

New Energy News

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THE EVERYWHERE SOLITON

By Hal Fox, Editor

About 1835 a young engineer, John Scott Russell, watched a heavy barge being towed by horses down the Union Canal near Edinburgh, Scotland. As he watched, the tow rope broke and the barge settled down into the canal. The result was the creation of a big hump of water that began traveling down the canal. Such water waves are expected to disperse or breakup and die away into ripples. This wave was different. Russell jumped on his horse and with amazement followed the wave down the uniformly-shaped canal for a distance of two miles while the hump of the wave traveled serenely on with little sign of diminishing. Russell knew he had witnessed something unusual. He soon figured out how to create such solitary waves and tried to convince others that this type of wave was different. **With the same ardor that cold fusion has been accepted, the Royal Astronomer George Biddle insisted that the hump of a wave was only the top half of an ordinary wave. Lord Stokes produced a mathematical proof that the wave was as impossible then, as tapping vacuum energy is today.**

Waves disperse because of the combined effects of dispersion and compression. It was not until 1895 (about 60 years after Russell's discovery) that two Dutch mathematicians (Diederick Johannes Korteweg and Hendrik de Vries) showed that an unlikely proper balance between dispersion and compression could, indeed, create and/or sustain a single hump of a water wave. **In 1965 two U.S. scientists (Martín Kruskal of Princeton and Norman Zabusky of Bell Labs) decided that these "solitary waves," which they dubbed "solitons" would be found in many places: electromagnetic fields, water, air, and other yet-to-be-discovered places.**

In an article titled "Lone Wave" by David H. Freedman in *Discover* magazine for December, 1994, the author treats the soliton in detail. The article tells about

solitons being found in cellular proteins; are the probable source of energizing muscle tissue to make it contract; perhaps the source of the unzipping of long DNA chains; maybe among quarks in a high-energy space bubble; and possibly in large soliton stars.

Now solitons are suggested as being formed during earthquakes, in weather patterns, and even in Jupiter's atmosphere as the famous "red spot." Solitons have been formed in magnetic fields and have been produced with lasers so that the soliton forms at some distance from the laser. Scientists are even suggesting that it is solitons that are characteristic of both wave and particle and may be the unit that explains some of the observed phenomena of quantum mechanics. The article concludes with the following: *"Solitons look a lot like what a few people have always thought a particle should look like in quantum mechanics," says Alan Newell. Even if solitons don't give physics a Theory of Everything, their ubiquity and influence suggest that there are hidden connections between different realms of nature. "This shows that no area of science stands alone," say Newell. "The soliton cuts across all of them."*

Now let's jump onto the ideas presented in Freedman's article and question where solitons might fit in cold fusion or in space energy. Would it be appropriate to consider that the Lorentz-type electromagnetic field that fills all space consists, to a large extent, of solitons? Are solitons the type of waves that can accelerate particles until they become so energetic they show up as bursts of cosmic radiation? **Is the high-density charge cluster of Ken Shoulders experimental work a type of soliton and is that why such a cluster can continually extract and give off energy from the vacuum field of energy?** Is it the creation of solitons that allows for the penetration of the Coulomb barrier and results in changes to the nuclei of atoms (thereby transmuting one element into another element, one

step up the periodic table)? Do mosses and fungi create solitons to create elements that have been removed from the experimental nutrient solution? Is the phenomenon of sonoluminescence due to the creation of solitons? Do solitons play a role in subtle energies in nature? Can we use a soliton generator to stabilize radioactive materials? **Readers. Any further ideas or answers?**

Editorial

CORRECTION OF EDITOR'S ERROR:

In the NEN Editorial for November, 1994 (page 2) a portion of a paragraph got dropped and a statement appeared to be attributed to Dr. Pelligrini when it should have been to Dr. Hal Puthoff. Here are the two paragraphs that got merged. My apologies:

Dr. Gerald Pelligrini has challenged his scientific friends to discuss, debate, or argue with him on the following proposition: The Wilson and Wilson (c. 1915) experiments were flawed and, therefore, these experiments cannot be used to buttress arguments in favor of the Special Theory of Relativity.

In a similar manner, Dr. Hal Puthoff has been writing about the theoretical implications of beginning with the concept that there is an energetic ether and then mathematically deriving the outcomes. Hal Puthoff and associates have shown that gravity, stability of matter, and inertia [with Haisch & Rueda, *NEN*, Feb. 1994] can be best explained in this way. Furthermore, he [Hal Puthoff] will challenge his friends with the concept that there is overwhelming evidence that there is an energetic ether.

[End of apology. Hal Fox, Ed.]

EDITORIAL POLICY FOR *NEW ENERGY NEWS*

Dr. Win Lambertson, in a recent letter to the editor, stated the following:

"... I do not think I.N.E. should act as a gatekeeper to approve or disapprove of inventors, such as I am. However, this is a decision for the Board [of

Institute for New Energy] and I am sure they will direct the organization in a way which is best for the industry. ..."

It is difficult for an organization like I.N.E. to establish policy when the members of the Board are so geographically separate and there are no travel funds. However, the I.N.E. newsletter, *New Energy News*, must have an editorial policy. Until directed otherwise by the INE Board, here are the elements of the NEN editorial policy:

1. NEN is a new energy newsletter and seeks to find and publish items of interest in the areas of new energy technology such as cold nuclear fusion, rotating "over-unity" machines, solid-state devices that provide an enhanced output compared to input power, magnetic systems that enhance power, devices or systems that tap vacuum energy (space energy).
2. In addition, NEN publishes summary information about solar, wind, and geothermal alternate energies, if space permits and if the information is deemed important. These topics are not considered to be new energy but alternative energy topics and are considered to be of secondary interest.
3. NEN tries to find, understand, interpret, and summarize new theoretical papers that attempt to explain cold fusion and space energy.
4. NEN is not a journal and, therefore, does not publish lengthy articles. NEN is a newsletter and tries to locate, summarize, and report to its readers on various journal articles. The reader is expected to use these citations to guide his/her reading into the more technical literature.
5. NEN is not a peer-review publication, **however, there must be some type of a review process that makes decisions on what to print.** For example, we do not normally cover UFOs, subtle energies, alternative health topics, nor speculation about unusual theories. **Hal Fox, as editor, is generally the person that selects what is printed, therefore, Fox can be criticized as being an arbitrary one-man peer-review. Hal has the ultimate responsibility for the technical content of the newsletter and, therefore, is the one to criticize or berate for the content of the newsletter.** Hal welcomes your constructive criticisms.
6. NEN publishes short articles on new energy topics. The preferred articles are experimental results with

data and sufficient detail for readers to replicate the experiment reported. Some short theory papers are acceptable if they are of journal quality in content, mathematical support, and cite the literature.

7. NEN is strongly dependent on its readers, all over the world, to inform its staff of new energy developments. **Our readers have been marvelous in filling this need. Our thanks to all of you who have brought new items to our attention.**

At times NEN has published information on a new energy device or system that has been highly praised only to later find that the device or system either did not function or did not live up to its billing. Under such circumstances, the policy of NEN is to withhold further information until the claims could be supported. It is not our policy to condemn inventions, nor premature enthusiasm. The truth will be available in time, if the device or invention has merit **and we hope that NEN will be one of the first to share such truth with its readers.**

A financial note: The cost of publishing the monthly NEN newsletter is currently about \$1,000 a month more than is obtained by subscriptions. The losses are being covered by a combination of volunteer labor (Fox receives no funds for his services) and donation of office space and equipment (from Fusion Information Center, Inc.) NEN subscriptions are growing and will, we believe, reach 1,000 in 1995. We need the continued help of all of our readers to spread the word. **We are receiving comments from various parts of the world that highly rate our newsletter as being one of the best in this new energy technology.**

Part of the success of the I.N.E. and its newsletter must be attributed to many hours of effort by officers and board members, especially from Dr. Patrick Bailey, president of I.N.E.

IF YOU WANT TO HELP ...

Simple write, phone, or fax NEN with the name and address of anyone whom you believe would be interested in receiving a copy of *New Energy News*. The NEN staff will do the rest. Phone: (801)583-6232; FAX (801) 583-2963 [58-FAXME]; Address: P.O. Box 58639, Salt Lake City, UT 84158.

Fusion Briefings

STILL DOUBTING COLD FUSION

David Goodstein (Vice Provost, Prof. Phys., Dept Phys. & Appl. Phys., Cal. Inst. Techn., Pasadena, CA), "Pariah Science: Whatever happened to Cold Fusion? *The American Scholar*, Autumn 1994, vol 63, no 4, pp 527-541.

SUMMARY

This is an articulate and well-written article, which regrettably doesn't look at all the facts with an open mind. However, the impression is not one of hostility and fanaticism, rather as a highly skeptical observer, who still gives cold fusion a hair-slim chance of being possible, only not as currently presented. The article contains some damaging misconceptions about the level of scientific process observed by cold fusion proponents and the accuracy of their observations.

Goodstein is close to both sides of the debate, being a colleague of skeptics Koonin, Lewis, and Barnes (all also from Caltech), and a close personal friend of cold fusion researcher Franco Sacarmuzzi of Rome. Goldstein's observation "both sides of the debate violated what are generally supposed to be the central canons of scientific knowledge" was partly correct. He asserts that negative results of many experiments were discounted by cold fusion proponents, while heeded by their opposition. But because the positive results were contrary to what was supposed to be immutable scientific law, the opposition denied all positive results - equally bad science.

Goodstein accurately says, "To believe that Pons and Fleischmann, Jones, and Scaramuzzi, and many others who claimed to observe either heat of neutrons or tritium, were all observing the same phenomenon, one must believe that, when fusion occurs inside a piece of metal, such as palladium or titanium, the outcome is radically different from what is known to happen when fusion occurs in the Sun, or in a hot-fusion plasma, or an atomic bomb, or a nuclear accelerator. It must be different from conventional physics."

Goldstein gives the example of High Temperature Superconductivity, and the Mössbauer Effect as

examples of surprises that may be found in science, unreflected by current theory, and yet become accepted scientific fact. A superconductor effect was first observed in 1911, but it wasn't until 1986 that both theory and materials could accept or utilize the phenomena. The Mössbauer Effect, much like Cold Fusion, presented scientists with a new idea that didn't fit in anywhere in their current theories, but came to be recognized as a special case. Both are good examples that no new observation should be summarily dismissed, especially when there are a variety of conflicting observations.

The main factor in Goodstein's rejection of cold fusion is there are no dependable recipes for reproducible experiment. The results seemed to vary widely in content. Sometimes researchers would detect particles, sometimes tritium, sometimes heat, sometimes a mixture. Results didn't fit acceptable theory.

Goodstein does not come across as a pathological skeptic, merely as a dedicated scientist that has not gotten the complete story and has a minor case of "blinders" brought on by focusing too intently on *current* theory. That is refreshing.

COMMENTARY LETTER BY EUGENE MALLOVE

Dear Professor Goodstein:

I read your attempt at an assessment of cold fusion in "Pariah Science" in a recent issue of *The American Scholar*. It was notable in that it did not take the standard hard line against the field as "pathological science." You were pleasant and reasonably kind. Nonetheless, your views fall far short of an accurate assessment. ...It is quite evident that you simply have not been following what has been happening in the field.

I enclose a copy of the first issue of "Cold Fusion" Magazine to provide you with information that you sorely need.... I have also attached my editorials which appeared in the subsequent issues, as well as my critical review of the Taubes book. My review of Huizenga's book is in the issue that you have in your hands. Have you read my book, *Fire from Ice: Searching for the Truth Behind the Cold Fusion Furor* (Wiley & Sons, 1991)? *Fire from Ice* brings the story up to May 1991, but much has happened since then.

Here are *some* specific problems with your review....

* You write: "Cold fusion papers are almost never published in refereed scientific journals, with the result

that those works don't receive the normal critical scrutiny that science requires." This is blatantly false. Though it has, indeed, been difficult to get cold fusion papers into several main stream journals, such as *Science* and *Nature*, ... many excellent peer-reviewed journals continue to publish cold fusion articles. To name but a few: *Physics Letters A*, *Fusion Technology*, *Japanese Journal of Applied Physics*, and the *Journal of Electroanalytical Chemistry*.

* Then you remark: "... there is little internal criticism. Experiments and theories tend to be accepted at face value." Complete nonsense! Theories of all kind are definitely listened to, but to suggest that they are all accepted "at face value" is preposterous. Likewise with experimental results. For example, there is a gap between some of those who believe in the validity of the light water excess heat experiments with nickel cathodes (NOT palladium!) and potassium carbonate electrolyte and those who accept the results only of the "traditional" heavy water systems. Those who suggest that heavy element transmutations have been observed are the least believed in certain cold fusion quarters, though that is changing now that skeptic Kevin Wolf has seen radioactive rhodium, silver, and ruthenium in his Pd rods -- a serendipitous discovery.

You describe the May 1, 1989 APS meeting in which your colleagues "executed a perfect blocked shot that cast Cold Fusion right out of the arena of mainstream science." That time was certainly a critical turning point, nothing for your colleagues to be proud of. In retrospect, Koonin and Lewis were completely in error and horribly obtuse... In days before the APS meeting, individuals at MIT had done their own (albeit mostly behind closed-doors) assaults against cold fusion, which broke out in the infamous Boston Herald planted story by MIT Professors Ronald Parker (Plasma Fusion Center) and Ballinger... [Parker's] deception nearly cost the job of the Boston Herald reporter... He imputed possible "fraud" to Pons and Fleischmann and said their work was "scientific schlock" - then he denied he ever said that! Fortunately, the reporter had the tape of the interview, so he kept his job. This opened the flood-gates of ridicule, and let your Caltech boys have a field night at the APS.

You say that Lewis and Barnes "refused to believe what they couldn't reproduce in their own laboratories." In point of fact, the Caltech results in calorimetry are totally ambiguous -- and worse... There is another interesting aspect to this. No less than three scientists corresponded with *Nature* magazine in an effort to introduce criticisms of the published Lewis, et al. paper. After lengthy iterations, the then *Nature* (Washington)

editor, David Lindley, chickened out. He knew that there were glaring issues, but he refused to allow negative correspondence to be published. This would have demolished the so-called "null result" of Lewis... These *Nature* refused to publish! (You should know that the MIT calorimetry situation was worse. That was blatant data fudging of a clearly positive excess heat result [Mallove attached the paper by Dr. Mitchell Swartz to his letter].)

* You later write of Lewis and Koonin: "They pursued every lead with relentless tenacity and Popperian vigor, finding the mistakes of other scientists." There is only one word for your assessment, in view of my previous comments about their experiments and behavior: [expletive deleted] ...

* Here is where you make your most egregious error: "All parties agreed that if Cold Fusion occurred...the primary event would have been the fusion of two deuterium nuclei.." This shows your blinders. Go back and read the original paper by Pons and Fleischmann. They indicated quite clearly that d-d fusion could NOT be the whole story. That's just the straw man that Koonin, et al. set up. As an example, MIT Professor Hagelstein's theory does not rely on d-d fusion -- his [theory] posits neutron transfer reactions. And others who suggest that it IS d-d, find theoretical ways of explaining why no massive radiation flux. **The late Julian did a lot of work on that. He resigned from the APS because your man Koonin and others stupidly blocked his publications in the "sneer review" process.** So Schwinger published in PNAS and elsewhere.

* You write: "Is it plausible that the nuclear reaction might be altered radically when it takes place among the atoms in a metal, rather than in the rarefied atmosphere. The answer, quite simply, is no." Oh? Let's get down to basics here. **If laboratory after laboratory reports tritium generation in palladium and titanium lattices -- there are several dozen now -- are you going to deny experimental evidence forever?** Are you going to believe your sacred theories forever? Let me remind you: **the basis of physics is experimental data, NOT theories.** If those theories can't accommodate new data, then they must be regarded as good theories up to a point, but they require modification to encompass the new data. The superconductivity analogy is very pertinent here.

* You write: "If cold fusion ever regains the scientific respectability that was squandered in March and April of 1989, it will be the result of a long, difficult battle that has barely begun." Substitute the word "Caltech" for

"cold fusion" in that sentence and you'll have a proper statement. Wake up Dr. Goodstein! The battle for cold fusion is almost over and it's time for Caltech to begin making amends -- or at the very least to be doing some serious soul searching.

* You say you were "even more distressed when I learned that Franco and his group had observed excess heat (the 'bad kind' of Cold Fusion)." Yes, indeed, what *do* you know about electrochemistry?! **You are distressed that your friend gets a positive excess heat result, just because you are plagued with paradigm paralysis?**

* You end with "What all these experiments really need is critical examination by accomplished rivals intent on proving them wrong. This is part of the normal functioning of science. Unfortunately, in this area science is not functioning normally." You have it all wrong, my friend. **Science is functioning quite well in this area -- people ARE trying to prove themselves wrong about each new kilometer below the tip of the giant iceberg discovered by Pons and Fleischmann.** It is *outside* this area that science has degenerated to what has aptly been called "pathological skepticism."

...May I suggest before a return visit to your philosophy class, "Ethics of Research," you probe much deeper into this cold fusion business than you have with your published essay.

Sincerely,

Eugene F. Mallove, Sc.D.

FACT OR FANTASY FROM BRITAIN

Courtesy of the author

Douglas Clarkson, "Cold Fusion - Fact or Fantasy?" *The Maplin Magazine Electronics*, vol 13, no 80, August 1994, pp 3-9.

SUMMARY

"In spite of indifference and official antagonism, there is no doubt in the mind of many scientists that work on cold fusion research is providing valid findings -- not perhaps in the full gaze of national physics laboratories funded by taxpayers, but in independent and commercial laboratories around the world." So begins a thorough and well written article on the history and current affairs of the phenomena of cold fusion.

From its first stages of difficult replication and apparent defiance of physical "laws," cold fusion has progressed. There were clues in the past that pointed to the anomalous phenomena to come. In the 1920s, two German scientists, Paneth and Peters, claimed to have formed Helium from Hydrogen using a Palladium catalyst. At that time the interest was in Helium as a replacement for Hydrogen in Zeppelin airships. (Palladium's ability to absorb very large volumes of Hydrogen had been previously researched in depth by Scottish physical chemist Thomas Graham in the 19th century.) Paneth and Peters' work prompted Swede John Tandberg to investigate using a Palladium electrode to fuse Hydrogen to make Helium. When Deuterium was discovered in 1932, Tandberg quickly decided to try to use this in his high voltage circuit to fuse Deuterium. Thus cold fusion was "anticipated" but never resolved into specific research.

In the 1970s Pons and Fleischmann were intrigued by the properties of Deuterium loaded Palladium. A "coherence" effect in the interactions of large numbers of Deuterium atoms in close proximity was predicted. And the possibility of effects not anticipated by standard quantum theory were considered.

On a foundation laid by theoretical discoveries in the 1940s by Andrei Sakharov of the U.S.S.R. and F.C. Frank of Britain, muon-induced fusion was demonstrated at UCLA Berkeley in 1956. Steven Jones, who would later be involved with early cold fusion at Brigham Young University in Utah, was extensively involved in researching this concept as an alternative to hot fusion. The work of George Chambers at the Naval Research Laboratory also produced surprising results when Deuterium ions were fired into a Titanium foil target, and gave off charged particles at about 5 - 9 MeV. But at that time such results could not be explained.

Explanations are made of glow discharge research of Yan R. Kucherov and colleagues Karabut and Savvatimova in Russia, which would appear to indicate some rather large gaps in present day quantum theory, and seemed to point to the possibility that cold fusion phenomena covered more area than previously thought. These experimental results were confirmed by Shell Corporation in France.

The research of Bruce Liebert and Bor Yann Liaw, at the University of Hawaii, using molten salts in the electrolytic solution produced far higher levels of excess power than ever before. Up to 600W per cu/cm

have been obtained. This particular permutation is still unexplained, and extremely difficult to replicate.

The past problems of cold fusion are discussed, including the Coulomb barrier, hot fusion interpretations of cold fusion particle emission (or lack thereof). Only now "present observations are being interpreted on the basis of radically different mechanisms being involved in the fusion process."

Virtual neutrons and coherent deuterons are new theories that enable cold fusion to exist in spite of the Coulomb barrier. Scientists are becoming increasingly aware of the quantum behavior of individual atoms -- how they can have characteristics of both particles and waves.

Tritium production has been one of the great controversies, both because of its variability of detection and because most experiments detecting it have been without excess heat. These results are a problem for theorists.

The Deak Sonotek company is researching the use of sonic and ultrasonic waves to trigger cold fusion by the process of cavitation in liquids. The 'Sonactor' cold fusion reactor is being developed by David Deak, it primarily utilizes the effects of cavitation taking place on the surface of the cell electrodes to trigger cold fusion.

Normal light water is also noted, but in a non-fusion form proposed by Randall Mills of HydroCatalysis Power Corporation. The 'Mills Cell' has achieved instances of heat production around 500%, without the evidence of neutrons, gamma rays or Tritium. Researchers at the Catalysis Research Center, of Hokkaido University in Japan, are attempting to explain the cold fusion light-water phenomena of protons fusing with Potassium (in the Potassium Carbonate electrolyte) to form Calcium.

In his conclusion, Clarkson reiterates the phenomena of research itself, **that breakthroughs do not normally come from big government or corporation laboratories**, but from the small laboratories. The ending caveat is that "big" science and the entire scientific community have come to the time where they need to take the cold fusion group of phenomena much more seriously, both in consideration and in funding. He comments that **"certain elements of the scientific community have been behaving in a most unscientific way."**

- Summary by D. Torres

COLD FUSION CONUNDRUM

Stanley Schmidt (Editor, *Analog Science Fiction and Fact Magazine*), "Cold Fusion Conundrum," Editorial in *Analog Magazine*, vol 115, nos 1+2, January 1995, pp 4-10.

SUMMARY

Whether cold fusion is alive or not, what might we have learned from it so far? So begins an insightful editorial about the evolution of research and funding in the current scientific world. A short recap of the first discovery, rush, disillusionment and abandonment of cold fusion by most scientific circles is provided.

With the May/June issue of MIT's *Technology Review* and Edmund Storms' article "Warming up to Cold Fusion," a new closer look is taken at the continuing positive research and the probable causes of failure of other research in cold fusion. It is pointed out that the significance of some of the early negative reports were exaggerated, and **there have been enough serious positive results from reputable labs since to make it clear that *something* is certainly happening.**

No matter the outcome of cold fusion, it "is certainly important as a reminder of some of the pitfalls inherent in doing, evaluating, managing or funding research." While reproducibility is important, in such groundbreaking science, neither providing the instructions to duplicate an experiment, or following them, is likely to be as easy as it sounds. There are too many parameters that the researchers may be unaware of, especially when dealing with a brand-new phenomena.

If a chemist early in this century were to look at a sample of the semiconductors now used in electronics, he would have been completely unable to figure out how they worked or how to duplicate them. The "doping" that makes semiconductors work involves such minute traces of added material that the chemist would probably not have even detected them, or if he did, would have dismissed them as inconsequential trace impurities.

Any fundamentally new phenomenon is going to be hard, or even impossible, to explain with pre-existing theory. So if there are *some* positives, even with a lot of negative results also, it is just plain bad science to abandon the research and claim there is nothing there. If the photoelectric effect or the Michelson-Morley experiment were dismissed as hoaxes or bad science,

we might never have gotten the new, improved theoretical tools that modern physics depends on.

The vicious funding fight or the "you can't get published unless you are already published" circular reasoning are dead ends caused by overly cautious scientists or bureaucrats that can't realize that "safe science - safe investments" never leads to any big breakthroughs. "If the effect IS real, and crucially dependent on factors that haven't been fully identified, understanding it and making it reproducible *requires* that many independent experimenters try it (which requires funding) and that they talk to each other (which requires publication). That's not likely to happen unless and until we break free of the "safe research" mentality."

"Research is perhaps the most important long-range investment we as a civilization ever make. The risk vs. potential trade-off applies as much to it as to any other investment. We should allocate our resources accordingly."

- Summary by D. Torres

CURIOSITY OR PROSPECT

Courtesy of the Author

R.T. Bush (Phys. Dept., Cal-State Polytechnic Univ., Pomona, CA), "Cold Fusion: Scientific Curiosity or Millennial Energy Prospect?" *J. Scientific Exploration*, vol 8, no 3, 1994, p 427.

AUTHOR'S ABSTRACT

Nearly hidden in the fading away of the clamorous troubled beginnings of "cold fusion" following the initial claims by Fleischmann and Pons in March of 1989 has been the fact that solid scientific work has since established the reality of the excess heat effect achieved by Fleischmann and Pons with an electrolytic cell employing a palladium cathode and a heavy water based electrolyte. Even less well-known is the fact that an excess heat effect achieved with a light water (ordinary water) based electrolyte and a nickel cathode by Mills (1991) has led to essentially a revolution within a revolution. Thus, the author's CAF ("Cold Alkali Fusion") hypothesis seeking to unify these two effects as cold nuclear effects has found support in the form of an electrolytically induced shift in the abundance ratio of Sr-86 to Sr-88 (light water based rubidium carbonate electrolyte) as determined from SIMS and ICP-mass spectrometry. Various developments suggest the possible emergence of a new field of science; viz., the Nuclear Physics of Condensed Matter. Of greatest interest are the implications of the two excess heat

effects for mankind's future energy resources. Thus, theoretical work seeking to understand "cold fusion" in order to harness the excess heat effects such as the author's TRM ("Transmission Resonance Model") and the LANT Model ("Lattice Assisted Nuclear Transmutation") will be touched upon, as will the author's more recent ECFM ("Electron Catalyzed Fusion Model"). The latter is related to SED ("Stochastic Electrodynamics") work by H. Puthoff and seeks to explain the excess heat effect as genuine cold fusion indirectly catalyzed as a result of an interaction with the zero point field.

CF BY MIT GRAD STUDENT

Courtesy of Eugene Mallove

Alice Waugh (News Office), "Graduate Student Envisions Power for Spacecraft from Cold Fusion," *MIT Tech Talk*, Wednesday, Nov. 9, 1994.

SUMMARY

Aeronautics and Astronautics grad student Ray Conley, of MIT, has applied for a patent on a process for producing heat from cold fusion, hoping some day to apply it to spacecraft power. His interest in cold fusion began as a result of his work in nuclear propulsion. Although an engineer, not a chemist, he has been able to reproduce excess heat results from his experiments. His aspirations are to build an apparatus that could produce 5,000 watts of power from a one-liter container, and to have it commercially viable in two years.

Despite the controversy that has raged, sometimes viciously, over cold fusion, Conley says **"that doesn't concern me as much as the experimental evidence that the effect is real. It's a brand-new source of power that's going to be really useful."** He has entered his idea in this year's BF Goodrich Collegiate Inventors Program contest. He doesn't think what he has produced is cold fusion, but instead adheres to Randall Mills theory that the hydrogen atom can exist in fractional quantum states. In this theory, a hydrogen atom can be shrunk when its electron goes from a quantum state of one to a state of one-half, releasing energy in the process.

Conley is using a light-water potassium carbonate cell and nickel and platinum electrodes. He said that the problems researchers are having in reproduction of the cold fusion effect come from not building their equipment correctly, or from seemingly minor

deviations, such as minute contaminations in some part of the cell or electrode.

This research has been funded by the MIT Space Grant Program.

Sonoluminescence

SONOLUMINESCENCE

Courtesy of Dr. Samuel P. Faile

I. Peterson (staff writer), "Making Light of Sound in Solitary Bubbles," *Science News*, 15 Oct. 1994, vol 146, no 16, p 247.

STAFF SUMMARY

"Trapped in an intense sound wave, a tiny gas bubble in water can emit a string of flashes bright enough to be visible in an undarkened room. Producing a startling sound and light show on an intriguingly small scale, this simple system serves as a remarkable micro-laboratory for physics and chemistry.

"Now, researchers have demonstrated that slight changes in the composition of the gas inside such a bubble can strongly influence the intensity and wavelengths of the light that escapes. For example, adding a small amount of argon, xenon, or helium to a nitrogen bubble substantially increases the intensity of ultraviolet light emission." Physicists Robert Hiller, Keith Weninger, Seth J. Putterman, and Bradley P. Barber, of UCLA, describe their findings (see below).

Although this effect, sonoluminescence, has been known since the 1930s it is still not completely understood. These researchers found "that raising the noble gas content of a nitrogen bubble in water to 1.0% dramatically stabilizes the bubble's motion. It also increases the intensity of light emission by a factor of at least 10." The gas inside the cavity also affects the light spectrum generated by the bubble.

In the same issue of *Science* Lawrence A. Crum and Ronald A. Roy of the University of Washington in Seattle, also explore sonoluminescence in a shorter article (see below).

[Another very important paper we have cited in the past, is Julian Schwinger's "Casimir Light: The Source,"

Proc. Natl. Acad. Sci., USA 90 (1993), which states "the release of Casimir energy in filling a dielectric hole is identified as the source of coherent sonoluminescence. Qualitative agreement with recently acquired data is found for the magnitude and shape of the spectrum."]

SONOLUMINESCENCE AGAIN

Lawrence A. Crum and Ronald A. Roy (Dept. Acoustics & Electronmagnetics, Applied Phys. Lab., Univ. WA, Seattle), "Sonoluminescence," *Science*, vol 266, 14 Oct. 1994, pp 233-234, 12 refs, 2 figs.

AUTHORS' ABSTRACT

When trapped in sufficiently intense acoustic fields, single bubbles of gas can emit luminescence bright enough to be visible in an undarkened room. The large number of intriguing results recently published about such single-bubble sonoluminescence (SBSL) suggests that this phenomenon awaits a full explanation. And as reported by Hiller et al., (page 248) some exciting atomic physics may be occurring within the collapsing cavitation bubble that gives rise to SBSL. However, many of the results they present are also anomalous and defy immediate explanation.

AND MORE SBSL

Robert Hiller, Keith Weninger, Seth J. Putterman, and Bradley P. Barber (Phys. Dept., UCLA, CA), "Effect of Noble Gas Doping in Single-Bubble Sonoluminescence," *Science*, vol 266, 14 Oct. 1994, pp 248-250, 19 refs, 5 figs.

AUTHORS' ABSTRACT

The trillion-fold concentration of sound energy by a trapped gas bubble, so as to emit picosecond flashes of ultraviolet light, is found to be extremely sensitive to doping with a noble gas. Increasing the noble gas content of a nitrogen bubble to about 1% dramatically stabilizes the bubble motion and increases the light emission by over an order of magnitude to a value that exceeds the sonoluminescence of either gas alone. The spectrum also strongly depends on the nature of the gas inside the bubble: Xenon yields a spectral peak at about 300 nanometers, whereas the helium spectrum is so strongly ultraviolet that its peak is obscured by the cutoff of water.

Space Energy

WHY CAN'T WE FEEL ZPF?

Bernard Haisch, Alfonso Rueda, & H.E. Puthoff, "Beyond $E=mc^2$," *The Sciences*, November/December, 1994, pp 26-31, illus. See also Ed. Peter G. Brown's "Initial Conditions, Editor's Notebook" on page 2.

EDITOR'S COMMENTS

The ZPF (Zero-Point Field) is one of the most fascinating topics that is slowly penetrating the august halls of ivy-covered Science. *NEN* publishes extensively about zero-point energy, vacuum energy, space energy, etc. However, one of the most difficult questions to explain for our mutual understanding is, "Why can't we feel, sense, or measure ZPF when it is claimed to be **enormously energetic**?" In this article, three scientists provide the **best-yet** answer to this question. In summary, here is their answer:

If you lie immobile in a tub of water of the same temperature as your internal body temperature, you will not sense the temperature of the bath water. Similarly, if all space (in you, outside of you, all around you) has the same degree of high energy, how will you sense this energy. Cleverly, we will claim that if we move, relative to almost any field, we should be able to sense or measure the existence of the field. For example, if I am in a fixed magnetic field, then I can wave my magnetic sensor through the field and accurately determine the strength and direction of this magnetic field. Strangely, Nature (in a bit of one-up-manship) has produced a field that cannot be sensed by uniform motion. This type of field is labeled by scientists as being "Lorentz invariant." The label is devoid of meaning to most of us, however, we are informed that **this type of field can only be sensed, detected, felt, measured from an accelerated frame of reference.** Therefore, we can only detect this field when we, and/or our sensor is being accelerated or decelerated.

Okay then! If you want to experience one type of ZPF sensor, get in your auto, fasten your seat belt, accelerate to 30 miles an hour, and slam on your brakes. The inertial forces that tend to put your head into the windshield is a measure of the presence **and magnitude** of the local ZPF! You can also make a similar experiment using your arm, hand, and holding

a massive object, like a softball. Start with your arm extended behind you. Now fling your arm rapidly in front of you and stop the motion suddenly. You feel as though the weight you are holding wants to continue its motion. **You have detected the ZPF field and its interaction with the massive object you have in your hand.**

There is another concept involved in ZPF. If ZPF is so energetic, can we transform this energy from ZPF into useable commercial energy? The authors of this article make the following statement: "Perhaps even bolder than the concepts themselves are their implications. If inertia and gravity are like other manifestations of electromagnetic phenomena, it might someday be possible to manipulate them by advanced engineering techniques. That possibility, however remote, makes a compelling case for pressing on with the work."

EDITOR'S FORECAST

The three scientist that wrote this article and must be considered to be some of the world's scientific leaders in ZPF are not the only investigators into new science. In recent issues of *NEN*, we have reported on the work of Gerald Pelligrini and Frederick Alzofon. These scientists are also involved in a rapidly-accelerating array of scientific achievements, both theoretical and experimental, that will help restructure our current scientific understanding. **This is the "paradigm shift" in Science that many of you have been reading about for the past several years.** In my judgement, the combined efforts of the Institute Association for New Science, the Institute for New Energy, *New Energy News*, *Fusion Facts*, and finally an increased interest from the peer-reviewed scientific journals and such publications as *The Sciences* (published by the New York Academy of Sciences) is now rapidly accelerating changes in our basic understanding of the physical world in which we live. Therefore, I forecast that the year 1995 will witness some remarkable new developments and announcements of new energy devices that **transform energy from the ZPF for commercial applications.** The revolution is coming and you are a part of it. Stay subscribed!

CERMET ENERGY CONVERSION - HOW IT IS DONE

Dr. Wingate A. Lambertson

At the May, 1944, International New Energy Symposium, I was asked to explain, in terms

understandable to a high school freshman, how the Cermet Energy Conversion device works. This paper is my explanation of how the so-called "zero-point energy" is converted into useful electricity.

When a drawn bow-string imparts kinetic energy to an arrow, and the arrow strikes a target, the kinetic energy is **converted into impact energy at the target and shows up as thermal energy.** Similarly, gunpowder supplies kinetic energy to a bullet which becomes thermal energy as the bullet is stopped by a target.

My energy conversion method takes energy from a known source and converts that energy into electrical energy. Because neither the source of this energy, nor my method of converting the energy, is readily accepted by the scientific community, we label it **new energy.** It is important to identify the source of this new energy.

When Einstein developed both the Theory of Special Relativity and his General Relativity, he made the assumption, then generally accepted, that there is no energy in the ether (or in the space around us). As quantum dynamics developed its equations to explain observed phenomena, it finally became apparent that these new equations could be interpreted as showing that space is highly energetic. (Note: a quanta is the smallest unit of energy and quantum is the plural. Thus quantum dynamics is the study of energy in motion.) According to theoretical developments during the past few years, it has been shown that if one begins with the concept of an energetic space, then gravity, inertia, and the stability of matter can all be derived mathematically. This energy, according to the latest theories, comes from the total of all the motions (vibrations) of charged particles in the universe. This energy exists in the "vacuum continuum", the continuous expanse of space between worlds and stars.

In Figure 1, we depict the dropping of a ball in a glass tube, the acceleration of the ball as it falls through our gravity field, and the rebound of the ball. In this case, we assume that a ball dropped from two feet would rebound one foot. If the ball is dropped from four feet, we would expect (ignoring air resistance) for the ball to rebound two feet. This falling of the ball is due to gravity. **Gravity, the attraction between two massive objects, is now shown to be caused by "space energy" or "vacuum energy".** Actually, this energy is in us, around us, and through the earth, and throughout all space.

The bouncing ball is a conversion of energy caused by gravity to the ball and then the loss of some of that energy as the ball fails to return to its original position. For a new energy device, we need to obtain a better conversion of energy.

Figure 1. Rubber Ball Bounce

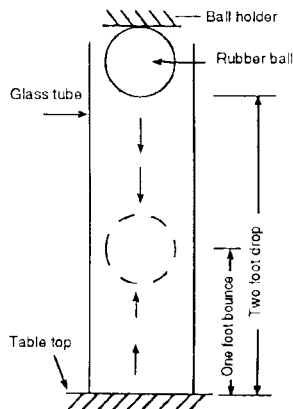


Figure 2. Electron Acceleration Test

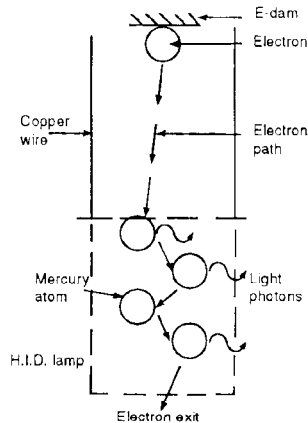


Figure 2 is a diagram of how my energy conversion device works. Instead of a rubber ball, my device uses electrons. The electron charge is introduced into the circuit from an external power supply. One electron is shown attached to a metal plate at the top of the drawing. I use a cermet (ceramic-metal) type of capacitor to hold the electron charge. By alternating the cermet materials between metal plates, I form an "E-dam". The E-dam stores electrons like a dam stores water. When the electrons are released, the electron gains energy from the energetic vacuum (much like the ball obtains energy from the gravity).

Under proper conditions, my electrons flow from one E-dam into another E-dam through a mercury-vapor lamp. The electrons, accelerated through the vacuum-energy pick up energy from the vacuum and transfer this energy to the mercury vapor causing the mercury vapor to "ionize" and emits photons. Because I use about three thousand trillion electrons and because the motion of the electrons occurs about 10,000 times a second, there is produced considerable light from the mercury-vapor lamps.

The motion, or cycles, of the electrons is controlled by solid-state (transistor-type) devices having no moving parts to wear out. Therefore, the system can operated for long periods of time with very little wear. **In my experiments, I found that I could get about twice the amount of energy out of the electrical circuit that I put in. The additional energy comes from the vacuum energy.** Because I am converting energy

and not creating energy, no scientific laws (such as the Law of Conservation of Energy) are broken.

As this invention is commercialized, my recent experiments indicate that I could get twice as much power out as put into my device. Therefore, this new energy device is expected to be able to double the amount of electric power available at no additional cost. This doubling of energy is expected to be accomplished with a low investment per kilowatt, with no pollution, and no harmful byproducts. This invention is expected to benefit our entire planet and all mankind.

[Editors Note: We have been following Dr. Lambertson's work and extend our wishes for continued success. Currently, an independent test of his invention is being performed. We will report new developments as they occur. Dr. Hal Puthoff, a leading theoretician on vacuum energy, tells us that it is necessary to use "an accelerated frame of reference" if one is to transform vacuum energy to a useful form. The accelerating electron flow in Lambertson's device certainly is in accord with this requirement.]

WIN ENERGY UPDATE

Courtesy of W.A. Lambertson, inventor

The U.S.A. patent application on the WIN Method for zero-point energy conversion was filed on October 8, 1994. This application contained 59 pages of description and 43 sheets of drawings. It evolved through many revisions over the past 10 months under the guidance of Mr. Steve Roen, Patent Attorney. Output to input shown for the tank circuit was 855 to 434 watts for an o/i ratio of 1.97.

The Institute for New Energy has been authorized to release all of their information on the WIN Method from presentations at the Second International Symposium on New Energy.

It is our goal to start-up one WIN Energy Associate program in as many foreign countries as practical in the next year and to change the world to zero-point energy for electric power production in 10 years. Confirmation research on the WIN Method is being conducted by Mr. Toby Grotz.

The WIN Energy Associate program and licensing is presently being handled by: Mr. Phillip H. Porter, P.E.; 3080 S. Glencoe St., Denver, Colorado 80222; Phone-(303) 782-5070, (303) 679-1655, (800) 873-7074. No additional licenses will be issued until confirmation is

established by Mr. Grotz. It is important that all persons having a potential interest contact Mr. Porter as soon as possible. The agreement development process needs to begin now as there is only a one year period allowed for foreign patent filings. Translations could take up to three months and it may be necessary that they have a working model before filing. Patents will be needed to assure investors of protection.

CELLULOSE INVOLVED IN NATURAL ANTI-GRAVITY?

By Dr. Samuel Faile

It seems that trees have to constantly battle gravity. Perhaps they have developed ways to lessen weight effects by capturing or generating space energy fields that get pinned to a receptive material that loses weight. Dr. Phil Callahan has studied various tree structures that act like antenna for soliton or tachyon waves. Some types of pine trees are very good receptors. The space energy could also be generated internally in large amounts and could be the product of biological cold fusion and other processes.

A good candidate for storing space energy fields could be the polymer, cellulose, which is a major component of trees and of the items in the lab that have responded to space energy anti-gravity or gravitational vortex fields. Dr. Inomata found a toothpick would rotate above a special coil with 500,000 turns of fine wire. Nick Reiter, in preliminary results, found an anomalous loss of 34% of the weight of a cardboard stand used to mount a DC activated Möbius coil, the Mirrors 3(8)-3(8) ESU array.

Perhaps someday a way will be found to weigh a large growing tree and see if this is less than expected.

EDITOR'S COMMENTS

Dr. Faile is probably the world's most active experimenter with Möbius-type coils. His latest discoveries are reported periodically in *NEN*.

Rotating Space-Energy Machines

OVER-UNITY MOTOR PROTOTYPE

Courtesy of Don Kelly

"Perpetual Motion Machine," *Güartest* magazine, September 1994.

SUMMARY

Japanese inventor Yasunori Takahashi has developed a method of making permanent magnets of extraordinary power, using them in an electric motor from which, he claims, to get 400% over-unity. A Standard Honda electric scooter, with its motor fitted with the magnets was demonstrated at a hotel in London. It was powered with four small 12 volt batteries. The scooter accelerated to 30 mph in 4 seconds, and kept accelerating.

Takeo Sawai, UK representative for the inventor, took delivery of the scooter at London Airport. The batteries were almost dead, but he drove it down the freeway at 70 mph. When he arrived at his destination, the batteries were fully charged.

Nissan, GEC-Marconi and Philips have seen the scooter demonstrated, and have apparently taken it very seriously. The Senior Engineer in the electrical department at Nissan's European Technical Centre, Emmerson Linfoot, said of the invention, "if it checks out on our own tests, it has huge implications for everything which uses a motor -- it could revolutionize the world."

This November, four of the motors will be installed in a Mercedes. Sawai claims it will have performance like a normal gas car, but with virtually unlimited range and almost no fuel costs.

Takahashi has spent £3 million on his invention, and his company, Sciez, already has worldwide patents on the magnet. They will manufacture the magnets, and license distributors. Takahashi is more interested in winning scientific acclaim than in making money, he says.

Some scientists have derided the invention, saying it defied the first law of thermodynamics. Doesn't this sound familiar?

COMMENT BY TOM E. BEARDEN

Here it appears that Takahashi has accomplished over-unity, and is confronting the world with a proven fact. Companies like Nissan, GEC-Marconi and Philips are not noted for being technical idiots, and experts from these companies have already seen demonstrations of the powered scooter, according to the article. The implications from the article are that these same companies are presently testing prototypes themselves, as probably furnished by Takahashi.

One can readily surmise that, if the power unit is verified in these independent validation tests, it will produce a shock heard around the world immediately. Also, the automobile manufacturers will be in a mad scramble, because all their future plans and schedules will have just been thoroughly upset. The U.S. government, once it wakes from its lethargy and realized this thing is for real, will be faced with another Sputnik. Predictably, it will simply go into orbit. The financial community, once it realizes that over-unity devices have actually broken through legitimately, will also be in an uproar. Simply put, the financiers will suddenly realize that they have an awful lot of capital invested in things that are shortly going to become very much less relevant!

Electricity

THE SINGLE-WIRE ELECTRIC POWER TRANSMISSION

By Alexander V. Frolov (St. Petersburg, Russia)

Any motion of charges is electric current by definition. The electric potential field can also move the electric charges and this work of the potential field is not connected with loss of power. So, it is enough to use the electrical field (scalar potential source) to create the power and work in an electric load circuit.

The classic conception does not explain this paradox but states: "The total work of the potential field along a closed trajectory is equal to zero." That is correct, of course. But there are simple descriptions of

experiments for application of potential field energy to create power in a load [1]. The present paper develops this concept from another view.

So, the motion of charged particles is the current. But there are both the **wattful** current and **wattless** current. To create the free energy system it is necessary to transform the **wattless** current to **wattful** current.

What is the difference in those two versions of current? When the charged particles are moving along wire thanks to electro-motive force of potential difference, it is not the reason for loss of power in the source because the electric field of the primary source provides the work to move charged particles without any power loss. A closed electrical circuit is the reason to consume the potential difference of the source. It is possible to separate the load current from source circuit. Dr. T.E. Bearden made detailed description of a concept for this technology by means of note for "the massless current" [2]. Massless current is the **wattless** current, I think.

It is possible to consider such current as oscillations of a field of free electrical charges [3]. In this case **wattless** current is described as displacement current or as longitudinal wave of the electrical field.

Let's consider a simple experiment to prove the possibility of power transmission by means of displacement current. The equipment that I used:

- 1) Generator, output voltage is 30 Volts, frequency is 10 KHz or more.
- 2) Electromagnetic transformer to increase the output voltage from 30 Volts to several kiloVolts (2-5 kV in my scheme).
- 3) Diodes are connected as shown on Figure 1. This diode connection is so-called "Avramenko's plug" [4].

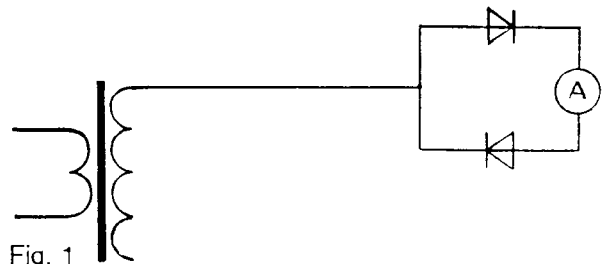


Fig. 1

There is a high voltage version of this experiment and a high frequency version. For the first version, the load

on "Avramenko's plug" is an electrical condenser of 10 nanoFarad capacity for maximum voltage 3 kV, for example. The frequency is from 5 to 10 KHz. Both legs of condenser are bent to make a spark discharger. I used a spark distance from 0.5 to 1 mm. The frequency of spark discharges in my experiment varied from 1 Hz to 10 Hz. It is possible to calculate the work for one discharge by means of next formula:

$$A = 0.5 CV^2$$

For power we can use the formula:

$$P = A/T = Af$$

Where f is frequency of spark discharges.

So, for this simple "home laboratory" experiment when the voltage $V = 2$ kVolts, Capacity $C = 10$ nanoFarads, and $f = 5$ Hz, the P is equal to 0.1 watt. The consumed power is equal to 3 watts DC (0.1 A and 30 V). Therefore, power in a closed circuit of load is about 3% of consumed power in this experiment. But this small power is free since it is not connected with conduction current in source circuit. Only **wattless** displacement current exists in single-wire part of the system. [see Editor's note at end]

For high frequency version it is possible to use the voltage near 30 V and the frequency of generator more 100 KHz. Simple electric lamp can be used as load of "Avramenko's plug" in this version. By Avramenko, the conduction current is load is 60 mA when voltage $V = 50$ Volts and frequency of generator is 100 KHz [4]. So, load power in Avramenko's experiments is equal to 3 Watts.

Thanks to my experiments, it is possible to make some conclusions:

1. When the output signal is a sine wave there is no difference for wires of secondary coil of transformer and any wire can be connected to diodes. In any case, the power in load is the same. But when the output signal is one-polar pulses (from output of transistor scheme, for example) there are important difference for wires of coil. When the diodes are connected to positive pulsed pole of coil the power in load is maximum. The same difference is easy to verify if one is to bring metal material to end of wires of high voltage coil of transformer. The discharge between metal and positive pulsed wire is more powerful than discharge between metal and other wire of coil.

This note can be explained in conception of longitudinal waves as waves of electron gas in matter. When the positive potential take place on the wire the electrons of metal are attracted to positive potential. The spark discharge between metal and wire takes place here since electrons of metal can "jump" from metal into positive charged end of coil wire. In the opposite case, electrons of metal are in repulsion from negative charged end of coil wire. There is no condition for electrons to "jump" in this case.

So, positive pulses of potential field can lead to conduction current. In a metal piece, the "jumped electrons" are compensated by electrons from air. In a closed circuit that uses the "Avramenko's plug," electrons can move only in one direction and it is the reason for producing work in the load.

2. To increase the power in the load, it is necessary to develop that part of the scheme that is responsible for displacement current. The output power of the generator is not important. Small power is enough to create the **wattless** current. The question of power in load is the question of amplitude. It is possible to create high values of amplitude for a longitudinal wave of displacement current in a resonance mode.

3. The principle, in general, is this: the electric potential field is the cause for free **wattless** movement of charged particles (electrons or ions). This movement can be used for power generation. Most interesting is the correlation of this experiment with known electric induction phenomenon. The development of such technologies is most favorable in this direction, I think.

Finally, I must note that N. Tesla demonstrated the transmission of power along a single wire in London in 1892 [4]. Now all we need is the real interest of industry and official science to this well-known technology for clean power generation by means of potential source.

References

[1] A.V. Frolov, "The Application of Potential Energy for Creation of Power," *New Energy News*, vol 2, no 2, May 1994.

[2] T.E. Bearden, "Overunity Electrical Power Efficiency Using Energy Shuttling Between Two Circuits," Proceedings of the 2nd International New Energy Symposium, Denver, Co, May 13-15, 1994.

[3] "New Electric Transmission," summarized by I. Goryachev, *New Energy News*, vol 2, no 6, October 1994.

[4] N.E. Zaev, S.V. Avramenko, V.N. Lisin, "The Measuring of Conduction Current That is Stimulated by Polarization Current," *Journal of Russian Physical Society*, no 2, 1991. Russian Text.

EDITOR'S NOTE

I have great respect for Frolov's experimental work. However, the total experiment used 30 watts to produce 0.1 watt of "free" power. If one is to improve on this scheme, as Frolov suggests, what are the steps that would lead to a commercial development of power?

Ken Shoulders has shown (U.S. Patent 5,018,180) how electron charge clusters can provide 30 times as much energy in the load as used in the source. It would appear that this work (by Shoulders) is a more favorable development. Readers, Please comment.

Miscellaneous

RENEWABLE ENERGY STILL PRIORITY

Eugene Linden, "A Sunny Forecast," *Time*, 7 Nov. 1994, pp 66-7.

SUMMARY

Solar energy commercial triumph seems always just beyond grasp. Although used in many ways, solar energy has yet to be widely accepted as a major source of power (less than 0.5% of our nation's generated power). When oil prices are in the acceptable range, the push to make solar energy more efficient becomes less urgent. Much of the research activity takes place in or for developing countries, anxious to find ways of providing power for billions of people who lack electricity. As improvements in technology and manufacturing have sharply increased the cost-effectiveness and reliability of solar-power systems, they are applied to more areas of power consumption.

Some forms of renewable energy have become competitive with the cheapest coal powered generators,

in limited areas. Wind turbines produce electricity in California for between 4.5¢ to 4.8¢ per/kW-hr (about the same as power from coal-fired plant.) [see Editor's note] The introduction of new gearless wind turbines will improve efficiency and lower the cost as much as 1¢/kW-hr. by the end of the decade. Geothermal systems in Nicaragua and the Phillipines provide more than 25% of their country's energy needs. At least 40 more countries have such resources to be developed.

Natural gas, being more than 30% cheaper than oil and cleaner burning, has increased consumption more than 30% since the mid-80's. But it is still not a renewable resource.

Solar-thermal energy systems currently produce energy at a rate of 8.5¢ to 14¢ per/kW-hr, but the savings in terms of pollution control measures and clean up is tremendous. It is a long term savings, in terms of environment.

Photovoltaic power has been more expensive than conventional solar thermal power, because of the cost of the cells. But they are coming down in price quickly, and mass-production will drive them lower. Photovoltaic cells are more efficient than other solar power because they convert sunlight directly to electricity and they work even in cloudy weather. They may soon become even more efficient, with recent research from Australia disclosing a new cell design that could reduce the cost of photovoltaic electricity by 80%.

There is still the test of the marketplace, when all the development has brought solar power to a competitive commercial level. Market pressures can make or break the best of products. Solar power is here to stay, and the technology to utilize it is advancing quickly now. The next 20 years and the other new energy sources will be the deciding factors.

EDITOR'S NOTE

It has been estimated that a newly-constructed coal-fired electrical power plant **if conforming to all U.S. government requirements for reducing emissions**, would produce power at >30¢/kW hr. See the following article for more information about solar-power costs.
- Ed.

BIG STEP FOR PHOTOVOLTAICS

Courtesy of Steve Roen

Allen R. Myerson (writer), "Solar Power, for Earthly Prices," *New York Times*, November 15, 1994, page D1-2.

SUMMARY

Enron, the nation's largest natural gas company is investing \$150 million to build the first major solar power plant to produce solar power at competitive rates. The plant is planned for the southern Nevada desert, and would produce enough electricity to power a city of 100,000 people. Expect it sometime in 1996.

The cost of solar power has declined in the past decade by around 66%. The main money saving strategy is mass production. By using thousands of solar cells in the Nevada desert, Enron's 100-megawatt plant would be more than a dozen times larger than any other power plant using photovoltaic cells. The Houston-based company has obtained preliminary backing from the D.O.E., who tentatively plan to buy electricity from the plant, as long as it is truly competitively priced. **The project also depends on the leasing of Government land, receiving tax benefits for renewable energy, and the availability of tax-free industrial development bonds to finance construction.**

This plant is a major commitment, since previous efforts to promote solar energy have foundered. Despite the large amounts of money and Government backing plants have failed to develop solar power to a point where it is priced low enough to survive on its own. Solar power has continued to be available on small scale: to operate watches and calculators, and on large scale: in remote areas where power grids are not installed.

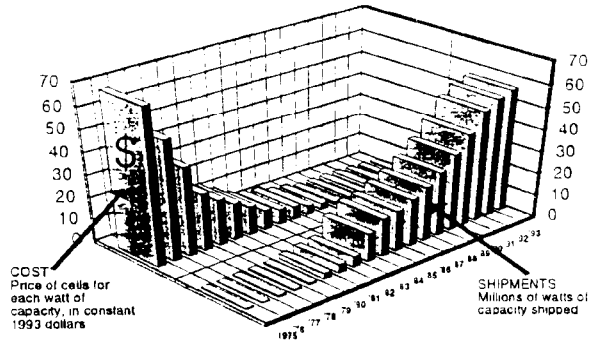
The solar industry has grown, even under these handicaps. Since 1980, solar cell production has increased more than tenfold due to technological advances in efficiency. Silicon film is still the main component in solar cells, but some companies are achieving higher efficiencies and lower costs using other substances and more than one silicon layer. Canon electronics company of Japan and Energy Conversion Devices Inc. of Troy, Michigan, plan to open the world's largest thin-film solar cell plant in Newport News, VA, next year. Their cells will have two layers of silicon and one of germanium. Between the Enron manufacturer and the Canon venture, the solar cell output of the nation will more than double.

Another cell manufacturer, Energy Photovoltaics Inc. of Princeton, NJ, is also negotiating with Enron about the production of copper indium diselenide cells, which reportedly have triple the efficiency of the single-layer silicon cells.

Solar energy consultants who have been working with Enron say that the company's goals are attainable, but only with sufficient production. They will be reaping large gains for a large risk taken, but it is finally time someone took the chance.

Power From the Sun

The production of photovoltaic cells, which convert light to electricity, has risen sharply as the costs have declined. The Enron Corporation hopes to push down the costs much further, as it prepares to build a solar power plant in Nevada.



Source: WSJ, PV News

GUNNERMAN FUEL DEVELOPMENT

Courtesy of Stephen Roen

"Naphtha-Water Auto Fuel a Major Breakthrough, Its Inventor Claims," *Bloomberg Oil Buyer's Guide*, vol 23, no 37, Sept. 12, 1994, p 1.

SUMMARY

Rodolf W. Gunnerman's A-55 fuel development is now backed by Caterpillar, the heavy-equipment company, and has made some new advances. In the September 12, 1994 issue of , Gunnerman gets front page coverage in an article highlighting the positive prospects of the new fuel.

The new fuel mixture is a naphtha-water blend, instead of the gasoline-water and diesel-water mixtures used in earlier versions. The Advanced Fuels LLC partnership of Gunnerman/Caterpillar has named the A-55 fuels series as "one of the most promising developments to date" in the quest for alternate automotive fuels.

Because 65% of U.S. petroleum consumption goes for transport, and the U.S. now imports more than 50% of

its needs, finding a new economical fuel is of great importance. None of the Gunnerman fuels needs to utilize a catalytic converter, smog pump or vapor recovery system, because it is virtually non-polluting. The only modification to auto manufacturer's original equipment is a set of nickel catalyst pieces on the engine valves. The special computer chip used to regulate engine combustion in the earlier Gunnerman fuels is no longer necessary. Retrofitting existing vehicles can be estimated at less than \$500, one third of the original estimate because of that change.

Since naphtha is nearly half the cost of gasoline, the price before taxes could cost as little as 22¢ a gallon, before taxes and transportation costs. U.S. retail gasoline averaged about 73¢/gal. before taxes, in the past year. The after-tax cost averaged \$1.10/gal. The government could make or break the new fuel's commercial viability by the new taxes it imposes on the currently untaxed naphtha. Because of its water content, the A-55 fuels are not deemed motor vehicle fuels under the EPA's classification. That will change quickly as they come into wide use.

The A-55 fuels have been tested in a variety of situations, including by the Minnesota Dept. of Transportation, which tested 5 vehicles, including buses, driving a total of 3,800 miles (including crossing the Rocky Mountains in -17°F weather.) One of the first probable users of the fuel are vehicle fleets, some 13 million cars, trucks, and buses, which account for almost 10% of U.S. vehicle fuel consumption.

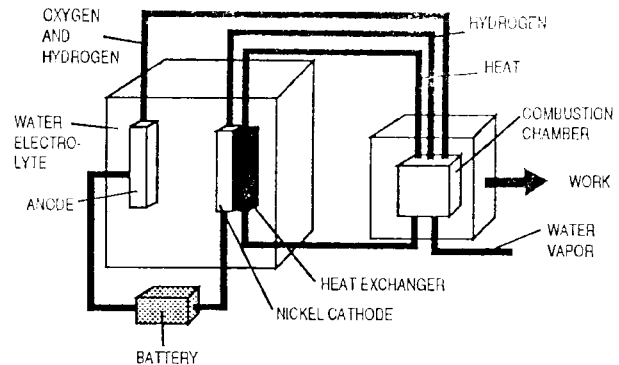
WATER BURNING ENGINE

Courtesy of Steve Roen

"Engine to Burn Water," *Mechanics Illustrated*, Tech Update, Dec. 1994, p 32.

SUMMARY

Dr. Keith Johnson of MIT has proposed water as a storage device for hydrogen. In a electrolytic (cold fusion) system, Johnson has designed a combustion engine that burns hydrogen that it separates out of water, utilizing the heat provided by a nickel cathode. He attributes the excess heat, not to a nuclear reaction, but to a well-documented chemical reaction.



Water engine uses nickel to free hydrogen fuel.

TAMING RADIOACTIVITY

"A New Method for Destroying Radioactivity Discovered!" Tesla Briefs in *Extraordinary Science*, vol 6, no 3, Jul/Aug/Sep 1994, p 46.

SUMMARY

An American inventor may also be on the trail of a process to solve the world's radioactive waste problem. His process has recently been confirmed by Mandeville & Co., and by Dr. Roberto Monte of the University of Bologna. Dr. Monte claims that the discovery will force substantial review of the basic atomic theory, "high energy physics is now obsolete."

The invention, called the Keller Catalytic Process, is patent pending at present. It can reportedly eliminate radioactivity in a few days by turning radioactive elements into harmless elements like lead. The invention may also help solve non-radioactive toxic waste problems, such as lead or heavy metals contamination, by causing the waste contaminant to form into small beads, which can easily be removed and recycled.

Keller's technology has reportedly proved interesting to other scientists, such as Dr. Dogget (who pioneered the enzyme technology now used to clean up oil spills), and Dr. Bockris at Texas A&M University. A public demonstration is planned for the International Tesla Society, and details will be forthcoming as soon as arrangements are made.

Also in this issue of *Extraordinary Science* is an article by Joe Champion on "Modern Day Alchemy" with a short history of transmutation experimentalists and some current information, that is still under research.

LETTERS

LETTER FROM WOLFRAM BAHMANN INE Board Member

Carnot is Dead! Schaeffer Disproves 2nd "Law"!
Date: 23 Oct 1994

Well, I just recieved the latest news about the research done over here at the Workshop for Decentralized Energy Research in Berlin, Germany; more details will follow. I will keep you updated on all the latest news about their machine design.

The physician Dr. Bernhard Schaeffer, and his team of researchers, together with the Russian inventor Serogodski, have successfully patented their new machine design, which works as a heat to mechanical energy converter. It does not need a "cold pole," it just converts the surrounding heat into useful mechanical work. It works via "retrograde condensation" and uses a gas-mixture of 2 working mediums, N₂ and C₄H₁₀. The German Patent Office issued the patent number: 42 44 016.

Bernhard Schaeffer has worked over 30-years on these limits of the second thermodynamic sentence and finally has won the battle. With his latest measurements, he now can prove that with retrograde condensation with these gas-mixtures, he can get efficiencies, which are far higher than Carnot would predict.

These measurements are done very precisely and a huge amount of money and time has been invested to build all the technical equipment to measure the effect at the right pressure and temperature.

This invention will change the world. Now endless "free energy" is possible to use. You just pay for the machine and it will produce pollution free, clean electrical energy, just by converting the surrounding heat into electrical energy. Just think about a refrigerator, which produces electrical energy, instead of consuming it!

An information paper of all the measurements and the future plans may be ordered at:
Warkstait für Dezentrale Energie-Forschung e.V.
Attn. B. Schaeffer / D. Kersten

Pasewaldtstrasse 7
D-14169 Berlin
Germany

If you are an investor, which wants to license the machine design to be built inside your country, you are welcome to contact them as well.

LETTER FROM BO ATKINSON

Re: Nieper / Seike Transistor Ring, *NEN*, Nov. 1994, vol 2, no 7, p 8.

While Mr Reiter invites comments on his report, only *NEN*'s address was available. I agree that micro weighing deserves much more attention. Those who have good scales on hand do us all a great service in reporting interesting results.

Regarding the concise report on the transistor ring, I wish to inquire whether the following, contrasting tests, have been attempted:

1) Powering up the collector resistors with equivalent wattage dissipation, but using an external 1.3 MHz current source, instead of DC. Or, dissecting the ring circuit and placing only the resistors on the Mettler scale, with the rest of the circuit off the scale, and then weighing the resistors, (off & on). The idea here is to see: in which components the effect occurs. Why not try each component type individually, (perhaps even additively)?

2) Isolation between Scale and Transistor Ring Is a 4 inch styrofoam or cardboard stand enough. An easy way to test for unwanted inductive effects is to suspend the Transistor Ring at 4 inches above, but not mechanically touching the Mettler scale, (and then power on/off). This should settle concerns ever inductive / magnetic effects.

I am encouraging a friend of mine to submit some other fascinating weight change experiments to your newsletter.

Bo Atkinson, Freedom, Maine

LETTER FROM DR. WIN LAMBERTSON

The Yo-Yo Game

We are back in Kuwait in what Col. Dan Smith, assistant Director of the Center for Defense

Information, calls the Yo-Yo game. Those of us who remember gas rationing during World War II and the gas lines of 1976 know exactly why we are there. The reason is to insure an adequate supply of oil to the industrialized world. It does not have to be that way.

My neighbor is a department chairman in a large university in the Middle East. When I asked him about the Gulf War and what he thought of keeping Saddam Hussein out of Saudi Arabia, his response was "it really doesn't matter to the Arabs whether the United States or Saddam controls the Middle Eastern oil fields... To us it is the same." I had thought that the U.S. had done a noble deed to protect Saudi Arabia and free Kuwait. This highly educated man did not look at it in the same way.

The United States should not have to "save" those who do not want to be saved and we need to initiate a crash program to eliminate our dependence on imported oil. The energy source which makes this possible is called zero-point energy, vacuum field energy, space energy, or free energy. It is available at all times, everywhere on earth and in space. All we have to do is to collect and use it.

The first clearly demonstrated and witnesses zero-point energy collection method was invented by Dr. T. Henry Moray who, at Salt Lake City, Utah, in 1925, produced 50 kW from the vacuum continuum. When he took that to the U.S. Department of Interior he was harassed, shot at and his equipment was destroyed. That was almost 75 years ago. One German economist, dealing with the economics of change, writes of our present period as the "lost 100 years."

There is a rapidly developing field of energy conversion called new energy technology. Japan, under the MITI umbrella, has plans to invest approximately \$3 billion on "new hydrogen energy" research and development in the next eight years. No governmental funds are being invested in the United States. Instead, independent inventors are carrying the R&D load. Only one method has significant private funding. It will be far better for the United States to make a serious commitment now than to spend \$1 to 3 billion on Saddam's yo-yo every four years.

The United States has the vehicle and the budget in its Department of Energy to move right into the new energy field with present resources. All it has to do is reprogram its expenditures. It is urged that our political leaders, our energy industry C.E.O.s, and our press editors do their part to initiate this change immediately.

Eventually, zero-point energy conversion will replace both fossil and nuclear fuels. Now is the time to begin this process in a well planned and logical fashion. Otherwise, we shall wake up one morning to learn that all of our energy converters are coming from Japan. The United States will have missed another job creating opportunity. Present employment in the traditional energy field is going to decrease dramatically. We must make every effort to replace that employment with new energy positions. These will be created somewhere in the world -- why not here?

EDITOR'S COMMENTS

I attended Granite High School (where Moray's sons attended). The story then (about 1938 or 1939) was that Moray had unknowingly employed a Russian spy. When he refused to deal with the spy, one of his systems was destroyed. There was a bullet hole in his car that some of us saw. Later a "confidant" of Moray told me that Moray had hidden one unit "until the world was ready for it." Apparently he did not share his secrets with his sons. --Hal Fox

THE NATURAL HOUSE CATALOG

Following the success of The Natural House Book which is a "bestseller" in North America, David Pearson is preparing The Natural House Catalog - a compendium of ecologically-sound and healthy home products and services. This major new catalog will be published and distributed by Simon & Schuster in 1995. The Catalog will be in two parts - Part One will contain a series of feature articles attractively illustrated in color to guide readers on how to select and use "green" and healthy products and services, and Part Two will be comprehensive listings plus advertisements for the products and services. **A free 20 word listing is offered to companies who deal in these products and services.** For information on this and advertising, write to Lyn Hemming, Project Coordinator, Gaia Books Ltd, 20 High Street, Stroud, Gloucestershire GL5 1AS England.

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