



# New Energy News

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## THE ADAMS & ASPDEN MOTOR PATENT

By Harold Aspden

I first heard of Robert Adams and his motor at a mountain retreat west of Denver, Colorado during the days just before a New Energy Symposium. That was in April 1993. A benefactor [Bill & Lynda Beierwalts] interested in knowing the truths about "free energy" and its potential for solving the world's pollution problems had funded the expenses of the invited speakers and the preliminary "think tank" event at that retreat. My talk was about magnetism and the aether as an energy source, but our "think tank" groups each had an allocated theme. We were expected to point the finger at the best candidate for onward investigation, from the vague information and reports we had about discoveries and claims pertaining to the new energy world.

Yes, there were several to choose from, machines involving magnets and solid-state devices such as that devised by Hans Coler, dating from the World War II era, or the then-current activity of Sparky Sweet (now deceased). In fact, one of our team, a colleague from U.K., had visited Sweet just prior to that Colorado meeting. However, specific information as to how to build any of these devices was not available, nor was there any acceptable theoretical account of their operation on which we could recommend action.

Fortunately, however, someone had brought with him information publicized by the *NEXUS* magazine and a Manual, available from *Nexus*, describing a motor devised by a New Zealander named Robert Adams. "Over-Unity" performance was claimed and enough was disclosed as a blue print for replication of the machine. We did not really understand how the motor could operate quite as well as Adams had indicated, but we were convinced that "over-unity" was in prospect. Accordingly, as it seemed easy to build a motor such as Adams described, our group settled for the recommendation that the Adams motor should be

looked into and somehow constructed to verify its performance.

That was how I first came to know about the Adams motor.

### Collaboration with Adams

At that time such experimental work that I had pursued on the "free energy" theme was basically on solid-state magnetic systems and, in collaborating with a Scotsman, Scott Strachan, I had been involved with the invention of a thermoelectric device which was extremely efficient at converting low grade heat into electricity. Undoubtedly, it defied the Second Law of Thermodynamics, but that point was not stressed in those early days. That invention had proved problematic because the devices built worked for a while by repeated operation for half an hour or so at a time, day after day, for several months, but then came the inevitable progressive weakening in conversion efficiency, ending with a defunct piece of equipment.

The story on that is told between pages 124 and 128 of Jeane Manning's excellent book, [The Coming Energy Revolution - The Search for Free Energy](#), ISBN 0-89529-713-2 published in 1996 by Avery Publishing Group, Garden City Park, New York.

I was distracted from that thermoelectric venture when I took a more practical interest in the magnetic reluctance motor, inspired by what we had heard about Robert Adams. I was to be distracted again towards the end of 1995 when the Correa "Abnormal Pulsed Glow Discharge" invention came to my attention, with its 5:1 over-unity feature clearly demonstrated. And now, as year-end 1996 approaches, I am destined to be distracted again,

this time by having discovered myself why those thermoelectric devices mentioned above had failed. The remedy is easy as the problem does not involve deterioration. It is as if a bistable system has flipped to its off-state and just needs to be flipped back into its on-state, provided, that is, one knows what to flip!

Now, to come to the point about my collaboration with Robert Adams, I am writing these words on October 28th, 1996 and in a week from now the granted patent I have procured jointly with Robert Adams will become available from the British Patent Office in its issued form. It is Patent No. GB 2,282,708. I plan, in these pages, to introduce my own motor research and relate it to that patent and explain my connection with Adams.

I am also mindful that Adams, now recognized by an honorary doctorate from the Open International University of Sri Lanka, to become Dr. Robert George Adams, has recently published an addendum to the Adams Motor Manual entitled: "The Revelation of the Century" and has included in that work some of my written contributions.

The immediate focus of my attention, however, is a rather critical letter communication authored by Michio Kaku and sent to a programme producer of a radio station based in New York. It was dated May 20th 1996, but it is only now that I have become aware of this communication from Robert Adams' new book.

Adams need not have included Kaku's letter in his book, but he did and I commend him for it. Apart from saying that Robert Adams was either the next Einstein and Newton rolled into one or a crackpot, he made these two comments:

"Apparently, he (Adams) wants to extract energy from the aether by using rotating magnets, thereby violating the first law of thermodynamics (conservation of mass and energy). This is an ancient idea, going back centuries and was most popular in the 1880s, but was disproved by the Michelson-Morley experiment and Einstein's relativity theory. Aether, which was supposed to be a magical substance which pervaded the universe, has never been measured in our laboratories."

"The proof is in the pudding. He (Adams) has to show a blueprint of his machines, show that they in fact generate energy, and show with a few equations how his theory works. Lacking a blueprint, a mathematical theory, and, say, video tapes of his motors generating energy from nothing, I cannot say with 100% certainty that he is wrong. (Only 99.99%)"

Now, having just had an "over-unity" motor patent granted in which I share inventorship with Adams, I will assume that those Kaku remarks are addressed also in my direction and reply accordingly, point by point.

Firstly, as a educational exercise, **the extraction of energy from the aether does not violate the first law of thermodynamics.** By definition or simple semantics, if you extract energy from something and move it from that something, A, into something else, B, the energy remains conserved overall. The first law of thermodynamics dates from before the time when the transmutation of mass and energy was recognized as the stellar power source by Sir James Jeans (1904). A critic might say, however, as Jeans himself did in his 1928 book EQS, that Isaac Newton knew of photosynthesis by which radiant energy transmitted through space is captured by plants and converted into matter, which stores energy by creating a combustible product. The transmutability of energy and mass was not discovered, nor was it first suggested, *by* Einstein. He was too late.

Secondly, **the existence of the aether was not disproved by Einstein.** Indeed, Einstein has not proved anything, nor has he disproved anything. One simply cannot flaunt Einstein's theory around as a reason for rejecting the prospect of an "over-unity" motor. On the contrary, ask yourself why there are plans to test Einstein's theory at a cost of \$500,000,000 dollars by launching Gravity Probe B in 1999. If Einstein's theory is right, why are there any doubts warranting expenditure on that scale?

Thirdly, Kaku says the aether has never been measured in our laboratories and that its existence was disproved by the Michelson-Morley Experiment. **The fact is that Michelson did not perform the experiment to test or refute the existence of the aether. He lived another 44 years after performing that experiment and**

**believed in the aether to his dying day.** He was trying to sense the Earth's motion through the aether, but, since standing waves developed by mirror reflection had not been discovered when the experiment was planned, he had not allowed for that to affect the result observed. In fact, the aether energy stored in those standing waves, being trapped in the mirror system, makes the wave motion appear to be locked to the frame of reference of the mirrors, and not the aether as expected. **The aether certainly was detected in the laboratory when Michelson found he could detect the Earth's rotation relative to that non-rotating aether by his light wave interference experiments jointly with Gale in 1925.**

The aether was detected some years earlier by Sagnac in France and is detected in modern navigation technology by the ring laser gyro. How can the speed of a laser beam traveling around a closed path inside an optical instrument detect rotation of that instrument if the beam is not keeping a fixed speed relative to something inside that instrument that does not share its rotation? That something is the aether! No amount of book learning or mathematics can avoid that simple truth, and even though the word **aether** is seen as something **magical**, it is that something that delivers **free energy** once we have decoded the combination of the magnetic lock which restrains its release. Note also, that the aether reveals its existence when we have rotation and we have rotation in the Adams motor.

Fourthly, as to Kaku's pudding, which comes first, the chicken or the egg, the blueprint and the working machine, or the theory and the equations? Though we have no answer to this question of priority, we know there are chickens and we know there are eggs, so it really does not matter which comes first. Certainly, it seems, that in order for Kaku to decide whether **free energy** is possible, albeit with only 0.01% chance, there has to be a theory, a machine and an aether.

It is for this very reason that I have made special effort during 1996 and published my book [Aether Science Papers](#) as a forerunner of the Energy Science Report describing my own "free energy" motor research. This Report No. 9 in the series is entitled [Over-Unity Motor Design](#) and its date of publication is November 6th 1996, two days before the first disclosure of details of my machine at a

New Energy symposium held in Rotterdam in The Netherlands.

The formal electrical engineering theory explaining the motor operation in tapping "free energy" is contained in a few pages in the Energy Science Report #9. The motor design is described and a photograph of the machine is included. Moreover there is an outline **blueprint** that indicates the design of the multi-megawatt versions of the machine. However, as to the ether, or 'aether,' to use my normal terminology, describing that in full detail needs more than a few pages for scientific proof and, as Kaku well realizes, the wisdom needed exceeds the talents of even an Einstein or a Newton.

#### [About the Aether](#)

I will digress here, just for a moment, before getting back to Robert Adams and the subject of the Adams-Aspden patent. My reason is another comment made by Kaku in that quoted communication. He asserted as a conclusion:

"Inventors want to solicit money from investors, so I have a moral obligation to say exactly what I think about issues that, at some point, may hurt people."

**Now that is a very poor reason for attacking someone's lifelong efforts to probe the secrets of science** with a view to advancing both knowledge and technology beneficial to mankind. The facts of life are that it is investors who want to solicit money by making profit from the creative endeavors of inventors. Invariably, inventors get hurt anyway, without some well-meaning individual doing his moral duty by hurting the inventor more by unwarranted criticism. Is it really a moral obligation to preach the gospel of Einstein's theory in contending that investors should steer clear of Robert Adams, when his only thought is to have his efforts recognized?

Of course, by the nature of things, the free-lance inventor can go adrift in a technical sense and then, if ensnared by those investors, he can be carried off into obscurity by a tidal wave of turmoil. Meanwhile the orthodox scientific establishment stands by and watches, mildly amused at the futile efforts of the free-lance inventor who ventures beyond the level

of gimmicks for use in the household and garden. That is the way it is.

As to my book [Aether Science Papers](#), it shows how so much of vital importance, explained by neither Einstein's theory nor quantum theory, has a straightforward answer. Just as Robert Adams in New Zealand and I in England sit poles apart on this our Earth, yet we are governed by the same laws of physics and subject to the same constants of physics. Body Earth is our common rotating frame of reference, but body Earth does not explain why those physical constants are, so far we know, universal. We take that for granted, just as our forebears took for granted the fact that they all inhabited the same aether. Our modernist society and its Einstein enthusiasts tell us there is no aether and so, Robert, you are on your own and only God can tell you why your experiments would work as well in England as they do in New Zealand!

You might then wonder why scientists at the U.S. Bureau of Standards, at the National Physical Laboratory in England and at the equivalent CSIRO National Measurement Laboratory in Australia bother to measure the same physical constants to very high precision. Give or take a fraction of a part in a million attributable to experimental error, they always come out the same. Surely, that is because the aether spreads through all those locations and has the same structure everywhere. What do I mean by structure? Well, you need to look up the paper in *Physics Letters*, 41A, 423-424 (1972), entitled "Aether Theory and the Fine Structure Constant" to find the answer. That paper emerged from the Australian CSIRO laboratory just mentioned. It shows how  $\alpha$ , the most basic dimensionless constant in quantum theory, is derived by aether theory to give:

$$\alpha^{-1} = 108 \pi \sqrt{(2)N}^{1/6}$$

and how N is found to have the lowest cell energy if N is 1843. This gives  $\alpha^{-1}$  as 137.0359, correct to part per million precision in comparison with its measurement at any of those laboratories. If there were no aether, then you might as well think of a number and try that, though it would be your ghost that makes that effort because you would no longer exist.

Of course, there will be the Kaku's of this world who say that the above formula is mere number play,

contrived to fit known results. Well, that may be true for Einstein's "1,2,3" theory, but it certainly is untrue for the aether theory. You see, all Einstein did by the disguised mathematics of his General Theory of Relativity was to say (1) that the spectral redshift was the same as that evident by use of Newtonian theory, given that energy gravitates, (2) that light beams grazing past stars are deflected by twice the amount expected from Newtonian theory and (3) that planets describe orbits around the sun as if the planet's motion-dependent attraction is three times stronger than the value predicted by classical theory. It is so easy to contrive a theory for a 2 and a 3 factor. A German schoolmaster Paul Gerber had, in 1898, 18 years ahead of Einstein, presented a theory for the '3' factor, based on the speed-of-light propagation of gravity across space, but that was not mentioned by Einstein. The factor of 3 arises because the energy transfer between sun and planet is not confined to a pencil thin line drawn between sun and planet, but rather fans out as it transfers to the aether field and then converges on its target after taking more time over the longer route.

Einstein's theory is sterile. It offers no physical insight into the truths of the role played by the aether. It cannot explain the 137.0359 that governs quantum theory and, even on its own territory, it cannot explain the dimensionless constant involving G, the constant of gravity, nor, indeed, can it explain the unifying link between electrodynamics and gravitation!

So, Robert out there in New Zealand, take note that you are in a part of the universe where the aether has the energy state corresponding to N having the value 1843! Note that I first discovered the formula long ago in the 1950s using an engineer's slide rule, backed up by logarithmic tables for higher precision.

Take further note that, years after that 1972 paper was published, a famous astronomer in USA (Tifft), discovered that distant galaxies closely paired or in small groups exhibited differences in red shift. The differences were always multiples of 72.5 km/s in relation to the speed of light. **Explaining this is a complete mystery. Why should Planck's radiation constant be different from one galaxy to the next?** Well, if you, the reader, were to study my aether theory, you could work out that, since aether energy density throughout space has to be

uniform on a universal scale, the spectral emission frequency of a radiating atom will vary in proportion to  $N^{4/9}$ . It varies as  $\alpha^2$  and also by a further cube root of this factor, which gives the power 4/9.

Now take 1843 as the base value of N and decrease it in steps as you look for higher energy per unit cell states in different galactic regions. You will find that the result is the 72.5 km/s observed by Tiff. Check that by calculating  $4c/9N$  as N decreases from 1843 to 1828, c being the speed of light. Check the Tiff paper to verify what I say: W.G. Tiff, *Astronomical Journal*, 211, 31-46 (1977). You will see his comment that he could find no evidence of gravitational interaction between those adjacent galaxies! So, what has happened to Einstein's theory. It requires universal gravitation with each of you being an individual observer at the center of your own universe. I would rather believe in the aether, knowing that there is proof of its reality, and devote my efforts to tapping some of its store of energy to safeguard the future of mankind from unnecessary pollution.

#### The Adams Motor and the Adams-Aspden Patent

I have not built an Adams motor as described in his Manual. I do know that when I returned to Denver in May 1994 for the New Energy Symposium there were machines on show or described in the Proceedings **which purported to be Adams motors but they did not perform over-unity**. It was reported that one such machine came very close to being 100% efficient. Adams did not attend that meeting. However, in the intervening year I had struck up a contact with Adams. I found he was under the impression that such machines are unpatentable and I had skills in the patent field as well as knowledge about the physics governing the operation of motors and magnetism generally. In fact, I already had a granted US patent for a motor designed for over-unity operation, but never built [US Patent 4,975,608]. Adams had possession of motors which he claimed had the over-unity performance. I had, at the Denver 1993 meeting, declared my belief that over-unity motors were possible and supported the plan to explore the Adams machine.

My distant association with Adams resulted in an exchange of technical information and the proposal to adapt the design of his motor in a novel way. His motor had open-ended magnetic stators and magnets in a single plane forming radial arms. The

invention, we jointly devised, placed the magnets axially parallel with the rotor shaft, fitted two sets of toothed rotor pieces and made the stators into bridging yokes. The resulting configuration was of the form shown in Fig. 1, taken from the patent specification that we filed in U.K.

The machine has to work over-unity, if properly designed, because the magnetic flux switching assures that much of the flux across the pole gaps is diverted, as the poles separate, so that it still links the magnetizing windings but finds a return closure path sideways from the rotor pieces and so exerts no braking action on the motor. The magnets provide the drive torque pulling the poles into register when no current is applied to the

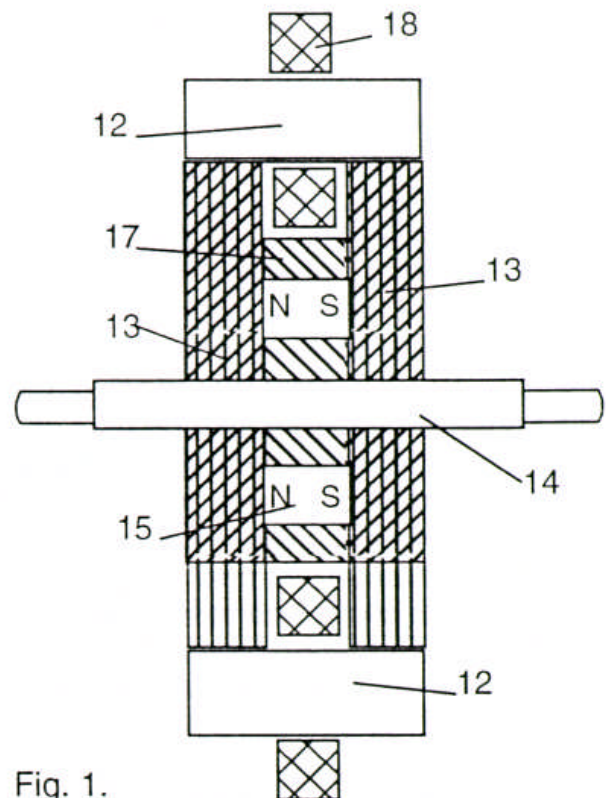


Fig. 1.

windings. The input of current drives the flux from the stator bridging yokes and forces it into the lateral route as the poles separate.

There can be no input of inductive power by the magnetizing winding if there is no change of net flux linkage. It will change to some degree but, if the design were perfect, then the machine could run on negligible inductive power input. That leaves normal resistance loss and some magnetization loss, much of which can be reduced by making the machine larger and more powerful. A small machine could prove the principle, especially if we allowed for the heat generated in

the windings and explored the overall energy situation to see if we really are tapping energy from the aether.

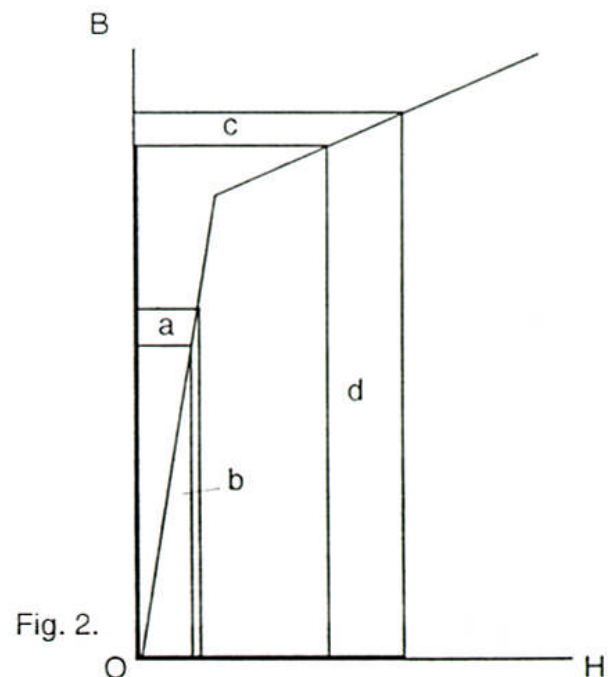
The patent application was filed on 30th September 1993. I named myself and Adams as joint applicants and joint inventors. It has now been granted, as already stated. However, in May 1994, during the early days of its patent pendency, I encountered the reaction of those in Denver who had been unable to confirm "over-unity" operability of the Adams motor. I saw our patent application as offering an improved design, but there were clouds developing and Adams was facing the problem of defending his position. As background also there was the rumor about rival Japanese motors and, as things developed, I heard of claims for a machine constructed in Hawaii that indicated over-unity operation and could, for all I knew, be quite similar to the one covered by the Adams-Aspden patent application.

I was not too sure how Robert Adams was measuring his energy input and his energy output, so I could not vouch for his performance claims and, indeed, Robert was careful about the information he did disclose. When I heard he was adopting calorific measurement to verify the output energy, which would include heat generated in windings as well as magnetization loss, then I felt we were on track towards confirming the performance rating. I still wonder about the measurement of input power, having regard to the pulsed form of the current, and I am not reassured by the reference to the communication from the Group Research Center of Joseph Lucas Ltd which Robert includes in his new book The Revelation of the Century.

That said, however, going back to that 1994 period, I felt I had to take more initiative myself and so I decided to ask the U.K. Department of Trade and Industry to consider my application in a competition for an award of research funding based on a meritorious invention proposal. I offered something new, based on a new patent application, and backed by the patent cover I already had from my U.K. patent corresponding to the US patent already mentioned. **In August 1994, though I was 66 years of age, I won that award and had 75% of research costs covered by the U.K. government.** In the event that funding carried my motor research through to year-end 1995.

I did not build the specific form of machine shown in Fig. 1, but instead constructed a motor that was

designed to contain the magnetic flux more effectively within what became a single all embracing magnetizing winding enclosing the whole motor. This is the basis of my own initiative on the "over-unity" machine and, as the U.K. patent specification on this new machine is to be published early in December 1996, I am now releasing information by publication on November 6th of my Energy Science Report No. 9 entitled "Power from Magnetism: Over-Unity Motor Design." Figure 12 of that Report, backed by design detail, shows how the over-unity factor is determined and I reproduce that figure below as Fig. 2.



Without going into full details, note that the diagram is an idealization of a B-H magnetization curve. It has a linear B-H relationship drawn through the origin O but at high flux density levels the curve bends over as it creeps towards saturation and the slope of the curve drops. The areas a, b, c and d, respectively, represent energy density input in energizing the magnetic system. The areas a and b apply for low flux range magnetization over the lower part of the curve. The areas c and d apply to flux changes confined to the upper region. Areas a and c are energy inputs from the magnetizing winding, **whereas c and d are energy inputs that electrical engineers never consider, because that energy is supplied by the aether.**

Where does the energy go? That is an interesting question fully explained in my Report, but the answer, simply, is that it is pooled by being shared

equally between the space occupied by the ferromagnetic core and the space taken up by the air gaps in the core. That energy in the air gaps, or pole gaps in the motor, provides the mechanical drive.

So, you can see for yourself that, if you run the motor over the lower flux density range, which is normal, then you operate at an efficiency which cannot exceed  $(a+b)/2a$ , which is 100%. On the other hand, if the motor operates over the higher range, the efficiency can reach up to  $(c+d)/2c$ , which is very much higher than 100%!

Consider some realistic figures by putting the knee in the curve at 15,000 gauss and assuming that the incremental B/H ratio is 1000 over the lower range but only 50 over the upper range. Operate the stator core of the motor up to a B value of 20,000. H ranges from 15 to 115 over this upper range. Work out the area c as being  $(15 + 115) \times 5000/2$  or 325,000 and the area d as being  $(15,000 + 20,000) \times 100/2$  or 1,750,000. **You will then see that operation close to 319% efficiency is indicated!**

Be less ambitious in power output terms and run the motor over an upper range between 15,000 and 17,000 gauss, to find that area c is  $(15 + 55) \times 2000/2$  or 70,000 and the area d is  $(15,000 + 17,000) \times 40/2$  which is 640,000.  $(c+d)/2c$  is then 507%!

If the aether delivers energy on loan to you and you use it to run the motor as the poles come together but refuse to give it back, then the aether has to replenish itself by taking power from its own vast pool of energy activity. It merely ripples to find a new level of equilibrium just as the sea will recover if you take a bucket of water from it. Eventually, that energy borrowed finds its way back to the aether as we spend it by generating heat radiation.

*If you do not believe what I say, then wait and watch the progress as those who do believe, be it Robert Adams or whoever, decide to build a magnetic reluctance motor heeding the design principles I have recorded in my Report.*

As a final note I will echo one message which I have independently mentioned in my Report No. 7 (the Report used to brief the U.K. Department of Trade and Industry on my Award progress). It is that magnetic reluctance motors already being

manufactured that are said to be 80% or 90% (or even 96% efficient as I now see reported on page 21 of the U.K. Institution of Mechanical Engineers 16 October 1996 issue of *Professional Engineering*) are already trespassing upon forbidden territory. That level of efficiency is either a false claim or the motors are already regenerating power from heat dissipated as loss.

## Fusion Briefings

### REVIEW OF THE SIXTH INTERNATIONAL CONFERENCE ON COLD FUSION (ICCF6)

By Jed Rothwell

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November 13, 1996 Version

Here are some notes on ICCF6. Gene Mallove will write short reviews of some of the papers listed below, as noted. Longer, more detailed reviews with graphics will appear in *Infinite Energy*#10.

#### MY OVERALL IMPRESSIONS OF ICCF6

Overall, my impression of the field of cold fusion as is represented in these big international physics conferences is . . . that it is going to hell in a hand basket. It is moribund, just as Morrison and others predicted it would be by now, but not for the reasons they predicted. The number of attendees has drastically declined to 175 people, the quality of the papers is down, and little progress has been made toward technologically useful devices. While some workers report large improvements, many others report no excess heat or any other sign of a CF reaction.

In my previous reviews of ICCF3, 4 and 5 I have described grave misgivings about the direction of the field. In my review of ICCF5 I wrote:

*"Many of the papers were disappointing, because many workers are stuck in the rut of trying to replicate the 1989 simple palladium - heavy water electrolysis method. This requires high loading and other conditions which are nearly impossible to*

*achieve. Why anyone would still be trying to use this method so many years after better methods have been invented is a mystery to me . . . [The majority of scientists in the field ignore these promising approaches and continue using only palladium. Instead of selecting the easiest and most successful methods, they insist on using the oldest, least effective, and most frustrating technology, as if they were computer scientists who insist on building a vacuum tube machine in the age of transistors . . . Six years of low level results have failed to convince mainstream scientists that CF is real. Six more years will not convince anyone either . . .*

I can report that the situation is still like that, only worse. It turns out that even one more year of puny results was too much for the Japanese establishment. The whole program is in danger of being shut down, and cold fusion in Japan -- the last bastion of large scale research -- is in imminent danger of collapse. Frankly, if I were in charge at MITI, I would have shut down the main programs last year, and handed out the remaining funds to researchers who have achieved technologically significant results. If you are looking for the people to blame for the demise of cold fusion, in the U.S. you can point the finger at the pathological skeptics and the DOE. In Japan, you can blame the project managers and scientists at places like the NHE lab and IMRA Japan. The NHE did more than 50 experiments in a row with no success, and IMRA did 32 experiments without success. They have ignored the literature. They have ignored improved techniques and alternatives. They make the same mistakes year after year... These scientists seem to think they will be funded forever even if they produce no results, in a miniature version of the hot fusion program. Some even say this is how science is supposed to work, as if progress doesn't matter! Politics is partly to blame. Officially, the NHE was supposed to cooperate with the universities and with successful researchers elsewhere, but people outside the program tell me that the managers have scotched all cooperation. Whatever the causes, the outcome is tragic folly.

I wrote an open letter to the NHE directorate decrying the situation. In it, I cite 16 published papers and one private communication from Pons showing errors in the NHE experimental materials or technique. I circulated this Open Letter, and I am improving it thanks to valuable comments and

suggestions from many people. I will translate it into Japanese and send copies to the NHE, MITI and to various Japanese newspapers and scientific journals.

...At this conference, the French Atomic Energy Agency described their successful replication Pons and Fleischmann's 1992 boil-off results. They followed the directions, used the proper materials, and they got repeated, large bursts of excess heat with a performance profile remarkably similar to the original experiment. SRI also made a concerted effort to replicate this experiment, and they reported similar success. So it can be done right.

#### FLEISCHMANN RETIRED, ALIENATED

Martin Fleischmann has retired from active research and returned to England. He was originally scheduled to give a one-hour keynote lecture at the conference, but this was canceled. I asked him why. He replied he "has already said everything there is to say." He feels alienated from mainstream research in the field, which he thinks is politicized. He feels that people have not listened to his advice and ideas. I told him that people do not understand him because his lectures are so technical and because he sometimes talks in riddles, like the Delphic Oracle. I said the message does not get through, so he should consider writing a paper in collaboration with someone who communicates in simpler, more understandable prose.

#### PLENTY OF GOOD NEWS TOO

I should not grouse too much. There was good news, and even some outstanding news. Here are some of the papers that impressed me. They are listed by Abstract number, principal author and title. Abstracts are numbered O (oral) 1 to 44, TS (transmutation session) 1 - 7, and P (poster) 1 - 79.

In my opinion the two best papers were from Miley and Pons.

O-019 G. Miley, "Experimental Observations of Massive Transmutations Occurring in Multilayer Thin-Film Microspheres After Electrolysis." [See *Journal of New Energy*, vol 1, no 3, for a similar report. - Ed.]

This was similar to Miley's lecture and paper given at the Second International Low Energy Nuclear



Reactions Conference (ILENR2), discussed here, and published in *Infinite Energy*#9. Miley showed some additional data strengthening the observations of three zones of transmutation. He explained that zones are characteristic of fission reactions. He showed data for beads with glass cores. These produced little heat and only a small number of apparent transmutations, with large sections of the spectrum flat compared to the plastic core beads. In conversation, he explained that the make up of the beads was different in each of the twenty runs. Some came from CETI while others were fabricated at the University of Illinois. Some had multiple layers of nickel and palladium, some were nickel only, and thickness was varied. **He said he sees no point in doing the same experiment over and over. He wants to explore a variety of materials and thin film configurations.**

Several companion papers about the CETI device were scheduled for the same hour that Miley talked, but only one was delivered. The conference organizers had scheduled one hour for the CETI session, giving Miley only 15 minutes. Other papers apparently include vital information about the CETI cell, judging by the footnotes in the Miley paper and the titles of the missing papers: "Electrical Control of New Hydrogen Energy," "Design Considerations for Multilayer Thin-Film Patterson-Type Microspheres," "Producing Excess Enthalpy . . . with Near 100% Reliability" and so on. CETI did not explain these last minute cancellations and other sudden changes in their plans. They missed a good opportunity to get their message out and excite interest in their technology, but they made up for it a month later, at the American Nuclear Society meeting in Washington.

One other paper about the CETI cell was given, by McKubre: O-020 "Electrochemistry and Calorimetry in a Packed-Bed Flow-Through Electrochemical Cell." This was a sophisticated analysis of the electrochemistry of a Patterson-style cell. McKubre showed that the most active and highly-loaded beads are probably those at the top of the bead pack near the anode. He concluded that the best way to scale up a Patterson cell would be to increase the diameter, making a broad, flat bead pack with just a few layers of beads. Patterson himself has reached the opposite conclusion. Before McKubre's talk, I asked Patterson how he plans to scale up his cells. Patterson said he will make them long and thin, adding many layers of

beads. McKubre and Patterson should get together and hash this out.

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O-014 S. Pons, "The ICARUS 9 Calorimeter: Summary of Three Years Designing, Testing and Operation of this Device at the IMRA Europe Science Center."

We will describe this paper in detail in issue #10 of *Infinite Energy*. The paper describes a cell that was held at boiling for long periods, producing 200% excess at hundreds of watts. Cathodes are either 2.5 cm long (0.075 cc, 0.9 g) or 10 cm (0.3 cc, 3.6 g). In a 3-month run this cell produced 294 megajoules from one cathode. The calorimeter is rather complex. It is static design, requiring three calibration curves from three thermocouples to measure low, medium, and boiling level power levels. Pons showed extensive data from a huge number of different types calibration runs. Several people said they thought this calorimeter is a little too complicated, and inappropriate for this power and temperature domain. It was suggested that a Seebeck thermoelectric envelope design would be better.

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O-001 P. L. Cignini, D. Gozzi, et al., "X-Ray, Heat Excess and  $^4\text{He}$  in the Electrochemical Confinement of Deuterium in Palladium."

Excess heat, helium and X-rays were observed. Helium was measured by drawing off samples of gas, filtering out everything but helium, and putting the gas into a QMS (quadrupole mass spectroscopy) chamber integrated into the experimental apparatus. In a four-cell experiment lasting 950 hours, more than 1000 samples were taken from each cell. At first glance, the helium did not appear to be correlated with heat, but a sophisticated statistical analysis, taking into account the sampling periods and percent of total gas in one sample, shows that did actually appear together. The curves for helium change completely after the complex statistical massaging. X-rays were measured with X-ray film positioned 5 cm from the cell. X-ray film placed next to a Pt blank cell showed no fogging. Film next to Pd cells that produced heat were fogged, with a shadow where the anode blocked the cathode. A sophisticated microscopic analysis of the film was performed, based on the physics of film and comparisons to film of the same stock exposed

to known levels of X-rays. It was concluded that the "energy of radiation" (the power of the X-rays) was  $89 \pm 1$  keV and the total energy intercepted by the film was  $12.0 \pm 0.4$  kJ.

This experiment contributes nothing to reproducibility, which is the main problem of cold fusion. Excess power levels were low in absolute and percent terms, so it has no immediate technological significance. The sigma level for the heat was high. The X-ray energy levels and helium may contribute to a theoretical understanding, and they prove that the heat cannot be of chemical origin. The instrumentation is superb, so it is hard to see how anyone could quarrel with the results. However, D. Morrison did quarrel, insisting that an X-ray detector would have been better than X-ray film. He said that Steve Jones offered to lend one to any CF scientist and he cannot understand why nobody has taken Jones up on the offer. Gozzi replied that he did not think a detector would work in this configuration, and that the physics of X-ray film are well understood.

Gozzi's cathode is a bundle of palladium wires, rather than a single block of palladium. This increases surface area.

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O-005 E. Botta, "Further Measurements on  $^4\text{He}$  Production from  $\text{PdD}_2$  Systems in Gas Phase."

Another solid job from the Italian university and INFN (Italian government Nuclear Physics Laboratories). They showed more evidence for helium production in one run. They use an interesting technique to achieve high loading. Deuterium gas is loaded on a palladium plate under pressure, and "a constant electric field of a few hundred millivolts per cm" is applied from one edge of the plate to the other, which moves the deuterons across it by electromigration. The ends of the plate are sealed with gold, and I think this causes the deuterium to "pile up" against the ends. This electromigration technique was used by several other Italian workers to enhance the CF effect, and it is the basis of the proton conductors used by Mizuno, Biberian (ICCF5), Oriani and Karabut (P-001). With a proton conductor, you charge both sides of the plate (rather than the ends). If you leave a direct current charge running continuously, one side of the plate would become highly loaded with deuterons but the other side would not, so you

use a square wave current that alternates every minute or so, charging first one side, then the other. Mizuno and others speculate that this also causes the deuterons to "slosh around" inside the conductor, occasionally piling up in local spots at a loading ratio much higher than the average for the entire conductor, which causes a powerful CF reaction in that isolated spot.

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O-015 F. Celani, "High Power Microsecond Pulsed Electrolysis Using Long and Thin Pd Wires in Very Diluted  $\text{LiOD-D}_2\text{O}$  Solution: Observations of Anomalous Excess Heat."

This was another interesting electromigration experiment, which was first described at ICCF5. Considerable progress has been made since then, with better results and improved flow calorimetry.

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O-016 S. Storms, "Some Thoughts on the Nature of Nuclear-Active Regions in Palladium."

This covered much of the same ground as the paper published in *Infinite Energy* #8, p. 50. An interesting aspect of this paper is the Open Circuit Voltage (OCV) method of measuring loading, which Storms recommends. Many electrochemists recommend this, including Bockris in his recent letter to the NHE. It involves the use of a platinum wire (a "reference electrode") set inside a small glass straw (a "luggin capillary"). The end of the capillary fits between the anode wires. It can be held close to the cathode making a conduction path between the reference electrode and one spot on the cathode. To measure loading, electrolysis power to the cell is temporarily turned off, and the voltage difference between the cathode and the reference electrode is measured. Because the cathode and the reference electrode are different metals, they have different electrochemical potential. When he begins the experiment, Storms measures 0.00 to 0.02 volts. As the palladium fills with hydrogen, the electrochemical potential changes, the voltage goes up. Strictly speaking, the OCV measures chemical activity on the surface, not loading per se. After a highly-loaded cathode reaches saturation, the OCV sometimes continues to rise to much higher levels than normal, reaching 1.3 volts, even though the cathode is probably not absorbing any more deuterium. This is a good indication that the cathode has entered the special state of matter (or

"the special state of grace") in which the CF effect can occur. Another indication of this special state is seen when a cathode degasses over an hour or so. The OCV falls, then rises again briefly after about 30 minutes, then resumes its decline. Outgassing is steady, it does not reverse and rise briefly, so the OCV must be decoupled from the loading ratio. When it reaches these abnormally high levels, the OCV is no longer a reliable measure of loading, but instead it indicates some other poorly understood state of the cathode. This poorly understood state just happens to be exactly what you want: metal-ready-for-CF.

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O-055 G. Lonchamp, "Reproduction of Fleischmann and Pons Experiment."

This paper was presented by Biberian because Lonchamp does not speak English well. It describes a marvelous series of experiments performed by French Atomic Energy Commission (CEREM), in association with the ENSEEG (Ecole Nationale Supérieure d'Electrochimie et d'Electrometallurgie de Grenoble). Biberian also worked on the project, although he is not listed as an author. Lonchamp is a CEREM commissioner, and an engineer not a scientist, thank goodness. These experiments are exact replications of the 1993 boil off experiments reported by Pons and Fleischmann in *Physics Letters A*, 176. This is exactly what cold fusion cries out for: careful, step by step replications, done by people who follow directions. Biberian said that he and the other scientists in the project wanted to incorporate various **creative improvements** but Lonchamp insisted on doing a precise replication with assistance from Pons and Fleischmann. That is why it worked, as Biberian cheerfully admits. It takes an engineer to do these things right. Everything about this work is superb, even the Abstract. Let me quote it extensively:

"Experiments have been performed in calorimeters identical to the ones used by Fleischmann and Pons . . . These experiments can be analyzed in three temperature domains:

"♦ At low temperatures, below 70°C, excess enthalpy is the difference between the heat radiated to the water bath, and the enthalpy input due to electrolysis.

"♦ At intermediate temperatures, between 70°C and 99°C, excess enthalpy is the difference between the heat radiated towards the water bath plus the enthalpy contents of the gas stream, plus the variation of enthalpy of the contents of the calorimeter . . .

"♦ In the boiling regime (without condensation), excess enthalpy is calculated from the difference between the total amount of water contained in the calorimeter evaporated and the theoretical quantity of water that should be evaporated by the energy introduced in the calorimeter . . .

"Six calibration runs with platinum cathodes and 17 runs with different palladium type cathodes have been performed.

"At low temperature, 8 experiments have produced an excess energy rate between 1 and 5%. In the intermediate regime the water vapor carried away by the gases of the electrolysis are large, and cannot be evaluated precisely . . .

"At boiling, three positive experiments have been successful, giving excess enthalpies rates of 80% to 150% . . .

"In conclusion, we confirm the results published by Fleischmann and Pons more particularly in the boiling regime."

The Abstract says "at boiling, three positive experiments" but a table shown during the lecture listed five. Here are the last two columns, showing excess heat as a percent of input:

before	during	
boiling	boiling	
16%	153%	
-0.2%	0%	With a platinum null
electrode		
3%	18%	
7%	36%	
20%	97%	
7%	29%	

Other runs with palladium generated no excess heat. The conclusion presented during the lecture was: "The Fleischmann-Pons calorimeter is very accurate and well adapted to this work, however several precautions must be taken. The Dewar must be of excellent quality. Calibration of the thermistors must be very precise. Care must be taken to

minimize the thermal losses by heat conduction. All electrical feed-throughs must be sealed off. ..." Finally, below 70 deg C there is sometimes a small level of artifactual excess heat "**due to heat conduction not included in our equations.**" Pons and Fleischmann do take these factors into account in their equations. In any case, the excess below 70°C is marginal, just as Fleischmann has been saying all these years.

This project is continuing. They plan to build larger cells to avoid spilling, and cells with condensers like IMRA Europe's ICARUS 9, for experiments with continuous boiling.

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P-004 S. Crouch-Baker, "Mass Flow Calorimetric Studies Under Non-Steady State Conditions."

SRI also did a quality replication of the Pons-Fleischmann boil-off experiment. They used high precision equipment and extensive modeling to examine the power levels just before boiling ensues, and during boiling. The goal was to answer an interesting chicken-and-egg question. Does the heat the CF reaction, or does an increasing CF reaction cause the heat? It could be a combination of the two, what Fleischmann calls "**positive feedback** between the temperature and the rate of excess enthalpy generation." SRI concluded that the cell begins to heat up because of normal electrochemical processes. The cathode surface changes, resistance rises, more power is consumed, and the temperature rises. You can accomplish the same thing with a platinum cathode. You can even drive a platinum cathode to boiling with this mechanism, but you get no excess heat. With fully loaded palladium however, the temperature rise triggers a burst of excess heat. I conclude that you should be able to trigger a CF reaction in fully loaded palladium by raising the temperature by some other means, like raising the temperature of the incoming electrolyte in a flow calorimeter, or perhaps even by heating the cathode with a laser. It would be interesting to find out if this works.

[See Shoulders & Shoulders, "Observations on the Role of Charge Clusters in Nuclear Cluster Reactions," (J. New Energy, vol 1, no 3) for an explanation of excess heat. - Ed.]

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P-016 E. Ragland, "Triode Cell Experiments for Controlled Fleischmann/Pons Effect."

Ragland has been working on the triode configuration cold fusion since 1989. We published a brief note about this work in *Infinite Energy* #3, p 42. A triode is a cathode with two anodes: in the configuration he is now using, it is a 1 cm square palladium plate cathode, and two separately powered platinum wire anodes, one on each side of the plate. High power is shifted back and forth between the anodes for periods lasting from 1 to 16 seconds, usually 8 seconds. The low-power side anode is not turned off completely, because it would start degassing. This shifting back and forth apparently causes high deuteron mobility. This is the sloshing deuteron model described by Mizuno and Biberian (see the discussion of Botta, above). The method might also be compared to the high-low Takahashi loading.

Ragland had a cell running all summer. He says input was between 1 and 2 watts, the flow rate was 25 ml/min, and the Delta T was generally 4 to 5 deg C, indicating total output of 8 or 9 watts. Over the past year he has tested four palladium plates from Johnson Matthey. All four successfully generated heat at about the same level.

Ragland says that after the cell begins working, he can progressively cut the purity of the heavy water until it is down to about 20%, and the heat continues. **That is the first time I have ever heard that claim! It's extraordinary if true.** It is one of several aspects of the report that make me nervous. I must see independent testing of this device before I can accept it.

Fleischmann was impressed by this work. I listened to his conversations with Ragland. He said, "this [triode configuration] is something I have wanted to try for years." He thinks a cylindrical cathode might work well. A wire going down the center of the cylinder would constitute one anode, and a wire wrapped in a spiral around the outside would constitute the second one. Biberian was also impressed with this design. He said he hopes to try it soon.

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O-031 T. Claytor, "Tritium Production From Palladium and Palladium Alloys."

This was presented by Ed Storms, because at the last minute the DOE told Claytor he was not authorized to go to ICCF6. It was similar to the paper Claytor gave at ILENR2, so I will not discuss it here. [See *J. New Energy*, vol 1, no 3., p 89] Claytor's presentations are lucid, but I found that Storms even easier to follow. (Biberian, who presented Lonchamp's paper, remarked that perhaps we should arrange to have all papers given by someone other than the author.) One point brought out by Storms was the multiplicity of techniques used to make sure the tritium really is tritium. Storms said that this project has been peer reviewed at Los Alamos for several years running, and it has passed this review, which is much tougher than any journal peer-review. Nevertheless, he said that "because of pathological skepticism" all funding for the project will probably end this year. **Since the U.S. government is planning to spend \$3 billion on a new reactor to generate tritium, the decision to terminate this program is a threat to national security and a fantastic waste of money.**

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O-004 M. Miles, "Heat and Helium Measurements Using Palladium and Palladium Alloys in Heavy Water."

Miles always gives good presentations. His instruments and techniques are second to none. Unfortunately, this project has been terminated for lack of money, so many of the results reported here were old. However, some of his best results have not been reported previously because they came at the end of the project, using palladium alloys. Also, the calorimeter, which was already superb, was improved in the last year of the study, increasing the sigma level of the results. Quotes from Abstract:

*"Our best experiments produced up to 30% excess heat, 0.52 watts of excess power, and 1,400 KJ of excess enthalpy."*

You might doubt these results coming from some labs, but Miles can measure 0.5 watts with as much confidence as most people measure 5 watts.

*"There is a remarkable correlation of excess power with the source of the palladium. The best*

*reproducibility was obtained using Pd-B materials supplied by the Naval Research Lab. Seven out of eight experiments that used Pd-B cathodes produced excess power. A high success ratio was also obtained using Johnson-Matthey materials. Seventeen out of twenty-seven experiments that used this palladium source produced excess heat. In contrast there were several palladium sources that never produced excess power in any experiment."*

That is an important observation! Materials are key to cold fusion, as everyone ought to know. Perhaps a clever technique like Ragland's triode can transform any Pd or Ni sample into a good one. (Ragland thinks so.) But if that is not the case, then the only way to improve reproducibility is to focus on materials: the cathode, anode, electrolyte, lead wires, glass, and everything else that goes into the cell.

The main purpose of Miles' experiments was to correlate helium in the gas stream with excess heat production. Quote: *"Thirty experiments have shown a correlation between either excess power and heat production or no excess power and no excess helium . . . The only valid experiments that showed significant excess power by no excess helium involved a Pd-Ce cathode. The odds are less than one in a million that our complete set of thirty-three heat and helium results could be obtained from random experimental errors."* I asked him where he thinks the helium from that Pd-Ce experiment is. He said it is probably still inside the cathode, or it leaked out gradually after the experiment.

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O-036 R. Oriani, "A Confirmation of Anomalous Thermal Power Generation from a Proton-Conducting Oxide."

Oriani is working with proton conductors that Mizuno fabricated by hand. Neither he nor Mizuno has seen the dramatic heat bursts that Mizuno observed years ago, but they do get significant excess heat and heat after death. Oriani's best heat after death result was 0.8 watts lasting 17 hours. Oriani originally duplicated Mizuno's static gas calorimeter. He found that contamination from air and other gasses caused unexpected results that might be mistaken for excess heat. I do not think this could explain the tremendous heat bursts and melted solder connections Mizuno observed, but it

does call into question the low grade heat produced by most of the samples. To get around this problem, Oriani built an excellent Seebeck calorimeter designed to operate at 400°C. (Proton conductors only work at high temperatures.) The design requires an internal heater that takes a lot of power, which unfortunately creates a lot of thermal noise, so the sigma is low even when the conductors produce a half-watt or so. However, two of the specimens "produced positive deviations from the calibration curve by more than four standard deviations . . ." Oriani concludes "verification of the claims has been achieved." This paper has been accepted for publication in Fusion Technology.

Oriani is sending some of his successful used cathodes back to Mizuno, who will look for evidence of transmutation.

Oriani plans to try a molten salt CF device, like the one that produced a few bursts of heat at the University of Hawaii years ago.

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O-035 T. Passell, "Search for Nuclear Reaction Products in Heat Producing Pd."

This is a work-in-progress, with no convincing results yet. Passell is looking for host metal transmutations, using prompt gamma activation analysis (PGAA). He thinks he has found an ~18% reduction in the ratio of boron-10 to palladium-105 in a cathode that generated excess heat at SRI. ... Unfortunately, he has only looked for boron and palladium. He has not produced an entire spectrum of all elements and isotopes, the way Miley, Mizuno and others have done. ... Passell began by saying that he has a drawer full of cathodes from a variety of used cathodes and virgin material samples from many labs, not just SRI, but also IMRA Europe and the Navy. These cathodes were used in successful experiments, some of them highly successful. Yet he has only looked at one pair, and only for one transmutation. I expect he is sitting on a gold mine of information! I expect he will find what Bockris and Minevsky found: areas of massive transmutation, where 70% of the palladium is transmuted into other elements, with unnatural isotopic distributions. This research should be a top priority.

J. Dash, Srinivasan, S. Crouch-Baker, Y. Arata, T. Mizuno, T. Ohmori and others presented interesting work. As always, I urge all readers to

get the proceedings. Read original sources. (And *Infinite Energy*, too!)

#### CLOSING SUMMARIES

At the end of the conference, summaries were presented by Bressani, McKubre and Ikegami. I found them excruciating. ... These were carefully researched quality presentations. The experimental evidence mustered by Bressani and McKubre cannot be disputed. But it is only the tip of the iceberg.

Bressani cited the increasing number and quality of experiments detecting helium correlated with heat, now at KEK, U. Osaka, Torino, China Lake and elsewhere. He concluded that the evidence of helium and x-rays proves beyond any doubt that cold fusion is a form of d-d fusion, in which all paths but the formation of helium are suppressed, and who knows what happens to the energy. ... I am upset because Bressani has dismissed a gigantic chunk of experimental evidence, from nickel and light water to the transmutations reported by Miley, Mizuno, Ohmori and Minevski, with much more to come soon, I expect. Bressani and most other scientists at the conference ignored Miley and other evidence for transmutations and anything else but d-d helium transmutations. At Japanese conferences people not only ignore Ohmori, they laugh at him. You would think that someone of Miley's status would command respect, especially from a group of scientists who have suffered from bigoted rejection by closed-minded mainstream scientists, but . . . alas, no.

McKubre's presentation upset me because it was so good. It was a brilliant analysis of problems he has been ignoring for seven years -- problems pointed out to him many times by Fleischmann, Cravens, Dash and others, including me. This summary reminded me of McKubre's ICCF4 presentation I cite in the Open Letter, in which he described a heat burst caused when the flow was accidentally blocked and the cathode temperature rose higher than planned. At that time, McKubre said "we should have listened more carefully to Martin at ICCF3 when he talked about the importance of temperature." That is what McKubre said, back in 1994.

McKubre began his summary by saying he is "pleased with the results of this conference" -- a

statement I find appalling. He said "I think the fire that was fueled by the fever of enthusiasm from the beginning, that has sustained many of the people in this room, has sort of resolved itself into a seriousness of purpose." He defined this purpose to "explain the phenomena, first to ourselves, then to the world." Others say explanations are not needed at this stage, just make the thing reproducible the way Miley and Storms are doing, and then demonstrate it to the world. He cited the helium and heat correlations, which surely are impressive and important. He said: "the transmutation products I think are the wild card in more ways than one. I just don't know how to assess the transmutation business. It is already spinning off mini-conferences of its own. Should that work hold up, it will certainly evolve to dominate future conferences." He cited more than 20 groups reporting excess heat. He described what he called "the mass flow calorimetry **problem**," and he said what should have been said four years ago. The failed experiments at IMRA, NHE and SRI are all in SRI-style flow calorimeters. He cited his own model, in which excess heat is caused by loading, high current density and flux, and he said that an SRI-style flow calorimeter prevents flux. McKubre agreed with Celani's dictum: "You need to depart from the steady state." He added:

*"With the mass flow calorimeter -- the most sluggish and stable of animals -- the hardest thing to do is to depart from the steady state. ... What we have done in part, partly in response to our critics [skeptics, not Fleischmann], is to make calorimeters in such a way as to improve the data quality. You improve the data quality by averaging things for a long time, never changing anything. . . . so the lines on a viewgraph are very clear with few irregularities you have to explain. In doing that, of course, you maintain the system as closely as possible in a steady state. We have engineered our systems to do that. That is what flow calorimeters do well. I question, now, whether that is wise."*

Great! He questions that now, three years after Pons and Fleischmann made it abundantly clear that steady state, low temperature conditions are the kiss of death. ... It should not take three years for people to listen to advice from Pons and Fleischmann. They are the leading practitioners of this field. They have reported the biggest, best, most dramatic and important results. SRI replicated the boil-off results. Why didn't they move to build a

calorimeter like ICARUS-9, with a condenser, designed to operate at continuous boiling?

Bockris wrote to the NHE: *"One last thing, a matter of common sense but doesn't seem to be realized, and that is to stop going on with experiments that don't succeed. I learned from reports I got from Tom Passell, that IMRA did 28 experiments with zero results. That is absurd. After six or seven experiments, of course the method should be changed."*

McKubre cited some of the exciting new techniques reported at the conference, and said he wants to try some of them, particularly electromigration, which spurs a departure from the steady state. "The take home message from this conference, that I will act on immediately, is to reinvestigate, or re-re-re-investigate electromigration effects. We have started on this several times, found that it is very difficult to do, and given up." He said that Preparata's experiments with high voltage electromigration require courage. I asked him if he meant they take moral or physical courage. He said he thinks there is a distinct possibility that high voltage in such an electrochemically active cell will trigger an explosion, even without a large head space.

**Ikegami concluded the conference by saying how pleased he is that these gatherings have "grown up to be normal scientific conferences."**

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## FOGGING PHENOMENON

R.K. Rout, A. Shyam, M. Srinivasan, A.B. Garg (BARC, Neutron Phys. Div., Bombay, India), V.K. Shrikhande (BARC, Tech. Phys. & Prototype Eng. Div., Bombay, India), "Reproducible, Anomalous Emissions from Palladium Deuteride/Hydride," *Fusion Technol.*, vol 30, no 2, Nov. 1996, pp 273-280, 3 refs, 5 figs, 5 tables.

## AUTHORS' ABSTRACT

Each and every palladium sample loaded/reloaded either with hydrogen or deuterium was observed to fog radiographic films kept in its close proximity in air. Strangely, even with ten layers of black paper (thickness  $\approx 63 \text{ mg/cm}^2$ ) as a filter between film and sample, fogging was observed. On the other hand, no fogging could be observed even when thin

beryllium foil ( $\approx 1.4 \text{ mg/cm}^2$ ), three layers of transparent polyester foils ( $\approx 10 \text{ mg/cm}^2$ ), or thin aluminized polycarbonate ( $0.3 \text{ mg/cm}^2$ ) were employed as filters. Several experiments have been performed to identify the phenomenon responsible for fogging. These experiments appear to rule out any of the known mechanisms, suggesting a new, strange, and unknown phenomena.

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## PROTON CONDUCTING OXIDE HEATS UP

R.A. Oriani (Univ. of Minnesota, Corrosion Res. Cntr., MN), "An Investigation of Anomalous Thermal Power Generation from a Proton-Conducting Oxide," *Fusion Technol.* vol 30, no 2, Nov. 1996, pp 281-287, 7 refs, 5 figs, 3 tables.

### AUTHOR'S ABSTRACT

A high-temperature Seebeck-effect calorimeter, in which the thermoelectric electromotive force across a large-area-enveloping thermopile is a measure of the heat flux from a power source, has been constructed to examine the claimed generation of excess thermal energy from a proton-conducting oxide immersed in deuterium gas. The claim has been confirmed in a few experiments out of many unsuccessful ones.

### "But what... is it good for?"

— *An engineer at the Advanced Computing Systems Division of IBM in 1968, commenting on the microchip.*

## *Electric Vehicles*

### SCARED BY ELECTRIC VEHICLES

Staff, "Fallout from Battery-Powered Vehicles," *R&D Magazine*, Nov 1996, p 9.

### EDITOR'S SUMMARY

You would think that an R&D Magazine would have enough staff intelligence reports to know that few

electric vehicles will run on ordinary lead-acid batteries. Not so for *R&D Magazine*, whose staff is following the outmoded and incorrect conclusions of the Detroit automakers. Citing a report from Carnegie Mellon University, Pittsburgh, the claim is made that electric vehicles could boost lead discharges by 20%. The article does not say 20% compared to what measurement. The note then states, "The researchers say that mining, smelting, and recycling operations could result in lead releases 80 times greater per vehicle than with starter batteries used in gasoline-powered cars." Does that mean that an electric car will use 80 times the number of batteries now used by my car? What about all of the pollution that cars now produce? Even if the electric vehicles were to use old-fashioned lead-acid batteries (low probability in the long run), how much lead does your battery spew out onto the road? Come on, *R&D Mag*, get with it. We now have the technology to provide abundant clean energy. The source: **the result of considerable Research and Development!**

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## THE HYBRID -- INTERIM ELECTRIC CAR

Courtesy of Steve Roen

John Griffiths, "Mean, Lean and Green," *Financial Times*, Oct 29, 1996.

### EDITOR'S SUMMARY

A hybrid electric vehicle, as conceived by Harold Rosen, is a turbo generator, burning standard fuel, with electric motors in all four wheels. The work is being funded by Ben Rosen, Harold's brother, who made his fortune as founder of Compaq, the computer company. When fully developed this hybrid vehicle will provide the following:

- ◆ Fuel efficiency of up to 80 miles per gallon.
- ◆ Accelerating to 60 mph in about seven seconds.
- ◆ Minimum of moving parts and low maintenance.
- ◆ Contribute little to pollution.

Some critics believe that the flywheel, rotating up to 55,000 rpm, is a safety hazard. However, Ben and Harold Rosen are dedicated to developing this vehicle and have a 1998 production goal of 1,000 luxury cars running on this hybrid design. Until a high-efficiency on-board battery charger is developed, this may be a satisfactory substitute.

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**LEGAL PROBLEMS FOR WFC**

Courtesy of Mark Goldes

"End of Road for Car That Ran on Water," *London Sunday Times*, 1 Dec. 1996.

An Ohio court ruled against inventor Stanley Meyer, in a case brought against him by disgruntled investors recently. Meyer had sold "dealerships" and licensing rights in his Water Fuel Cell technology to interested investors, in anticipation of the day when it would power electric vehicles or even aircraft. That dream was shattered as Meyer was found guilty of fraud when his Water Fuel Cell failed to impress three "expert witnesses" who decided there was nothing revolutionary about it, rather that it was simply using conventional electrolysis. The *Sunday Times* article also stated that when one of the court experts went to examine the Water Fuel Cell driven car, it was impossible to evaluate because it was not working.

## Miscellaneous

**SIMULTANEITY INTERPRETATIONS**

W. Vincent Coon, "Simultaneity Interpretations," *Galilean Electrodynamics*, vol 7, no 6, Nov/Dec 1996, pp 109-111.

**AUTHOR'S ABSTRACT**

It is shown that in inertial frame scenarios, the Einstein interpretation of the Lorentz Transformation (LT) competes with other transformations which do not support light speed invariance. These rival transformations can be obtained by re-evaluating LT simultaneity which is susceptible to overhauling.

**AUTHOR'S INTRODUCTION**

Isotropy postulates of space and the speed of light are the basis for defining simultaneity in Special Relativity Theory (SRT). When, in a simple textbook scenario, two identical clock-transmitters send signals toward each other precisely as each clock registers an agreed time, and if the signals meet at

a point exactly mid-distant between the clocks, the clocks are said to be synchronized. Supposedly, the signals have the same speed relative to the clocks. This is an assumption that should not be taken for granted. In order to confirm that the signal speeds are the same, they must be verified empirically. But unambiguous measurements of one-way speed are impossible because of *speed synchronization circularity*. You see, in order to measure a signal's one-way speed we depend on synchronized, separated clocks, but in order to synchronize separated clocks we must know a signal's one-way speed to begin with. Defending light speed invariance by SRT's clock settings is therefore tautological. In short, the isotropy assertions of SRT remain postulates because they cannot be proven. Because these assertions cannot be proven, the synchronism required by light speed invariance is vulnerable to reassessment. Revisions of "synchronization" are accomplished by resetting clocks according to other standards of alleged simultaneity which are no less provable. The following exercise [paper] shows how to go about this algebraically.

**3- cm FIREBALL PRODUCED**

"30 cm Wide Fireball Produced Using 200Å Layer of Palladium on 2 inch x 6 mm Heavy Duty Aluminum Foil."

By S.P. Faile, 13 Nov. 1996

A power supply of about 3400 volts and roughly 90 microAmps was used for 120 minutes to partially charge up a capacitive system of about 106 microFarads. A 16-foot-long short wire (18 gauge insulated wire) was used with a section on a tower replaced by the ribbon of Pd/Al foil where the explosion originated. A bright white fireball 30 cm wide vaporized the Pd/Al and blasted the 18 gauge wire downwards while making a good noise even for one being five feet away with earplugs.

This study that has involved a variety of items parallels Nick Reiter's experiments using higher voltages and 3 microFarads. In addition, Reiter has found indications of prompt radiation and hints of transmutation products. an extensive library survey has found articles with what looks like spark gap transmutation spectral data from studies done in 1910-1930. Also see *Journal of New Energy*, Fall 1996, for "Plasma Injected Transmutation," by Fox-Bass-Jin, for a good theory. Also background articles by N. Reiter and S.P. Faile in *New Energy*

News [July, p 8; August, p 3; and September, p 11].

It is believed a relatively clean nuclear event was involved which might exceed the input power by a factor of 5. If this process is harnessed, the shielding should be less than for conventional nuclear power.

[Added note:] 75 cm fireball with transformer?

The Farr Radio item, the 3400V transformer that produces 1.6 Amps, could easily charge a system of 32 parallel 32  $\mu$ F capacitors with over nine times the capacitance of the present apparatus. A fireball 3 times the width of that obtained to date (or about 75 cm) might be produced in an industrial setting.

### ANOMALOUS WEIGHT MEASUREMENTS OF A TOY GYROSCOPE

B.W. Rex

All of the talk recently in the *New Energy News* about anti-gravity as well as the Hayasaka-Takeuchi experiment got me interested in an experiment of my own. This is an incredibly simple and inexpensive experiment that I hope many readers will try this and report their results to *New Energy News*.

The experiment consists of a toy gyroscope being weighed both spinning and at rest. The gyro I used was purchased at Hammond Toys for \$5. I used a balance that measures to a hundredth of a gram and has a vernier scale.

I spun the gyro with the pull string, and placed it on the included plastic pedestal which was placed on the scale. The following measurements were taken:

	At-Rest (grams)	Spinning (grams)
	95.12	95.05
	95.14	95.06
	95.13	95.08
	95.12	95.08
	95.10	95.06
	95.10	95.06
mean	05.12	95.07
SD	.016	.012

The difference in the spinning and at-rest measurements was .05%. The at-rest measurements were taken after the gyro was stopped and

replaced on the scale. The effect was observed with the gyro spinning in either direction.

So get out there and try it! Let *New Energy News* know what you find out. Try putting two magnets on the gyro. Or, put two gyros spinning in opposite directions on the scale. The only caveat is to be sure to use a scale with enough sensitivity to measure approximately 0.05% of the total weight of the gyro(s).

Sincerely, /s/ B.W. Rex

[For those who can fabricate a balanced rotor, try using a spinning magnet. - Ed.]

## Editorial

### CASIMIR FORCE AND BUBBLE FORMATION

By Hal Fox

The energetic collapse of a sonoluminescent bubble has been explained by Nobel-Prize winner Julian Schwinger as being caused by the Casimir force. When two conducting plates are brought close together electromagnetic waves longer than twice the distance between the two plates are excluded from the gap between the two plates. As the plates move closer together the force of electromagnetic radiation is much larger on the outside of the plates than between the plates. This is the explanation for the Casimir force. When making devices that travel very close to the surface of another material, the servo control mechanisms involved must be strengthened to overcome this Casimir force.

Julian Schwinger [1] explained the collapse of a vapor bubble within a dielectric liquid by the following concept: The vapor inside of the bubble slowly changes to a liquid and enters the liquid boundary and the bubble reduces in size. The difference in conductivity of the liquid and the vapor in the bubble is sufficient to be effected by the Casimir force. As the bubble reduces in size the strength of the Casimir force increases. While electromagnetic and gravity forces are inversely proportional to the square of the distance, the Casimir force is calculated to be inversely proportional to the fourth power of the distance. As

the bubble gets very tiny, the Casimir force become enormous and the final collapse under high Casimir-force-induced pressures can cause the creation of the blue light that is observed in sonoluminescence.

The purpose of this note is to suggest that the electrochemical production of a bubble of vapor in a dielectric water electrolyte can be the inverse of the Casimir-force collapsing bubble. Assume that the water-based electrolyte has a high resistance (very little dissolved minerals). At a whisker or other protuberance on the surface of a cathode (similar for anode) the high voltage connected to the electrodes produces a high electric field at the whisker-liquid interface. In a process that is expected to be measured in picoseconds, there is produced, by electrolysis of the water, a group of hydrogen ions (protons). However, these protons are under enormous pressures due to the Casimir force. As is well studied in electrolysis, the production of hydrogen and oxygen from water can continue under enormous pressures. As the number of packed protons increase there will be a balance between the repulsive forces of the protons and the compressive Casimir Force. In the case of the electrostatic repulsive pressure the force is proportional to  $1/r^2$ . In the case of the Casimir force, the compressive force is proportional to  $1/r^4$ . Therefore, at small distances the Casimir force is predominant and the bubble is under very high pressures. As the bubble grows the repulsive forces reach a stage where there is a sudden explosive expansion of the bubble. This sudden expansion of the charged protons would result in the creation of an electromagnetic pulse as the charges rapidly expand.

The sudden increase in bubble size plus the high voltage field near the protuberance can result in an avalanche of electrons being produced and injected from the metal surface into the liquid electrolyte. Under certain conditions, it is suggested that this is the effect, on a micro-miniature scale for the production of luminescence on **valve metal oxides**. In the case of sufficiently high voltage across a dielectric layer of metal oxide on typical **valve metals**, it is suggested that the Casimir force is the major contributing factor to the onset of **breakdown** and the resultant sparks observed from electrodes.

**Under appropriate conditions, it is strongly suggested that this sparking phenomena**

**produces high-density charge clusters similar to those produced and studied by Shoulders [2,3].** It is further suggested that these charge clusters, as reported by Shoulders [2] have the capability of ionizing the liquid wherein they are produced. It is suggested that this phenomena may answer some of the problems proposed by Sharbaugh, et al., [4] in the phenomena of liquid breakdown.

Note: Readers interested in the possible commercial aspects of the creation and use of high-density charge clusters should read the scientific paper by Fox, Bass, & Jin [5]. This effect is proposed to be used to stabilize radioactive slurries, to create high-temperature nuclear reactions without neutron production, and to transmute scarce elements from more plentiful elements.

#### REFERENCES

1. Schwinger, "Casimir Light: The Source," *Proc. Natl. Acad. Sci, USA*, March 1993, pp 2105-6, 6 refs.
2. Kenneth R. Shoulders, "Energy Conversion Using High Charge Density," U.S. Patent 5,018,180, issued May 21, 1991, see also "Circuits Responsible to and Controlling Charged Particles," U.S. Patent 5,054,047, issued Oct. 1, 1991.
3. Kenneth and Steven Shoulders, "Observations on the Role of Charge Clusters in Nuclear Cluster Reactions," *J. New Energy*, vol 1, no 3, Fall 1996.
4. A.H. Sharbaugh, J.C. Devins, & S.J. RZad, "Review of Past Work On Liquid Breakdown," *IEEE Trans. on Elect. Insulation*, June 1980, vol EI-15, no 3, pp 167-70, 3 figs, 1 table, 7 refs.
5. H. Fox, R.W. Bass & S-X Jin, "Plasma-Injected Transmutation," *J. New Energy*, vol 1, no 3, Fall 1996, pp 222-230, 4 figs, 23 refs.

We need a different kind of human being, who is comfortable with change, who enjoys change, who is able to improve; who is able to face with confidence, strength, and courage, a situation of which he has absolutely no forewarning.

*Abraham H. Maslow*

# INE NEWS

## "LINK OF THE WEEK" AWARD AND THE STATUS OF THE INE WEB SITE

Patrick Bailey, INE President

The INE Web Site is coming along very nicely, and has more than 42,000 visitors since it was originally posted in January 1996 and is receiving over 1,800 visits a week. The site currently has more than 210 separate files and even a few pictures. **The site contains the Table of Contents of all of the issues of *New Energy News*, and several articles from each issue from the past several months.** It also contains the Table of Contents from all of the *Journal of New Energy* issues, and from all 3 of the International Symposiums on New Energy. The site also contains additional technical afficles of interest, US Patent Office information, the infamous Title 35 Text of interest to inventors, a complete page of related web sites, and lots of other information. **The site was also given the prestigious award of the "Link of the Week" for Technology by Computer Currents Interactive for the week of November 18, 1996.** Check it out and tell us what you think we should add!

## LETTER FROM COMPUTER CURRENTS INTERACTIVE

Congratulations!!

Your site has been chosen by Computer Currents Interactive (CCI) as one of the Links of the Week for the week starting November 18, 1996. [We won the Link of the Week in the TECHNOLOGY Area!]

The Links of the Week URL is:  
<http://www.currents.net/fungames/link/linkweek.html>  
 and you can get there from our Home Page:  
<http://www.currents.net>

Computer Currents Interactive is the online version of the award-winning computer magazine *Computer Currents*, plus more. CCI has also won Pointcora's Top 5% Web Sites award; we're rated Four-Stars and a Green Light by Magellan; we received iGUIDE's highest rating and other awards. CCI was chosen to participate in the Software Publishers

Association's 'CyberSuffari' and the popular "Riddler" Internet games.

Your site has been chosen based on its originality, content and quality. You can display the Links of the Week Award icon on your site. Following the week your site is on Links of the Week, it will be moved and have a permanent home on CCI's Web Reviews page at:

[<www.currents.net/fungames/reviews/webrevws.html>](http://www.currents.net/fungames/reviews/webrevws.html)

Thank you for contributing worthwhile content to the Internet.

Mike McDonnell, Online Manager  
 Computer Currents Interactive (CCI)

## Reward for Any 'Free-Energy' Device Passing Test

Patrick Bailey, President INE

Did you know that Eric Kraig has announced an "Open Offer To Validate Claims Of Free Energy?" He says, "I offer to pay travel expenses and \$1000 to anyone who can pass the following test. (Once I feel more confident of my ability to detect fraud, I'll up the prize to \$10,000.) I also offer a \$1000 commission to anyone who talks an inventor into submitting a winning design to me." The details of his challenge and the test are in his web site at:

<http://www.voicenet.com/~eric/freetest.html>, which includes the 'Terms of the Eric Kraig Free Energy Machine Test.' He also states: "Note: as of Nov. 14, 1996, no takers - but that doesn't prove free energy impossible!" Eric has been an avid reader and researcher of the "free-energy" field for many years, and has written several very good reviews on his insights and also on the devices that have been proposed by others. His recent, insightful, and negative review of Dennis Lee's devices is also present as a link under "Lee" on the INE WEBSITES page.

Consider the indestructible black box used in planes: Why can't they make the whole plane out of the same material? Or maybe, even cars? The insurance companies would hate it!

# LETTERS

## CETI SELLS SAMPLES

by Gene Mallove, courtesy of Jed Rothwell

November 11, 1996

Dear Colleagues:

This is a very big day for cold fusion. I just spoke this morning (11/11/96) with CETI's CEO, Jim Reding, who gave me more details about the demo cells they are selling at the American Nuclear Society Meeting – The Global Benefits of Nuclear Technology – at the Washington, DC Sheraton hotel. (The exhibit at the American Nuclear Society Meeting was Nov. 11-12, 1996.)

CETI has sold 40 kits already at \$3,750.00 each – about one-third of those kits were sold at the Washington meeting.

Licensing or leasing a Research Kit entitles one to the following:

- ◆ a 1-year license
- ◆ a test chamber
- ◆ two research cells
- ◆ 4 loadings of three different microsphere (MS) configurations
- ◆ ability to participate in the CETI Corporate Organization Research Program
- ◆ admittance to two CETI corporate conferences per year (exclusively for people who have leased cells)
- ◆ monthly newsletter of research progress – edited by Prof. George Miley; access to special new microsphere configurations
- ◆ mandatory on-site training at the University of Illinois in use of the cells.

The next CETI Corporate Meeting is Dec. 10, 1996. The one after that will be June 1997.

A price list for the purchase of additional beads will be available in a few months. Note well, all this info and right-to-buy beads comes only with the lease of the \$3,750.00 cell.

The demo cell in Washington has microspheres with "**ceramic substrates**," designed to achieve

temperatures up to 500°C. However, the cell at the meeting is only running at 5 watts out with about 1.5 watts in, just to show proof of concept. This small level of heat is designed to let researchers draw conclusions about the correspondence of the transmutations to the excess heat. It is not optimized for power production.

Possibly the biggest news – other than that there are now 40 groups/people who will have commercially purchased cells – is a new patent that the USPTO has notified CETI that it has allowed. The patent will be issued within the next few weeks. It is titled: "System in Electrolytic Cell and Method for Producing Heat and De-Activating Uranium and Thorium by Electrolysis."

This patent describes a method by which radionuclides are inserted into a special matrix designed for radioactive elements. According to Reding and inventor Dr. Patterson, with whom I also spoke, "**conservatively**" they have demonstrated the reduction by up to 50% of the radiation activity from uranium and thorium. The process takes only from 2 to 24 hours. Generally, the process occurs within only 4 hours. It is said that the de-activation can be as high as 90%, which would make for a pretty conclusive finding, I would assume. Anyone in the nuclear industry who can verify this result ought to know that we are "**no longer in Kansas**." In fact, the allowance of this patent by the USPTO should tell them that already.

According to CEO Jim Reding, "an organization has already purchased the "*exclusive world rights*" to licence and sub-licence this patent." The organization has paid CETI \$1 million dollars (\$1,000,000) for this. The organization's identity, for now, is private.

Jim Reding reports that response has been very polite. There is a lot of interest in this technology among those who were initially skeptical. I guess the sale of about 1/3 of the 40 kits at this meeting speaks for itself.

It seems, at last, that **cold fusion** has truly been commercialized with the sale of these units – with every prospect for increasing sales. As soon as other former non-involved but ranking people observe these effects with these cells, the opposition to cold fusion will be dramatically lessened, to say the least. This is exactly what we

at *Infinite Energy* magazine have been hoping for all along.

Reding reports there is great interest in Prof. Miley's transmutation paper. He has been given a slot at the American Nuclear Society meeting in June to deliver his latest findings. There was no slot available at this meeting. From 1,000 to 1,200 attendees are expected at the meeting.

Eugene F. Mallove, Sc.D.  
Editor-in-Chief and Publisher, *Infinite Energy* Magazine  
Cold Fusion Technology  
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76570.2270@compuserve.com

[A preliminary version of Dr. Miley's and Dr. Patterson's transmutation paper was published in *Infinite Energy*, issue #9 – printed in October 1996. The complete paper is published in the *Journal of New Energy*, vol 1, no 3, by Fusion Information Center.]

Also... On The Same Subject:

### C&EN DISPARAGES PATTERSON CELL

Pamela Zurer, "Cold Fusion Device Hits the Market," *C&EN*, 18 Nov. 1996, p 9.

#### SUMMARY

In November the Patterson Power Cell™ was again on display, this time at the American Nuclear Society's Nuclear Technology Expo in Washington D.C. The article gave some background on Dr. Patterson and his Cell, adding that he has been recently collaborating with Dr. George Miley, professor of nuclear engineering at the University of Illinois.

James Reding, President and CEO of Clean Energy Technologies (CETI), told *C&EN* "We don't understand the mechanism. We're selling the kits to get the technology out into other people's labs so they can prove it is real and help us understand the novel fundamental nuclear reactions that don't produce any harmful nuclear by products." Orders for the kits, launched on November 10, had reached 60 orders within three days.

Others aren't so willing to believe the research behind it. Retired nuclear physicist Richard A. Blue told *C&EN*, "They have simply misread the obvious presence that extended electrolysis results in a significant level of contamination of the microspheres." Blue said he has followed cold fusion for years [i.e., been a skeptic for years] and that "any knowledgeable person" can disprove the transmutation argument easily, since "the proper natural abundance ratios" are present for the transmuted metals to be considered only contaminations.

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### LETTER FROM AUSTRALIA

Sub: Plasma-Injected Transmutation

Dear Mr. Fox,

About a week ago I read your paper, "Plasma-Injected Transmutation," and would like to make the following comment. While I believe you may very well be on to something, in as much as I agree with you that this process probably does occur in many cases, I doubt seriously if it can account for the large energy excesses reported in some experiments (e.g. Patterson).

The reasoning behind this statement is as follows: Even for D-T fusion, the tunnelling maximum occurs at about 170 keV, if I'm not mistaken. Presumably for heavier nuclei it would, according to standard theory, be even higher. Now 170 keV / 1836\*(2/1) (for deuterons) yields 46 eV. This implies that for the implanted ions to have an ideal energy of 170 keV, the electron cluster would need to be accelerated through a voltage drop of about 46 volts.

A NEV of  $10^{11}$  electrons containing  $10^6$  positive ions, accelerated through a voltage differential of 46 volts, will acquire a kinetic energy of  $1e + 11 * 46eV = 3D 4.6e + 12 eV$  (for the electrons) +  $1836 * 2/1 * 46 * 1e + 6 = 3D 1.7e + 11 eV$  (for e.g. deuterium nuclei, according to your formula).

Total  $4.77e + 12 eV$ .

This energy must initially be supplied by the power source of the experiment.

Even if all  $10^6$  deuterons were to fuse with a metal nucleus (highly unlikely?), and each fusion were to produce an energy of 10 MeV, the resultant energy

production would be  $1e + 6 * 1e - 7 = 3D 1e + 13$  eV. (Though each could trigger a fission reaction in Pd resulting in about 40 MeV - 4e + 13 eV). If they were to fuse with stationary deuterons, the energy would be at most  $24 * 1e + 6 * 1e + 6 = 3D 2.4e + 13$  eV. So in the most favourable case - ensuing fission, This is 10 times the energy supplied by the power source for the cluster in question.

In order to achieve the purported results of the Patterson cell (i.e. an excess of at least several hundred times raw input power), an improvement of at least 10 fold would be required (and probably more). This implies that the relative density of deuterons in the NEVs would need to be 10 times higher, i.e. 1deuteron per 10,000 electrons. Under these circumstances, the approximation used in your formula is only borderline valid (i.e. the mass ratio of electrons to deuterons is 2.5/1).

As I see it this means that your proposed mechanism is not quite as wide spread in application as you would have us believe. I do not believe that this is the mechanism that is responsible for heat generation in a Patterson cell, particularly as I doubt seriously that every accelerated ion would result in a nuclear reaction. That is not to say that it doesn't happen anywhere, I suspect strongly that it does. I suspect, however, that it is just one of several mechanisms which occur in nature.

Regards, Robin van Spaandonk  
<rvanspaa@netspace.net.au>

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**Reply by Dr. Jin to the Comments by Robin van Spaandonk on "Plasma-Injected Transmutation."**  
11-20-96

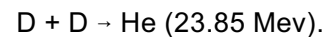
A NEV with electron number  $N_e = 10^{11}$  and ion number  $N_i = 10^6$  accelerated through a voltage difference  $V = 46$  volts, will acquire a kinetic energy

$$N_e eV = 4.6 \times 10^{12} \text{ eV, (for the electrons)}$$

$$N_i A/Z V 1836 = 1.7 \times 10^{11} \text{ eV. (for the deuterium nuclei)}$$

Where A is atomic weight and Z is atomic number. The total kinetic energy is  $4.77 \times 10^{12}$  eV, as Mr. Robin van Spaandonk shows in his comment.

In the D-Pd system, we assume the most probable nuclear reaction is



In this case the resultant energy production would be

$$N_i \times 23.85 \text{ MeV} = 2.39 \times 10^{13} \text{ eV}.$$

This energy is 50 times the NEV energy.

The He nuclei( $\alpha$ -particle) with high energy (23.85 MeV) will not remain inside the Pd lattice. It will react with Pd and produce various kinds of transmutation as many experiments have already shown. If we assume  $\alpha + Pd$  reaction produce average  $\sim 10$  MeV (or 20 MeV), then the total energy produced is about 75 (or 100) times the input energy.

In the above, we considered the most favorable processes with 75 - 100 times energy amplification. In reality, considering various nuclear processes, the energy output may be much lower than above situation.

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## RESONANCE EFFECT

Courtesy of Pat Bailey

From: Alexander V. Frolov alex@frolov.spb.ru  
Date: Mon, 11 Nov 96 19:12:26 +0300

Dear Sirs,

I am glad to say some more news from Russia about free energy research.

Inventor Andrew A. Melnitchenko made some devices powered by small primary source like 1.5 VDC battery and demonstrated that **resonance** effect is the way to free power output. He connected a 17W fan motor to his electronic system and it is working! Another load is 60W and it is working also! In his opinion, the system like his resonance circuit powered by small battery DC can be power source for home (KWatts) also! The battery is necessary to make alternating voltage output for resonance circuit. It is possible to close the loop and to make self-charging battery mode.

In resonance, as you must know from college textbook, source is not the source of current, but it is source of voltage only. It doesn't require current from source and it doesn't require power expense from source.

You can try to find inventor in Moscow by phone of newspaper: 7-095-2573515. I must note that this telephone number many times was published in articles are connected with topic of free energy and perpetuum mobile.

This article is different from the other since it made some references on Tesla's work. Yes, it is the same as Tesla's resonance transformer but in this version inventor didn't raise the output to million Volts like Tesla made.

I hope that somebody is interested to make joint research with Andrew Melnitchenko. He need partners like most inventors. If you'll have some progress in this deal, please, let me know. Perhaps, together we can open a door to the future.

Good luck, /s/ Alexander V. Frolov

More from Dr. Frolov:

#### **RUSSIA-UKRAINE SPACESHIP PROJECT**

Some news from Russia on the space project

Russia-Ukraine joint project of space ship is lead by Dr. Alexander Razumny. It is private JSC "COSMOS". Alexander told newspapers that his project is based on theory principles known 50 years ago. It is a theory for vacuum as an energy source and a theory for reactionless propulsion.

The name of ship is RUSS. Fifteen countries are taking part in the project, such as USA, GB, Germany, France and others. The project is great: the diameter of the ship must be 270 meters, height of about 60 meters, weight 600420000 kg. The velocity of the ship is calculated as 80-140 kmph, up to 340kmph.

800 persons would be the team of ship, as Alexander said. Cargo space is 70000 m<sup>3</sup>.

Are you wondering if it is real? Yes, it is! One month ago I saw an article on this topic in another newspaper. The propulsion is not reactive but is special kind of assymetry of energy transformation, in my opinion. The fuel is circulated inside of the ship. I am not sure that authors made some tests for small model of such a system. By some concepts, the asymmetry of energy transformation that is the propulsion nature of this ship,

must be connected with assymetry of entropy function and, in other words, it is connected with local time rate changes.

So, let us see what happens soon in this area. In any case, the time for reactionless (gravitation) drive in the space industry is coming now.

A.V. Frolov

[We hope this report is true, and not fiction. - Ed.]

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#### **LETTER FROM AUSTRALIA**

21 November 1996

I refer to the article "Elemental Replication?" by Norman Wootan in the latest issue of *New Energy News*, wherein excess mass of sludge appears to occur in an electrolytic cell.

I thought you might like to know that several months ago, I was contacted by a person in Australia who apparently has been doing this also. He described to me an experiment whereby he was able to produce "seven buckets of a black substance resembling crude oil" out of 20 liters of clear water by an electrolytic method. The person is a "**backyard**" researcher in the free energy area. I have not yet seen this process for myself as he lives some 2000 miles away.

I will inform you of further developments as they become available.

/s/ James Mann

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#### **LETTER: WE'RE BACKKKKKK!!!!**

From: Dale Pond

Date: Sat, Nov 23, 1996

To: Patrick Bailey

You probably have already heard, but in case you missed the REALLY BIG NEWS - Hot Fusion is back! They couldn't make it fly on the old promises so they wrapped it up in new names and new labels.

Billed as "**by far the largest and most powerful assemblage of lasers in the world**" by the recent edition of *Photonics Spectra* (11/96), this new foray into hot fusion and your grandchildren's pockets is yet another advance into science and technology



that has proven itself to be outside of the laws of physics, economics, and bordering on insanity.

The old and failed hot fusion project is now relabeled "The National Ignition Facility" and now signed into existence by Clinton along with a promise of your money to the tune of \$191.1 million dollars "to speed the National Ignition Facility on its way."

Listen to this, I think we've heard this before: "The feasibility of this task is still uncertain because it is awesomely difficult, to put it mildly. When completed, the National Ignition System will feature an array of 192 high-power lasers in a facility as large as two football fields - all focused on pea-sized fuel pellets that must be brought to the astonishing heat of 100 million degrees C"... "the goal is to liberate more energy than is required to initiate the capsule's implosion."

So even the naysayers are trying to get some Free Energy only this time, not out of nothing as they accuse us, but out of \$191,100,000 of our money. They may succeed as long as they get us to pay for their strange, failed and out-of-date pseudo-science. Who needs free energy when you can so easily come up with that kind of dough?

And they call the Free Energy people crazy? At least we do not try to raid someone else's money pouch to pay for our own pay checks. Why con (steal?) when they can get an ignorant Congress and others to do it for them?

Anyhow, thought you'd like to know.

Dale Pond

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*Discovery and innovation are to science as dancing and flying are to walking. You don't have to do them, but everything is pretty bland if you neglect them regularly.*

## Meetings

### WORLD RENEWABLE ENERGY CONFERENCE V

Florence, Italy

20-25 September 1998

Hosted by the University of Florence

School of Architecture

Sponsors include: UNESCO, U.S. DOE, Commonwealth Science Council, National Renewable Energy Laboratory (NREL-USA), Italian Ministry of Scientific Research, and others.

Congress topics: Solar and Low Energy Architecture, Photovoltaic Technologies, Solar Thermal Applications, Wind Energy Generation, Biomass Conversion, Energy Resources, Wave and Tidal Energy, Hydrogen and Storage, Economics and Financing, Institutional Issues, Geothermal and Ocean Thermal, Climatic and Environmental Issues, and Renewable Energy: Manufacturing.

For further information contact:

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Phone: (44) 0118-961-1364, Fax: (44) 0118-961-1365

(Dialing from abroad, omit the zero.)

## Commercial Column

The following companies (listed alphabetically) are commercializing cold fusion or other enhanced energy devices:

### COMPANY: PRODUCT

**American Pure Fusion Engineering and Supply:** Information and trouble-shooting for the fusion research and development industry. Developing "Fullerene Fusion Fuel™." Salem, Oregon. The president, Warren Cooley,

can be reached at 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.): Developers of the Patterson Power Cell™. Dallas, Texas. Voice 214-982-8340, FAX 214-982-8349.

**Clustron Sciences Corp.:** New energy research consulting and information. Contact: Ron Brightsen, 703-476-8731.

**ENECO:** Portfolio of intellectual property including over thirty patents issued or pending in cold nuclear fusion and other enhanced energy devices. Salt Lake City, Utah. Contact Fred Jaeger, Voice 801-583-2000, Fax 801-583-6245.

**E-Quest Sciences:** Exploring The Micro-Fusion™ process. Seeking qualified research partners for their sonoluminescence program. 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 *Fusion Facts*, *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.:** Hydrosonic Pump, heat-producing systems using electrical input with thermal efficiencies of 110 to 125 percent. Rome, Georgia. Contact James Griggs, Voice 706-234-4111 Fax 706-234-0702.

**JET Energy Technology, Inc.:** Design and manufacture of  $\pi$ -electrode systems, calorimeters, and associated equipment and systems. Consulting regarding radiation, materials, and other scientific and engineering issues. Weston, MA. Contact Dr. Mitchell Swartz, Voice 617-237-3625. Fax 617-237-3625.

**Labofex, Experimental and Applied Plasma Physics:** R&D of PAGD (Pulsed Abnormal Glow Discharge) plasma technology. Applications under development include portable power supplies, electric vehicles and autonomous housing. Licensing. Ontario, Canada. Contact Dr. Paulo N. Correa. Tel 905-660-1040

Fax 905-738-8427

**Magnetic Power Inc.:** Solid-state, heat to electric transducers, for temperatures up to 300°F (low energy nuclear reactions, waste heat, etc.) featuring Ultraconductors™ under development by ROOTS, a subsidiary. Sebastopol, CA. Contact Mark Goldes, voice 707-829-9391, Fax 707-829-1002.

**Nova Resources Group, Inc.:** Design and manufacture ETC (Electrolytic Thermal Cell); EG (commercial power cogeneration module); and IE (integrated electrolytic system). Denver, CO. Call Chip Ransford, Phone 303-433-5582.

**UV Enhanced Ultrasound:** Cold Fusion Principle being used for an ultrasonic water purifier. Hong Kong. FAX 852-2338-3057.

**"YUSMAR"- Scientific-Commercial Company:** manufacture, licensing, research and development of water-based generators: thermal (5 sizes), electrothermal (up to 2 MW), and 'quantum' types. President: Dr. Yuri S. Potapov, 277012 Kishinev, Moldova. Phone and Fax 011-3732-233318.

**Zenergy Corporation:** 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.

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## INFORMATION SOURCES

**Academy for New Energy (ANE)** is a subsidiary organization to the International Association for New Science, which has specific goals directed toward the field of alternative and "New" energy research. 1304 S. College Ave., Fort Collins, CO 80524. Tel. 970-482-3731

**ANE Newsletter**, quarterly publication of ANE, providing an open forum for discussion, and disseminating newsworthy and inspirational information on invention and new energy. Edited by Robert Emmerich.

**Advanced Energy Network Newsletter**, quarterly, a reprint of articles and papers from other energy publications, with book reviews and worldwide conference list. 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 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, covers electric vehicles extensively, magnetic motors, and battery development.

63600 Deschutes Market Rd, Bend, OR 97701  
541-388-1908, Fax 541-388-2750,

E-mail <[etimes@teleport.com](mailto:etimes@teleport.com)>

[www.teleport.com/~etimes/](http://www.teleport.com/~etimes/)

**Fusion Facts** monthly newsletter. Salt Lake City, UT. 801-583-6232, also publishes **Cold Fusion Impact** and **Cold Fusion Source Book**. Plans on-line database access.

**Fusion Technology**, Journal of the American Nuclear Society, edited by Dr. George Miley, publishes some papers on cold nuclear fusion. 555 N. Kensington Ave., La Grange Park, IL 60525.

**Infinite Energy**, new bi-monthly newsletter edited by Dr. Eugene Mallove (author of **Fire from Ice**), P.O. Box 2816, Concord, NH 03302-2816. Voice: 603-228-4516. Fax: 603-224-5975 E-mail [76570.2270@compuserve.com](mailto:76570.2270@compuserve.com)

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

Home Page: [www.padrak.com/ine/](http://www.padrak.com/ine/) contains many important scientific papers and current reports on all areas of research. Salt Lake City, Utah.

E-mail: [ine@padrak.com](mailto: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.

**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** - Science and health oriented information exchange that specializes in nonstandard research, much of it on new energy. Jerry Decker, 214-324-3501

Internet: [www.keelynet.com](http://www.keelynet.com) E-mail: [jdecker@keelynet.com](mailto: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>

Now available: **Clean Energy Review**, a technical and scientific discussion on nuclear fuel wastes disposal. Discusses transmutation as one possible solution. \$5 U.S. and Canadian, \$7.50 other countries.

**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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