

FUSIONfacts

A Monthly Newsletter Providing Factual Reports On Cold Fusion Developments

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3/30/89 Prof. Steven Jones of BYU announces previous work that demonstrates fusion can occur at room temperatures in a metal lattice.

4/5/89 Brookhaven National Laboratory tentatively confirms solid-state fusion similar to BYU.

4/7/89 *Jrnl. of Electroanalytical Chem.* accepts Fleischmann, Pons, Hawkins paper for publication.

4/8/89 Utah Legislature approves \$5 million for cold fusion funding.

4/9/89 *Skeptical scientists begin publishing information on why F-P Effect can't be fusion.*

4/12/89 Dr. Mathews et al., Indira Gandhi Centre for Atomic Research at Kalpakkam, India, has first success in temperature rise in F-P Effect.

4/12/89 *Tass* reports that Runar Kuzmin of Moscow University's Physics faculty replicates F-P Effect.

4/13/89 Dr. Peter Hagelstein of MIT (and others) announces theory that explains the F-P Effect.

4/17/89 Fusion Information Center, Inc. (future publisher of *Fusion Facts*) incorporates in Utah.

4/18/89 *Wall Street Journal* reports that Fusion Fever hits Japan - emergency scientific conference called at Yokohama National University with 600 attending.

4/18/89 Scientists at Italy's National Agency for Alternative Energy announce evidence of cold fusion similar to F-P Effect.

4/20/89 Utah's Governor Bangerter signs \$5 million cold fusion funding bill.

4/20/89 *Nature* agrees to publish Jones' paper but not one submitted by Fleischmann and Pons.

A. FOUR-YEAR PROGRESS REPORT

By Hal Fox, Editor-in-Chief

The following cold fusion milestones are printed in normal type for positive reports and *printed in italics for the negative reports*. Publications are *also in italics*.

DATES EVENTS

3/23/89 The U. of Utah calls a press conference and has Professors Martin Fleischmann and B. Stanley Pons announce the discovery of cold fusion producing excess energy (F-P Effect).

3/25/89 Utah's Governor Bangerter calls special session of Utah legislature.

4/21/89 Successful replication of F-P Effect is reported by Dr. Huggins at Stanford, and by physicists in Czechoslovakia and India.

4/25/89 U.S. Secretary of Energy James D. Watkins directs his 10 national laboratories to set up cold fusion efforts. Tata Institute in Bombay, India, reports excess heat from titanium.

4/26/89 Dr. Pons briefs the House Science, Space and Technology Committee on the reality of cold fusion.

4/28/89 *Deseret News* reports two national labs confirmed F-P Effect. More than 100 scientists are assigned by Japanese Ministry of International Trade and Industry (MITI) to do cold fusion research.

4/30/89 *Nature* speculates that F-P experiment is fatally flawed and will never be verified by other scientists.

5/2/89 Attendees at American Physical Society spring meeting in Baltimore cheer Koonin when he states, "Based on my knowledge, the experiment is wrong. It suffers from the incompetence and delusions of Drs. Pons and Fleischmann."

5/4/89 Third team at Texas A&M, headed by Dr. Bockris, confirms F-P Effect.

5/7/89 Lengthy article in *The Indian Post*, Bombay, reports ten teams in India replicate the F-P Effect.

5/9/89 Pons and Fleischmann provide additional cold fusion data at meeting of the Electrochemical Society in Los Angeles.

5/15/89 "Cold Fusion Appears Dead," says nuclear physicist Peter D. Zimmerman in special to the *LA Times*.

5/15/89 *Wall Street Journal* reports on publication of Dr. Steven Jones (BYU) paper in *Nature* and the subsequent negative comments by *Nature's* editor.

5/18/89 Indian scientists hold a cold fusion meeting at Bhabha Atomic Research Centre (BARC) near Bombay. Several teams report success.

5/22/89 Case-Western Reserve, Texas A&M, U. of Washington, U. of Florida, and the Italian Frascati Labs have all confirmed crucial parts of the F-P Effect.

5/24/89 *WSJ* reports on fusion successes at Texas A&M.

5/23/89 DOE/Los Alamos National Lab. sponsor 3-day workshop on cold fusion at Santa Fe, N.M. F-P Effect is strongly supported by Texas A&M group. *Many negative reports (could not replicate) and many negative theories showing that FP Effect could not occur.* Some 20 papers are

supportive of F-P Effect. Jones' work at BYU is fully substantiated.

5/25/89 A team of Mexican scientists report confirmation of solid-state fusion, Swedish physicists at Manne Siegbahn Institute for Physics, and Stanford reports fusion successes.

6/5/89 *Fusion Power Associates annual meeting in Washington hears from a panel of fusion scientists that they doubt that the Fleischmann-Pons effect is fusion.*

6/6/89 Prof. A. John Appleby of Texas A&M states, "We are now very comfortable that what we are seeing here is something that is not chemical; it is something nuclear taking place." Los Alamos reports confirmation of large tritium production from Texas A&M.

6/10/89 Prof. George Basalla (special to *The Baltimore Sun*) explains that cold fusion is a myth.

6/11/89 Fusion Information Center (in first issue of *Fusion Facts*) announces that cold fusion is real and has commercial possibilities.

6/16/89 *British scientists at Harwell Laboratory call F-P Effect a "mad idea."*

6/23/89 Drs. Storms & Talcott (LANL) announce tritium in "significant amounts" in two F-P cells.

7/1/89 *Ames National Laboratory in Iowa gives up on reproducing the F-P Effect.*

7/10/89 Bockris sends scorecard to *Nature*: **Neutrons reported by:** Texas A&M; Indira Center, India; U of Sao Paulo, Brazil; U of C. at Santa Barbara; U of Fla. at Gainesville; Cai, Chinese Academy of Science; and Rome scientists. **Tritium reported by:** Texas A&M (2 teams); Rome scientists; Los Alamos National Lab; and Mexico scientists. **Excess heat reported by:** Texas A&M (3 teams); Tata Institute; Stanford U; Portland State U; Independent U team; Rome scientists; and Los Alamos National Lab.

7/12/89 "There is no persuasive evidence that a new nuclear process was discovered last winter by University of Utah cold fusion researchers, according to preliminary draft report released July 12, 1989, by a DOE panel."

7/21/89 Utah's Fusion/Energy Advisory Committee allots \$4.3 million to University of Utah for National Cold Fusion Institute (NCFI).

8/1/89 Ten teams report success in cold fusion conference held in Japan on 7/31/89, and on 8/1/89 an announcement is made that 80 scientists from 15 Universities in Japan were selected to work on cold fusion.

8/5/89 U. of Utah Regents approve NCFI.

8/24/89 Japan organizes an Institute of Fusion Science under the leadership of Dr. Hido Ikegami.

Sept. 1989 George Miley, editor of *Fusion Technology* announces special section in his journal of the *American Nuclear Society* to be devoted to cold fusion.

10/16/89 NSF & EPRI three-day conference begins in Washington, D.C. with 35 positive papers, 2 negative papers. The conclusion, "These results cannot be explained as a result of experimental artifacts, equipment error, or human errors."

10/16/89 Four-day meeting of Electrochemical Society begins in Hollywood, Florida. Twenty cold fusion papers are presented, mostly positive.

10/31/89 DOE Cold Fusion Panel of ERAB approves final report stating that experiments thus far, "do not present convincing evidence that useful sources of energy will result from the phenomena attributed to cold fusion."

Nov. 1989 Douglas R.O. Morrison labels cold fusion as pathological science.

12/1/89 BARC releases 20 cold fusion reports April-Sept 1989. Over 50 scientists report mainly positive results.

12/12/89 ASME hosts session of cold fusion with several positive papers plus theory papers. Oak Ridge reports on excess heat, neutron emission, and tritium production.

12/15/89 and 12/23/89 Both *Science News* and *Science* report negatively on the ASME cold fusion session.

Dec 1989 *Cold Fusion, the Making of a Scientific Controversy* by F. David Peat is the first book on cold fusion. *Nature* labels the book as "stubbornly uninformative."

Dec. 1989 Drs. Storms and Talcott's work, "Electrolytic Tritium Production" is released by LANL. Significant tritium is found in 11 of 53 cells.

Jan. 1990 *Fusion Facts* names Pons and Fleischmann as "Fusion Scientists of the Year 1989."

Jan. 1990 Dr. Gajewski, DOE Division of Advanced Energy Projects, announces availability of some funding for cold fusion. \$2 million is slashed from his fiscal 1990 funds and Gajewski is replaced.

2/1/90 Dr. Fritz Will begins as head of NCFI at U. of Utah.

3/28/90 Three-day first annual cold fusion conference opens at University of Utah. Los Alamos (several workers), Oak

Ridge (Scott), Navy at China Lake (Miles), SRI - EPRI (McKubre) all reported positive results. *President of American Physical Society* labels conference as the last seance for a dying corpse. *Nature* says cold fusion, "attracted too much enthusiasm and too little derision."

March 1990 Dr. Matsumoto reports cold fusion in ordinary water.

May 1990 Edmund Storms submits list of successes in tritium (16), Neutrons (15), and Excess Heat (19). Drs. Pons and Fleischmann plead for more solid research, less personal attacks.

June 1990 *Fusion Facts* publishes summary of successes. Dr. Noninski reports that Lewis, et al. data shows excess heat - contrary to their negative report.

June 1990 *Cold Fusion: Everything Known So Far* by Rix Dobbs is second book on cold fusion.

6/15/90 Gary Taubes accuses Texas A&M of spiking its tritium measurements.

July 1990 Drs. Storms and Talcott at LANL report 12 out of 53 cells produce tritium. Dr. Takahashi reports on surprising finding of high energy neutrons from cold fusion.

7/23/90 Cold fusion session at World Hydrogen Energy Conference #8 is held in Hawaii. Hawaii's molten-salt cold fusion achieves more than 500% excess heat. *Weismann (Brookhaven) & Morrison* present negative results. Later, DOE awards Weismann with new cold fusion study contract.

Aug. 1990 Cornell announces its cold fusion archives.

Sept. 1990 Dr. Giuliano Preparata, visiting scientist at NCFI, presents his theory paper. Dr. Robert T. Bush pursuing cold fusion model. Dr. Matsumoto reports new particles with cold fusion. Dr. Yamaguchi reports gigantic energy bursts. *Papers from France and Germany* report negative cold fusion results.

9/18/90 Dr. Beuhler's, et al. paper on Cluster-Impact Fusion is printed in *Physical Review Letters*.

Oct. 1990 *Fusion Facts* reports on 112 positive papers from 16 countries.

10/22/90 First day of three-day conference on Anomalous Nuclear Effects in Deuterium/Solid Systems begins at BYU, Provo, Utah. Most important announcement: **helium-4 found in Pd Electrode**. Czechoslovakia reports low-level neutrons. Los Alamos (Menlove) reports reproducible neutrons from Ti and Claytor reports on tritium production.

Dr. Bush reports on experimental data that fits model predictions.

11/7/90 NCFI hosts scientific review of cold fusion work.

Dec. 1990 Drs. Pons and Fleischmann leave Utah.

Jan. 1991 *Fusion Facts* names Drs. Liebert and Liaw as Fusion Scientists of the Year 1990. Pons & Fleischmann international patent application becomes available to public. More successes reported with the Bush model (TRM).

1/19/91 *New Scientist* presents two-sides to cold fusion. "Cold Fusion Never Was" by Frank Close and "Cold Fusion Still Is" by John Bockris.

March 1991 Dr. Miles (China Lake) and Dr. Bush (U. of Texas, Austin) report that helium-4 is the nuclear byproduct of cold fusion.

March 1991 *The Britannica Book of the Year* reports that cold fusion, "was generally regarded as nonexistent." BARC (India) reports tritium produced in plasma-focus device. A. Takahashi (Osaka U.) reports successes with hi-lo current.

April 1991 Russian scientists (Karabut et al.) get excess heat from gas-plasma device.

May 1991 Dr. Srinivasan (BARC, Bombay, India) in "Whither Cold Fusion" persuasively pleads for rational reviews of cold fusion literature by the skeptics. Szpak's work on electrodeposited Pd deuteride published in *J. Electroanal. Chem.* News that Ozgen et al. in Turkey find excess heat. Several publications, notably *21st Century Science & Technology*, *Chem & Engr's News*, *Current Science*, and *Bungei-Syunju* are all commenting positively on cold fusion developments. Monumental and positive review by Edmund Storms (363 references) released.

5/15/91 Eugene Mallove's book *Fire from Ice - Searching for the Truth Behind the Cold Fusion Furor* is published. Frank Close's book *Too Hot to Handle: The Race for Cold Fusion* is also released and is largely an attack on perceived mistakes made by Pons and Fleischmann.

June 1991 Dr. Gene Mallove resigns from MIT rather than be party to publicizing inaccurate statements about cold fusion. *Fusion Facts* publishes review of 242 positive papers from 23 countries.

6/30/91 First day of five-day Second Annual Conference on Cold Fusion begins in Como, Italy. Over 200 scientists attend, present papers. All but very small number of papers report positive findings. Excellent summaries of work in China, Japan, Italy, and Russia are presented. There is no longer any legitimate question about reality of cold fusion.

Drs. Bush & Eagleton set a record on amount of excess heat per cubic cm of Pd. Spain receives government support for cold fusion research. Drs. Fleischmann & Pons report continued and increasing successes. Abstract received on Dr. Mills' work with light water and Ni cathode. NCFI reports tritium "every time." Use of Pd₇₇Ag₂₃ is reported. Many positive results from many countries.

7/1/91 *Fortune Magazine* notes, "Cold Fusion heats up again," and reports progress at SRI, International (funded by EPRI).

7/17/91 J. Sevilla presents what may be the first cold fusion doctoral thesis to an international jury at the Universidad Autonoma de Madrid and is now Dr. Sevilla.

July 1991 NCFI spends available funds and issues final reports.

8/10/91 *The Times (London)* reports, "Martin Fleischmann thought he had observed cold fusion, the key to endless cheap energy. But science derided his claims."

Aug. 1991 The dramatic excess energy results of Dr. Shoulders is shown in U.S. patent #5,018,180 and prompts *Fusion Facts* to extend its reporting to Enhanced Energy Devices. Randell Mills paper on excess heat production using potassium carbonate and nickel cathode is published in *Fusion Technology*. Dr. Noninski et al. replicate Dr. Mills' work.

Sept. 1991 Japanese magazine *Bungeishunju* publishes article, "The Reality of Cold Fusion Can No Longer Be Denied."

Sept. 1991 *Executive Intelligence Review*, a Washington, D.C. weekly, publishes a lengthy positive article on the highlights of the Como conference.

Nov. 1991 Dr. Chambers, et al. reports that Naval Research Lab finds neutrons. Dr. Matsumoto, et al. (Hokkaido Univ, Japan) reports on heavy elements produced during cold fusion. Dr. Kyung Suk Yun, et al. in Korea report five heat bursts.

Dec. 1991 Dr. Robert T. Bush announces that cold fusion is "Alkali-Hydrogen Fusion." Drs. Bush and Eagleton extend Mills' work and show that their modifications produce nuclear reactions.

Dec. 1991 *Scientific American* prints, "Perhaps the most noteworthy parties overlooked by the Ig Nobel Prize committee were B. Stanley Pons of the University of Utah and Martin Fleischman [sic] of the University of Southampton, the discoverers of cold fusion."

12/15/91 Dr. Nielsen et al. of Denmark prove unusual behavior of Nickel-hydrogen chains building on surface of nickel metal.

Year end 1991 A total of 52 patent applications on cold fusion are available through international patent filings. Over 300 signatures have been collected by **Cold Fusion Advocates** on a petition to Congress to hold public hearings on cold fusion.

Jan. 1992 Drs. Robert T. Bush, Robert D. Eagleton, and Randell L. Mills are awarded "Fusion Scientists of the Year 1991" for their pioneering work with excess heat from light water electrochemical cells. Dr. Mills reports that he has a one-kilowatt light-water cell running.

1/2/92 Dr. Andrew Riley (formerly with NCFI) is killed in a cold fusion experiment accident at SRI, International, Palo Alto, California. This is the first known fatality in cold fusion research.

1/17/92 *Science*, published by the American Association for the Advancement of Science, pokes fun at Dr. Fleischmann for his recent presentation to scientists at MIT.

1/18/92 *The Economic Times of India* reports in mostly negative terms about cold fusion.

1/27/92 Prof. Akito Takahashi (Nuclear Engineering, Osaka University, Japan) reports on a modified Pons-Fleischmann cell that has averaged 150 watts excess heat since mid December. Report receives widespread media coverage in Japan.

2/12/92 Dr. Eugene Mallove and Dr. Mitchell R. Swartz meet with U.S. Secretary of Energy, James D. Watkins at MIT and tell him he is woefully misinformed about cold fusion.

Feb. 1992 Comparison of hot fusion vs. cold fusion: Hot fusion -- \$20 billion spent to achieve output energy equal to 12% of input. Cold Fusion -- \$25 million spent to achieve output heat equal to 400% of input.

Feb. 1992 Dr. Yamaguchi et al. reports on new method of inducing excess heat 100% of the time.

2/17/92 U. S. reports that it will pledge \$25 million to help Russian nuclear physicists.

3/2/92 Otis Port of *BusinessWeek* reports that cold fusion isn't dead yet.

3/30/92 *Mr. Frank Murray of the Houses Energy Subcommittee states that Congress cannot hold hearings until the media gives Congress encouragement. The media will not print much about cold fusion until Congress holds hearings.*

March 1992, V.C. Noninski reports on Light-Water Excess Heat in *Fusion Technology*. This issue also carries report on

"Interference Phenomena Observed During Cold Fusion" by Dr. T. Matsumoto.

March 1992, *Scientific American*, Japanese edition reports favorably on Takahashi's experimental results.

4/6/92, *Chem & Engr News* reports "Cold fusion takes a licking, but keeps on ticking."

4/16/92 Prof. Akito Takahashi presents details of his now famous experiment to audience at MIT. Several media articles report favorably.

April 1992, Dr. Dennis Cravens shares experimental successes with "garage researchers" in article in *Fusion Facts*.

April 1992, *Fusion Facts* publishes article on the forthcoming commercialization of cold fusion. Also publishes a review of the 56 articles on cold fusion appearing in The Science of Cold Fusion, Proceedings of the II Annual Conference on Cold Fusion.

May 1992, *Fusion Facts* publishes information that three scientists have replicated the Takahashi experiment.

May 1992, *Scientific American* seeks to disparage cold fusion by linking it to Lyndon LaRoche.

May 1992, John R. Huizenga's book, Cold Fusion: The Scientific Fiasco of the Century, was released. No positive comments about cold fusion were found.

5/4/92, Dr. Peter Graneau and son report on the role of Ampere forces in nuclear fusion with possible explanation of some cold fusion results.

5/20/92 *Fusion Energy Advisory Committee meets in Los Angeles and studiously ignores new evidence on cold fusion.*

5/21/92 Dr. Eugene Mallove in a lecture at University of Utah reports on replication of cold fusion in his own basement laboratory.

May 1992, *Fusion Facts* reports on a substantial increase in EPRI funds allocated for cold fusion development.

May 1992, *Fusion Facts* reports on possible linkage between Shoulders' EVs and cold fusion.

May & June 1992, *Fusion Facts* prints a new approach to the understanding of cold fusion by Dr. Peter Gluck of Romania as being nuclear catalysis.

6/25/92, *Nature* dismisses (again) cold fusion with article, "Out, out brief candle ..."

June 1992, *Fusion Facts* reports on Dr. Miles (U.S. Navy) work which shows helium-4 to be by-product of cold fusion.

June 1992, *Fusion Facts* reports on DOE letter to Congressman Dick Swett which states that DOE no longer supports cold fusion research and that none of DOE scientists have been able to verify cold fusion. Four different teams of DOE-supported scientists verified cold fusion in 1989 and 1990 and published reports.

7/2/92, Dr. Edmund Storms publishes a Los Alamos National Lab paper reporting on the replication of the Takahashi experiment in cold fusion.

7/10/92, Japan's Ministry of International Trade & Industry (MITI) announces its full economic support for cold fusion research and development in Japan. The expenditures are slated to reach two to three billion yen.

7/16/92, Dr. Mitchell R. Swartz revises his examination of the MIT paper which claims to have found no excess heat in their cold fusion experiments. Swartz shows they altered their data. Paper published by *Fusion Facts* in its August 1992 issue.

July 1992, *Fusion Facts* reports on Dr. M. Srinivasan's visit to BYU and Univ of Utah where he reports on the replications of cold fusion using light water.

July 1992, The newly issued 1993 Yearbook of Science and the Future published by Encyclopaedia Britannica discovers cold fusion.

July 1992, *Fusion Facts* reviews an important Russian article (Karabut, et al.) that reports cold fusion excess heat and other nuclear byproducts from using low-pressure deuterium gas in glow-discharge experiments.

8/24/92 *Chem Abstracts* cites a Russian article which reports on the replication of the glow-discharge cold fusion.

August 1992, *Fusion Facts* article states that cold fusion is now attracting some investors.

August 1992, *Fusion Facts* reports on a negative paper from G.E. that is finally published (Latest reference is dated in 1990.)

August 1992, *Fusion Facts* prints article from Mark Hugo citing eight conditions that must be met for a cold fusion electrochemical experiment to work.

August 1992, *Fusion Facts* has now reported on 90 patent applications that have been submitted for international patents.

Sept. 1992, *Fusion Technology* published Robert T. Bush's paper suggesting that the light water excess heat may be due to alkali-hydrogen fusion.

Sept. 1992, *Fusion Technology* publishes Japanese scientists' article showing that cold fusion is completely reproducible.

10/2/92, Japanese researcher reports that a large amount of excess heat has been found using light water by Prof. Notoya of Hokkaido Univ.

Oct. 21-25, 1992 A successful third annual cold fusion conference was held in Nagoya, Japan. Over 300 scientists were present. Nearly all papers were positive. The entire two issues of *Fusion Facts* for November and December, 1992 were devoted to the reports from the conference. *There was one cautionary paper about hydrogen in metals and negative papers by John Huizenga and by Morrison.* In contrast, Dr. Peter Hagelstein said that he considered his new theoretical work on cold fusion the best work in his career.

10/25/92, Dr. Ikegami in his closing remarks for the Nagoya conference stresses, "Cold fusion is not a subject to be studied by just one nation. It will be for the greatest good of mankind to be developed by many nations and the results shared around the world."

11/9/92 *BusinessWeek* reports favorably on cold fusion and cites results found in India and Japan.

12/11/92 *Executive Intelligent Review* suggests that the Nagoya, Japan conference on cold fusion sets a new direction for science.

12/18/93 issue of *Science* reports on the offer by a subsidiary of Nippon Telephone and Telegraph (NTT) to sell a research kit for creating cold fusion for only \$560,000.

1/16/93 A cold fusion conference held at MIT attracted over 100 attendees who heard new evidence for the reality of cold fusion.

Jan 1993, *Fusion Facts* awards Fusion Scientists of the Year 1992 to Drs. Kucherov, Karabut, and Savvatimova of the Scientific Industrial Assoc., LUTCH, Podolsk region near Moscow, Russia for their work in glow discharge using low-pressure deuterium gas. These scientists have achieved as much as five times the amount of energy output as used for the input to the devices.

Jan 1993 issue of *Fusion Facts* reports on how Dr. Mitchell Swartz discovered both a cure for an "incurable" disease and also improvements in the loading of electrodes for cold fusion. In the same issue, Dr. C. Sanchez (univ. Autonoma, Madrid, Spain) calls for researchers in other scientific disciplines to

work more closely with the cold fusion community of scientists to advance this new science more vigorously.

Jan 1993 issue of Physics Today cites Prof. David Williams as asking about cold fusion, "But what profit is there in such an inefficient, unreliable, dangerous and expensive energy storage method?"

2/4/93 Japanese public radio, NHK, broadcasts a disparaging report on cold fusion after a year's collection of video tapes from many cold fusion scientists who were told that the program was to report positively on cold fusion.

Feb 1993 issue of *Fusion Facts* reviews the work on capillary fusion by Vigier, Rambaut, and Peter & Neal Graneau.

MARCH 1993: FOUR-YEAR SUMMARY

Four-year summary of cold fusion: While DOE still sleeps, the dedicated and unprejudiced energy scientists in over 30 countries have continued to develop cold fusion. Now, at least five approaches (Pons-Fleischmann; Bush-Eagleton; Takahashi; Kucherov, et al.; and Kaliev) indicate that commercialization of cold fusion is achievable in the near future.

Although unfairly and severely ridiculed, Pons and Fleischmann should receive the Nobel prize for their enormously important discovery. Their path-showing has resulted in over 1,000 papers (an estimated 500 reported positive experimental results) from more than 30 countries proving that cold fusion is real. The year 1992 was the year when it was widely recognized by any scientist willing to study the peer-reviewed and published literature, that clean, inexpensive, and virtually inexhaustible energy could be produced by cold fusion.

TO THE DEDICATED SCIENTISTS: In the midst of ridicule, with inadequate funding, with a sometimes hostile press, you have proven the existence of a new energy source. Thanks to all of you, especially to Drs. Pons and Fleischmann. You are preparing the tools to build a better, cleaner world by being, thinking, believing and doing. Your leadership is appreciated!

B. CONTROVERSY IN JAPAN

Courtesy of Carol White

Editor's Note: The following is a report derived from a faxed letter describing a story of deceit concerning cold fusion in Japan. A national investigation should be made in both the U.S. and Japan to determine precisely who is orchestrating the controversy against cold fusion. Why should any group in any country try to curtail the development of cold fusion when the

people of the world need a solution to our current energy and environmental problems? Note that NHK is the Japanese equivalent of the U.S. Public Broadcasting System and is tax supported. The good news is that officials of NHK were confronted with the unfairness of the presentation by Dr. Ikegami and others and agreed not to run it again.

The NHK broadcast was derived from many hours of video taping, much of which was from English-speaking persons. The video program used selected cuts from the hours of taping and, apparently, deliberately mistranslated much of the original material to give the audience the idea that there was something unethical about the way cold fusion projects were being handled or the way in which funding was being sought.

Prime 10 is a prime time television show in Japan with a wide popular audience. The broadcaster, NHK, is a public broadcasting company. On February 3, 1993, they aired a 45-minute program on cold fusion, "The Feverish Search for a Cold Fusion Dream." The show had been almost one year in the making, and according to the executive producer, the director, the reporters and cameramen, it was intended to be favorable to cold fusion. This was the producer's original idea, according to the Japanese people interviewed, and was what Fleischman and Pons also believed therefore and provided full collaboration. **Yet the program as aired, reports on cold fusion in a negatively biased way.**

The show was a slickly-done attack not only on cold fusion research in general, but also on the Japanese cold fusion projects which have been underway since August 1990 with government funding. Currently cold fusion is being considered for a three-billion yen, four-year research program, pending final approval by the Japanese parliament. The video presentation singled out the individuals who have been most responsible for putting the funding package together, especially targeting Hideo Ikegami, the coordinator of the Universities' Cold Fusion Research Programs and a consultant on new "hydrogen energy," as the MITI cold fusion program is actually called.

The underlying theme of the program, suggested by innuendo, quotations out of context, and phony dramatizations, suggests that the three men behind Japan's cold fusion research are bureaucrats, experienced in fleecing the public. It targets Ikegami; Kukujiro Namba, the President of Technova Corporation, the funder of Pons and Fleischmann; and Tomihori Taniguchi, the Director of the Electric Power Technology Division of MITI. Despite the fact that the funds, raised by MITI, either directly as government funding or as matching funds from industry, are already earmarked for University research projects, the false impression was created that the monies raised were intended for development rather than fundamental research programs.

The makers of this television program were allowed entrance to all of the major cold fusion research programs in Japan. They spent hours with the directors of the cold fusion programs, and they were well-briefed on all of the technical details related to the contractual relations between Technova and Pons and Fleischman. **The producers knew that it was Minoru Toyoda who made initial contact with Fleischmann and Pons, and that Hideo Ikegami was not involved with Technova at that time.** Nevertheless, the TV program deliberately exaggerates Ikegami's role, saying that it was he who "brought Fleischmann and Pons to Japan." Apparently the thrust of the program was to use Ikegami in order to tie together the hot and cold fusion programs and to damn both as essentially fruitless, a misuse of public funds, and a waste of time.

The consistent method used by the people who scripted this show was to shoot hours of taped conversations and then carefully select bits out of context to distort the original intention of the speaker. For example, Professor Steven Jones, **extensively praised Akito Takahashi's neutron detection work, but spoke critically of his claims to have achieved excess heat.** The positive comments were eliminated from the show, and the essentially positive results from Jones' own work as tested at Kamiokande were also dismissed by the Japanese announcer.

At the end of the show, Jones makes a statement that he considers the MITI investment premature. Unfortunately when he made this statement he did not have a clear understanding of the nature of the program. However, his remarks were mistranslated into Japanese for Japanese viewers to make them far harsher.

Foreigners were shown in the conclusion of each section of the program with a negative comment, attacking the Japanese cold fusion program. In a Japanese presentation this approach is psychologically important because a Japanese audience will tend to believe an American or European more than a native Japanese.

A striking example of bad faith by the producers of the show was that the participants were given different stories as to what the show would present. For example, Jones was told that the point of the show was to argue that the MITI investment was premature, that it would cost too much money. That in fact was the message of the show. In contrast, Pons and Fleischmann were told that the purpose of the presentation was to show cold fusion in a favorable report.

John Huizenga was interviewed at a banquet held during the Nagoya cold fusion conference in October 1992, and stated his opinion that the Pons boil-off video did not constitute scientific proof of a fusion event taking place. Huizenga did not realize the way his remarks would be used, as he was given the impression that the show was intended to be favorable to cold

fusion. Considering his semi-official position (as chairman of the ERAB Cold-Fusion Panel in 1989), he might have considered his remarks more carefully had he understood that the show was meant to stop a government program **that was already budgeted.**

Drs. Morrison and Happer were also quoted in such a way as to discredit cold fusion. Happer's comments would be important because he is a U.S. DOE spokesman.

The initial segment of the tape shows McKubre, Takahashi, and Yamaguchi speaking at the Nagoya conference, but from the very brief segments, nothing is made clear about the nature of their experiments or even what they are actually saying. At the same time, the viewers are told in Japanese that no one agrees with McKubre, Takahashi, and Yamaguchi. Their claims, say the announcers, are not proven. Indeed, never in the program are any cold fusion experimenters, Japanese or otherwise, confronted with these criticisms and allowed to answer to them, or even allowed to explain the essence of their experiments.

A scene shown with Gene Mallove and Jean Pierre Vigier talking with Morrison after the session is not translated in such a way as to allow viewers to understand their criticism of Morrison's presentation. Vigier in particular made a strong statement that the experiments must be allowed to take preeminence over theory at this point -- in rebuttal to the attack that cold fusion did not fit into existing theory. The TV broadcast version made it appear that the following was stated: "This man is saying that the conference is nonsense. Most of the experiments are without success. The judgment is experimentation, and not opinion."

Even a taped interview with a Johnson-Matthey spokesperson was made to appear conspiratorial when a question was asked that pertained to proprietary information and the spokesperson merely asked that the TV camera be turned off so he could explain the proprietary nature of the question.

Ikegami gave days of his time to the film crew, and was interviewed over several two-hour periods. The segments used were selected to distort his view of the difficulties in researching both hot and cold fusion. Ikegami describes the many problems that must be solved before we can have controlled hot fusion, and then says that whatever the problems, even if it takes a hundred years, we must spend the money and make the effort because mankind needs this alternate energy. His affirmative remarks regarding the hot fusion program are not shown on the video. Instead there is a picture of the Japanese tokamak with no results forthcoming. By editing his complete statement Ikegami's views are completely distorted. The viewer is left with the concept that fusion scientists are cynically pursuing fruitless and expensive research; that they work in the field, knowing full well that the dream of fusion is impossible.

Later he spoke at some length about the fact that excess heat is definitely related to nuclear reactions going on at room temperature in the palladium lattice, but that we cannot yet say that the excess heat is nuclear in origin. This explanation was edited to report that excess heat is not nuclear. Thus the program **makes it appear that Ikegami has no confidence in the program which he has helped establish.**

Dramatic effects were introduced into the film in order to create a heightened sinister tone. First the musical accompaniment to the action had a peculiar tone, not only to a western hearer but to a Japanese audience as well. At the beginning of the show, a scene is shown of Ikegami shaking hands rather demonstratively with Fleischmann and then with Pons, and then the film is frozen on his laughing face. **Footage follows of the cold fusion conference at Nagoya. Later, following a video of an MITI meeting, the same hand-shaking scene is repeated.** In this way an impression is created that Ikegami, Pons, and Fleischmann are congratulating each other on having put over the MITI deal. In reality the handshaking incident was three men congratulating each other at the end of a long day and a successful conference.

One wonders about the character of persons who, when provided with most of the details of a promising new science would stoop to kill rather than rise to promote this new science. When dedicated scientists in over 30 countries of the world are working to understand cold fusion and are seeking to learn how it can be used to benefit mankind, it is time that both the popular and scientific news media redirect their energies to build up and not to tear down. It takes a much better person to improve the world than to tear it down. Is a genuine and caring concern for the world in which we live so rare in science reporters and producers?

Also concerning this NHK presentation, is this letter To Dr. Ikegami from Dr. Melvin Miles, cold fusion research scientist from the Naval Air Warfare Center, Chemistry Division Research Department, at China Lake, California:

Dear Professor Ikegami:

I am writing regarding the special TV document broadcast by NHK in Japan last month that gave negative and false impressions regarding cold fusion activities including the Nagoya Conference held in Japan last October. First I found the Nagoya Conference that you organized to be excellent in every respect and conducted in a completely professional manner. In my opinion, you went the extra mile to accommodate critics of this research area including providing to them key slots on the limited program schedule and excellent locations for their poster presentations. For example, Professor Fukai of Chuo University in Tokyo presented his essentially negative viewpoint regarding cold

fusion in hydrogen-metal systems in the oral session. There were no problems with the presentation by Professor Fukai since he addressed only scientific issues involved with his research area.

Douglas R.O. Morrison of CERN, perhaps the most severe critic of cold fusion in the world, was also given valuable time on the oral schedule. Unfortunately, despite a reasonable printed abstract, he used his time for a political attack on cold fusion studies rather than for a scientific presentation. Considering the anger and resentment this created from dedicated professionals trying to find scientific answers in this difficult research area, I found your actions in cutting off the question period to be quite appropriate. There are absolutely no grounds for any criticism of your action in the matter.

Major scientific journals such as *Nature* and *Science* were quick to publish manuscripts in 1989 from laboratories such as the California Institute of Technology that reported no scientific evidence of cold fusion. These publications have had a decisively negative impact on scientific opinion that remains as a major problem today for the acceptance of positive results. However, my careful study of the calorimetry used by these laboratories reveals major errors and even evidence for excess heat effects that were not reported. Other scientists who have studied these manuscripts have reached similar conclusions. However, *Nature* and *Science* refuse to publish anything that points out obvious errors in these early measurements. The enclosed letter shows the response from *Nature* to my most recent attempt to expose the flaws in these 1989 publications that were so influential in formulating scientific opinion against the acceptance of cold fusion effects. See page 20, Letters to the Editor. I regret that the many positive aspects of cold fusion research and the Nagoya Conference were not presented in the TV document broadcast by NHK in Japan. You deserve praise and honor for the excellent scientific conference that you conducted in Japan on this sensitive topic.

Sincerely, /s/ Dr. Melvin H. Miles
NAWCWPNS Fellow

C. "THE FINAL SECRET OF FREE ENERGY"

Courtesy of Deane Platt

Editor's Note: For many years Tom Bearden has been a staunch investigator and defender of the possibility of obtaining energy from "over unity" (enhanced energy) systems. In a letter to Glenn Foster, dated February 21, 1993, he asks that the attached paper, "The Final Secret of Free Energy", be kept confidential until March 7, 1993 and then given the widest possible circulation. We have known of Tom Bearden as a vocal supporter of the idea that science had bypassed some important concepts and that electromagnetic theory was not completely consistent.

T.E. Bearden, (Association of Distinguished American Scientists, P.O. Box 1472, Huntsville, AL 35807), "The Final Secret of Free Energy," c1993 by T.E. Bearden, 26 pages, 2 figs, 26 refs and notes.

AUTHOR'S FOREWORD

This paper contains the real secret of tapping the vacuum energy very simply, using almost any source of potential (battery, electrostatic generator à la the Swiss electrostatic device, elevated wire w/250 V/m in the earth/ionosphere potential, etc.). The objective is for the moderately technical reader to understand how to build and understand not only a single device, but also hundreds of different kinds of them. While it is quite simple, the "magic principle" contained in this paper only took me some 30 years to discover. ...

AUTHOR'S CONCLUSION

... I've given you the benefit of what required most of my adult life to discover. The definitions advanced in this paper are rigorous. It took years of sweat and tears to come up with them. They're simple, but they will change your entire understanding of electromagnetic, power, and energy once you grasp them. Please read them, and ponder them, several times. ...

We've had this electromagnetics around for over 100 years -- Maxwell's book was published in 1873. We got it wrong, starting right with Maxwell and his use of the material ether, which was almost universally assumed at the time. Still, by using quaternions, Maxwell succeeded in packing a great deal more in the model than even he himself recognized. When the vector aspects interacted to form a zero resultant *translationally*, those active interactants were still in there and still fighting and interacting. The scalar component of the quaternion remained, and infolded those struggling vectors and functions of them inside itself. In short, it captured the case where the electromagnetic energies are involved in translation actions which nullify each other translationally (electromagnetically). However, the energies are still in there in the continuing interactants inside the zero vector resultant. As such, they are trapped EM energy. And it is the trapped EM energy inside a mass -- not the mass per se -- which is responsible for gravitation. In other words, *Maxwell's theory already correctly captured the unification of the gravitational field and the electromagnetic field in 1873.*

Then Heaviside et al., forced Maxwell's theory into a vector framework, throwing out the scalar component, and discarding the unification of gravitation and electromagnetics along with it. Serious errors were made and still exist in many of the fundamental definitions; in fact, many of them aren't definitions at all. Nearly every engineer and physicist can readily calculate potentials -- *all*, of course on the "dissipation" side where the potentials are actually the amount

of potential that was collected upon a collector and then dissipated. I could find hardly a single physicist who really knew what a scalar potential was prior to a finite amount being collected and dissipated as voltage. Yet 99% of them firmly believed they understood the potential. ...

EDITOR'S COMMENTS

This editor believes that a person who is willing to share 30 years of work is worth publishing. This editor is not skilled in quaternions. If you find that Bearden is correct, that the Heaviside rendition of Maxwell's work omitted an important concept, we would like to hear from you. If Bearden is correct, then Maxwell's work is more important than we have previously recognized, perhaps more than Maxwell recognized. If you find something of merit in Bearden's work, please share your understanding with *Fusion Facts*. If you cannot get a copy of Bearden paper from the above address, please write to *Fusion Facts*, we will ask for permission to provide you with a copy.

D. NEWS FROM THE U.S.

BUSINESS WEEK - PATENTS & BATTERIES

February 15, 1993

Peter Coy (Editor, Developments to Watch), "Easier Access to Japan's Latest Technologies," *BusinessWeek*, Feb 15, 1993, pg 118.

EDITOR'S SUMMARY

Important science information will now be easier to get, through *Patent Abstracts of Japan*, an English-language compendium of the abstracts of new patent applications that haven't yet been examined by the Japanese patent office. Up to now, the only U.S. source for computer access to the publication was Orbit Online Products, a service of Maxwell Communication Corp.'s InfoPro Technologies in McLean, Va. But recently the Japanese government has decided to allow the abstracts to be carried by other data-base services, one of them being Dialog Information Services, Inc.

Robert Neff & Peter Coy (Science & Technology writers), "The High-Voltage Rivalry in Batteries," *BusinessWeek*, Feb 15, 1993, pp 116-117.

EDITOR'S SUMMARY

Two hundred years ago Volta invented the first battery. Twenty-five years ago was the next break-through, the nickel-cadmium battery. The lead-acid battery is heavy and the lead is somewhat toxic. The cadmium is even more toxic. Thus a drive is on for improved batteries both from environmental considerations and to attain more power per pound, especially

for electric vehicles and for laptop computers and other portable electronic devices. Japanese companies have introduced two new rechargeables: nickel-hydride and lithium-ion batteries. A new approach is a lithium polymer battery being developed in Silicon Valley. Looking at a potential \$4.2 billion market by 1997, battery makers are working hard on developments. The nickel-hydride batteries being sold by several Japanese companies have captured 10% of the market despite up to double the cost of other rechargeables. Sony Energytec has 100 engineers and scientists working on a lithium-ion battery. Shipments are up to 300,000 2-cell packs per month. The next competitor is the lithium polymer battery which appears to be about twice the power per weight of the lithium ion battery. Motorola is scheduling these new batteries into their cellular phones by 1994.

CALIFORNIA - CALORIMETRIC PRINCIPLES

Courtesy of Dr. Melvin Miles

Melvin H. Miles and Benjamin F. Bush (Naval Air Warfare Center Weapons Division, Research Dept., China Lake, California), "Calorimetric Principles and Problems in Pd-D₂O Electrolysis," Proceedings of the 3rd International Conference on Cold Fusion, Nagoya, Japan, October 21-25, 1992, 7 figs, 12 refs.

AUTHORS' ABSTRACT

Most of the laboratories involved with the question of excess enthalpy in Pd-D₂O electrolysis experiments have employed isoperibolic calorimetric techniques. A careful re-examination of earlier results from several laboratories (California Inst. of Technology, Massachusetts Inst. of Technology, and Harwell Laboratory) is needed in terms of our present understanding of electrochemical calorimetry. Error sources in their experiments are discussed. There is possible evidence for excess power production in the Pd-D₂O electrolysis experiments at one of these laboratories.

A significant experimental problem in many isoperibolic calorimetric studies is the fact that the decrease in the electrolyte level due to electrolysis produces a significant decrease in the calorimetric cell constant if the temperature is measured in the electrolyte of the electrochemical cell. Furthermore, heat conduction pathways out of the top of the cell can produce large errors, especially at low power levels. There is no steady state in electrochemical calorimetry, hence accurate results require the evaluation of all terms in the differential equation governing the calorimeter.

AUTHOR'S CONCLUSIONS

The early cold fusion calorimetric results by several major laboratories in 1989-1990 contain serious errors that will

ultimately undermine the acceptance of these studies as credible electrochemical calorimetry. These publications by N. Lewis, D.E. William, D. Albagli and others, however, serve to illustrate important calorimetric principles, problems, and sources of error relating to attempts to measure excess power in the Pd-D₂O system. Electrochemical calorimetric measurements accurate to within ± 1 mW require the integration of the differential equation governing the calorimeter as well as careful control of external experimental conditions such as the ambient laboratory temperature.

CALIFORNIA - EXCESS POWER SEARCH

Courtesy of Dr. Melvin Miles

Melvin H. Miles and Benjamin F. Bush (Naval Air Warfare Center Weapons Division, Research Dept., China Lake, California), "Search for Anomalous Effects Involving Excess Power and Helium During D₂O Electrolysis Using Palladium Cathodes," Proceedings of the 3rd International Conference on Cold Fusion, Nagoya, Japan, October 21-25, 1992, 7 figs, 3 tables, 12 refs.

AUTHORS' ABSTRACT

Eight electrolysis gas samples collected during episodes of excess power production in two identical cells showed the presence of ⁴He. Six control samples gave no evidence for helium. Various studies of helium diffusion into Pyrex glass sample flasks established a minimum helium detection limit of 3×10^{13} ⁴He atoms per 500 mL (3ppb) for our experiments. This places our rate of ⁴He production at 10^{11} - 10^{12} ⁴He atoms per second per Watt, which is the correct magnitude for typical fusion reactions that yield helium as a product. Simultaneous evidence for excess power, helium production, and anomalous radiation was present in these experiments. Progress relating to helium measurements have been hindered by difficulties in obtaining large excess power effects.

AUTHORS' CONCLUSIONS

Simultaneous evidence for excess power, helium production, and anomalous radiation suggests that nuclear reactions do in fact occur in Pd/D₂O + LiOD electrolysis experiments. Reproducibility remains a major problem in defining these effects.

CALIFORNIA - FUSION IN TiD_{1.7}

Chem Abstract, Jan 25, 1993

T.W. Workman, M.A. Nicolet (Calif. Inst. Technol., U.S.A.), "D(d,p)T Fusion Induced by Heavy-ion Irradiation of Titanium Deuteride (TiD_{1.7})," *Phys. Rev. B: Condens. Matter*, 1992, vol 46, no 13, pp 8589-8592.

AUTHORS' ABSTRACT

As a test of the linear cascade model for ion-solid interaction, Xe and Ar ion irradiation at energies of 140-600 keV is used to induce D+D fusion in TiD_{1.7}. The fusion yield is measured by monitoring the 3.02-MeV protons from the D(d,p)T reaction. A linear binary-collision cascade model predicts fusion yields that are in excellent agreement with the measured yields for all cases studied.

HAWAII - MOLTEN SALTS

Bor Yann Liaw, Peng-Long Tao and Bruce E. Liebert (Univ. of Hawaii, U.S.A.), "Helium Analysis of Palladium Electrodes After Molten Salt Electrolysis," *Fusion Technology*, vol 23, no 1, Jan. 1993, 4 figs, 4 tables. 16 refs, pp 92-97.

AUTHORS' ABSTRACT

A case of ⁴He enrichment in a spent palladium deuteride electrode is reported. The issue of helium isotope production related to the Fleischmann-Pons effect is still much in debate. In light of this important issue, two palladium samples, used in deuteride- and hydride-conducting molten salt electrolytes, and their corresponding blanks were analyzed for both ³He and ⁴He content. Four specimens from the deuteride sample, which has produced excess heat, showed significant ⁴He signals (enrichment) above the blank background level, while the hydride sample, used as a control with no excess heat measured, exhibited an opposite (depletion) effect. The ³He content remained unchanged, within the limits of the instrument's sensitivity. The amount of ⁴He detected was not commensurate with the excess heat according to known reaction mechanisms. The interpretation of the results was complicated by a substantial morphology difference among the samples. Because the level of helium content was small in magnitude, the possibility of atmospheric contamination cannot be dismissed completely.

MINNESOTA - NEW ADVOCACY GROUP

Courtesy of Dana Rotegard

Staff, "PROPOSED MISSION STATEMENT: Minnesota Cold Fusion Alliance, Inc.," *Future Trends Newsletter*, published by Minnesota Futurists, vol 24, no 1, Feb 1993, pg 3.

MISSION STATEMENT

The missions of this proposed Minnesota based non-profit (501-C-4) advocacy group:

1. **Ensure that accurate, up to date information on cold fusion developments is available to members,**

educators, business community, the press, and public officials.

At present, the University of Minnesota libraries do not even subscribe to the major journal *Fusion Technology* or technical newsletter *Fusion Facts*. Very few individuals know that the Japanese Ministry of Industry and International Trade (MITI) is mounting a major effort to commercialize cold fusion technology or understand the implications of this fact.

2. **Engage in lobbying and advocacy to ensure proper funding and support for cold fusion science at the University of Minnesota and other Minnesota educational research institutions.**

Organize an internal (membership based) Political Action Committee to support this agenda.

Most of the best work in American cold fusion science has come from independent professors in land grant Universities rather than large federal labs or the Ivy League. Cold fusion research is within the research budgets of many small institutions. The work at the U of M has been largely funded out of pocket by a few dedicated professors and supporters.

Alternative energy is a major item before the 1993 Minnesota legislature, but few legislators on either State or National level are aware of the work at the U of M much less that at Texas A&M, Cal Poly, or in the Japanese University system.

3. **Promote cold fusion commercialization in Minnesota by expediting educational and industrial co-ventures between Minnesota businesses and corporations in other states and countries that become centers of cold fusion enterprise.**

Major Japanese corporations are pursuing cold fusion commercialization with a great vigor. At least four American startups are working on cold fusion prototype products. The manufacture of cold fusion equipment promises to be a major emerging industry. The creation of jobs through the creation of this alternative energy industry is in line with the policy articulated by Vice President elect Al Gore in his book *Ecology and the Human Spirit*. This strategy is a good fit for the Minnesota economy.

[*Fusion Facts* welcomes another cold-fusion advocacy group. We will be pleased to follow and report on your progress. Ed.]

NEW MEXICO - TAKAHASHI REPLICATION

Edmund Storms (Los Alamos Nat. Lab., U.S.A.), "Measurements of Excess Heat from a Pons-Fleischmann-Type

Electrolytic Cell Using Palladium Sheet," *Fusion Technology*, vol 23, no 2, 17 figs, 3 tables, over 30 refs, pp 230-245.

AUTHOR'S ABSTRACT

Two pieces of palladium sheet similar to that used by Takahashi were loaded with deuterium in a Pons-Fleischmann-type electrolytic cell, and heat production was measured. One sheet produced a steady increase in excess power that reached 7.5 W (20% of input power) before the study was interrupted. A second similar sheet from a different batch of palladium did not produce any measurable excess power. There were differences in loading behavior, the maximum stoichiometry, and the presence of excess volume in the deuteride made from these materials. The first sheet contained 0.8% excess volume after having been deloading from its maximum deuterium/palladium (D/Pd) ratio of 0.82 to 0.73, and the second sheet contained 13.5% excess volume while at its maximum ratio of 0.75. The high excess volume in the latter case is an indication of internal escape paths that reduce the required high D/Pd ratio.

The archive was directed through the Department of Science and Technology Studies at Cornell. To contribute to the archive or for discussions about cold fusion, contact Bruce Lewenstein, Depts. Communication and Science and Technology, 321 Kennedy Hall, Cornell Univ., Ithaca, NY 14853; phone 607-255-8310, fax 607-255-7905, or e-mail B.Lewenstein@Cornell.edu. A finding aid to the collection, housed in Cornell's Kroch Library, including a chronology of cold fusion events, has been produced and is available for \$10.00 through Cold Fusion Archive, Div. of Rare and Manuscript Collections, Kroch Library, Cornell Univ., Ithaca, NY 14853; or phone 607-255-3530.

NEW YORK - HYDROGEN ECONOMY

Courtesy of Dr. Samuel P. Faile

Gautam Naik (Staff Reporter), "Scientist Envisions a 'Hydrogen Economy'," *WSJ*, February 11, 1993, page B8.

EDITOR'S COMMENTS

A hydrogen economy upcoming, is the main theme of this article. Dr. James Swartz, of Syracuse University, has improved the hydrogen adsorption capabilities of carbon by almost 300% and believes he can boost it much more. This would enable hydrogen to be stored both more cheaply and safely than with current storage methods, and would make a hydrogen powered car more feasible in the near future. Japanese and German car companies are already eagerly testing the technology. There is demand for the pollution-free vehicles immediately, with California's requirement for 250,000 such vehicles to be on the road by 1998. Ideally, hydrogen-powered vehicles would comprise about 60,000 of these, according to the article.

WASHINGTON D.C. - ON CONGRESSIONAL RECORD

Courtesy of Jed Rothwell, transcription of statement entered into the Congressional Record.

"Investing in Technologies for America's Energy Future"

Statement of the Honorable Dick Swett before the Science, Space & Technology Committee, Energy Subcommittee Hearing, February 16, 1993:

"I am pleased to see our subcommittee holding a hearing on an issue of such critical importance.

"Last year's energy bill did much to help move our country in the right direction, but I believe that there is much more that we must do to accelerate our nation's transition from being a fossil-fuel based economy to being an energy self-sufficient economy based on alternate and renewable energy sources.

NEW YORK - COLD FUSION ARCHIVE

Courtesy of Bruce Lewenstein

With support from the U.S. National Science Foundation, the Chemical Heritage Foundation, and Cornell University, an archive of materials relating to the cold fusion saga has been created at Cornell University, for the use of historians, sociologists, and others. This archive contains material in five categories:

Original Source Materials -- hundreds of letters, memos, laboratory notebooks, preprints, reports, transparencies, e-mail printouts, press releases, and other like source material.

Mass Media Stories -- more than a thousand articles from 1985 through 1992, arranged by date, from around the world. Videotapes and audiotapes of some broadcast stories are also available.

Electronic communication -- approximately 70 computer disks mainly consisting of the Alt.fusion and Sci.physics.fusion bulletin boards off of USENET network, and distributed via an Internet "listserv." Also included are a newsletter by Douglas R.O. Morrison of CERN, and a bibliography from Dieter Britz of Aarhus University in Denmark.

Taped Interviews -- approximately 75 taped interviews, ranging from 15 minutes to three hours in length, with researchers, research administrators, and others.

Material Culture -- a small and eclectic collection of t-shirts, joke items and similar miscellanea.

"I'm sure our panelists will have much to say about new energy technologies, and I expect that I will have numerous questions for them. **I am particularly interested, however, in a field which is commonly referred to as cold fusion.**

"Back in 1989, cold fusion first hit the media when Pons and Fleischmann made their startling announcement. Their announcement, however, turned out to be premature. The DOE issued a negative report, and cold fusion research has been languishing, at least in this country, ever since.

"Despite unfortunate events of 1989, cold fusion research has continued. Japan has launched a substantial research effort, and, in this country, the Electric Power Research Institute (represented on today's panel) has undertaken a \$12 million cold fusion research effort. Scientists at SRI and Los Alamos National Laboratory, along with scientists at various other places around the country and around the world, report getting excess heat from the electrolysis of 'heavy' water. I have recently received letters about cold fusion which I would like to have entered into the record. One is from Dr. Edmund Storms, a scientist at Los Alamos. Another is from a constituent of mine, Dr. Eugene Mallove, author of Fire from Ice: Searching for the Truth Behind the Cold Fusion Furor. Both letters address the need for increased government attention to cold fusion.

"Not being a scientist, I'm not in a position to evaluate the technical merit of recent cold fusion research. It does seem to me, however, that there exists sufficient factual evidence to warrant another comprehensive scientific review of cold fusion.

"In any case, I hope that our subcommittee will play a role in helping to find the truth behind the cold fusion furor. The mere possibility that there may exist a new source of energy that used water as a fuel makes it too important to pass up."

WASHINGTON D.C. - TAUBES RUSHES INTO PRINT
Courtesy of Dr. Samuel P. Faile

Gary Taubes (Science writer), "Publication by Electronic Mail Takes Physics by Storm," *Science*, Vol 259, No 5099, Feb 26, 1993, pp 1246-48.

EDITOR'S COMMENTS

A quote from the article, "One lesson of fevered episodes like cold fusion or even the breakthrough in high-temperature superconductors is that the quality of scholarship drops precipitously when researchers are rushing into print."

E. NEWS FROM ABROAD

AUSTRALIA - LITHIUM-6

Chem. Abstracts 22 Feb. 1993

A. Eskandarian, I.R. Afnan (Sch. Phys. Sci., Flinders Univ. South Australia), "The α -d Resonances and the Low-lying States of Lithium-6," *Phys. Rev. C*, vol 46, no 6, pp 2344-2353.

AUTHOR'S ABSTRACT

The low-lying states (below the ${}^3\text{He}$ - ${}^3\text{He}$ threshold) of ${}^6\text{Li}$ are generated using three-body models with two-body nonlocal separable interactions between the constituent particles. The positions and widths of the states are determined by searching for the eigenvalues of the kernel of the Faddeev equations in the complex energy plane. When appropriate (for $T=0$ states only), the results are compared with a separate determination of these quantities from the α -d scattering process. All experimentally observed levels are found. Given that the Coulomb interaction is not included in our calculations, agreement with experiment is favorable for both the positions and the widths of the resonances.

BRAZIL - QUARK ENERGY GAIN?

Chem Abstract, Jan 25, 1993

J.E. Hovath (Inst. Astron. Geofis., Univ. Sao Paulo), "Stable Diquark Matter?" *Phys. Lett. B* 1992, vol 294, no 3-4, pp 412-416.

AUTHOR'S ABSTRACT

Two-quark correlations (diquarks) may play an important role in hadronic physics, particularly near the deconfinement point. This opens the possibility of a net energy gain by means of a (non-perturbative) quark pairing effect, perhaps up to stabilize diquark droplets. We address in the present work the possibility of a self-bound, stable state of bulk diquark matter.

CHINA - HOLES IN Pd

Chem. Abstracts 22 Feb. 1993

Bailu Wu, Shangxian Jin, Fuxian Zhang, Decheng Yao, Yibing Ding, Jixiang Yao, Pei Yao (Grad. Sch., Univ. Sci. Technol. China, Beijing, Peoples Rep. China), "SEM Observation of Palladium-Deuterium system after the Gas Discharge Process," *Gaojishu Tongxin*, vol 1, no 9, 1991, pp 1-5, Chinese.

AUTHORS' ABSTRACT

The Pd-D system after the gas discharge process was observed with SEM. A species of round hole, 1-200 μm in diameter with a melting boundary, was found on the cross section of the sample on which the nuclear track was detected by using a CR-39 detector. This phenomenon may be the trace of a high-temperature, high-pressure burst caused by some anomalous localized nuclear process under certain experimental conditions.

FRANCE - DOUBLE-SCREENING PROCESS

Courtesy of Dr. M. Rambaut

Michel Rambaut, "Lawson Criterion Made Obsolete by Cold Fusion Through the Double Screening Process," preprint 17 October 1992, 5 manuscript pages, 2 figs, 7 refs.

AUTHOR'S ABSTRACT

This paper is intended to show that the same phenomenon has been observed in Cold Fusion experiments and also in other experiments which could seem rather different. From experiment analysis, the research process has led to the necessity to have another view on the plasma reality, and to take into account the electron participation in nuclear fusion process in dense media. This remark implies that the fusion reaction rate, necessary for obtaining the Lawson criterion, is not valid in many experiments: so a new formula is proposed.

AUTHOR'S SUMMARY

This experiment reveals the fundamental role that electrons play in the nuclear process. In fact the known nuclear reactions are made easier by the electron screening, and the calculation results build up the conjecture which consist to suppose, as made by J. Schwinger, that the $D + D \rightarrow {}^4\text{He} + \gamma$ reaction becomes most probable. It could account for the mysterious heat production, given that the mean-free path of the ${}^4\text{He}$ nuclei being very short in dense media, they are very quickly stopped, producing gammas and heat.

FRANCE - CAPILLARY FUSION

Courtesy of Dr. M. Rambaut

Michel Rambaut, "Capillary Fusion Through Coulomb Barrier Screening in Turbulent Processes Generated by High Intensity Current Pulses," *Physics Letters A*, vol 163, 1992, pp 335-342, 5 figs, 23 refs.

AUTHOR'S ABSTRACT

An experiment performed in Kiel in 1973 paves the way to a possible new model of non-thermonuclear fusion. The process

could be pycnonuclear and explain other experiments such as the Z-pinch and cluster fusion. The proposed fusion mechanism is based on quantum tunneling combined with the screening of the Coulomb barrier of two colliding deuterons by electron clouding favored by chaos. Possible break-even conditions by this mechanism are discussed.

EDITOR'S COMMENTS

The article illustrates how a tungsten conductor under high current values is cut into pieces or beads. The author describes that the ions could possibly collide with each other together with a random mixing of electrons. "This situation can be called chaos. This hypothesis can be submitted to the calculations, but one can remark immediately that it is consistent with the so-called 'pycnonuclear' hypothesis." The author concludes, "if such a dynamics is possible in capillary experiments the break-even would be attainable for a relatively low r.m.s. current owing to the double screening process even in the most pessimistic case. One has also to notice that this double screening could also explain the so-called 'cold-fusion reaction'. It is now only a matter of performing again experiments (like the ones of Kiel but for higher r.m.s. currents) to verify or invalidate the hypothesis."

ITALY - BINUCLEAR ATOMS

Gian Franco Cerofolini (Istituto Guido Donegani, Func. Mat. Dept., San Donato, Italy) and Armando Foglio Para (Politecnico di Milano, Dept. Nuc. Eng., Milano, Italy), "Can Binuclear Atoms Solve the Cold Fusion Puzzle?" *Fusion Technology*, vol 23, no 1, Jan. 1993, 3 figs, 29 refs, pp 98-102.

AUTHORS' ABSTRACT

The internal and external inconsistencies of cold fusion phenomena are discussed. It is shown that most of these inconsistencies can be removed by assuming the formation of binuclear atoms that have the ability to trap thermal neutrons from the natural background in a localized state.

ITALY - BOUNCE DURATION

D. Mugnai and A. Ranfagni (Istituto di Ricerca sulle Onde Elettromagnetiche del CNR, Italy), "Complex Classical Trajectories in Tunnelling: How Instanton Bounces can Become Real Processes," *Il Nuovo Cimento*, vol 14 D, no 5, May 1992, pp 541-551. English

AUTHORS' ABSTRACT

Instanton bounces in complex-time and high temporal density can be related to complex classical trajectories when the

potential barrier is slightly perturbed. The bounce duration in real and imaginary times is found to be in good agreement with the one evaluated by the phase-time method. On this basis, a plausible interpretation model of the tunnelling processes is suggested.

JAPAN - MESH-LIKE TRACES

Chem. Abstracts 22 Feb. 1992

Takaaki Matsumoto (Dept. Nucl. Eng., Hokkaido Univ., Japan), "Observation of Mesh-like Traces on Nuclear Emulsions During Cold Fusion," *Laser Chem.*, vol 12, no 3-4, 1992, pp 103-113.

AUTHOR'S ABSTRACT

Cold fusion products from the electrolysis of heavy water have been directly measured by using a thin palladium foil. Several anomalous traces have been clearly recorded on nuclear emulsions. Some traces have mesh-like structures which are classified into two types: (a) ones associated with ring traces that are caused by the gravity decay of quad-neutrons and (b) ones with no ring traces. The mechanisms that form these mesh-like traces are discussed in terms of the Nattoh model. Multiple-neutron nuclei such as quad-neutrons, covered by ionic mesh and ionic beads, are born during cold fusion. Furthermore, other anomalous traces suggest the production of a new heavy particle during gravity decay.

JAPAN - CF REVIEW

Chem. Abstracts 22 Feb. 1993

Akito Takahashi (Fac. Eng., Osaka Univ., Japan), "Cold Fusion Research: Recent Progress," *Kaku Yugo Kenkyu*, vol 68, no 4, 1992, pp 360-367, 14 refs. Japanese.

Recent progress of cold fusion research is reviewed. Accumulated experimental results in these three years since March 1989 are classified as (1) weak n emission, (2) T generation with anomalous n/T ratio, (3) charged particle emission with anomaly, (4) ^4He generation, (5) large excess heat generation and (6) anomalous enhancement of D/Pd ratio. Results of (1) through (4) suggest the existence of unclarified nuclear reactions in Pd (or Ti)/D systems. Relation between excess heat and nuclear products is yet to be clarified. Subjects of further research are mentioned.

RUSSIA - EARLY KARABUT, ET AL.

Courtesy of the authors

A.B. Karabut, Ya.R. Kucherov, I.B. Savvatimova (SIA, LUTCH. Podolsk), "Cold Fusion Observation at Gas-Discharge Device Cathode," Presented at Anniversary

Specialist Conference on Nuclear Power Engineering in Space, May 15-19, 1990, Obninsk, Inst. of Physics and Power Engineering, 6 manuscript pages, 5 figs, 3 refs, in English.

EDITOR'S COMMENTS

We have recently received a copy of this earlier paper on the Karabut, et. al glow-discharge device. The experimental device consists of a cylinder about 20 cm in diameter in which electrodes are mounted. The electrodes were molybdenum with the cathode having a small dime-sized palladium foil attached. The discharge current varied from 10 to 500 mA. The measurement accuracy was judged to be $\pm 10\%$. The neutron counters were calibrated using Pu-Be neutron source with 10^6 neutrons per second intensity. The counting efficiency was about 5%. The background neutrons was about .1 to .01 pulses per second. In reporting the neutron flux, the authors accounted for stray pick-ups formed during the electrical discharge ignition and duration. The neutron output increases with the discharge current. Experiments were typically run for about 1,000 seconds. Two peaks of neutron flux were typically observed with the neutron flux dropping to near zero between peaks. Packs of neutron pulses were observed with a pack having a few to 1,000 pulses. Calculations show that the neutron reaction ρ density is about 10^{12} to 10^{14} neutrons per square meter. The heat increase correlates with the neutron bursts. A typical temperature rise of the massive copper calorimeter was 60°C . As a result of these earlier experiments, the authors concluded that the amount of neutrons produced by the glow discharge experiment was some orders of magnitude higher than produced in electrochemical cells. The excess heat reported appeared to be about 100 percent and produced about 1,000 Joules of excess heat during an experiment of about 1,000 seconds. The authors report that if a D+D reaction is assumed then the tritium-producing branch appears to be 10^8 to 10^9 orders higher than the neutron-producing branch as calculated from the excess heat and the neutron measurements.

[It has been reported to *Fusion Facts* that Shell corporation scientists in France have replicated the glow-discharge experiment. Any forthcoming printed report by Shell will be reviewed as soon as available. Ed.]

RUSSIA - MAGNETIC RESONANCE

Chem Abstract, Jan 25, 1993

D.H. Chaplin (Russia), "Transient Nuclear Magnetic Resonance of Thermally Oriented Nuclei," *Izv. Toss. Akad. Nauk, Ser. Fiz.*, 1992, vol 56, no 7, pp 155-168, in Russian.

AUTHOR'S ABSTRACT

A review is given with 35 refs. on oriented NMR using decaying nuclei.

RUSSIA - A REVIEW

Chem Abstract, Jan 25, 1993

Yu. A. Khurstalev (Inst. Fiz. Khim., Moscow, Russia), "Electrical phenomena on breaking the adhesive contact and failure of solids. The Development Steps: From a Gas Discharge to the Cold Nuclear Fusion (on the 90th anniversary of the academician of the Russian Academy of Sciences, B.V. Derjaguin)," *Kolloidn. Zh.*, 1992, vol 54, no 5, pp 6-8, in Russian.

AUTHOR'S ABSTRACT

A review with 118 refs. is given on studies performed by B.V. Deryagin and his coworkers. Electrophysical phenomena accompanying breaking of the adhesive bonds and the destruction of solids during mechanical treatments are discussed. The electron treatments are discussed. The electron emission and x-ray formation from a gas discharge processes are described.

RUSSIA - NUCLEAR POLARIZATION

Chem Abstract, Jan 25, 1993

A.I. L'vov, M. Schumacher (Lebedev Phys. Inst., Moscow) "Electromagnetic Polarizability of the Bound Nucleon: Kinematic Effects," *Nucl. Phys. A*, 1992, vol A548, no 4, pp 613-636.

AUTHORS' ABSTRACT

Kinematic effects due to binding have been studied for the electrical and magnetic polarizabilities of the nucleon within a nonrelativistic quark model. A specific unitary transformation of the model Hamiltonian has been applied to disentangle nucleon and quark degrees of freedom. The naive guess of a vanishing or modification of the recoil diamagnetism $\beta_{\text{rec}} = -\langle D^2 \rangle / 2M$ for the bound nucleon is not correct. Instead, the same total magnetic polarizability $\bar{\beta}$ is shown to appear for the free and bound nucleon in the energy shift of the nucleon under the action of a static homogeneous magnetic field, as well as in the amplitude of γA scattering. The corresponding result can be formulated as a generalized low-energy theorem for Compton scattering by the bound nucleon. This result agrees also with the findings of a recent γA scattering experiment carried out to study the polarizability of the bound nucleon. Generalizations taking into account higher multipoles and ω -dependent terms in the polarizabilities are also provided.

YUGOSLAVIA - NUCLEAR TRANSMUTATION

Chem Abstract, Jan 25, 1993

I. Bikit, I. Anicin, J. Slivka, M. Veskovic, M. Krmar, A. Rudic (Inst. Phys., Univ. Novi Sad, Yugoslavia), "Nuclear Transmutation of Gold Induced by Low-Energy Gamma-Rays," *Rare Nucl. Processes, Proc. Europhys. Conf. Nucl. Phys. 14th 1990*, pub. 1992 by World Science, Singapore, pp 159-165.

AUTHORS' ABSTRACT

The probability of low-energy gamma-ray induced nuclear transmutations was investigated. By measuring the activity of the ^{197m}Pt state after irradiation of the ^{197}Au target, with ^{60}Co γ -rays, it was determined that the cross section for that process has the value $\sigma_L = (1.3 \pm 0.5) \times 10^{-31} \text{ cm}^2 \text{ keV}$.

F. SHORT ARTICLES FROM READERS**ARTICLE ON GUNNERMAN PATENT**

By Dr. Samuel P. Faile

US Patent Number, 5,156,114 - "Aqueous Fuel for Internal Combustion Engine and Method of Combustion", by Rudolf W. Gunnerman, US & Int. Claims, Date of Patent is October 20, 1992.

Steve Roen, a Patent Attorney, (420 E 64th Street, Apt. 172, New York, NY 10021/tel. 212-355-1825) sent me this interesting patent for comments. Today, December 7, 1992, I called him and suggested that Mr. Gunnerman is getting a cold fusion effect that adds to the chemical combustion effects. The mixture of 55% by weight water and 45% organic fuel, with greatly reduced air intake, is ignited in an internal combustion engine with the result that one gets twice the mileage for a unit of organic fuel. According to the September 11, 1992 issue of *Oil Market Listener*, this system slashes NO_x emissions by a factor of ten, and is causing people to scratch their heads. The January 22, 1993 issue indicated it was the CO that was slashed by a factor of ten, with NO_x emissions cut in half. For car manufacturers, \$200 additional cost, would easily be concealed by omission of the no-longer-necessary anti-pollution equipment.

What got my attention was the use of a catalyst such as platinum, nickel, or Ni-stainless steel, which is necessary for the process to work. It is suggested, that during combustion, there is enhanced electron screening. The catalyst initiates a cold fusion chain reaction during combustion, where a small amount of hydrogen fuses with a heavier element in a transmutation process. Perhaps the catalyst starts off the release of a hydrogen atom that forms fluorine from H_2O . To form F-19 from oxygen-16 and three hydrogens, would seem unlikely since the two electrons would have to be captured. Nevertheless Dr. Srinivasan reports tritium from light water during alkali-hydrogen fusion, a case of apparent electron capture. A more direct argument is the finding of Toby Grotz

et al., as reported in the September issue of *Magnets* where a bipolar treatment of water vapor in a quartz tube produces fluorine. Walter Russell did transmutation studies in 1927 that were verified by Westinghouse Laboratories. This was recently repeated, where instead of producing hydrogen, oxygen or nitrogen, the setting was used for the production of fluorine from water vapor. The article in *Magnets-In-Your-Future* is titled "Use of Magnetic Fields for Hydrogen Production Using Dual Polarity Control & Walter Russell's Experiments with Zero Point Energy" by Toby Grotz, Jim Binder, and Ron Kovac. pp 8-25 (L.H. Publishing Agency, P.O. Box 250, Ash Flat, Arkansas 72513).

If cold fusion transmutation is involved, there are of course other possibilities, such as two hydrogens, an electron capture, and carbon-12 to produce N-14. If a minor isotope is involved, the reaction could be simple, such as (C-13 + H → N-14) with the organic fuel or air (N-15 + H → O-16).

Perhaps someone would like to try very pure ingredients or isotopes and analyze for new isotopes. I called the Gunnerman Group on December 16, 1992. At the suggestion of Mr. Roen, I tried to reach Dave Goerz at 1267 Gatorway, Sparks Nevada 89431 at 702-355-1400. I had sent some literature to Mr. Goerz. I talked to Mr. Nicolet since Mr. Goerz was not in. They say, with a very small addition of methanol or ethanol they can run their A-55 fuel mixture at low temperatures. At Lake Tahoe, they used a car at zero degree weather and believe the fuel would be good at -40°F. In regard to the possibility of cold fusion being involved, they strongly doubt it, believing the energy comes from chemical sources.

I asked to be on their mailing list, in regard to the progress of the invention. I said that although there is plenty of chemical energy in a 45% organic / 55% H₂O mixture, I doubted a purely chemical reaction would be very effective, having seen how poorly a 50% ethanol / 50% H₂O mixture burned. Also Stanley Meyer, using resonant cavities, claims to get good results in a 410 stainless steel chamber, where the water content versus any organic is far higher, which, at least for his invention, appears to exclude the possibility of a chemical energy source.

The next major event, in regard to the Gunnerman Project will be a car rally at Reno, NV, near the end of March, 1993. Their new address, effective March, 1993 is:

A-55 Limited Partnership
210 Gentry Way
Reno, NV 89502
Tel. No.: (702) 826-8300

F. LETTERS TO THE EDITOR

LETTER TO EDITOR OF *Nature*

Editor, *Nature*

1137 National Press Building, Washington, DC 20045

Dear Editor,

Please consider the enclosed manuscript titled, "Calorimetric Principles and Problems in Measurements of Excess Power During Pd-D₂O Electrolysis" for possible publication as an Article in *Nature*. This manuscript discusses fundamental scientific errors relating to electrochemical calorimetry. The goal of this manuscript is to promote the correct scientific principles for electrochemical calorimetric studies that have emerged from numerous publications during the past few years. We do not wish to engage in any debate regarding anomalous effects in deuterated palladium systems. It should be possible to judge the merit of this manuscript completely on principles of heat transfer, thermodynamics and calorimetry. The advancement of the field of electrochemical calorimetry requires an analysis of possible errors in previously published experiments including several publications in *Nature*. Please let me know as soon as possible regarding your decision for the review of this manuscript by impartial scientists who are competent in the fields of heat transfer, thermodynamics and calorimetry.

Sincerely /s/ Dr. Melvin H. Miles, Research Chemist
NAWCWPNS Fellow.

[Dr. Philip Ball, Assistant Editor responded within two weeks stating that "While we are generally happy (and indeed, recognize some obligation) to consider comments on papers that we have published previously, I regret that in this case we cannot conclude that there are strong grounds for doing so." We wonder what stronger grounds could be found than that the previously published and inaccurate *Nature* articles are being used by some of the patent examiners to demonstrate that cold fusion does not work with the result that American scientists and inventors are being denied their constitutional right to protection of their intellectual property! Ed.]

LETTER FROM JED ROTHWELL

To All Cold Fusion Petition Signatories

Dear Friends:

... First the bad news: Last year the Congress finally decided not to hold hearings about cold fusion. Furthermore, there is no cold fusion research sanctioned by the Department of Energy.

But, let us not be too discouraged, because there has been so much good news, and so much splendid progress in the field. The Third International Conference in Nagoya was a triumph. The MITI program is swinging into full-scale operation. A number of exciting experiments have been reported in the past six months. It is only a matter of time before prototype cold fusion power generators are demonstrated for all the world to see. Gene Mallove and I have been hard at work every day, conducting research, distributing information to researchers and interested members of the public. Many of our friends have achieved great success; some have achieved high reproducibility, and others have 'boil-off events' and other dramatic proof of the cold fusion effect.

The replicability of the effect has gotten better. More workers have measured clear, uninterrupted heat, particularly with the nickel-based systems in light water. A great deal of hard work remains, but I believe we have passed the point of no return, now that we have seen a sustained input to output ratios of 1:20, at Thermacore, Inc. and HydroCatalysis Power Corporation.

This year, there are signs that Congress is at last waking up. On February 16, 1992, Congressman Dick Swett (D-New Hampshire) of the Energy Subcommittee of the House Science, Space and Technology Committee entered this statement into the Congressional Record: (see WASHINGTON D.C. - on Congressional Record, page 14, this issue).

This week, Congressman Swett's office asked that Petition Signatories write letters to Chairman George Brown of the House Space, Science and Technology Committee requesting hearings. I will send him another copy of the list of names. Here is his address:

The Honorable George E. Brown
U.S. House of Representatives
Washington DC 20515

When the fourth anniversary of the announcement comes, I expect there will be some very positive publicity for cold fusion, particularly in the U.K. Several British reporters have contacted us in recent weeks, and they have indicated positive support for cold fusion. The Japanese press has remained extremely positive. The *Yomiuri Newspaper* named the NTT cold fusion breakthrough, "one of the top ten science stories of 1992." The technical magazine *Trigger* issue of March, 1993 is a "special cold fusion issue," with six different articles and bold headlines on the front cover: "The Cold Fusion Revolution!" Even in the U.S. we have seen some positive publicity, particularly the *New York Times* November 17, 1992 article: "Cold Fusion, Derided in U.S., Is Hot In Japan." A *Popular Science* editorial in the March 1993 edition announced that, "future articles will include such topics as clean coal, non-fossil fuels, the status of cold fusion, and the promise of fuel cells." We have talked to the people who are writing about cold fusion for *Popular Science*; we feel confident that they will write a balanced, informative, and worthwhile article.

G. CONFERENCES AND MISC.

183rd ELECTRO-CHEMICAL SOCIETY MEETING

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For information call Department of Nuclear Engineering, Hokkaido University, Phone (011) 81-11-716-2111 (ex6682) or Fax (011) 81-11-736-2856.

Some of the papers to be presented include: "Cold Fusion and Wave System and Vacuum of Crack" by Norio Yabuuchi; "Nuclear Reactions of New Species Associated with Cold Fusion" by Ryoichi Taniguchi; "One-Point Cold Fusion" by Takaaki Matsumoto; "Electron Impact H-H and D-D in Molecules Embedded in Al II" by Mituo Nakajima, Toshiaki Goto, Masao Ogawa, Hidetake Kakihana; "Cold Fusion Experiment with Deuteron Beams (II)" by Morio Fukuhara, Teruhisa Otokawa, Jun Datemichi, Hisashi Sugimoto, Toshiyuki Iida and Akito Takahashi; and "Detection of Luminescences, Microsparks and Radiations During AC Electrolysis of Light Water" by Isao Yukimura and Takaaki Matsumoto.

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CONFERENCE SCHEDULE SATURDAY, APRIL 17, 1993

- 8:30 - 9:20 A.M.
Paramahansa Tewari - Generation of Cosmic Energy and Matter
from Absolute Space (Vacuum)
Hans Petermann - The New Science
- 9:30 - 10:20 A.M.
Patrick Bailey - A Unique Class of Alternative Catalysts for Fuel Cell
Applications that Replace the Need for Precious Metals
Henry Monteith - The Litronics Microscope
Frano Barbir - Hydrogen Energy Technologies: Pathways to
Commercialization
- 10:30 - 11:20 A.M.
William Baumgartner - Energy Extraction from Vortex
Hal Fox - Impact of Cold Fusion and Other Enhanced Energy Systems
Donald Kelly - The Status of Free Energy
- 11:30 A.M. - 1:20 P.M.
LUNCH
- 1:30 - 2:20 P.M.
Toby Grotz - Working Models of Free Energy & Transmutation
Systems
Toy McAlister - Smart Plugs Clean the Atmosphere
Andrew Michrowski - The Chernetskii Papers/The Vacuum Energy
Connection
- 2:30 - 3:20 P.M.
Harold Aspden - The World's Energy Future
Panos T. Pappas - The Three Conservation Laws of Nature - Energy,
Momentum and Angular Momentum
Marcos Rodine - The Dandelion Puff Principle based upon Point
Energy Creation Physics

- 3:30 - 4:20 P.M.
Harold Puthoff - Quantum Zero-Point Energy (ZPE), Condensed-
Charge Technology (CCT), and Engineering Application
Dale Pond - Substantiation and Standardization of the New Paradigm
George Hathaway - Experiments with a Unipolar Dynamo of Novel
Construction

SUNDAY, APRIL 18, 1993

- 8:30 - 9:20 A.M.
Tim Binder - Present Establishment Science's Incomplete Visions of
Universal Processes
Ken MacNeill - The World Control Factor - "Energy"
- 9:30 - 10:20 A.M.
Stefan Marinov - The Self-accelerating Generator VENETINCOLIU
Produces Free Energy
Bob Beutlitch - From Metaphysics to "Physics 2001"
Jeff Hayes - Tesla's Plan, A Comprehensive Solution
- 10:30 - 11:20 A.M.
Troy Reed - The Reed Magnetic Motor
Ken Shoulders - The Use of Electron Clusters as Triggers for Nuclear
Events
John Bockris - Cold Fusion
- 11:30 A.M. - 1:20 P.M.
BANQUET - SPEAKER: Dennis Weaver
- 1:30 - 2:20 P.M.
Moray King - The Basics of Zero-Point Energy Technology
Charles Yost - Electric Propulsion for Spacecraft
- 2:30 - 3:20 P.M.
John Stover - Motational Electric Fields
Paul Brown - Radioisotopic Energy Conversion Utilizing a Solid-State
Contract Potential Difference Cell
Stanley Meyer - Atomic Energy Balance of Water
- 3:30 - 4:20 P.M.
Ron Kovac - A New Portable Power-Motor Pack Used to Test New
Energy Ideas and Sources
Peter Graneau - Concept of a Capillary Fusion Reactor
Scott McKie - PODMOD

EVENING WORKSHOP SCHEDULE

FRIDAY, APRIL 16, 1993

- 7:00 - 8:45 P.M.
Charles Yost - Electro-dynamic Propulsion Research
Stan Meyer - Atomic Energy Balance of Water using Water as a New
Energy Source
William Baumgartner - Vortex Mechanics
Harold Aspden - The Physics of the Magnetic Energy Source
- 9:00 - 10:45 P.M.
Don Kelly - Earth's Gravity to the Tri-field Relationships
Roy McAlister - Precision Spark Injection Business Opportunity
Paramahansa Tewari - Generation of Electrical Power from Space at
Over-unity Efficiency
Bob Beutlitch - To Be Announced

SATURDAY, APRIL 17, 1993

7:00 - 8:45 P.M.

Tim Binder & Toby Grotz - Russell Cosmogony
Peter Graneau - Fusion Reactor
Jeff Hayes - High Milage Vehicles/Tesla Engine
Hal Fox - Theories and Models for Advanced Energy Systems

9:00 - 10:45 P.M.

Moray King - Principles of Cohering the Zero-Point Energy
Stefan Marinov - The VENETIN COLIU Generator
Paul Brown - Radioisotopes and New Energy Devices
Frano Barbir - Hydrogen Energy Technologies

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Arranged in chronological order, the material provides various essays and annotated bibliographies at a variety of technical levels ranging from high school science to post-doctoral levels. Ideal for groups having a variety of background and who would benefit from information being presented at various levels. These manuscripts cover experiments, controversy, theories, and commercial ventures for cold fusion, space energy, and many other emerging technologies. Other topics covered, due to possible connection to the emerging energy fields, are ways that some persons are attempting to change the status quo and the possible impact of politics.

The author, Dr. S.P. Faile, has two chemical engineering degrees, a Ph.D. in Solid-State Science (Penn State Univ.), a royalty-producing invention and many technical publications in materials science. During the last few years, Dr. Faile has been a Technical Correspondent for *Fusion Facts*. The price for the unbound manuscripts, which includes 7+ volumes is \$500.00. Checks should be made out to S.P. Faile. Delivery will be by Federal Express. For domestic sales to U.S. nationals only. Author does not have special export license to cover some of the recent unpublished information that could be of commercial value. Send orders to Dr. S.P. Faile, 4002 Sharon Park Lane, Apt. 13, Cincinnati, Ohio 45241. Telephone (513) 563-4953.

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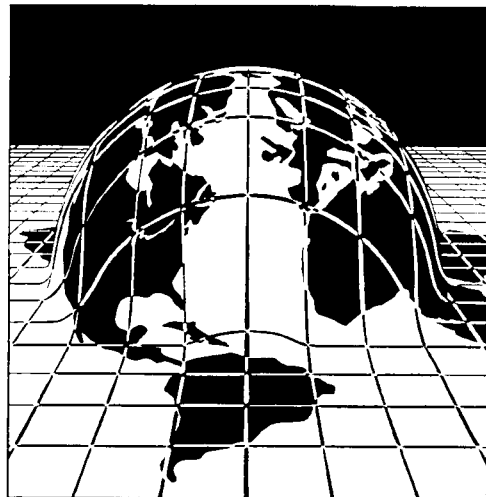
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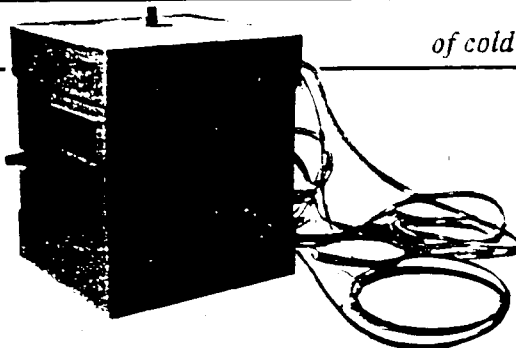
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