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MAGNETO-THERMODYNAMICS: A PROGRESS REPORT

By Harold Aspden

This is a brief report on the development status of a project which promises (a) to serve as the solution of our needs for non-polluting refrigeration and (b) as a new source of electrical power drawn from heat input, whether the source is heat from cold fusion or simply ambient heat, the choice being commercially governed by the economics of the higher installation expense in the latter case.

Readers of *New Energy News* will, by now, know that I am deeply interested in the possibility of tapping the zero-point energy field by techniques involving ferromagnetic domain flux rotation in magnetic cores. Now that I have embarked upon an experimental program of my own in this field I do, however, face the dilemma that it has fallen on my shoulders to complete an unrelated experimental task initiated some time ago by a research colleague and I cannot deal with both ventures as expeditiously as I would like. I wish by this contribution to explain where I stand on this latter project.

Some *NEN* readers, those speakers at our April 1993 Denver symposium who participated in the mountain retreat prior to that event, may remember the video I showed of a device that froze water in one operation mode and ran an electric motor in the reverse mode powered by that melting ice. That third prototype device had an inbuilt structural symmetry which meant that, when electrical current was fed through it, it should have been confused as to which heat sink side should cool and which should heat. It revealed no confusion but cooled and testing verified that it was able to produce a -40°C temperature, but the question I faced was whether this cooling meant that the heat energy was shed as wasteful oscillations in the electronic power circuit, which operated at a high frequency and was mounted on a common heat sink base on the side remote from that where cooling was measured. The second prototype on which I had performed my own diagnostic tests was built only to operate in heat to electricity conversion and it had worked well at 18 kHz.

At this time none of the three prototype devices built by my co-inventor colleague Scott Strachan is operative, the first having been destroyed by chemical in an effort to dismantle and rearrange its position on a heat sink, the second being partly dismantled and both it and the third, owing to their having been assembled from bimetallic layers that were very thin vapor-deposits, having deteriorated owing to the internal electro-chemical activity of the device.

The question of interest in my mind was whether what we saw from the operable form of this technology could be developed to breach the second law of thermodynamics by generating useful power from the cooling process whose only input is heat at ambient temperature.

I am now increasingly convinced of this possibility, based on my recent experiments, but resources beyond my command are needed to see this project through to its needed verification and development into its ultimate commercial form.

As to the principle of operation of the device, others are of the opinion that there might be some surface effects in the special polymer dielectric substrate used in the prototype fabrication. The action, as I see it, is simply based on the thermoelectrics of magnetism and the straightforward application of

conventional physical principles leads to the prospective breach of the second law of thermodynamics.

This is easily explained by a comparison with MHD technology. Magneto-hydrodynamic power generation involves ionized hot gas flowing transversely through a magnetic field. By Lorentz force action the positive ions are deflected in the third direction, mutually orthogonal with the field and the heat flow, this sets up EMFs from which current powered by heat is drawn off. This process rejects heat as waste at the exhaust temperature and complies with the Carnot efficiency limitations, so conforming with the second law of thermodynamics.

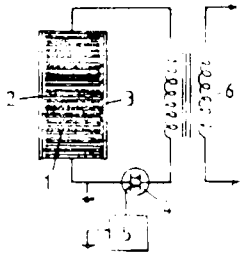


FIG.1

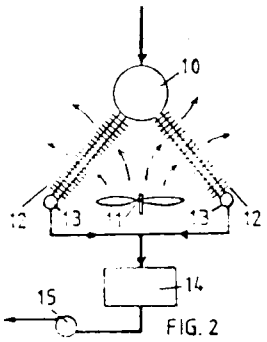


FIG. 2

In the magneto-thermodynamic solid state device of our invention prototype the heat carried through a ferromagnetic lamination by electrons which experience the intrinsic polarized domain magnetism develops transverse EMFs by the same action as that just described, but when the electron heat energy is spent those spent electrons do not find their way to some exhaust outlet at a normal temperature. We are here concerned with Fermi-Dirac statistics which have a way of sustaining electron energy. The heat exchanges involved in this phenomenon, the Nernst Effect known in the study of thermoelectricity, depend upon temperature gradient in the metal and not upon temperature Kelvin. The Carnot situation is defeated by this and potentially most of the available heat can be converted into electricity.

Now, how does this come into play in a device that can cool in a refrigerating sense and deliver electricity as power output from the depleted heat?

Consider a bimetallic lamination with one metal bonded to the other by electroplating, the substrate metal being ferromagnetic with a thickness commensurate with the size of magnetic domains, say 50 to 200 microns. Stack a number of such laminations interleaving insulation or simply clamp them in a stack so that they provide a conductive path through points of interface contact which allow current flow in the direction transverse to their surfaces.

Imagine now that an a.c. current at a frequency of 10-20 kHz is passed transversely through the stack. Upon switch-on this will set up some thermal activity and temperature gradients in the laminations. If the insulation is used the current passage from lamination to lamination is capacitative and much higher applied voltages and resonant tuning will be needed. There will be heat generated by ohmic heating and, owing to those temperature differences and the fact that the laminations are of bimetallic composition, so thermoelectric Peltier action will occur seeking to redress the temperature imbalance and restore equilibrium.

However, with the transverse a.c. current oscillations sustained, that current in the body of the laminations will always take a path of least resistance, meaning that it will flow, according to its directional polarity at any instant, through the magnetic domain which develops, thanks to the magnetic polarization of that domain and the flow of heat, an EMF in the forward sense. This means cooling drawing on that heat to supply an output EMF that can sustain the a.c. oscillation through a load now connected in the circuit. The device will resonate as an oscillator, self-powered by its intrinsic heat condition. The bimetallic composition, ferromagnetic metal and non-ferromagnetic metal, allows current to divert to choose the easy route through the ferromagnetic metal.

Overall, there has to be a net cooling effect, because any current flow according to the Peltier Effect will develop more cooling at a hot thermocouple junction than heating at a cool junction. The energy supplied by the electrical activation has merely powered a heat pump action within the Carnot criteria and that energy does deliver extra heat output but additionally that Nernst

Effect cooling gives us something extra and this extra cooling has a counterpart in electrical power generated in the oscillatory circuit and that can feed an external load.

So, this quite novel concept of transverse excitation of thin ferromagnetic laminations of bimetallic composition promises a 'new energy' source, refrigeration combined with electric power generation drawing on what can be any convenient source of heat, even the ambient heat of our immediate atmosphere.

Now, as to the status of this research, I have not myself tried to develop the capacitative device, even though that allowed input of external heat to develop appreciable temperature gradients and that was the form of our three research prototypes built by Strachan. My research has centered on an all-metal laminar structure and, for diagnostic testing, I have built devices which include a stack of several hundred bimetallic laminations in a short-circuit single-turn path as a transformer secondary winding. My object is to see if I can develop those oscillations which signify a negative resistance, meaning Nernst Effect cooling, without, in these particular tests, any special provision for external direct input of heat.

At this time, I have run into problems arising from the high self-inductance of current flow transversely through the surfaces of ferromagnetic laminations. Even so, it seems that there is an interface capacitance effect, even in the all-metal stack with no dielectric insulating medium between adjacent laminations, because there is a natural resonance found at 12.5 kHz in one device I built and 14.3 kHz in the second device. Note that the second prototype of the capacitative thermoelectric stack built by Strachan had given us excellent test data at 18 kHz, in the sense that we had very efficient conversion of heat into electricity, which, though not exceeding the Carnot efficiency limit, came quite close and that was surprising for a thermocouple structure using base metals aluminum and nickel.

My immediate object is to feed sufficient current at that frequency through an all-metal bimetallic stack to set up the heat priming which brings in train the temperature gradients that can allow the Nernst cooling to develop in the preferential flow path through ferromagnetic domains spanning the thickness of the ferromagnetic metal in the laminations.

I hope to pursue this research further, as by making special provision for a different mode of heat priming, until I know what may or may not be possible in this all-metal approach, because it promises something that can be quite important in future energy technology.

It is my intention to report full details on progress in this venture, as well as my research on reluctance motor technology, the solid-state magnetic power generators, and other alternative energy interests in a series of Energy Science Reports. I am all too conscious that what we read in *New Energy News* tells us we are close to the time when sufficient assembly details of a design prototype that can impact energy technology, whatever be the technique, will become generally available. However, in the meantime, we must each make our own contribution in trying to reach that objective and I hope that the information above will prove of interest and encourage others to take up research in this general field.

Fusion Briefings

FIRST PATENT ISSUED

During 1992, *Fusion Facts* tried very hard to determine why the patent office was treating cold fusion in such a peculiar manner: Applications were returned with citations of the infamous MIT paper (Albagli, and 15 other Ph.Ds), a *New York Times* article, and a *Washington Post* article all stating that cold fusion doesn't work. In a phone conversation with the supervisor of the section that handles cold fusion patent applications, he was asked why the patent examiners did not use the numerous positive articles from *Fusion Technology*, *Nuovo Cimento*, and *Journal of Electroanalytical Chemistry*. His answer was, "I guess our people don't have access to these publications." So we telephoned the library

at the patent office and asked the head librarian if these publications were available. They were!

The conclusion, here at *Fusion Facts*, was that someone or some group in Washington has a great deal of influence. It appeared that this influence was so remarkable that it could be used to usurp the constitution of the United States that guarantees its citizens the right to protect their inventions and to copyright other intellectual property. We knew that we did not have that kind of influence over the patent office. Someday, perhaps, there may be an investigation of this kind of influence. Would it be called **PatentGate?**

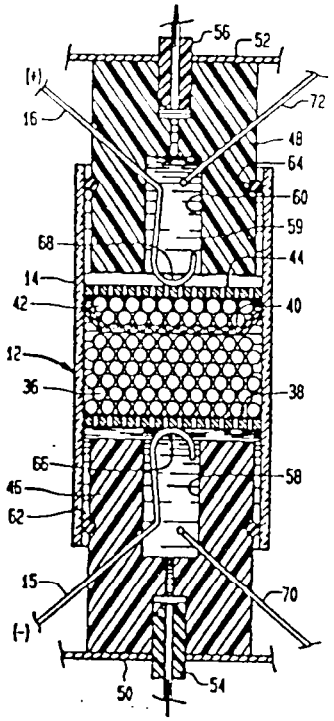
One should consider the accuracy of the three papers most often quoted by cold fusion "skeptics." Although the MIT paper reported negative results, it was shown in an article by Dr. Mitchell Swartz (*Fusion Facts*, Aug. 92, pp 27-40) that the data had not been correctly evaluated. In additional analysis of both the Harwell and the Cal Tech data, it was also shown (by Noninski) that excess heat in their experiments had been produced but not recognized (or perhaps ignored).

Regardless of past problems, we are pleased to report that "An electrolytic cell and method of electrolysizing and heating water..." has been patented. See the following:

James A. Patterson (Sarasota, FL), "Method for Electrolysis of Water to Form Metal Hydride," U.S. Patent No. 5,318,675, appl. 20 July 1993, issued 7 June 1994. 13 pages, 14 figs.

PATENT ABSTRACT

An electrolytic cell and method of electrolysizing and heating water containing a conductive salt in solution. The electrolytic cell includes a non-conductive housing having an inlet and an outlet and spaced apart first and second conductive forminous grids connected within the housing. A plurality of non-conductive microspheres each having a uniformly thick outer conductive palladium layer thereon are positioned within the housing in electrical contact with the first grid adjacent the inlet. An electric power source is operably connected across the first and second grids whereby electrical current flows between the grids within the water solution.



Also of interest are Mr. Patterson's earlier patents:

James A. Patterson, "Improved Process for Producing Uniformly Plated Microspheres," US 4,943,355, 16 May 1989, 24 July 1990, 6 pp; and "Metal Plated Microsphere Catalyst," US 5,036,031, 28 Sept. 1989, 30 July 1991, 6 pages, have the same abstract and only vary in their claims.

PATENT ABSTRACTS

Cross-linked polymer microspheres are carefully separated into fractions of equal size and density by first using sieves and then using hydraulic separation in a cone. Each fraction is separately plated with copper. The copper plated microspheres are again separated into fractions of equal size and density. Each fraction is then given an additional metal plating. The thus plated microspheres have uniformly thick plating and have a maximized surface area for the amount of metal plated making them particularly useful as catalysis or in electrical products or processes. Microspheres having a plating of palladium exhibit a marked improvement in

the adsorption of hydrogen both quantitatively and in rapidity.

WHISPERS FROM THE GRAPEVINE

We have heard from several sources that a U.S. laboratory has replicated the work of Japanese scientists and have obtained significant amounts of excess heat from proton conducting materials. As reported in *Fusion Facts* in February, 1994, a report given by Mizuno, et. al, during the ICCF-4, showed that certain combination of materials could be processed and provide amounts of excess heat that was hundreds of times larger than input electrical power. If the rumors are correct, then this replication is another significant achievement in the continuing development of cold nuclear fusion. Apparently, the replication is combined with new discoveries that should be properly protected by appropriate patent applications before a public disclosure is made.

BRACKISH WATER ELECTROLYSIS

Courtesy of Dr. Samuel Faile

David L. Spines, "Hydro-Energy via Water Reclamation Proposal," unpublished manuscript, 4 pages.

EDITOR'S COMMENTS

David L. Spines of Sacramento, California suggested in 1969 that the 5% of the then waterways that were unfit for swimming, fishing, or drinking be converted to H and O by electrolysis and that the H be burned to create energy. Today, says Spines, the matter is worse and the unfit waterways have increased to 30%. Electrolysis of water requires the use of high-cost electricity. If the hydrogen and oxygen were reused in a fuel cell about 70% of the electricity could be returned to the grid (at times convenient for the production of electricity). The storage costs of the hydrogen would have to be included in the costs of cleaning up the water. Spines cites the use by Tewari of India of an N-machine that reportedly gets twice as much electricity out as input to the N-machine. Spines suggests that the use of this or similar technology would make sense in providing the electricity for cleaning up the contaminated waterways.

Many times we engineers provide good engineering solutions but ignore the economics. Even when we work out the economics, we sometimes forget to include the cost of capital. It is suggested that with some of the new energy technologies now being developed (cold fusion or tapping space energy) it will become feasible to treat water by either making steam or by electrolysis. When you make your calculations for the cost of water treatment, it is wise to include 10% per annum of the total cost of the project as the cost of capital. The concept is that a project must return some degree of profits to those who will finance the project. Another suggestion is to place the burden of cleaning up the waterways on those who are dumping pollutants into the waterways. With the coming commercialization of either cold fusion and/or space energy devices, the cost of energy will be much lower, **but never free.** Our best estimates are that the cost of non-polluting energy will be about one-fourth to one-third the present energy costs or about 3 to 4 cents per kilowatt-hour. It requires about 0.7 kilowatt-hours of electricity to raise 1 liter of water from 40° C to boiling and convert to steam. (Roughly 3 kW per gallon). At the low price of new energy, the cost of boiling water is roughly 10 cents per gallon. That is fairly expensive water, but legislation could promote the use of less water in industry if they were required to provide steam as the liquid waste discharge. The cost of electrolysis would be about seven times larger than the cost of boiling water, however, the use of the hydrogen as fuel could recover perhaps 50 or 60 percent of that cost.

Space Energy

ETHER AND ELECTRICITY

William F. Hamilton, "The Nature of Ether and Electricity," *Borderlands*, vol 49, no 4, 1993, pp 34-5.

EDITOR'S SUMMARY

The purpose of this article is to get people thinking. Mr. Hamilton discusses our knowledge of electricity and how it relates to the forces of gravity and electromagnetism, and the anomalous electrical behavior sometimes observed by experimenters. He cites the repelling effect Dr. Francis Nipher found between a suspended lead ball and a larger lead sphere when the sphere was electrified. Mr. George S. Piggot was another experimenter mentioned, who had been able to suspend small metal balls, cork and wood over a rotating spherical electrode by means of strong electric fields. T. Townsend Brown's experiments with suspended charged capacitors also demonstrated a contra-gravity effect. Several other scientists are mentioned, including John Searl, Albert Einstein, Alan D. Krisch, William M. Honig, Eric J. Lerner, and Paramahamsa Tewari.

Rotation and vortices, whether in space or fluid are very important in most of these experiments. So is the concept of the Ether. Hamilton reminds us of questions that, if answered, could provide us with many new avenues of research. Grand Unified Theory coming up? Perhaps, but not soon enough to stop the many experimenters still looking for levitation, free energy and other anomalous benefits the ether could help us find. Their continued research is the key to tomorrow.

ALTERNATIVE ENERGY OBEYS THE LAW

Peter A. Linderman, "Thermodynamics and Free Energy," *Borderlands*, vol L, no 3, 1994, pp 6-10, 7 refs.

EXCERPT FROM ARTICLE

The mainstream scientific community dismisses the idea of "Free Energy" or "Over-Unity" machines because they say that the behavior of such machines violates the "Second Law of Thermodynamics." The purpose of this article is to squarely face this issue from an alternative science point of view...

Researchers in the "free energy" field should not concern themselves with the outmoded ideas presented as the so-called "Laws of Thermodynamics." They embody an erroneous concept of mechanical universe that mysteriously burst forth as a fully wound spring that has been unwinding ever since. It is a lifeless, empty vision that ignores the Source of the energy it started with and closes the minds of its adherents to the solutions at hand...

CONCLUSION

Learning how to tap the non-thermodynamic forces in nature is the hope of the future. A modern society needs light, heat, and motive power, all of which can be derived from the Etheric Energy Field without consuming limited physical resources owned by monopoly interests.

In this society, theoretical science has been elevated to a very high level of prestige. Under this system of belief, the real needs of humanity have not been well served. It is time that these incorrect theories be carefully examined and discarded, so that experimental science can once again take the leading role in defining the nature of physical reality. Only then will Etheric Science be free to offer its bounty of solutions to a desperate and waiting world.

Vehicles

LATEST ON GUNNERMAN

Otis Port, "Engines That Run on Water?" *Business Week*, 8 Aug. 1994, p 47.

SUMMARY

Rudolf W. Gunnerman and his A-55 fuel are the subject of this one-page article in a major business magazine. Gunnerman has spent over $6 million in researching a fuel that is 55% water, but apparently makes internal combustion engines run more efficiently than ever. Caterpillar, Inc. has recently formed a joint-venture with Gunnerman's Reno company, A-55, to further research the fuel.

The water and gas are mixed using 5% of a secret emulsifier, and burned in a system with specifically adjusted fuel-injection and a small piece of nickel affixed in each cylinder. It's all a patented process, and if tests done by Reno city busses, Minnesota Transportation Department, and Caterpillar are to be accepted fully, that patent is worth a bundle. "If this proves out, it could reduce the U.S. trade deficit by almost half, by eliminating the need to import oil," says John D. Peters, from the Minnesota Transportation Department.

In Reno, one city bus began using Gunnerman's fuel on October 5, 1993, until February 22, 1994: over 11 thousand miles. The engine was then removed and sent to Caterpillar for study. Records show a 29% mpg increase with no unusual engine problems. In Minnesota, Gunnerman's team mixed up a fresh batch of fuel with local tap water and used it to run a model 453 engine from Detroit Diesel. Skeptic Gregory Felt, chief operations engineer for the state Transportation Dept., said, "it had the cleanest exhaust I've ever seen coming out of a diesel. If it really does what it seem to, this is big."

Converting an existing engine to use A-55 fuel would cost less than $500, including a computer-chip controlled fuel injection system that would allow you to still use regular gasoline if A-55 was not available.

Gunnerman hasn't stopped with the A-55 fuel. His next project is a fuel that would eliminate gasoline itself, and run an engine on naphtha and water. Naphtha costs about 50% of gasoline to produce.

Summary by D. Torres

OPTIMA BATTERIES, INC. EV PROGRAM

John B. Olsen, "Optima Batteries EV Battery Development Program," *Electrifying Times*, vol 2, no 2, 1994, pp 10.

Using spiral-wound cell technology, originated by Gates Energy Products in the '70s, Optima Batteries hopes to achieve unparalleled high power densities with conventional lead acid chemistry. These batteries will be sealed and maintenance free with a projected lifetime of 8-10 years. A prototype is presently being produced for testing. The new batteries are a deep cycle version of their standard SLI batteries.

Features of the current Optima batteries that will appeal to EV (electric vehicle) owners include: sealed, no maintenance construction, can be mounted in any orientation, won't leak in event of accident, high discharge rates, fast charging capability, extreme vibration resistance, and low self-discharge rate (can be stored for a year or longer). These features will be incorporated into the deep cycle EV batteries. Optima also expects the price for the new batteries to be comparitively low. At present, no release date has been set for the new batteries.

ADVANCED EV BATTERIES BY SAFT

"Saft America Inc. Produces First Advanced EV Batteries in U.S.," *Electrifying Times*, vol 2, no 2, 1994, p 9.

The first nickel-cadmium STM5-180 batteries for EVs produced to meet 9001 standards came off the line late in May. Saft America, Inc., in its facility in Valdosta, Georgia, will supply its second order from the new line to a major auto manufacturer. At present Saft has the largest contract for EV batteries in the world with a consortium of major European auto manufacturers. Another contract with the EEC and two with the USABC are to develop mid-range and long-range EV power solutions.

Saft worldwide will have the capacity to supply over 10,000 EV with efficient nickel-cadmium batteries that are both powerful and economical, and they are engaged in a program of investment and building to meet the high anticipated demands in global markets. Nickel cadmium batteries have a much longer life expectancy, 2000 cycles, or 8 to 10 years.

WATER-FUEL TECHNOLOGY

Courtesy of Stan Meyer

The latest "International News Release" about the Water Fuel Cell technology (dated May, 1994) suggests that "Military funding is anticipated." This eight-page news sheet reports that Meyer has moved cautiously and quote Meyer as saying, "If any

part was blocked by a foreign entity or patent-filing irregularity, the entire process could be blocked." The news sheet cites 13 U.S. patents ranging from number 3,970,070 (Solar heating system) to 5,293,857 (Hydrogen Gas Fuel Management System).

A picture of the Water Powered Car has the caption, "The water-powered dune buggy is now being retrofitted with an up-graded Water Fuel Injection System™ utilizing the latest **E-Prom** electronics computer technology to match the acceleration performance of gasoline-drive cars. Funding is being sought for the Water Fuel Cell International Product Development Center and Trade Center."

Miscellaneous

ANTI-GRAVITY OR INERTIAL PROPULSION?

By Harold Aspden

Under the title 'Heretic,' television viewers in U.K. on 9th August 1994 were shown a 30 minute program devoted to the experiments demonstrated by Professor Eric Laithwaite. In the printed announcement of the program he was branded 'a crank among cranks,' a heretic 'trying to make an "anti-gravity" machine.'

His latest work is developing towards a new technology of inertial propulsion, but the impact of the program from my point of view, came when we saw him collaborating with another successful engineer-inventor in a laboratory experiment at Sussex University.

He stood on a weighing platform which fed data to a plotter which recorded the loss of weight. We were shown the recording as Laithwaite, having a guiding hold with one hand on the shaft, allowed a 50 lb. spinning flywheel to lift itself well above his head as it precessed.

Hitherto we have seen Laithwaite lift the 50 lb flywheel holding his arm out and supporting it by hand, a feat which defies understanding as it is seemingly effortless apart from the strain of supporting the weight of the shaft. However, scientists have been reluctant to accept what they see or to believe Laithwaite when he says that the flywheel has lost weight.

One might wonder if there is an understandable property of the gyroscope by which the upward force has merely transferred its reaction to his body axis so that the weight of man plus machine remains unchanged. Maybe Laithwaite's feeling of weight loss was illusory owing to the weight having shifted its center of gravity.

However, at long last, it would seem that the issue has been tested by the smooth manipulation of this precessing flywheel, rather than by the cranked up-and-down oscillations of a vibrating machine mounted on a weighing scale liable to hit the stops. The latter type of experiment gave critics a reason for attacking Laithwaite in the aftermath of his famous lecture at the Royal Institution in London, which was where Michael Faraday did much of his work.

The experiment showed how the weight on the platform increased as Laithwaite took up a position with his flywheel lowered and then how that weight reduced below the initial norm during the precessional motion before increasing again at the end of the test prior to Laithwaite stepping off the platform.

There are two ways of interpreting the phenomenon. One is to take it as accepted fact that Newtonian mechanics works for action involving mechanical contact, but to argue that if one brings gravitational force or magnetic force into play, with the action asserted across a distance, so there is scope for things to go out-of-balance. We do not 'see' the aether, which has a way of providing that balance. **If we can push against the aether then we can have propulsion, seemingly in defiance of Newtonian law.**

The other way is to say that angular motion and linear motion both comply with Newtonian law since both, in their own system, satisfy energy conservation requirements with no aether energy involvement, but to then accept that there is a way of mixing the energy in multi-body interactions so

that energy transfer between linear motion and spin has a counterpart in upsetting the momentum balance. This, however, is dangerous ground for argument owing to the enormous background of the Newtonian Discipline and it will need very convincing experimental evidence to stir change on this point.

Laithwaite himself made the point that Newtonian principles hold up and that no force is generated, but then affirmed that there was a weight loss and the apparent absence of a centrifugal force needed explanation. This was before enthusing about a breakthrough which had led him to file a new patent application on his findings.

The question remains however as to whether the Laithwaite evidence concerns 'inertial propulsion' or 'anti-gravity,' meaning true loss of weight. A machine built by Alex Jones (P.O. Box 21, Alderney, Channel Islands) was demonstrated in that TV program. It showed how a gyroscope on a wheel-supported platform could propel the platform forward. Was this true inertial propulsion, or an oscillatory thrust acting on a reduced flywheel weight in the forward thrust mode but on the normal weight in the reverse thrust mode? Was this an artifact of friction in the wheel bearings or was mass itself changed, as opposed to weight?

We need some answers to test our theories. Concerning theory, I have recently issued my **Energy Science Report No. 6, "Power from Space: Inertial and Gravitation."** Also I have several copies of my book entitled Gravitation that was published in 1975 and a few reprint copies of a paper entitled "The Theory of Anti-Gravity," (Physics Essays, vol 4, pp 13-19; 1991). I will send all three airmail to any reader who sends me a check for US$25 or £15 (UK).

Alex Jones participated in the Laithwaite TV program in demonstrating his working device to Professor Laithwaite in the laboratory setting of the Imperial College in London. He is someone who can speak from many years of hands-on practical experience devoted to his interest in gyroscopic propulsion.

I still would urge that one should not be too ready to challenge the experts on the dynamics of machines but rather should attack the Achilles' heel of those who profess to understand action and reaction in the science of magnetism and gravitation. These are both properties communicated through the aether and both involve interaction with the unseen energy world that underlies that aether.

Finally, on the magnetic theme, the drop-tests of Don Kelly in which magnets seem to lose weight must not be forgotten. He reported on this at the recent New Energy Symposium in Denver, Colorado, and progress on that work and in this field generally can be followed by reading Don Kelly's own *Space Energy Newsletters* and, of course, *New Energy News*, the latter published for the Institute of New Energy.

MAGNETIC EFFECTS AND TRANSMUTATION

By Ron J. Kita, Courtesy of Charles A. Yost, *Electric Spacecraft Magazine*, no 12, July 1994, pp 34-5.

I have concluded after having read numerous articles concerning cold fusion, the concept of chemical transmutation becomes more plausible.

Eugene Mallove, in his 1994 piece for Cold Fusion[1], depicts the transmutation of potassium to calcium via the addition of a proton to the potassium. This effect was discovered by Prof. Robert Bush at Cal Poly Pomona during the analysis of the cold fusion cell's electrolyte. In his experiment, potassium carbonate was converted into calcium carbonate.

Since it now seemed plausible for nonnuclear reaction transmutation to occur, I became more curious about the claims that Walter Russell transmuted water vapor when he worked at Westinghouse Lamp in the early 1900s. In this experiment, water vapor was sealed in glass incandescent bulbs and subjected to a strong, unusually configured magnetic field. This was said to have resulted in a change of the hydrogen-to-oxygen ratio, as well as in the appearance of other gases that didn't exist in the initial spectrographic analysis.

I wondered if there were any other documented possibilities of transmutation effects. While reading *Inward Bound*, by Prof. Pias[2] (formerly of the Institute of Advanced Studies at Princeton), I came across what could be further proof of such an effect. Pias wrote "Next came Kirchoff and Bunsen's collaboration in which they founded spectral analysis. In spectrum analysis ... the colored lines

appear unaffected by external influences and unchanged by the intervention of other materials. The positions occupied [by the lines] in the spectrum determine a chemical property of a similar unchangeable and fundamental nature as the atomic weight and they can be determined with an almost astronomical accuracy. What gives the spectrum-analytic method a quite special significance is the circumstance that it extends in an almost unlimited way the limits imposed up till now on the chemical characterization of matter."

This statement is of course true in essence, but not in detail. By 1861, the experimenters already qualified it, stating, "It is conceivable that a chemical compound always shows other lines than the elements of which it consists." It became clear in 1862 that compounds show one spectrum different from the combined spectra of the composing elements which appear when dissociation takes place upon raising the temperature.

Nobel Prize Laureate Pieter Zeeman also observed spectral changes. "A Bunsen burner is placed between the poles of the electromagnet, and a sodium spectrum is obtained by holding in the flame a piece of asbestos drenched in a kitchen salt solution. The two sodium D-lines are seen as narrow, sharply defined lines when the electromagnet is turned off, the lines are broadened when it is turned on, the broadening being ~1/40 of the line separation."

Zeeman, however, was not yet convinced that the effect was caused by the magnetic field. Could the broadening be due to temperature or density fluctuations in the flame? He therefore conducted a more sophisticated experiment. A sodium arc spectrum was generated in a water cooled porcelain tube. The tube was then placed between the poles of the electromagnet. The same broadening was observed. Zeeman became a believer and published.

While broadening of spectral lines is not the same as changing the spectral line pattern, perhaps it is a start. Zeeman's work should be repeated with an eye toward transmutation. When a magnetic field is applied to a hydrocarbon fuel, unusual things happen that resemble a change in the air-fuel ratio.

REFERENCES

[1] Mallove, Eugene. "Wild and Wooly Theories Abound," *Cold Fusion* (June, 1994).

[2] Pias, *Inward Bound.* (pp. 76, 168).

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BOOK REVIEW
by Vincent Coon

Thomas Valone, Editor, "Electrogravitics Systems, Reports on a New Propulsion Methodology," April, 1994, $15, published by Integrity Research Institute, 1377 K Street NW, Suite 204, Washington, D.C. 20005, Phone 202/452-7674.

ELECTROGRAVITICS FOR POWER, LIFT AND PROPULSION

In the early 1920s Dr. Paul Alfred Biefield, a physicist and acquaintance of Albert Einstein, working at the California Institute for Advanced Studies, discovered that a highly charged capacitor has an anomalous tendency to move in the direction of its positive pole. Biefield assigned Thomas Townsend Brown, his prodigy, to study the phenomena as a research project. That the effect is not due to ion wind is born out in claims that the effect exists under insulating oil and high vacuum.

Brown succeeded in developing and patenting numerous embodiments of the effect. This writer is indebted to Ed Pangman of Bountiful, Utah, for providing an extensive compilation of articles and patents relating to the Biefield-Brown effect. Brown's patents include proposals not only for propulsion systems (see for example U.S. Pat. 3,022,430, Feb. 20 1962) but also for over-unity electrostatic motors (see U.S. Pat. 1,974,483, Sept. 25, 1934).

The fundamental embodiment of the Biefield-Brown discovery consists of a simple condenser, that is, a two-plate dielectric sandwich. Use a dielectric with a high puncture voltage (high dielectric strength).

Apply a potential of 50,000 volts or more across the plates. The whole capacitor should tend to swing in the direction of the positive plate, if tethered. If placed on a balance beam with positive side up, the capacitor, when charged, should exhibit a loss of weight. The enigmatic force acting on the capacitor is reported to act in the direction of the positive electrode regardless of the orientation of the capacitor.

If you are fascinated by these claims and wish to conduct your own experiments the following notes are helpful:

1) All factors which increase capacitance increase the force: The greater the area of the plates, the nearer the plates are to each other, the higher the K or dielectric constant.

2) The effect is reported to increase with voltage. A Van de Graaff electrostatic generator is recommended as a voltage source. Care must be taken to avoid leakage.

3) Brown claimed that the greater the mass of the capacitor the greater the enigmatic force. This relationship alone suggests an electrogravitational connection.

4) Shaped capacitors augment the effect. Brown patented a condenser consisting of an accurate anode and small cathode fixed at the end of a dielectric shaft (like a parasol).

5) This writer has been unable to witness the Biefield-Brown effect in open air and recommends using a vacuum chamber.

6) Some means should be devised to demonstrate that the effect is not due to electron emissions from the cathode. Covering the cathode should suffice.

7) The effect may be transient and not sustained.

T.T. Brown devoted considerable effort, time and means to researching this effect. Although his work has been sensationalized, it has also attracted professional attention. "Electrogravitics Systems: Reports On A New Propulsion Methodology" edited by physicist Thomas Valone, M.A., P.E., is a current and cogent anthology of reports on the electrogravitic research of T.T. Brown [1].

Apparently, Brown was engaged in secret, post W.W.II research. The first report in Valone's anthology," Electrogravitics Systems," had been classified up until recently. According to the reports, there has been a multinational effort to develop antigravity technology and to implement the Biefield-Brown effect. The anthology contains works which speculate on the existence of negative mass. The tendency for certain charge carriers to exhibit antigravity is also theorized.

To date there are no known gravity shields but if T.T. Brown's work is valid, it is possible to create electrogravitational fields in the vicinity of a vehicle, causing lift or propulsion or both.

General relativity offers no apparent explanation for the Biefield-Brown effect. It was T.T. Brown's hope that a unified field theory would be forthcoming which would corroborate his work. With no hard evidence for the existence of negative mass, reconciling the Biefield-Brown effect with the third law of motion may indicate the presence of an aether - a challenge for orthodox science.

Whether or not the effect is intrinsically understood it may already be put to use in the propulsion systems of advanced aircraft. Included in Valone's anthology is a research paper by Dr. Paul La Violette entitled "The U.S Antigravity Squadron." The abstract reads as follows:

Electrogravitic (antigravity) technology, under development in U.S. Air Force black R&D programs since 1954, may now have been put to practical use in the B-2 Advanced Technology Bomber to provide an exotic auxiliary mode of propulsion. This inference is based on the recent disclosure that the B-2 charges both its wing leading edge and jet exhaust stream to a high voltage. Positive ions emitted from its wing leading edge would produce a positively charged parabolic ion sheath ahead of the craft while negative ions injected into its exhaust stream would set up a trailing negative space charge with a potential difference in excess of 15 million volts. According to electrogravitic research carried out by physicist T. Townsend Brown, such a differential space charge would set up an artificial gravity field that would induce a reactionless force on the aircraft in the direction of the positive pole.

An electrogravitic drive of this sort could allow the B-2 to function with over-unity propulsion efficiency when cruising at supersonic velocities.

In the forward to Valone's anthology, Elizabeth Rauscher, professor of nuclear and astrophysics at the University of Nevada, ends with this remark, "Let us re-examine Brown's work and rethink some of the issues which he has suggested to us. Science is an ongoing process, not a fixed set of facts, [and is] ever changing and developing."

REFERENCE

[1] Valone, Thomas (editor) "Electrogravitics Systems Reports on A New Propulsion Methodology" published by Integrity Research Institute, 1377 K street NW, Suite 204, Washington, DC 20005, (1994); 202-452-7674.

THE NEW SCHEME OF POWER

"Dead Elephants in the Living Room, or why we needn't build many more large power plants," *Rocky Mt. Inst. Newslet.*, vol 10, no 2, 1994, p 4.

SUMMARY

"Dispersed energy resources" refers to smaller, more easily locatable power generators such as photovoltaics (PVs), wind turbines, fuel cells, etc. This appears to be the most logical direction for growth in the ever-increasing need for the power industry. Huge power plants have some strong disadvantages that are overcome by the more versatile dispersed resources. Even though at present, many dispersed resources are more costly per kWh than traditional power plants, there are reasons that make them more sensible and cheaper too.

Reduced risk is a big factor. Big power plants costing up to a billion $ or more can take a decade to complete, during which inflation, cost overruns, and interest rate hikes make them a risky investment. **Shorter lead times** minimize those risks. Adding generating capacity in smaller, faster units, even if they are more expensive, is less costly in the long run. Since forecasting energy demand is notoriously an inaccurate science, the shorter lead times provide a "build-as-you-need, pay-as-you-go" system, deferring costs until the need is an absolutely sure demand. The result is **greater flexibility.**

Here's where the elephant comes in. "When a big powerplant breaks down, it's like having an elephant die in your living room. You need a second elephant, equally big, to haul the carcass away. Standby elephants are expensive." And they are not too speedy, either. Dispersed resources, on the other hand, are intrinsically more **reliable**, if they do fail they do it on a much smaller, less disastrous scale (not threatening the grid). And, when you consider **production vs. construction,** they are much faster to replace and easier to handle. The more big power plants that are built, the more they cost, because of expensive dynamics of siting, local opposition, complex construction, etc. Dispersed resources can exploit the benefits of mass production, and reduce prices and R&D costs as they produce more and better units. The labor is moved from the field to the factory, where it is less costly and easier to adapt to changes when needed.

Responding to **peaking power**, is easier with dispersed resources. For instance, PVs work best on sunny days when cooling loads peak. **Environmental benefits** are obvious, since renewable energy does not produce air pollution, acid rain, or greenhouse gases, and does not necessitate strip mining or deforestation.

Grid savings can be pinpointed by adding power when and where it is needed, which can lower grid losses, free up capacity, simplify grid repairs and upgrading, and extend the life of regulators and transformers. In remote areas, power companies can spend up to $15,000 to extend transmission lines for a mile. **Avoiding line extension** by using dispersed resources is such a savings in both construction and service that many power companies are seeing this advantage first. **Social benefits** are a much broader category, and sometimes not even expressed in dollars. Quickly filling needs, improving public health and balance of trade, reducing cleanup problems and environmental stewardship are only some of them.

"Deployed in close conjunction with energy efficiency programs, dispersed resources have the potential to help reshape the utility business." As research improves the "dispersed resources" and the prices become lower, utility companies will begin writing off many of the huge powerplants and not build more. PG&E has already disbanded its powerplant construction division. This is the wave of the future.

Summary by D. Torres

SUPERCONDUCTOR NEWS

Daniel Clery, "New Clues to Superconductivity", *Science*, vol 265, no 5174, 12 Aug 1994, pp 860-862.

Scientists all over the world have been intensely searching for a theory that would explain superconductivity. Lately, two major types of theory have been competing for ascendancy; one based on the existing models of superconductivity, and the other on an entirely new mechanism. Both models have their staunch adherents, but researchers were unable to provide definitive evidence for either one. That picture may now be changing.

The work to settle the question is motivated by more than just academic curiosity. Researchers hope that once the answer is in, it will lead to an understanding of how the composition and structure of a specific material are linked to its ability to superconduct. Experimentalists may then be able to use the information to devise recipes for new superconductors that will work at ever higher temperatures - bursting through the current temperature barrier.

A common denominator of both conventional low-temperature superconductors and the new high-temperature materials is that electrons travel in pairs (known as Cooper pairs). This pairing is crucial to the theory that explains low-temperature superconductors. The former existing superconductivity theory predicted that the highest possible superconductivity temperature was around 40°K because it was thought that above 40°K thermal agitation would break the pairs of electrons apart, destroying their affiliation with the phonon and hence their ability to move through the crystal without collisions. Yet soon after the discovery (in 1986) of the new superconductors, researchers found that at temperatures above 40°K, electrons still travel in pairs. One of the two sophisticated theories now under consideration predicts that the pair of electrons has some angular momentum apart from the spin of each electron. In this theory the electrons orbit around each other like a binary star system, a form of symmetry known, in quantum mechanics, as d-wave.

Beginning around 3 years ago, several types of experiments began pointing to the possibility that electrons do indeed pair with d-wave symmetry. The author states,"Now while most researchers believe that it is only a matter of months before they will be able to say, without reservations, that the electron pairs have d-wave symmetry, a comprehensive theory that everyone agrees to may be years away. But after years of stumbling around in the dark, deciding the issue of pair symmetry is for theorists a glimpse of light at the end of the tunnel."

NUCLEAR GUARDIANSHIP FORUM

On the Responsible Care of Radioactive Materials

Nuclear Guardianship is a citizen commitment to present and future generations to keep radioactive materials out of the biosphere. Recognizing the extreme damage these materials inflict on all life-forms and their genetic codes, Nuclear Guardianship requires:

- interim containment of radioactive materials in accessible, monitored storage, so that leaks can be repaired, and future technologies for reducing and containing their radioactivity can be applied;

- stringent limits on transport of radioactive materials, to avoid contaminating new sites, and to minimize spills and accidents;

- cessation of the production of nuclear weapons and nuclear energy;

- transmission to future generations of the knowledge necessary for their self-protection and the ongoing guardianship through time.

The Nuclear Guardianship Program is a citizen's educational effort aimed at developing the political,

technical and moral understandings required for the responsible care of radioactive materials.

The Nuclear Guardianship Forum is an occasional newsletter published by the Project, and provides opportunities for ongoing, in-depth discussion among citizens, specialists, and policy makers on the responsible care of radioactive materials. For information contact NGP/Tides, 1400 Shattuch Ave. #41, Berkeley, CA 94709, USA.

NEWS FROM *HELIO*

The Rhode Island Solar Energy Association Newsletter, Spring 1994; 42 Tremont Street, Cranston RI 02920-2543. *HELIO* reports the following:

The Florida Solar Energy Center will provide technical assistance and training to implement a low-income program for solar domestic hot water heating systems to reduce energy costs. This 3-year pilot program sets a first year goal of 150 systems. Program success could lead to a nation-wide weatherization effort through the Department of Community Affairs and the Department of Energy. Call 407-783-0300, ext. 133 for information.

NESEA'a 6th Annual Sustainable Transportation and Solar and Electric Vehicle Symposium and Trade Show to be held in Providence, R.I., October 3-5. The symposium, which drew over one thousand people last year, was cited by the *Washington Times* as the "biggest convocation of electric vehicle scholars in the country." "In-depth workshops, concurrently held sessions and an extensive trade show will attract a broad coalition of transportation planners, electric and hybrid electric industry representatives, business people, policy makers, and engineers who are interested in the growth of a viable electric vehicle (EV) industry, and a vision of a sustainable transportation system for the nation," says event organizer Nancy Hazard of the Northwest Sustainable Energy Association.

Honda R&D Co. of Japan won the 11th World Solar Challenge in Australia in November 1993. The Honda "Dream" was powered by Sunpower Corp. of Sunnyvale, CA and passed the GM's Sunraycer record time by 9 hours.

As California tries for electric cars in 1998, Big Oil and Big Three Automakers are using big public relations firms to gather petitions and demonstrations to curtail utility plans before the Public Utilities Commission. The biggies, through front groups with subtle titles, were discovered by diligent investigators tracking the multi-million dollar money trail to these industries who NOW admit their involvement! CA will set the standards. Gov. Pete Wilson's administration is on the public's side and Detroit's electrics will move to CA if they don't change their efforts.

Electric Vehicle Race results in 1994 continue to prove electrics have a place in the transportation field. In March, James Worden of Solectra won a 125 lap race with an average speed of 65 mph and the fastest lap at 72 using nickel-metal-hydride batteries. An Exide Lola Racer competed 62 laps at 84 mph average and a fast lap at 95 mph.

Detroit has gone blind to the world-wide market for electric commuting vehicles and, at home, is legally fighting state mandates for zero emission vehicles. That is what happens when one is married to the oiled internal combustion engine and its infrastructure. Service stations could easily provide charged battery pack units and a recharge service as we evolve to all electrics. Even electric utilities see a market for off-peak recharging in homes, parking lots, and stations. In the near future we will see all composite vehicle bodies with long-lasting 100,000 hour electric motors and simple electric controls. This is what the smart foreign marketeers will do in 3 years! Detroit's excuse is that technology isn't ready, that the public doesn't want it, and it's too expensive.

An electric GM Impact, redesigned aerodynamically and weighing 3,250 pounds, set a new world record for land speed at 183.075 mph over a one mile distance on March 11, 1994, at the Fort Stockton Test Center.

LETTERS

LETTER TO A REPRESENTATIVE
From Dana Rotegard

To Rep. Karen Clark
Minnesota

Dear Rep. Clark,

In our conversation of 6-24-94 you expressed some enthusiasm for the possibility of using cold fusion technology to process nuclear waste into benign isotopes. I attended the recent DFL convention in St. Paul and staffed a table for the Minnesota Cold Fusion Alliance. We had a small demonstration project going on our table on the ramp. It was a rare-earth magnet, cold fusion experiment that had produced significant excess heat in experiments run privately from February to April of this year. My principal agenda for being at the convention was to promote a platform plank in support of cold fusion research. With a little hard floor work, from Tim Laughinghouse and myself, the cold fusion plank passed by voice acclamation on Saturday night between ballots in the governor's race.

The principal thrust of applied cold fusion research is to come up with a commercially viable, simple ~20Hp fusion reactor for alternate energy application, (probably first in Toyota or Fiat electric cars). Replacing fission power with this technology is the alternate energy goal. However, this new science directly impacts on the nuclear waste issue that should have been a factor in the debate. Due to the decrepit state of science reporting in the mass media, it wasn't.

There is solid experimental and theoretical scientific work that one can access through the Fusion Information Center of Salt Lake City, and EPRI's Fourth International Conference on Cold Fusion, Dec. 6-10, 1993, that suggests that there may be a direct solution to the nuclear waste problem.

On May 5, 1993, Dr. Edmund Storms of Los Alamos testified before the U.S House of Representatives Space, Science, and Technology Committee:

"... some speculate there is a **possibility** of converting harmful radioactive isotopes into nonradioactive elements at room temperature using properly constructed electron environments. Consequently, one of the troublesome aspects of fission energy might be **eliminated.**"

Since 1991 several experimenters have reported excess heat from cold fusion on nickel using ordinary water with alkali chemicals in the electrolyte for conductivity. Some researchers, such as Dr. Randell Mills of Thermocore of Pennsylvania and Dr. Jean Pierre Vigier of the University of Paris, felt this was non-nuclear excess heat.

Drs. Bush and Eagleton of California Polytechnic at Pomona, along with Dr. Mizuno from the Japanese National University of Hokkaido in Sapporo, and Dr. Srinivasan of the Indian Bhabha Atomic Research Center outside of Bombay, found that excess energy experiments using ordinary Potassium-89 in the electrolyte were yielding Calcium 40 as an end product, a reaction which accounted for the excess heat in these light water cold fusion experiments. Dr. Bush published a theoretical model showing how this process could be systematized. This model predicts the possibility of adding a proton to dissolved chemicals to change their nuclear composition. The documented transmutations from Rubidium 85 and 87 to Strontium 86 and 88 was predicted by this theory.

I and other interested parties had dinner with Dr. Bass, the patent counsel for ENECO at the EPRI cold fusion conference. He and Dr. Bush felt that the experimental procedure may directly lead to the electrochemical processing of a wide variety of noxious isotopes that could be stabilized. Because of the general cold fusion blacklisting that took place in President Bush's Department of Energy, very few teams of American scientists are working on this type of research. Interest and support in Japan, India, China, and Italy is very mainstream, with new work being reported in their respective mass media.

Simply put, it may be possible, a few years from now, to dissolve wastes from fission nuclear reactors

and, using cathodes saturated with hydrogen, add a proton to radioactive isotopes changing, say Cesium 137 to Barium 138.

For the Minnesota legislature to take advantage of this new science is one of my hopes and the reason several prominent Minnesotans formed the Minnesota Cold Fusion Alliance in 1993. The DFL is now the first large political party to have cold fusion research for a platform plank.

When Kurt Laughinghouse and I introduced several officials of the Carlson administration to some of the hands-on research at the University, the response was underwhelming. Hearings on this area of science could produce some star witnesses both from the local community and some impressive technical demonstrations from the groups who have been working with the University of Minnesota Department of Materials Science. This line of research is controversial (as is all cutting-edge science), but the possible benefits are staggering.

Professor Earl Joseph of Walden University in Minneapolis, the editor of *Futurics* along with faculty of the University of Minnesota or MCFA could be called to make any hearings credible. Hal Fox of the Fusion Information Center in Salt Lake City, just got back from coordinating a major conference in Minsk in the shadow of Chernobyl. Alternate energy is rightly one of the major planks in the DFL's 1994 campaign. I hope you find time in your 1994 campaign schedule to help this new science get a hearing in the Minnesota legislature.

Sincerely,
Dana Rotegard

IS THE GOVERNMENT LISTENING?

John Miranda, of North Bergen, NJ, has been trying to find out who is listening. He mailed out letters to members of both the House and Senate, pointing out new discoveries in energy science, particularly that of Hal Puthoff, and asking the "Public Servants" to at least look into the matter personally and read some non-biased reviews of research. He wrote:

"The 'a priori' reaction that zero-point energy should not be seriously reviewed because it allegedly violates the known laws of science is little more than dogmatism. That same dogmatism was the driving force behind such certainties as the flat Earth, the Earth as the center of the solar system, and the fact that man could never create a functional heavier-than-air machine, not to mention fly rockets to the moon. In each of these cases there was more to be learned; that required an open mind, the willingness to expand the possibilities beyond the dogmatism of the day.

"In my opinion, we have three ways to approach electronic energy: 1) allow the possibility that those who have working models are on the leading edge of a monumental technological leap, 2) continue to maintain the 'ostrich' stance, hiding our faces from evidence, or 3) suppress the technology. What can you do to pro-actively pursue option 1) above?..."

Mr. Miranda points out that Japan and India have already officially funded research in new energy areas. In the close, he invites the legislators to come to the International Symposium on New Energy, held last May in Denver. To the letter was appended a biographical letter on Dr. Puthoff, and a copy of Toby Grotz' report on his "Around the World" trip to visit new-energy scientists and researchers.

The responses to Mr. Miranda's letters were either noncommittal or nonexistent. Some merely referred the letter to "his" congressman, since they lived in other states, and couldn't listen to nonconstituents. Some forwarded the letters to their Washington staff or to the Senate Energy and Natural Resources Committee.

Thank you, John Miranda, for your attempt to educate the "Public Servants" who we have put into office. Maybe the attempt will be fruitful, and even one legislator will really get interested in digging out the real truth about new energy research. We sincerely hope so.

LETTER FROM TOBY GROTZ, INE

I would like to set the record straight in regards to Tom Valone's letter in which he claims that the ISNE suppressed his N-machine paper. The ISNE Steering Committee did not suppress any papers. As a matter of fact, the ISNE published his N-

machine paper in the 1993 ISNE Proceedings. The committee chose papers for the 1994 ISNE based on several criteria. The main criteria in selecting papers and speakers was that they were currently working in free energy hardware, theory, or with others. As he stated in his letter, Mr. Valone built an N-machine 14 years ago. Also, at the time his abstract was submitted, there were few speaker slots left and those were being saved for last minute hardware finds.

Like any other professional organization, INE has the right to accept or reject papers or speakers for a symposium. This does not mean that papers are suppressed if they are rejected. Try to publish a paper on Homeopathy in *Science Magazine* and see what happens. The Inter-Society Energy Conversion Engineering Conference (IECEC) has rejected the papers of several INE members and associates. This does not mean that they were suppressed. It means that they did not meet the requirements of the steering committee.

I think that Mr. Valone's criticism on the N-machines is valid. If I was building an N-machine I would certainly address the issues he raises and seek his advice. In order to resolve the issues he raises, I would encourage Mr. Valone to *build* a 20 kW, 10,000 rpm N-machine and prove *his* thesis.

Sincerely, Toby Grotz

LETTER FROM RENEWABLE ENERGY DEVELOPMENT INSTITUTE (REDI)

We would like to extend a warm thanks from all of us at REDI for your participation in the Solar Energy Expo and Rally (SEER). You efforts and presence at SEER'94 were very important to us in helping to make this event the success that it was.

Each year we have attempted to expand the scope and audience of SEER. Especially with the move to the fairgrounds in Ukiah, SEER'94 was highly ambitious for us as a grassroots, mostly volunteer organization. We want to express our appreciation for your patience and consideration in working with us.

Any funds raised as a result of SEER are plowed directly into other nonprofit REDI projects, such as REDI.Net, the REDI Center and the future Sun Ranch. So, you are helping to support our long-term efforts to expand the awareness and use of renewable energy.

As a part of this, please let us know of any person, company or organization that we might not be in touch with whom you think belongs in our resource database and should know about our activities. We look forward to seeing you at the REDI Conference, August 5-7, 1995 or once again for another fun and educational event at SEER'96. We'll keep you informed of our plans.

Janet M. Orth, CAO
and the SEER/REDI Board of Directors

LETTER FROM ALASTAIR COUPER

I have done some tests of circuitry along the lines suggested by Jensen in the article "The Unidirectional Transformer," (p 545, Proceedings International Symposium on New Energy, 1994). The claim is that placing two coils in phase opposition to each other but located at different positions on a ring structure will cause a cancellation of the B field at all points of the ring. This was also pointed out by Frolov in the June *NEN*.

My tests of this idea were done at 60 Hz using standard transformer laminations. One configuration used a square loop of laminations 5 inches on an side and 3/4" by 3/4" in cross section. Coils were placed on opposite sides of the loop and energized to give moderate levels of flux. A two turn sense coil was placed on the loop such that it could be slid around to sniff the B field at each point. With the coils connected to give phase opposition, the B field near each coil was unaffected by the other, and actual cancellation occurred only at the midpoint between the two coils. With the coils connected in phase, the B fields measured nearly constant at each point. In the first case the core material in essence could not contain the field and it filled the surrounding space. In the second case, the field 'flowed' easily in the core and was contained there. This demonstrates the ideas of reluctance and permeability, respectively.

Thus, in the two Jensen transformers I assembled, the field in the outer loop did not cancel and load variations were reflected back to the source. Frolov mentioned a twice unity gain in his test, but gives no further clues as the configuration. From what I have seen so far, the only situations where flux

cancellation occurs is when the coils used occupy the same space (i.e. bifilar), or in the air gap between two opposing pole faces. This theme is seen also in the Energy Trimmer circuit [1]. The claim there is that their circuit will work with coils overlapping or placed separately on a ring. My test of the model one configuration using the number of turns suggested in the article resulted in a low efficiency as the magnetizing current was high, not surprising.

From all this I feel there must be some additional factor of a geometrical nature which must be brought into play in order for the two opposing fields to actually flow through each other and cancel more extensively. Any naive assemblies will always result in overall loss. Perhaps this is responsible for the Adams motor replication failures.

The Gray motor also used this same theme of magnetic pole opposition and reported large repulsion forces and battery recharging. My own experiments with discharge of high voltage capacitors into opposing electromagnets have not produced the excessive thrust or backspikes, even though a wide range of coil forms were tried. Again I conclude for the moment that the missing factor is geometry. (However, I note that it appears the capacitors in the Gray motor were charged in a manner similar to that described by Bearden [2]. This could be an important consideration in the operation of the repulsion coils.)

I would assume that others have looked at the Jensen transformer and might have some additional insights. I am glad that this publication allows for such easy sharing of information, as I am convinced that sharing will bring results more surely than any other way.

Alastair Couper

REFERENCES

[1] Melvin Cobb and J.J. Hurtak, Ph.D., "The Energy Trimmer: An Energy Conservation Circuit," proceedings International Symposium on New Energy, 1994, pp 99-107.

[2] T.E. Bearden, M.S., "Overunity Electrical Power Efficiency Using Energy Shuttling Between Two Circuits," proceedings International Symposium on New Energy, 1994, pp 49-65, description referred to on p 53.

EDITOR'S COMMENTS

We greatly appreciate those who take the time to do experimental work AND REPORT ON IT SO WE CAN SHARE YOUR RESULTS. This is the type of action that will solve our energy problems. --Ed.

Meetings

SYMPOSIUM REVIEW

Richard Hull, "Reports from the 1994 New Energy Symposium," *Elec. Spacecraft J.*, vol 12, 1994, pp 12-17.

The New Energy Symposium, held this past May, 1994, in Denver, offered researchers and experimenters the chance to meet and network with men and women from all over the world who share the hope that someday soon, a new source of energy will be discovered. This article talks about the people and the highpoints of the symposium, as well as the lectures and demonstrations.

NEXUS SYMPOSIUM REPORT

"Report on the International Symposium on New Energy," *Nexus*, vol 2, no 21, Aug.-Sept. 1994, p 56.

Nexus gives a short report on the Denver Symposium sponsored by the Institute for New Energy, a branch of the International Association for New Science (IANS), mentioning some of the speakers, but mainly concentrating on the demonstration by Bill McMurtry and comments they have received about the Adams Motor. The report was accompanied by the short article referenced below.

Jeane Manning, "Living Legends of New Energy Science," *Nexus*, vol 2, no 21, Aug.-Sept. 1994, p 56-57.

The diversity of people and research were the prime thrust of this article. It mentions Christine Ferguson, a film-maker who is doing a documentary on new

energy, interviewing John Searl and other speakers at the symposium. "The excitement and expressions of optimism at their symposium surpassed even their first gathering in Denver last year." Researchers from around the world met, spoke and networked during the three day gathering.

Shiuji Inomata of Japan spoke of plans for a superconducting-magnet version of the N-machine. Don Kelly performed successful drop experiments with his charged discs. Bill McMurtry demonstrated the Adams Motor, without over-unity success, but the research still is viewed as possibly viable for further investigations. Adams himself, Bruce DePalma and Bruce Cathie, all of New Zealand, had been invited to speak at the conference, but cancelled at the last minute.

Also highlighted was an original Keely motor, brought by Victor Hansen and explained by Dale Pond. The politics of energy was the topic for Andrew Michrowski, director of PACE (Planetary Association for Clean Energy) and Brian O'Leary, energy critic and advisor, who co-founded IANS. A tribute was read to Rolf Schaffranke, former NASA space program consultant and pioneer in new energy research, who passed away in April 1994.

Proceedings of the New Energy Conference are in a 650-page book, soon to be available from the Institute for New Energy, P.O. Box 58639, Salt Lake City, UT 84158-8639, USA.

INTERNATIONAL FORUM
ON NEW SCIENCE
SEPTEMBER 14-18, 1994

New Science includes topics and phenomena which cannot be explained by traditional science and yet may have the potential for significant benefit to the health and conditions for humanity and the planet Earth. The purpose of the forum is to gather open-minded researchers for scholarly presentations and discussions of theories, hypotheses and research results on New Science topics; to provide a constructive setting for interested participants (both lay and professional) to learn more about new science and to provide a worldwide forum and network for its presentation and discussion. Initiating a paradigm shift in science and health care is a major goal of this conference and this association.

Scholarly papers are invited on any topic related to New Science as defined herein. These papers should include one or more of the following: theories, hypotheses, research designs, research results and analyses. Abstracts of not more than 400 words must be sent as soon as possible to the address on this pamphlet. Consideration of abstracts cannot be assured if received after August 1. Authors will be notified as soon as possible if the paper is accepted for presentation.

The Forum will be held on September 14-18, 1994, in Fort Collins, Colorado, at the Marriott Hotel. Several workshops will start on Wednesday evening. Each half-day session will begin with a keynote speaker, followed by concurrent sessions for presentation of papers. Workshops will take place in the evenings.

Registration fee of $120 will be changed before July 1, from July 1 to September 1 is $135, and after September 1 the fee is $150. Daily registration fee is $55 per person per day or $30 per half day. Workshops will be offered Wednesday, Thursday and Friday evenings by keynote speakers and others for $15 each. A banquet will be held on Saturday evening with a special program. The cost of the banquet is $20 for registrants and $25 for non-registrants.

The Forum will take place at the Marriott Hotel, at 350 Horsetooth Road, Fort Collins, CO. Single rooms are $59, and doubles are $69. Their phone number is (303) 226-5200 or 1-800-548-2635. Detailed housing information will be sent upon receipt of registration. Reservations should be made by August 31 to insure group rate.

Sponsored by the International Association for New Science, (303) 482-3731.

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CONTENTS FOR SEPTEMBER 1994

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