrey, England, 1971.
- [5] Unpublished "Elastic Collision Experiment Data," Similarity Inst. report.

YUCCA MOUNTAIN WASTE STORAGE: A "NO BRAINER!"

On Saturday, October 11, 1997 *The Valley Observer* newspaper in Pahrump, NV printed the following Guest Editorial on page 2:

"It Would Be A 'No-Brainer' If Congress Passes the Bill for Nuclear Waste Storage At Yucca Mountain" by Sally Devlin

Las Vegas Sun reporter Bob SHEMELEGIAN on October 3, 1997 reported on former Secretary of Energy, Hazel O'Leary's position on the storage of I.N.E.L.'s Naval Spent Fuel at Yucca Mountain located on the Nevada Test Site.

Governor Bob Miller, fortunately for us Nevadans, has taken a stand against it. He knows that the Navy at the Idaho National Engineering and Environmental Laboratories has five metric tons of Naval Spent Fuel. They are asking for 300-to-500, 125,000 pound canisters for the N.S.F. and mixed waste (that is classified!) to be sent to the Nevada Test Site.

What Mrs. O'Leary didn't tell us is that there will be two repositories. The first one, according to the *Report To Congress*, will cost \$25 billion and the second \$35 billion. The first repository must remain open until the second is filled. They are to be left open for 100 years.

The Government is proposing a \$60 billion outlay for 2 nuclear waste repositories and none for remediation.

The first repository would contain 70,000 tons of high-level waste, 63,000 metric tons of Nuclear Power Plant fuel rods and the rest from the Navy: 7,100 metric tons of Naval Spent Fuel that includes their classified hot stuff.

The second repository would contain the 55 metric tons or more of fissile fuel. This is weapons-grade foreign research fuel returned to the U.S.A. from the former Soviet Union. Add to this 7,100 high level waste canisters of plutonium, uranium, cesium and strontium from the Hanford, Washington site. We are the alternative site for 20,000 or more nuclear warheads that are now stored at Pantex in Texas. Fernald, Ohio has high level waste that they want to put here too.

How can all this highly radioactive waste be transported and what will be the cost to go through 43 states and Nevada? Will the government have to buy up all the land 50 miles surrounding the test site and displace those of us living in its shadow? How the Department of Energy, who is in charge of this mess, can project long term environmental impacts on our area (forget about the people) for 10,000 years is a joke.

I have great faith that the people in 43 states and Nevada will prevent this bill from being passed now that they know the risks that could be caused by the transport of this High Level waste. People! Instruct your representatives to vote against this bill.

Nevada has the highest cancer rate in the entire world according to the National Cancer Institute. The great majority of the population here now came from other states. Does Mrs. O'Leary think that the people in 44 states don't realize the risks that they will be subject to by radiation poisoning, train and truck accidents and loading and unloading risks to workers? She is the "no brainer," if she thinks we, the stakeholders, will not

demand that our government use alternatives that they have developed, rather than shipping this killing waste to Nevada? Recycling these radio nuclides is currently being done with a proven commercial process. These processes would save us taxpayers billions of dollars rather than the D.O.E.'s unproved transport problem.

References:

1. Summary of Public Scoping Comments Related to the E.I.S. for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High Level Radioactive Waste at Yucca Mountain, Nye County, Nevada;
2. Dr. Wendy R. Dixon, E.I.S. Project Manager, U.S.D.QE., 1180 Town Center Drive, M.S. 01 O, Las Vegas, NV 89134; Tel. 1-800-967-3477 for this report, May, 1997; Fax 1-800-967-0739; Internet: <http://www.ymp.gov>; e-mail: ymp@notes.ymp.gov.

About the Author

Sally Devlin (P.O. Box 2598, Pahrump, NV 89041-2598; phone (702) 727-6853) is a 30-year resident of Nevada who has lived in Pahrump for 11 years. She has served as a stakeholder for over four years for a variety of groups including Nuclear Waste Technical Review Board, Department of Transportation studies, Nevada Risk Assessment Management Program (NRAMP) Radiology and Hydrology committees, 2006 Accelerated Program for the Nevada Test Site, the Civilian Advisory Board for the Department of Energy, and others. She has taken human biology and been tutored in radiobiology, geography and geology at the Community College of Southern Nevada and is currently working on the incorporation papers for Friends of CCSN, Pahrump.

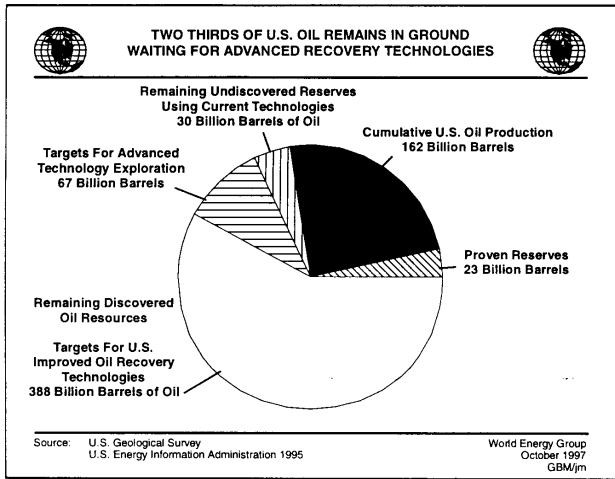
GLOBAL ENERGY OUTLOOK TIDBITS

Courtesy of Gordon B. Moody

The following are "tidbits" from the October, 1997, issue of the monthly newsletter, *Global Energy Outlook*, edited and published by Gordon B. Moody (POBox 13830, Arlington, TX 76013):

Here are some headlines: "Total U.S. Oil Company Profits Rose 8.5 Percent in the First Half of 1987;" "Russia to Auction off Oil Giant AO Rosneft in New Privatization Move," "Russia's Lukoil to Challenge U.S. Majors for U.S. Gasoline Market Share;" "China Looks to Middle East Central Asia, Siberia,

and Venezuela for the Energy to Fuel its Fast-Growing Economy;" U.S. Consumption of Natural Gas Rose to 22 Trillion Cubic Feet in 1996;" Clinton Administration Caught in Crossfire Between Environmentalists & Economic Advisors;" and President Clinton to take a Strong Position on Global Warming at Kyoto".



In the following circle graph (from *Global Energy Outlook*), the cumulative amount of oil produced from U.S. sources is compared with oil believed to be in the ground, discovered reserves, and estimated undiscovered reserves. The source of this information is taken from U.S. Geological Survey and U.S. Energy Information Administration 1995 sources. The story is that even with increased profits, improved technology, the oil companies operating in the U.S. can only supply less than half of the U.S. oil demand. When one factors in the increasing demand for crude oil to supply the needs for chemical feed stocks (to make everything from fertilizers to plastic to perfume) it is apparent that something should be done to conserve some of the recoverable oil for future generations. As new-energy technology develops it may become illegal to burn oil for its thermal energy.

Other issues raised in this newsletter are the rapidly increasing demands for oil to fuel the industrial and consumer demands in China. "China will need another two million **barrels per day** to fuel its economy within 10 years" reports Gordon Moody (page 9). With a population of 1.2 billion and growing, China currently controls about 20 percent of the entire world's population. By comparison India has 0.96 billion, and U.S. as number three in world population has 0.272 billion persons. When China achieves the amount of per capita energy use of the U.S. the output of global

warming gases, such as carbon dioxide, could destroy the health of the biosphere of the world.

New-energy sources are not longer just desirable, new sources are necessary to prevent destruction of the world's ability to support a variety of life.

DON'T MISS AN ISSUE OF NEW ENERGY NEWS. YOUR WORLD MAY BE AT RISK.

GRAVITY DROP EXPERIMENT

Several years ago Don Kelly invented an incredibly interesting gravity experiment. A special arrangement of magnets and coils fell slower in drop experiments when the special coils were energized. With all of the interest in the 1/2% to 2% changes in gravity by various rotating superconductors, why is there not an equivalent interest in Kelly's **gravity drop experiments**?

Here is a suggestion. Ten people put up an amount of \$1,000 each. The money would be used to buy 10,000 shares (at a dollar a share) in a privately-funded company. Don Kelly would be issued 10,000 shares in the same company. The funds would be used exclusively to replicate Don Kelly's **gravity drop experiments**.

The president of Trenergy, Inc. has offered to establish the company, provide office space, and comply with all legal requirements for a corporation in return for 1,000 shares of stock in the proposed company. If the experiments demonstrate the ability to influence gravity, the company would be in a position, as a legal entity, to obtain further funding to improve and commercialize the technology.

Don Kelly, are you agreeable?

BIG BANG UNDER FIRE

Courtesy of author.

William C. Mitchell, "Big Bang Theory Under Fire", *Phys. Essays*, vol 10, no 2, 1997, pp 370-379, 62 refs.

AUTHOR'S ABSTRACT

The very old big bang (BB) problems (of the singularity, smoothness, horizon, and flatness) and the failed solutions of inflation theory; newer BB problems relating to missing mass (as required for a flat inflationary universe), the age of the universe, radiation from the "decoupling" ("smearing" of blackbody spectrum), a contrived BB chronology, the abundances of light elements, and redshift anomalies; and problems, newer yet regarding inconsistencies of redshift interpretation, curved space, inflation theory, the decelerating expansion of a BB universe, and some additional logical inconsistencies of BB theory are presented.

EDITOR'S COMMENTS

BB theorists cite the observed abundance of light elements in the universe with those predicted by BB theories as proof. The fact that high-density charge clusters can cause nuclear reactions and reduce heavier elements to lighter elements would support a steady-state theory. In addition, the paper by Anastasovski, et al., "A New Approach to the Cosmic Red-Shift and to the Cosmic Microwave Sources," (*J. New Energy*, vol 1, no 2, pp 79-87) provides an excellent explanation of the mechanism which causes the red-shift. The evidence against the BB appears to be conclusive.

INDUSTRIAL TRANSITION TO NEW ENERGY

Stanley Myers, "The I300I/J300 Joint Guidance Agreement: Its impact on the 300-mm Transition," *Solid State Tech.*, October 1997, pp 105-109.

All of the industrial equipment for the manufacturing and processing of semi-conductors will have to be modified to handle 300-mm wafers instead of the current 200-mm wafers. The article states, "The transition to producing chips on 300-mm wafers will cost the equipment and materials industry more than \$14 billion, possibly the largest single industrial transition ever, in any industry."

It is interesting to speculate on the size of the transition from current energy sources (oil fields, refineries, power plants, power transmission lines, etc.) to the use of new-energy sources. As a rule of thumb, the infrastructure expenditures are about one-tenth of annual sales. That would mean a new-energy infrastructure of about \$500 billion.

Stanley Myers provided us with the following figures: By the year 2000, the electronic system industry is expected to reach about one trillion dollars with the semiconductor chips being about \$300 billion per year world wide. The materials, service, and equipment business is estimated to be \$90 to \$100 billion per year. The figure of \$14 billion to update the infrastructure for this materials, service, and equipment business for the making of semiconductors is close to that 10% rule-of-thumb figure above. In terms of growth, it is expected that the electronic semiconductor industry (memory, logic, ASIC, mixed signal, and power products) will show an average sustained growth of 20% to 25% per year.

It has been 52 years since the transistor was discovered (not counting Henry Moray's rejected patent application). Now the "transistor-plus" industry is approaching one trillion dollars. **The New-Energy Industry will probably follow a similar growth pattern but perhaps faster.** [Readers: Would you like to send a letter to the editor and suggest when the New-Energy Device and Systems market will reach one trillion dollars? Ed.]

ELECTRIC SPACECRAFT JOURNAL

Apr/May/Jun. Issue 22, published Oct. 7, 1997
Contents Reviewed:

FUSOR NEUTRON GENERATORS

A review by Leslee Kulba

The production of neutrons seems to be occurring in special vacuum tube designs known as fusors. The phenomenon is reminiscent of work done earlier by Tesla and Farnsworth. Tom Ligon has described and demonstrated recent work with fusors which is attributable to Dr. R.W. Bussard.

RED AND GREEN ENERGY

ESJ Summation

The following summarizes ideas presented by Peter Graneau at the Northeast Regional meeting of the Natural Philosophy Alliance at the University of Connecticut--Storrs. Sign conventions for energy and forces in electrostatics and electrodynamics present paradoxes, which may be resolved with minor changes to classical perspectives.

HERTZ' EQUATIONS OF ELECTRODYNAMICS

Dr. Thomas E. Phipps, Jr.

Maxwell's equations of electrodynamics are only special-case formulæ of more generalized equations published in 1892 by Heinrich Hertz. Maxwell's equations were derived for scenarios involving a stationary detector. Consequently, only a partial time derivative was taken, and so the measured current density was equal to the current density measured at the source. An important implication of Hertz' invariant, general equations of electrodynamics' is that there is no spacetime symmetry.

ELECTRIC FIELD PROPULSION CONCEPTS FROM INDEPENDENT RESEARCHERS

Charles A. Yost

Twenty-four poster papers were presented to NASA at the Breakthrough Propulsion Physics Workshop, August 12-14, 1997. One paper presented materials submitted by various *ESJ* networkers pertaining to the use of interactive electrodynamic fields for propulsion. According to one concept, pulsed electrostatic potential waves would be generated and transmitted in longitudinal form from the surface of electrodes. Intense non-linear polarizing waves would thereby extend into the surrounding space, and it is possible that a precision system could pulse, phase and direct them to develop reaction forces on surrounding objects, media and space fields.

CLASSIC EFFECTS

In the earlier publications of *ESJ*, much attention was devoted to investigating T.T. Brown's claims of a connection between electricity and gravity. Experiments conducted by T.T. Brown indicated that suspended capacitors underwent linear thrust when a voltage was applied. In other experiments, Brown showed that aluminum saucers, 1 ½ - 2' in diameter, suspended from tethers on opposite ends of a rotatable bar, would move rapidly when connected to a 50-150 kv source. Brown and Bahnsen did not establish an electrogravitics connection, and subsequent testing of Brown's devices, which tried to eliminate coulomb forces (Coulomb forces have been shown to be capable of levitating small objects) and ion winds, have led to two definitive conclusions: (1) The Coulomb forces and ion wind were all but impossible to

negate, but when they were nearly eliminated, little or no force remained. (2) Transient discharge of the high voltage terminals resulted in increased thrust levels, indicative of an electrical phenomenon, and not the electrogravitics interaction that Brown and Bahnsen had sought. Still, the action of intense electric pulsing continues to be of interest.

ÆTHER AND CONCENTRIC CAPACITORS

Martin Holwerda
ESJ Networker

Martin Holwerda of the New Energy Foundation has modeled magnetism as a result of æther flows. He insists that there must be an æther because he does not know how forces could be caused by and conducted through a vacuum. According to his theory, the æther which fills space is the fundamental building block of everything else; matter, electricity and magnetism being secondary effects of manipulating the fluid.

ELECTRIFYING TIMES

Courtesy of Bruce Meland

Bruce Meland, editor of *Electrifying Times*, covers the following and other topics in his latest Fall/Winter 1997 issue (vol 5, no 2):

Bruce Meland, "Chevy S10 Sets Pike's Peak Hill Climb Record". The S10 set a record for the uphill climb of 15:32.71 minutes for the 12 mile course. This is a record for an EV.

Graham E. Fuller & Ian O. Lesser, "Oil Dependence in the Persian Gulf". Here are some key excerpts from this informative article: "The former Central Intelligence Agency and the U.S. State Dept. officers said, 'Americans pay what amounts to a substantial hidden gasoline tax' because of the high cost of defending such foreign oil sources."

"Domestic oil interests ... have historically opposed high levels of oil imports, but major oil companies more and more have moved their production to areas such as the Persian Gulf."

"U.S. import dependence from OPEC nations, for example, has steadily increased from about 1.8 million barrels a day in 1985 to about 4 million barrels/day in 1995."

"But by the year 2015, the new government data says, imports from OPEC are projected to rise to about 6.8 million barrels a day, and dependence on Persian Gulf sources is expected to rise similarly."

"Increasing reliance on oil imports has not only been criticized by domestic oil producers, but also by national security specialists who are concerned about the rising costs, in both troops and dollars, for the U.S. forces to defend shaky oil supplies in the Middle East."

The Pentagon pays out between \$30 and \$60 billion a year for defense of the Persian Gulf, in order to protect our \$30 billion per year oil import habit.

"The Pentagon pays out between \$30 billion and \$60 billion a year for defense of the Gulf (depending on how you cost it), a formidable sum for protecting the import into the U.S. of some \$30 billion worth of oil."

"Thus Americans pay what amounts to a substantial hidden gasoline tax that Europeans and Japanese, benefitting from American willingness to 'carry the burden,' largely escape."

Staff, "Black Ice". The behavior of multi-national oil companies in Russia: A Briefing by Greenpeace Int'l. November 1994. This article discusses the problems with huge oil leaks in various places along the Russian oil pipeline system. Due to Russia's demand to maintain their own pipeline, officials have arranged for oil input from wellheads to be delivered to the contracting oil companies, regardless of the losses in the pipeline. Therefore, the oil companies can ship from ports the same amount of oil that is pumped into the pipeline. This contractual arrangement is a gift to the oil companies and an eventual burden on the tax payers in Russia and onto the Arctic wilderness where much of the oil leaks occur.

Staff, "EV1 Price Cut". The lease price of General Motor EV1 has been reduced from \$490 per month to \$390 per month, as the result of less than

expected sales and also because of competition from Honda and Toyota.

Electrifying Times is available to subscribers for \$12 per year for three issues. (Also available from Barnes & Noble, Tower Books, and some independent news stands. Send subscriptions to 63600 Deschutes Market Road, Bend, OR 97701.

LETTERS

Dear Hal:

Thanx for taking the time to chat the other day. I've been so isolated and underground with my own ideas about "the technologies that we should have immediate access to," that it's a relief to find others that I can actually talk "details" with, such as: "What the hell are we really doing here on this planet, and let's get with the program?"

I find that most people with at least half-a-brain or half-a-conscience really would prefer not to be polluting our planet, water, and biosphere, **if they thought they had a choice!** This is what was most obvious to me when I abdicated aerospace engineering. Somehow, I am not quite functioning "at full capacity" unless I am actively developing non-polluting, non-toxic energy solutions for the people on the planet. Yes. I admit it, I am convicted; I am much happier making such things happen, than I am waiting for things to happen, or wondering what happened. So this is why I am venturing now out of the closet. Is it safe yet?

Ultimately, the real solutions will go way past our current notions of technology, commercialization, propriety, and the illusion of paper money. Eventually we will also need to shift or upgrade our emotions and how we relate to each other, as well as our thoughts and mental processes. But until then, I for one, intend to fully embrace and enjoy the progression of new "toys" along the way, and the cleaner rewards they bring.

It is with great compassion and joy that I find the "cold fusion" processes lending themselves to detoxifying radioactive waste, which was unresolved before. I am told that cleaning up the

mess we have made (CO, O3, water, acid rain, solid waste, forest devastation, etc) is even more important than just developing clean technologies alone. We are responsible for all we create.

Enough preaching for now. Until we meet again...

David Cooke
c/o: Kincaid.
1040 Grant Rd. Suite 155-314
Mountain View, CA 94040
(650) 938-7765

LETTER FROM JOHN BOCKRIS

Rich Murray forwarded this letter to us, and it was too good not to print...

Date: Fri., 24 Oct 1997
Subject: Common impurities
TO: Rich Murray
FROM: John Bockris

Re many of your heroic attacks on some of the people in the Low Energy Nuclear Reaction field, I would like to say a few words from personal experience, which may help you and those who listen to you.

Firstly, I think you might agree with me that, in consideration of an uncertain matter, very much depends on attitude and the "feeling" of the surrounding paradigm. I had experience before WWII of intellectual university professors who were Nazis. It won't surprise you that a quiet and thoughtful mention of contributions made by Jewish people to Science brought only an avalanche of destructive counter comment. After WWII, I was often in Moscow, talking to very intelligent and productive Communists. Although more rational and less loud mouthed than the Nazis, they made me well aware of their fixed idea that profit was an immiral concept. They solemnly informed that American capitalists charged more than the goods had cost the manufacturer!

I have had experience of modern theologians, too, and, earlier of jingo Englishmen. Exposure to the word "rational" or quiet appraisal was something the very idea of which would make both of these types blanche "Lack of Faith", "Disloyal Bastard".

What has all this got to do with your diatribes? Well, I leave it to you to feel whether you perhaps think that the emotional nature of your attacks, the

fact that you find nothing good in any of it, - has a message about you yourself.

I have done 53 years of published physical chemistry and had around 700 papers accepted. One of the lessons learned is that science is a 90% game. 90% because nothing is certain in Science; and game because, on the theoretical side, all is temporary, a theory is good if it is accepted 10 years and the number which lasts 100 - well you name one (Maxwell's Laws perhaps, - but there is controversy now about a missing magnetic component).

A 90% game. But there is another thing I learned and that is all about the baby and the bath water. Really new scientific results are pretty rare. One has to cosset them, praise them, fan them into life. There is no chance they will live long if they are false, - however much you love them.

Low energy nuclear reaction is a case in point. You'd have to admit that acceptance would be paradigm shifting in the extreme. Tens of thousands of jobs. Billions of dollars and ribald laughter reaching the Congo. To admit it could be right would be a national disaster for the coterie round a magazine such as Science or Nature.

So, now, having said that I believe that softly, softly is the way to get to the New, and also that I am never quite sure of anything except perhaps the 1st and 2nd Law of thermodynamics, allow me to give one more preliminary, before I suggest a few gentle and tentative answers to a few of your combattive rushes. There is a whole lot of difference between hearing and reading about a phenomenon and finding it. Yes, I was the Professor and no I didn't do the work, except for the first few days on transmutation. But I've been in the lab a hundred times, I've seen the faces glow and I've examined the notebooks, the cells, the electrodes, the solutions. I've seen the graphs 5 minutes after they were drawn. It makes a colossal difference. I don't have to count up the pluses and minuses of tritium. I've taken the samples from the cells, I've put them in the scintillator, I've calculated the results.

So, here are a few (tentative, gentle) answers.

Contamination from the air and He: My experience with He4 is second hand. We gave maybe 20 samples to the people at N. American (Nate Hoffman and Co.). Some of them had never been

in a cell at all; some had been electrolyzed for a day and some three weeks. The results were that the ones which had lain in the drawer only had in them 109 atoms of He/cc; the three weeks electrolyzed 1011 atoms per cc. I don't believe there is much problem there. They were all extremely "contaminated" before we started. But

Is it difficult to get out of the metal? Yes, it is. I had several talks with the people who did this demanding work with a special mass spectrograph. They use inductive heat and melt the Pd. That was their whole and only job. I guess that, at that stage you have to trust them.

Recombination. The idea of heat coming from recombination was a common thought in 1989 and I recall some German scientists at a meeting becoming more irate than you seem to me. At Texas A&M in winter of '89 we did 3 measurements of how much water came out of recombining D2 and O2. We got, - as I remember, - $100 \pm 2\%$ of theoretical. We also tried pulling the electrode out of the solution a little, - to tempt the recombination reaction, - and really expected to find signs. Nothing.

Fritz Will has a paper just published in which he gives detailed calculation (about 7 pages) and there, - in his view, - disprove Jones' idea. I think the best proofs are the horrible irreproducibility of the effect and that there have been multiple claims, since 1990, of humongous heat bursts which would be many times more than the maximum obtainable from recombination (56 kcal/mole of H2).

SIMS is unreliable. I've used SIMS quite a bit but always with someone else handling the equipment. You certainly have to be knowledgeable about the corrections. I think that one of the strengths of Miley's work is that he used the excellent equipment available to him to do 2 or 3 methods which, - with their \pm 's, - agreed.

Impurities from cell walls. Long, long ago, not long after my Ph.D. in London, in the 1940's, I had 3-4 years in which we concentrated on just the matters you talk about here. We ended our search by long term (36 hours) cleaning procedures for glass vessels, including prolonged steaming. We used a special glass which had no arsenic.

The SiO4-- is innocuous stuff. It is a negative ion and I suspect it doesn't deposit Faradaically though it does adsorb. Fe? I have no reaction to it, no knowledge in this context. Pt definitely dissolves

and redeposits on Pd. We used Ni and NiO2 anodes for that reason.

Some electrochemists use teflon as a cell material though there, too, extensive boiling in HNO3 and NaOH successively is desirable to remove surface gunk.

Re your thought that there is so much transmutation. You know, electrochemists long ago (1990?) published simple equations showing how much stuff could get onto an electrode after time t and at potential V , etc. I made a private analysis of Miley's situation at an early stage. But there is a simple qualitative test. It is easy to use ICP on the solution. This gives you the impurities down to parts per billion. Suppose you find, X, Y, Z, A B and C. Well, surely, they are the ions you find on the electrode (and you do, in abundance). It is when you find quite different ions or atoms inside (1-10 μ deep) that you have to ask, - from where they came, - not the solution.

Finding a large amount of carbon. We have frequently found that, too. Everyone does, particularly in Auger. I think it is from dissolved CO2 from air.

A word about Mizuno. I know Mizuno well, - he was a post doc with me in 1986, working on radiotracer examination of passive films. I could write a lot about Mizuno. He's an unusual Japanese, 6 ft 2" tall, etc. But the main thing about him is caution. If Mizuno had a result, X, with a lower limit of Y, he'd just publish the Y.

Enyo was my graduate student and a rock-like fellow, now the President of a University! Omori I know only from the meetings but Reiko Notoya I have known largely correspondence and mutual visits for 25 years in respect to her electrochemical and catalytic work.

So, I hope, Rich, that these remarks from above the fray (I retired June 30) may pour oil and etc. LENR is a strange and wild field. Without you, it has enormous difficulties in growth and staying alive in an environment which is full of fear.

Best, John Bockris

John Bockris,

I am happy to forward your experienced, gentle comments, full of valuable details, to many scientists in the cold fusion field. I hope my critical efforts, grounded in the reported details of many reports, will help the players accept an atmosphere of vigorous, frank, playful criticism, that will vastly improve the efficiency and clarity of the shared process of exploration. I am disappointed that I haven't yet found a completely convincing report of a cold fusion experiment, although so far, Claytor's production of tritium seems the strongest, in that the detection of that radioactivity seems so straightforward and incontrovertible. I am very interested in the Chubb theory, and wonder how much criticism and support it has received, and from whom.

Thank you, Rich Murray

Another quote from Dr. Bockris, from a letter he sent to Dr. Bob Bass.

"... I think it is all the difference between people who read about LENR and study it; and people who have actually done it. One works and works and nothing happens. Then, it is there, peering out at you.

"To say, after 8 years, and 2000 papers that one needs a definitive proof is simply playing the same old game. It is just putting off the evil day when the Great Big Paradigm shift has to take place. It is difficult to laugh it off any more so they play games of "Can you just prove it again?" "Only 90% successful? Oh! I'd like it 99%."

"It is the usual POLITICS NOT SCIENCE.

"LENR for D in Pd was proven in 1989 when we had many runs and lashings of T."

"If I had thought about it, I wouldn't have done the experiment. The literature was full of examples that said you can't do this." - Spencer Silver on the work that led to the unique adhesives for 3-M "Post-It" notepads.

Meetings

III ASTI WORKSHOP ON ANOMALIES IN HYDROGEN / DEUTERIUM LOADED METALS

As in previous years, we are organizing another international workshop near Asti this Autumn (**Thursday 27 til Sunday 30, November 1997**) at the **Hotel Villa Riccardi, Via al Monte 7, Rocca d'Arazzo (AT), Italy**. The hotel is already pre-booked so we will make any reservation on your behalf. Asti is the provincial capital in the Piemonte of north west Italy, famous for its wine and food. The climate is quite cold in winter with overnight frost likely. Hotel accommodation with full board will cost only 95,000 lire per night (about \$60).

The workshop language will be English. If you would like to participate or have any comments, please send E-mail to <collis@netcity.it> or telephone ++39-141-968602. If you would like to make an oral (about 45 minutes) or poster contribution, please specify the title at this time. Sponsorship of the workshop will be dependent on proposing high quality presentations so **please reply as soon as possible**.

Check out the workshop web site <www.netcity.it/coldfusion> for the latest details.

Bill Collis (Local Organizer)

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:

December 1997: Final notification to all presenters regarding the format of their presentation.

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

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

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

coating, X-ray and microwave tubes and other beam-devices, high-power devices, and equipment for analysis, monitoring and test purposes).

Hotel accommodation in downtown Eindhoven, a short distance from the University Conference Centre, is available through the EUT Conference office at reduced rates.

Information for Authors

Authors should submit a 250 word abstract by November 1, 1997. Authors of accepted abstracts will be notified in Dec. 1997. Deadline for camera-ready manuscripts is April 1, 1998. Accepted papers will be published in conference proceedings, available at the registration. A limited number of accepted papers will be selected for publication, in a modified and extended version, in Special Issues of *IEEE Transactions on Plasma Science* and *IEEE Transactions on Dielectrics and Electrical Insulation*. The working language of the symposium is English. All printed matter will appear in English.

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18th International Symposium on Discharges & Electrical Insulation in Vacuum

August 17-21, 1998
Eindhoven, The Netherlands

Hosted by the Eindhoven University of Technology

Scientific Program, Papers will be presented on all aspects of: Fundamentals of Discharges and Breakdown in Vacuum; Vacuum Discharge Devices and Applications; and Vacuum Insulation Technology and Applications.

Mini-Courses held parallel with conference: Diagnostics for Vacuum Devices, and Production Technology for Vacuum Insulated Devices

A **technical exhibition** will be held featuring components and systems in the area of vacuum discharge devices and vacuum insulated devices (e.g. vacuum switchgear, vacuum deposition and

CALL FOR ABSTRACTS

"Meeting Global Energy and
Environmental Needs"

**33rd Intersociety Energy Conversion
Engineering Conference (IECEC)**

August 2-6, 1998 Colorado Springs, CO

Sponsored by the American Nuclear Society, American Inst. of Chemical Engineers, Society of Automotive Engineers, American Inst. of Aeronautics and Astronautics, American Society of Mechanical Engineers, and Inst. of Electrical and Electronics Engineers.

Abstract Deadline: Postmarked by Monday, 15 Dec. 1997

Prospective authors are invited to submit a brief (about 250 words, double spaced) abstract for

consideration by IECEC Program Committee. The abstract, along with three copies, should include the following information: a descriptive title, one appropriate topical subject area, name/address/telephone/e-mail/fax of the corresponding author.

Contact for author's packet:

ANS Proceedings Office, IECEC '98
555 North Kensington Ave.
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Phone: 708/579-8253; fax 708/352-6464
Web page: www.inspi.ufl.edu/IECEC98

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Commercial Column

The following companies (listed alphabetically) are commercializing cold fusion or other enhanced energy devices: [Listings with your additional copy, or 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

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

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

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

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.

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.

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.

Trenergy, Inc., has acquired rights to develop and produce a new-type of thermal power based on the controlled production of clean nuclear reactions from plasma injected transmutation. Contact through P.O. Box 58639, Salt Lake City, UT 84158-0639, Voice 801-583-6232, Fax 801-583-2963.

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 Corp.: Founded in 1996 to facilitate the introduction of commercially viable energy alternatives. 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.

Antigravity News and Space Drive Technology, bimonthly newsletter, pub. J.E.Cox Enterprise, P.O. Box 655, Marietta, GA 30061-655 (Phone 770-218-9693). Per year \$36. U.S., \$48 foreign.

Cold Fusion Times, quarterly newsletter published by Dr. Mitchell Swartz, P.O. Box 81135, Wellesley Hills MA 02181.
Home Page: <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, \$12. Specializes in Electric Vehicle Development. 63600 Deschutes Market Rd, Bend, OR 97701 541-388-1908, Fax 541-388-2750, E-mail <etimes@teleport.com> www.teleport.com/~etimes/

Elemental Energy, monthly newsletter, edited by Wayne Green, 70 Route 202N, Petersborough, NH 03458.

Fusion Facts has become 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.

Future Technology Intelligence Report, monthly newsletter, making available technological information now omitted from establishment media. Back issues available at substantially lower cost on the InterNet at <www.tarapublishing.com> FTIR, P.O. Box 423652, San Francisco, CA 94142-3652.

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

Institute for New Energy (INE), organization to promote and help find funding for new energy research.

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

E-mail: halffox@slkc.uswest.net
or ine@padrak.com

Salt Lake City, Utah. 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.

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. Address & phone above.

KeelyNet BBS - Jerry Decker, 214-324-3501
Internet: www.keelynet.com
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.

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