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Sunday, December 13, 1992

Dr. Will Happer (202) 586-5430  
Office of Energy FAX: 586-4120  
Department of Energy (DOE)  
1000 Independence Ave., S.W.  
Washington, D.C. 20585

cc: Admiral James D. Watkins,  
Secretary of Energy  
cc: Dr. Eugene Mallove, Cold  
Fusion Research Advocates

Dear Will,

When you kindly returned my call, which I appreciated, you remarked (not unreasonably), "If cold fusion were real, you could buy a do-it-yourself kit from Edmund Scientific!"

What do you say now to this morning's news that the Nippon Telegraph & Telephone Co., NTT (analogous to our Bell Tel Labs) has announced the availability of a **do-it-yourself cold fusion testing kit** for "only" \$564,000.

Have we become so backward technologically compared to the Japanese that they now have to **condescend** to help us to **catch up to them**?

A reporter whom I have previously found to be scrupulously accurate, Dr. Eugene Mallove, has reported in writing that when Los Alamos National Laboratory (LANL) nuclear physicist Dr. Ed Storms announced that he had **replicated** the stunning Takahashi experiment, he was "rewarded" by DOE officials in Washington D.C. by having his funding for further research into cold fusion cut off!

You could make amends by **directing** that this near-treasonous act be rescinded, and that LANL should purchase one of the NTT testing kits and make it available to Dr. Storms.

Meanwhile, I hope that you have received the highly tutorial rebuttal of the notorious Huizenga Report which I sent to Admiral Watkins; do you not agree that by now the evidence of intolerable **bias** and incompetence on the Energy Research Advisory Board (ERAB committee) is **overwhelming**?

Hoping for a (quantitative, theoretical) scientific reply -- in case you are still inclined to attempt to defend the indefensible -- at your earliest opportunity, I remain,

Sincerely,

*Bob Bass*

P.S. I deeply appreciated your 'tip' to me that Clinton Adviser, Ira Magaziner is not closed-minded about cold fusion.



## Department of Energy

Washington, DC 20585

January 13, 1993

Dr. Robert W. Bass  
P.O. Box 6337  
Thousand Oaks, CA 91359

Dear Dr. Bass:

Thank you for your letter of December 8, 1992, and subsequent communications to Admiral Watkins about cold fusion and other issues. Admiral Watkins has asked me to reply. Since the Department of Energy is interested in all potential sources of energy, we have had work on cold fusion reviewed very carefully by the best scientists we could find. The vast majority of experiments reviewed have failed to produce excess heat or products of nuclear reactions. Most independent researchers have been unable to replicate the relatively few claims of positive results. Very competent private industries like the General Electric Company went through much the same process of evaluation and have now dropped most of their research on cold fusion.

Let me contrast the events which followed the announcement of cold fusion with those that followed another startling announcement, the discovery of high temperature superconductors. As in the case of cold fusion, there were many skeptics and there were even theoretical papers purporting to show that superconductivity was not possible at temperatures above 30 K. Nevertheless, the best scientists we could find were asked to review the claims. In striking contrast to the situation with cold fusion, high temperature superconductors were replicated in almost every laboratory of the Department and in the rest of the world. Because high temperature superconductors may well have an important influence on the use of energy in the United States, the Department has instituted a vigorous research program on that topic. Furthermore, there are quite a few private-sector companies which have well-funded programs to investigate and commercialize high temperature superconductors.

It is my job to advise the Secretary of Energy on the science and technology of phenomena like cold fusion. I have informed the Secretary that the Department has done everything it can to determine the truth about cold fusion, and that so far we have been unable to find any reproducible results.

I have shared with Admiral Watkins the materials you have sent us as well as my response to you. We appreciate your interest in our programs.

Sincerely,

*William Happer*

William Happer  
Science and Technology Advisor

cc: Secretary Watkins

## FAX COVER SHEET

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Dr. Robert W. Bass  
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January 12, 1993

## THE "SMOKING GUN" EVIDENCE IN THE CRIME OF COLD-FUSION-GATE?

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THESE TWO NOBEL LAUREATES HAVE UNDENIABLY MADE GREAT DISCOVERIES IN PARTICLE PHYSICS, BUT THEY ARE SO INCOMPETENT IN SOLID-STATE PHYSICS THAT THEY CANNOT EVEN UNDERSTAND ELEMENTARY QUANTUM MECHANICS, BECAUSE IF THEY DID THEY WOULD HAVE KNOWN ABOUT DUANE'S RULE (1923) FROM WHICH QUANTUM MECHANICS CAN BE DERIVED!!! AND IF THEY HAD UNDERSTOOD THAT NO SOLUTION OF SCHROEDINGER'S EQUATION INSIDE OF A PERIODIC LATTICE HAS ANY VALIDITY UNLESS ITS LOGARITHMIC DERIVATIVE IS ALSO PERIODIC OF THE SAME PERIOD AS THE LATTICE, THEN THEY WOULD HAVE KNOWN THAT QUOTING THE RESULTS WHICH FUSION PLASMA PHYSICISTS GET ABOUT ISOLATED TWO-BODY COLLISIONS IN A NEAR-VACUUM ARE TOTALLY IRRELEVANT!

THE INSTITUTIONS WHICH GRANTED THESE IGNORANT SPECIALISTS THEIR DOCTORATES IN *PHILOSOPHY* (?) SHOULD BE ASHAMED AND ORDER THESE MEN TO WEAR DUNCE CAPS AND SIT IN THE CORNER UNTIL THEY ABJECTLY APOLOGIZE TO THE NUMEROUS GREAT SCIENTISTS (FLEISCHMANN, PONS, DUANE) AND OTHERS (U PRES.) WHOM THEY HAVE *HARMED* IN THEIR SELFISH DESIRE TO RETAIN THEIR OWN POWER AND INFLUENCE (TO THE DETRIMENT OF HUMANITY). BY ARROGANTLY PONTIFICATING ABOUT SUBJECTS WHICH THEY ADMIT THEY NEVER LEARNED (AND IN ONE CASE ACTUALLY FLUNKED!) THEY HAVE COMMITTED AN OVERT CRIME KNOWN AS FRAUD ON THE PUBLIC OR FRAUD AGAINST THE GOVERNMENT AND THEREFORE CAN BE PROSECUTED BY ANY PRIVATE CITIZEN WHO NOTIFIES THE "JUSTICE" (?) DEPARTMENT AND WAITS SIX MONTHS (ACCORDING TO THE LITTLE-KNOWN "ABRAHAM LINCOLN LAW"). IF THEY DON'T COME CLEAN ABOUT THEIR SINS IN THE NEAR FUTURE THEY ARE GOING TO HAVE TO ANSWER IN COURT UNDER OATH AND PENALTY OF PERJURY!

R.W. Bass

ADMIRAL WATKINS: Your assistant Steve Kay says that you will answer my December 8 letter "in due course". I have now been waiting for OVER ONE MONTH!

Dr. WILL RAPPER: Has the cat got your tongue? Failure to reply will be judged by history if you now "take the fifth" and continue to fail to reply.

## FUSION REPORT

FROM COMO TO NAGOYA:

## A Solid Year of Cold Fusion Accomplishment

by Carol White

Last year's Second Annual Cold Fusion Conference, held in Como, Italy, established the bona fides of the Fleischmann and Pons experiment. This year, the hallmark of the Third International Conference on Cold Fusion was the reality of a broad-based international and interdisciplinary collaborative effort on this new scientific and technological frontier.

More than 300 scientists, industry representatives, and press attended the third international conference in Nagoya, Japan, Oct. 21-25, at the Nagoya Congress Center. The details of the scientific research presented will be covered in the Spring 1993 issue in a special report. Here are some of the highlights:

One high point of the conference was the report by Dr. Eichii Yamaguchi that he and Dr. Takashi Nishioka at NTT Basic Research Laboratories in Tokyo (the equivalent in Japan of Bell Labs in the United States) had found high helium-4 emissions in a gas-loading cold-fusion experiment.

For the perennial doubters, there was a video by electrochemists Stanley Pons and Martin Fleischmann showing four different cold-fusion cells boiling off their contents in 11 minutes on average (from 10 to 12 minutes). They estimate that they have achieved a power density of 1.7 kilowatts per cubic centimeter.

The fourth of these cells, which boiled for 11 minutes, was shown to the audience in time-lapse photography. If there were not a fusion reaction going on in this cell, which contained 2.5 moles of heavy water, then it should have taken 40 minutes or so for such a boil-off to occur under the nor-



University of Utah

Electrochemists Fleischmann (right) and Pons, with one of their original cold fusion cells (inset): "The trick is to cram the deuterium into the lattice, get the lattice into the endothermic regime, and then let the temperature rise."

mal conditions of electrolysis.

In other words, with only 37.5 watts of power input, a result was produced that thermodynamically required an amount of power equivalent to 144.5 watts. This result was not qualitatively different from those reported at the conference in Como more than a year ago, except that now Fleischmann and Pons are confident of their ability to produce such boil-off at will—providing that they are using a "working" batch of palladium. In fact, they use a palladium-silver alloy, but materials questions are still not fully resolved.

It is also the case that researchers, particularly in Japan and at the Stanford Research Institute in Palo Alto, now regularly achieve similar repeatability, although at lower excess powers on average.

Finally, there was a broad array of excess heat results with light water experiments reported by scientists at the meeting, most notably by Dr. Mahadova Srinivasan from India, Dr. Reiko Notoya from Japan, and Dr. Robert Bush from the United States. How these are related to the occurrence of heavy water cold fusion remains to be seen.

#### 'An Entirely New Field of Research'

Dr. Hideo Ikegami, a professor at the National Institute of Fusion Science at Nagoya and the organizer of this conference, closed the event with a brief but moving statement, in which he anticipated a rapid pace of development in the forthcoming year (see box, p. 67). He recounted the solid accomplishments since the last cold fusion conference that have established beyond doubt the reality of a nuclear re-

action taking place in deuterium-loaded palladium. Emphasizing the scientific implications of this, he said:

"What is being created is an entirely new field of research from traditional nuclear science. Now, we can properly name what we used to call cold fusion 'fusion in the solid state.' This is a most important subject for science—one on which we have been working so patiently, with dedication and with courage—for our future generations, for those who will live in the 21st century."

The closing panel of the conference, opened by Dr. Michael McKubre from

Stanford Research Institute, exemplified the spirit of this meeting. McKubre called for international collaboration and began with the provocative statement: "Let us suppose that we are not doing something wrong but that we are really doing something right."

#### 'A Lot More Collaboration'

"I realize that this is a really strange and radical conjecture," McKubre continued ironically, "but for the purpose of this discussion I think that we should examine this hypothesis. . . . We need a lot more collaboration. The field is very broad; it requires broad diversity of disciplines. The matrix of

possible experiments is huge. It is unreasonable for any one of us to suppose that we can address it either as a horizontal or a vertical monopoly of talents. The collaboration should include efforts of interlocked laboratory confirmation but not be restricted to that."

McKubre concluded: "We seem to be looking at some sort of cooperative, collective, or coherent phenomenon. The point I really want to stress is that it is now three and a half years since the announcement of Fleischmann and Pons, and I don't think that there is any excuse for any experimen-

## DR. HIDEO IKEGAMI 'International and Interdisciplinary Collaboration Necessary'

Here are the closing remarks of conference chairman Hideo Ikegami, a professor at the National Institute for Fusion Science at Nagoya.

We could easily continue this discussion for one more week, and I am sure this intense level of discussion will continue after the formal close of this conference.

I want to thank all of you here for your great collaboration, which made this such an active and exciting third international conference on cold fusion.

At this conference not only have we been informed that excess heat is reproducible, as has been confirmed in many laboratories, but we can see in the video produced by Dr. Fleischmann and Dr. Pons that an excess heat generator is now in hand. These remarkable results have been confirmed thanks to Dr. McKubre, Dr. Takahashi, Dr. Kunitatsu, and Dr. Storms, as well as Drs. Fleischmann and Pons.

We also have learned a very important result as reported by Dr. Yamaguchi, that alpha particles [helium nuclei] are detected as a possible energy carrier for the excess heat. This is a new remarkable achievement by Dr. Yamaguchi and

Dr. Nishioka, even though we do not yet understand what physics exists that can generate those alphas. One thing we can say for sure: This is not an ordinary nuclear reaction.

#### Fusion in the Solid State

What is being created is an entirely new field of research from the traditional nuclear science. Now, we can properly name what we used to call cold fusion, "fusion in the solid state."

This will be one of the most important subjects in science—one on which we have been working so patiently, with dedication and with courage—for our future generations, for those who will live in the 21st century.

In order to achieve our goal, our ultimate goal, we must have interdisciplinary collaboration and international collaboration. This is the key issue; therefore, let us enhance and enrich further our collaboration.

I would like to cite the last part of the message given by Mr. Toyoda at the banquet. There he said: "Cold fusion is not a matter to be studied by one single enterprise or nation. I have confidence that it will become the greatest asset as an eventual energy for mankind to be



Carol White

"In order to achieve our goal, we must have interdisciplinary collaboration and international collaboration." Conference chairman Ikegami (left) at the podium with nuclear physicist Giuliano Preparata.

among the world."

This is our dream, our common understanding, and the reason why we are so intensely and patiently working on cold fusion.

Now I am pleased to inform you that the International Advisory Committee has decided that the next conference will be held in Hawaii. Let us get together there again to share information and our discoveries. Thank you again for your collaboration, which has made this conference so successful.

tal program in which a single variable is being addressed. . . ."

**Fleischmann and the Role of 'Poison'**  
Martin Fleischmann followed McKubre, who had remarked ruefully at the beginning of his speech that Fleischmann and Pons are a hard act to precede. Pointing to the problem of repeatability still plaguing some experimenters, Fleischmann urged the crucial role of "poisons" in enhancing the loading ratio. "We use glass apparatus experiments," he said, "and Mike puts aluminum in the solution." Both will be deposited as oxides on the cathode over time.

Fleischmann also pointed to a unique feature of his and Stanley Pons's method of performing the experiment: to allow a rise in temperature to increase the reaction rate. "The trick is to cram the deuterium into the lattice, get the lattice into the endothermic regime, and then let the temperature rise." Somewhere over a loading ratio of 0.6 palladium, he said, between the palladium and deuterium atoms in the metal hydride formed in the cathode, the crystal lattice is transformed from an exothermic (heat-releasing) alpha phase to an endothermic (heat-absorbing) beta phase.

He summed up the "secret" of his success: "Use glass, get the loading right, and let the temperature rise." However, he warned, "Now having done that, you are far from getting a reasonable description of the phenomenon. We have to link the materials properties in a very systematic way to the levels of heat production."

#### "Something New at Stake"

From the floor, Dr. Jean Pierre Vigièr from France, an editor of *Physics Review Letters A*, pointed to the broader theoretical questions raised by the many reports of excess heat from light water electrolysis experiments. Expressing the conviction of many in the audience, he said:

"The key question is that we know we have excess heat. . . but from the point of view of the basic interpretation of the new facts. . . there are new effects in condensed matter and we have to understand what is happening with that. . . There is something new at stake. Everything hangs now on the light water and hydrogen experiments."

DR. FRANCESCO SCARAMUZZI

## Cold Fusion: 'Something Really Unexpected'

### Cold Fusion In Italy

*Editor-in-chief Carol White visited Frascati National Laboratory near Rome in September 1992 and reports here on two of Italy's cold fusion programs.*

**D**r. Francesco Scaramuzzi at Frascati National Laboratory near Rome has put together an informal group that is working on a cold fusion experiment in spare hours. Although his preliminary results seem quite exciting, he did not wish to discuss them until they were confirmed by control experiments, and so we talked more generally.

"I got involved by chance," Scaramuzzi said, referring to cold fusion research. He did not come to the field with any real conviction. Even though he had at first many doubts about the Fleischmann-Pons experiment, he thought that if it were true it would be a decisive break for science. "I have lived all this time, since the first announcement in 1989, in a period of uncertainty. But I am convinced that explaining the anomalies associated with this experiment could be an important scientific problem.

"In a certain sense, I consider the applied aspects of the problem to be a second line, even though I realize that they could be of extreme importance." He added, ironically, that the

technological potential of cold fusion could be responsible for creating the extremely difficult situation in which cold fusion research finds itself.

At present, however, he is far more confident about the scientific results. "It seems to me," he said, "that now, three and a half years after the beginning of this whole history, the confirmations of positive results, mostly in the field of heat-excess experiments, are so many that it is very hard to deny that the phenomenon exists.

"I would say," he continued, "that the beauty, for every scientist, should be to try to reach a convincing conclusion about the experiments. Then the task is to find the connection between the different parameters. At this moment it is most important to find out whether the excess heat is of nuclear origin.

"One possible route has been shown by the experiment of Melvin Milos at the Naval Weapons Center in California, with the help of J.J. Lagowski in Texas. They showed the presence of helium-4 whenever there was excess heat and its absence when there was no heat. I believe that this should be followed up. There is need for a confirmation of that experiment that will be more convincing. In my opinion, one of the most interesting prospects in this field is to show that there are nuclear ashes from this phenomenon, and the most probable nuclear ash is helium-4."

Of his own experimental work, Scaramuzzi said, "I started with experiments on the detection of nuclear particles, and was the first to propose 'preloading' techniques." This year, with collaborators, he has begun an experiment on excess heat that has shown a high excess.

I asked him what his view was of the theory of Italian physicist Giuliano Preparata, which attempts to explain the presence of a fusion reaction—in spite





Scaramuzzi: "The confirmations of positive results, mostly in the field of heat-excess experiments, are so many that it is very hard to deny that the phenomenon exists."

Carlo White

of the improbabilities of such a reaction occurring—in terms of quantum field coherence (see feature, p. 58 where Preparata's theory is discussed). He replied:

"Preparata's theory is one of the most exciting in the field and seems the most suitable to interpret these results. I am extremely excited by it, but since I am mostly an experimentalist, I still feel the necessity of demonstrating to myself that what is occurring is really a nuclear phenomenon. This is to me the main issue at present.

"I am also concerned to try to decrease the skepticism present within the scientific community, in order to bring more able scientists into the field. I am convinced," he said emphatically, "that what we call cold fusion is a very complicated phenomenon that needs an effort much greater than has been possible up to now. In order to accomplish this, we need to persuade more and more scientists to join with us in the investigation."

**A Low-temperature Expert**

"I am a low-temperature physicist, but I am connected with hot fusion research. We have built an injector for solid deuterium pellets; we shoot solid deuterium projectiles with speeds above 3 km/sec, which is substantially the record now. And this is one of the

tools used to study the performance of a plasma in a tokamak experiment. But I have been involved in this just because I am an expert in low temperatures.

"I was working with supercooled helium in the past. I have been working on this for 20 years. Preparata has been developing a theory about superfluidity in his scheme of superradiance. Before cold fusion I was working on applied problems such as space

cryogenics for satellites and stratospheric balloons and rockets. Most of my work has been in problems connected with superfluidity. In a certain sense, I have been working in condensed matter physics in general. And one of the aspects of cold fusion is the condensed matter phenomenon, which could be responsible for fusion reactions. This has very much interested me.

"In Preparata's theory, there is a connection between cold fusion and superconductivity—since they are both substantially collective phenomena, macro-collective phenomena. You can measure properties of a mass of material which are explainable only in terms of quantum mechanics, but on the macro scale. You don't have to look at single nuclei. If Preparata is correct, then cold fusion also demonstrates a collective phenomenon.

"Most of science today is expected science. If you look at the scientific journals you find that most of it is still interesting and worth doing but in a certain sense you can foresee it. It is not big news. For example, you are going to measure the cross section of some phenomenon and you expect it to be within a certain range. So normally you don't have something really new and unexpected. This is one of the few occasions where there is something really unexpected and exciting. I try to keep the applications to one side."

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Winter 1992

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A SECOND NOBEL LAUREATE IN PHYSICS (WHO HAS PUBLISHED IMPORTANT JOINT PAPERS WITH A PROMINENT MEMBER OF THE ERAB COMMITTEE) HAS NOT ONLY DERIDED COLD FUSION BUT WAS QUOTED IN LARGE HEADLINES ON THE FRONT PAGE OF THE LOS ANGELES TIMES: "NOBEL LAUREATE DIRECTOR OF FERMILAB SAYS PRESIDENT OF UNIVERSITY OF UTAH SHOULD BE FIRED!" (WHICH SAID PRESIDENT'S ENEMIES USED TO GET HIM IN FACT FIRED!). NOW GET THIS: THE SELF-SAME NOBEL LAUREATE (Leon Lederman) WHO CALLED FOR THE U'S PREZ TO BE FIRED, PUBLISHED A JOINT ARTICLE IN *physics today* [the APS monthly] WITH THE SOLID-STATE FLUNKEE (Sheldon Glashow) IN WHICH HE AGREED EXPLICITLY WITH THE ABOVE-SAID OPINION ABOUT THE "NON-FUNDAMENTAL" NATURE OF STUDY OF ANYTHING LARGER THAN A QUARK OR A LEPTON!

THESE TWO NOBEL LAUREATES HAVE UNDENIABLY MADE GREAT DISCOVERIES IN PARTICLE PHYSICS, BUT THEY ARE SO INCOMPETENT IN SOLID-STATE PHYSICS THAT THEY CANNOT EVEN UNDERSTAND ELEMENTARY QUANTUM MECHANICS, BECAUSE IF THEY DID THEY WOULD HAVE KNOWN ABOUT DUANE'S RULE (1923) FROM WHICH QUANTUM MECHANICS CAN BE DERIVED!!! AND IF THEY HAD UNDERSTOOD THAT NO SOLUTION OF SCHROEDINGER'S EQUATION INSIDE OF A PERIODIC LATTICE HAS ANY VALIDITY UNLESS ITS LOGARITHMIC DERIVATIVE IS ALSO PERIODIC OF THE SAME PERIOD AS THE LATTICE, THEN THEY WOULD HAVE KNOWN THAT QUOTING THE RESULTS WHICH FUSION PLASMA PHYSICISTS GET ABOUT ISOLATED TWO-BODY COLLISIONS IN A NEAR-VACUUM ARE TOTALLY IRRELEVANT!

THE INSTITUTIONS WHICH GRANTED THESE IGNORANT SPECIALISTS THEIR DOCTORATES IN PHILOSOPHY (?) SHOULD BE ASHAMED AND ORDER THESE MEN TO WEAR DUNCE CAPS AND SIT IN THE CORNER UNTIL THEY ABJECTLY APOLOGIZE TO THE NUMEROUS GREAT SCIENTISTS (FLEISCHMANN, PONS, DUANE) AND OTHERS (U PRES.) WHOM THEY HAVE HARMED IN THEIR SELFISH DESIRE TO RETAIN THEIR OWN POWER AND INFLUENCE (TO THE DETRIMENT OF HUMANITY). BY ARROGANTLY PONTIFICATING ABOUT SUBJECTS WHICH THEY ADMIT THEY NEVER LEARNED (AND IN ONE CASE ACTUALLY FLUNKED!) THEY HAVE COMMITTED AN OVERT CRIME KNOWN AS FRAUD ON THE PUBLIC OR FRAUD AGAINST THE GOVERNMENT AND THEREFORE CAN BE PROSECUTED BY ANY PRIVATE CITIZEN WHO NOTIFIES THE "JUSTICE" (?) DEPARTMENT AND WAITS SIX MONTHS (ACCORDING TO THE LITTLE-KNOWN "ABRAHAM LINCOLN LAW"). IF THEY DON'T COME CLEAN ABOUT THEIR SINS IN THE NEAR FUTURE THEY ARE GOING TO HAVE TO ANSWER IN COURT UNDER OATH AND PENALTY OF PERJURY!

R.W. Bass

ADMIRAL WATKINS: Your assistant Steve May says that you will answer my December 8 letter "in due course". I have now been waiting for OVER ONE MONTH!

Dr. WILL HAPPER: Has the cat got your tongue? Failure to reply will be judged by history if you now "take the Fifth" and continue to fail to reply.

## FUSION REPORT

FROM COMO TO NAGOYA:

# A Solid Year of Cold Fusion Accomplishment

by Carol White

Last year's Second Annual Cold Fusion Conference, held in Como, Italy, established the bona fides of the Fleischmann and Pons experiment. This year, the hallmark of the Third International Conference on Cold Fusion was the reality of a broad-based international and interdisciplinary collaborative effort on this new scientific and technological frontier.

More than 300 scientists, industry representatives, and press attended the third International conference in Nagoya, Japan, Oct. 21-25, at the Nagoya Congress Center. The details of the scientific research presented will be covered in the Spring 1993 issue in a special report. Here are some of the highlights:

One high point of the conference was the report by Dr. Eichii Yamaguchi that he and Dr. Takashi Nishioka at NTT Basic Research Laboratories in Tokyo (the equivalent in Japan of Bell Labs in the United States) had found high helium-4 emissions in a gas-loading cold-fusion experiment.

For the perennial doubters, there was a video by electrochemists Stanley Pons and Martin Fleischmann showing four different cold-fusion cells boiling off their contents in 11 minutes on average (from 10 to 12 minutes). They estimate that they have achieved a power density of 1.7 kilowatts per cubic centimeter.

The fourth of these cells, which boiled for 11 minutes, was shown to the audience in time-lapse photography. If there were not a fusion reaction going on in this cell, which contained 2.5 moles of heavy water, then it should have taken 40 minutes or so for such a boil-off to occur under the nor-



University of Utah

Carol White

*Electrochemists Fleischmann (right) and Pons, with one of their original cold fusion cells (inset): "The trick is to cram the deuterium into the lattice, get the lattice into the endothermic regime, and then let the temperature rise."*

mal conditions of electrolysis.

In other words, with only 37.5 watts of power input, a result was produced that thermodynamically required an amount of power equivalent to 144.5 watts. This result was not qualitatively different from those reported at the conference in Como more than a year ago, except that now Fleischmann and Pons are confident of their ability to produce such boil-off at will—providing that they are using a "working" batch of palladium. In fact, they use a palladium-silver alloy, but materials questions are still not fully resolved.

It is also the case that researchers, particularly in Japan and at the Stanford Research Institute in Palo Alto, now regularly achieve similar repeatability, although at lower excess powers on average.

Finally, there was a broad array of excess heat results with light water experiments reported by scientists at the meeting, most notably by Dr. Mahadova Srinivasan from India, Dr. Reiko Notoya from Japan, and Dr. Robert Bush from the United States. How these are related to the occurrence of heavy water cold fusion remains to be seen.

#### 'An Entirely New Field of Research'

Dr. Hideo Ikegami, a professor at the National Institute of Fusion Science at Nagoya and the organizer of this conference, closed the event with a brief but moving statement, in which he anticipated a rapid pace of development in the forthcoming year (see box, p. 67). He recounted the solid accomplishments since the last cold fusion conference that have established beyond doubt the reality of a nuclear re-

action taking place in deuterium-loaded palladium. Emphasizing the scientific implications of this, he said:

"What is being created is an entirely new field of research from traditional nuclear science. Now, we can properly name what we used to call cold fusion 'fusion in the solid state.' This is a most important subject for science—one on which we have been working so patiently, with dedication and with courage—for our future generations, for those who will live in the 21st century."

The closing panel of the conference, opened by Dr. Michael McKubre from

Stanford Research Institute, exemplified the spirit of this meeting. McKubre called for international collaboration and began with the provocative statement: "Let us suppose that we are not doing something wrong but that we are really doing something right."

#### 'A Lot More Collaboration'

"I realize that this is a really strange and radical conjecture," McKubre continued ironically, "but for the purpose of this discussion I think that we should examine this hypothesis. . . . We need a lot more collaboration. The field is very broad; it requires broad diversity of disciplines. The matrix of

possible experiments is huge. It is unreasonable for any one of us to suppose that we can address it either as a horizontal or a vertical monopoly of talents. The collaboration should include efforts of interlocked laboratory confirmation but not be restricted to that."

McKubre concluded: "We seem to be looking at some sort of cooperative, collective, or coherent phenomenon. The point I really want to stress is that it is now three and a half years since the announcement of Fleischmann and Pons, and I don't think that there is any excuse for any experimen-

## DR. HIDEO Ikegami 'International and Interdisciplinary Collaboration Necessary'

Here are the closing remarks of conference chairman Hideo Ikegami, a professor at the National Institute for Fusion Science at Nagoya.

We could easily continue this discussion for one more week, and I am sure this intense level of discussion will continue after the formal close of this conference.

I want to thank all of you here for your great collaboration, which made this such an active and exciting third International conference on cold fusion.

At this conference not only have we been informed that excess heat is reproducible, as has been confirmed in many laboratories, but we can see in the video produced by Dr. Fleischmann and Dr. Pons that an excess heat generator is now in hand. These remarkable results have been confirmed thanks to Dr. McKubre, Dr. Takahashi, Dr. Kunitatsu, and Dr. Storms, as well as Drs. Fleischmann and Pons.

We also have learned a very important result as reported by Dr. Yamaguchi, that alpha particles (helium nuclei) are detected as a possible energy carrier for the excess heat. This is a new remarkable achievement by Dr. Yamaguchi and

Dr. Nishioka, even though we do not yet understand what physics exists that can generate those alphas. One thing we can say for sure: This is not an ordinary nuclear reaction.

#### Fusion in the Solid State

What is being created is an entirely new field of research from the traditional nuclear science. Now, we can properly name what we used to call cold fusion, "fusion in the solid state."

This will be one of the most important subjects in science—one on which we have been working so patiently, with dedication and with courage—for our future generations, for those who will live in the 21st century.

In order to achieve our goal, our ultimate goal, we must have interdisciplinary collaboration and international collaboration. This is the key issue; therefore, let us enhance and enrich further our collaboration.

I would like to cite the last part of the message given by Mr. Toyoda at the banquet. There he said: "Cold fusion is not a matter to be studied by one single enterprise or nation. I have confidence that it will become the greatest asset as an eventual energy for mankind to be



Carol White

"In order to achieve our goal, we must have interdisciplinary collaboration and international collaboration." Conference chairman Ikegami (left) at the podium with nuclear physicist Giuliano Preparata.

among the world."

This is our dream, our common understanding, and the reason why we are so intensely and patiently working on cold fusion.

Now I am pleased to inform you that the International Advisory Committee has decided that the next conference will be held in Hawaii. Let us get together there again to share information and our discoveries. Thank you again for your collaboration, which has made this conference so successful.

tal program in which a single variable is being addressed. . . ."

#### Fleischmann and the Role of 'Poison'

Martin Fleischmann followed McKubre, who had remarked ruefully at the beginning of his speech that Fleischmann and Pons are a hard act to precede. Pointing to the problem of repeatability still plaguing some experimenters, Fleischmann urged the crucial role of "poisons" in enhancing the loading ratio. "We use glass apparatus experiments," he said, "and Mike puts aluminum in the solution." Both will be deposited as oxides on the cathode over time.

Fleischmann also pointed to a unique feature of his and Stanley Pons's method of performing the experiment: to allow a rise in temperature to increase the reaction rate. "The trick is to cram the deuterium into the lattice, get the lattice into the endothermic regime, and then let the temperature rise." Somewhere over a loading ratio of 0.6 palladium, he said, between the palladium and deuterium atoms in the metal hydride formed in the cathode, the crystal lattice is transformed from an exothermic (heat-releasing) alpha phase to an endothermic (heat-absorbing) beta phase.

He summed up the "secret" of his success: "Use glass, get the loading right, and let the temperature rise." However, he warned, "Now having done that, you are far from getting a reasonable description of the phenomenon. We have to link the materials properties in a very systematic way to the levels of heat production."

#### 'Something New at Stake'

From the floor, Dr. Jean Pierre Vigié from France, an editor of *Physics Review Letters A*, pointed to the broader theoretical questions raised by the many reports of excess heat from light water electrolysis experiments. Expressing the conviction of many in the audience, he said:

"The key question is that we know we have excess heat. . . but from the point of view of the basic interpretation of the new facts. . . there are new effects in condensed matter and we have to understand what is happening with that. . . There is something new at stake. Everything hangs now on the light water and hydrogen experiments."

## DR. FRANCESCO SCARAMUZZI

# Cold Fusion: 'Something Really Unexpected'

### Cold Fusion In Italy

*Editor-in-chief Carol White visited Frascati National Laboratory near Rome in September 1992 and reports here on two of Italy's cold fusion programs.*

Dr. Francesco Scaramuzzi at Frascati National Laboratory near Rome has put together an informal group that is working on a cold fusion experiment in spare hours. Although his preliminary results seem quite exciting, he did not wish to discuss them until they were confirmed by control experiments, and so we talked more generally.

"I got involved by chance," Scaramuzzi said, referring to cold fusion research. He did not come to the field with any real conviction. Even though he had at first many doubts about the Fleischmann-Pons experiment, he thought that if it were true it would be a decisive break for science. "I have lived all this time, since the first announcement in 1989, in a period of uncertainty. But I am convinced that explaining the anomalies associated with this experiment could be an important scientific problem.

"In a certain sense, I consider the applied aspects of the problem to be a second line, even though I realize that they could be of extreme importance." He added, ironically, that the

technological potential of cold fusion could be responsible for creating the extremely difficult situation in which cold fusion research finds itself.

At present, however, he is far more confident about the scientific results. "It seems to me," he said, "that now, three and a half years after the beginning of this whole history, the confirmations of positive results, mostly in the field of heat-excess experiments, are so many that it is very hard to deny that the phenomenon exists.

"I would say," he continued, "that the beauty, for every scientist, should be to try to reach a convincing conclusion about the experiments. Then the task is to find the connection between the different parameters. At this moment it is most important to find out whether the excess heat is of nuclear origin.

"One possible route has been shown by the experiment of Melvin Milos at the Naval Weapons Center in California, with the help of J.J. Lagowski in Texas. They showed the presence of helium-4 whenever there was excess heat and its absence when there was no heat. I believe that this should be followed up. There is need for a confirmation of that experiment that will be more convincing. In my opinion, one of the most interesting prospects in this field is to show that there are nuclear ashes from this phenomenon, and the most probable nuclear ash is helium-4."

Of his own experimental work, Scaramuzzi said, "I started with experiments on the detection of nuclear particles, and was the first to propose 'preloading' techniques." This year, with collaborators, he has begun an experiment on excess heat that has shown a high excess.

I asked him what his view was of the theory of Italian physicist Giuliano Preparata, which attempts to explain the presence of a fusion reaction—in spite



Carl White

Scaramuzzi: "The confirmations of positive results, mostly in the field of heat-excess experiments, are so many that it is very hard to deny that the phenomenon exists."

of the improbabilities of such a reaction occurring—in terms of quantum field coherence [see feature, p. 58 where Preparata's theory is discussed]. He replied:

"Preparata's theory is one of the most exciting in the field and seems the most suitable to interpret these results. I am extremely excited by it, but since I am mostly an experimentalist, I still feel the necessity of demonstrating to myself that what is occurring is really a nuclear phenomenon. This is to me the main issue at present.

"I am also concerned to try to decrease the skepticism present within the scientific community, in order to bring more able scientists into the field. I am convinced," he said emphatically, "that what we call cold fusion is a very complicated phenomenon that needs an effort much greater than has been possible up to now. In order to accomplish this, we need to persuade more and more scientists to join with us in the investigation."

**A Low-temperature Expert**

"I am a low-temperature physicist, but I am connected with hot fusion research. We have built an injector for solid deuterium pellets; we shoot solid deuterium projectiles with speeds above 3 km/sec, which is substantially the record now. And this is one of the

tools used to study the performance of a plasma in a tokamak experiment. But I have been involved in this just because I am an expert in low temperatures.

"I was working with supercooled helium in the past. I have been working on this for 20 years. Preparata has been developing a theory about superfluidity in his scheme of superradiance. Before cold fusion I was working on applied problems such as space

cryogenics for satellites and stratospheric balloons and rockets. Most of my work has been in problems connected with superfluidity. In a certain sense, I have been working in condensed matter physics in general. And one of the aspects of cold fusion is the condensed matter phenomenon, which could be responsible for fusion reactions. This has very much interested me.

"In Preparata's theory, there is a connection between cold fusion and superconductivity—since they are both substantially collective phenomena, macro-collective phenomena. You can measure properties of a mass of material which are explainable only in terms of quantum mechanics, but on the macro scale. You don't have to look at single nuclei. If Preparata is correct, then cold fusion also demonstrates a collective phenomenon.

"Most of science today is expected science. If you look at the scientific journals you find that most of it is still interesting and worth doing but in a certain sense you can foresee it. It is not big news. For example, you are going to measure the cross section of some phenomenon and you expect it to be within a certain range. So normally you don't have something really new and unexpected. This is one of the few occasions where there is something really unexpected and exciting. I try to keep the applications to one side."

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Admiral Watkins (PERSONAL)  
ATTN: ADDRESSEE ONLY  
Secretary of Energy, DOE Hq. (202) 586-6210  
Washington, D.C. FAX: (202) 586-7644

cc: Dr. Will Happer  
cc: Dr. George Keyworth III  
cc: Dr. Richard Garwin

Dear Admiral Watkins,

I sent you a personal letter of polite warning about the error which you were presiding over regarding cold fusion more than ~~two~~<sup>three</sup> years ago; you never did me the courtesy of replying (although a similar letter by my colleague Dr. Hal Fox drew a postcard from Governor Sununu saying [arrogantly] "when cold fusion is proved we will know about it!"); however, there is no doubt that you knew about my letter (even if you never saw it) because your official adviser, Dr. Richard Garwin, sent you a letter of supposed rebuttal to my letter, and, like a true & honorable gentleman, sent me a copy of his letter to you about me.

Last Spring I met your chief adviser, Dr. Will Happer, in person (at an Open House for the new Dean of Engineering at UCSB). He told me to my face, "If Admiral Watkins is wrong about cold fusion then I'll take the heat, because I am his chief scientific adviser!". He also said that your subordinates probably never showed you my letter, but advised me that if I put **TO BE OPENED BY ADDRESSEE ONLY** on the outside of any letter to him or to you that he or you would actually get the letter.

Your subordinates refer to you behind your back as "HAMLET", according to the book *Teller's War*, by *NY Times* reporter Bill Broad, because you allegedly AGONIZE over decisions with moral implications.

I hope that this is true, because you need to ponder and pray about the subject of this letter before you leave office. (Incidentally, I met one of your classmates, Admiral Thor Hansen, at a mini-reunion at Caltech of the Rhodes Scholars from 1950-51-52, and he confirmed your reputation for moral seriousness and moral integrity.)

My feelings toward you have changed radically as a result of what I read about you in the above-cited book. In the first place, if it is true that you are the person who convinced President Reagan that, since defense is more moral than offense, the USA should embark upon SDI, then all humanity will forever owe you a great debt of gratitude (for sparking events which led to the exposure & dissolution of "the evil empire", as President Reagan called them to their face). For several years I was Chief Scientist of Litton Systems's Advanced Study Group (its SDI group) and while there I made a Patent Disclosure of a re-usable (non-self-destructive) x-ray laser which could be placed in geostationary orbit and cut a hole 1 meter wide in anything leaving the atmosphere (such as an ICBM) below it. When Richard Garwin and Hans Bethe published a paper in *Scientific American* purporting to trash the SDI concept, I used a few lines of calculus to "optimize" certain adjustable parameters in the Garwin-Bethe scenario and (to my own satisfaction) demolished their purported anti-SDI arguments; Garwin was gentleman enough to send a copy of my letter (which *Scientific American* refused

to publish) to a scientist at Los Alamos (his name may have been Canavan) who had been chosen by the President's Science Adviser, Dr. George Keyworth III, to debate SDI publicly with Garwin, and the LANL scientist was kind enough to send me a letter saying "On the whole, I think you did a better job than I did". Consequently, while I believe that Dr. Garwin can be inveigled into lending his prestige to mistaken causes, at the same time I believe that he is an intellectually honest & honorable gentleman and that scientific *truth* is more important to him than "saving face" or any merely political considerations.

This brings me to the second reason why I have changed my feelings toward you: I have learned that you are not a scientist yourself, but have your higher education in the humanities (and consequently can be victimized if several Nobel Prize winners in Physics hand you a scientifically incompetent canard). At the time of my earlier letter I had assumed that you were one of Admiral Rickover's "nuclear engineering" officers.

The final reason why I have changed my feelings toward you is that I have read that you are a truly devout Catholic of the type who goes to Mass seven days a week.

It so happens that such is the type of Catholic I hope to become myself (when I can find time to finish reading the six books on doctrine, etc. which a Melkite (Syrian) Greek Catholic priest from whom I was taking Instructions gave me before he moved away from California). For esthetic & philosophical reasons I prefer the Eastern rite to the (equally valid) Roman rite, but the Melkites have been in communion with Rome since 1724 and in my opinion have set the pattern which all Protestants and the still-separated Orthodox ought to emulate. (They have since the Meridian of Time allow married priests and baptism by immersion, yet are in communion with the Pope.) I am descended from many generations of Scottish Presbyterian ministers, but (like the famous English convert Cardinal Newman) feel that (like Newman, who, to quote his biographer, "had no real love for the Catholic Church") anyone who competently *understands* the issues has no real choice.

I was raised as a Presbyterian (my late Father resigned from a Presbyterian seminary shortly before graduation & ordination because of a fight the Fundamentalists were having about Evolution in the late 1920s), but from the Mormons (with whom I was "active" from 1969 through 1986) I learned that **EITHER** the Melchizedek Priesthood claimed by the Catholics is unbroken (& they are the true church established by Our Lord on the "rock" of Saint Peter) **OR** the chain of proper ordination **WAS** broken and the Mormons have received a "restoration" of the Melchizedek Priesthood by divine intervention. I am now certain that Joseph Smith was a victim of Luciferian deception and that the archaeologically-demonstrable historical truths in the Book of Mormon got there miraculously but **NOT** by the Holy Spirit (the book contains many subtle distortions of authentic apostolic doctrines); I have advised Apostle Dallin H. Oaks (former President of BYU, now one of the LDS "Quorum of the Twelve") that if those supposed "latter-day apostles" would visit a Melkite Greek Catholic church and if they have the spiritual discernment which they are supposed to have, they will instantly recognize that the doctrine of the Real Presence is absolutely correct, and that they should lead their followers into Catholicism. (I admire the Mormon "culture" but not their theology; if judged by behavioral ideals they are certainly true "Christians", but in doctrine they have allowed some appalling errors to be introduced by the wiles of the Adversary; it is only in the second half of the twentieth century that they have stopped **OFFICIALLY** designating the Catholic Church as "the church of the devil"!)

I mention the above because you presumably dismissed my previous letter as one from "some Mormon crack-pot". However, think about this: if I am a lifelong "searcher after truth" who has the intellectual capacity, the persistence, the

stamina and the indefatigability to "get to the bottom of things" in the matter of religion (as presumably seen by you), then perhaps I have the same qualities in my chosen profession of "Doctor of PHILOSOPHY" specializing in the physical sciences; and in fact, I have a 35-year track record of eventually "getting to the bottom" of whatever scientific question I pursue.

I grew up in Annapolis and have absorbed by osmosis some of the traditions of Naval Officers (such as that the commanding officer MUST take ultimate responsibility for foul-ups and catastrophes which take place on HIS watch -- which is why the Secretary of the Navy honorably *resigned* over the Tailhook scandal).

My late Father, Commander Robert D. Bass, USNR stayed on at Annapolis as a civilian professor after WWII and you may have taken classes from him (in 'English, History & Government' -- the "bull" department). That is why in my previous letter I tried to apply to you the strongest conceivable language that would apply to a Naval Officer, namely I *warned* you that if you did not pay attention to the opinions dissenting from the APS condemnation of cold fusion you would eventually be "vulnerable" to accusations of "dereliction of duty". Do you not agree that I could not have warned you more strongly?

If I had not found out the mitigating factors in your favor mentioned above, I would by now have demanded that the Justice Department investigate you for possible indictment for "defrauding the government" -- there is a little known 'Abraham Lincoln Law' which provides private citizens with the possibility of prosecuting individuals who have defrauded the government if the accuser simply waits for six months and notes that the "Justice" Department has failed to act.

In your case, my planned Indictment would feature the following items of evidence: (1) a group from the DOE toured the laboratory of Dr. Michael McKubre at SRI and concluded that the "100 percent reliable production of 300 percent excess energy" was REAL, but nevertheless failed to recommend that the DOE do anything about it, such as repudiate the [criminally(?)] fraudulent Huizenga Report; (2) the directors of EPRI, behind closed doors, increased the budget of McKubre to \$12 million (over the next three years); (3) you have been photographed hob-nobbing with the directors of EPRI, as if they are your buddies and you perhaps will be "rewarded" by them with a cushy job after you leave Federal office; (4) scientists at both Oak Ridge and Los Alamos got incontrovertible evidence of the reality of cold fusion but your subordinates suppressed their desires to do further work in the field and you publicly announced that there is nothing in the DOE budget for people at DOE labs to work on cold fusion because the DOE allegedly investigated the matter thoroughly and could find "nothing worth working on"; (5) 250 persons, including a Nobel Laureate in Physics, and the head of Japan's largest lab in HOT fusion, signed a petition to congress asking for the flagrantly dishonest Huizenga Report to be re-investigated, but the originators of the petition were told "Congress will have no interest unless the media takes interest" while the media people I have talked to cite the "authoritative DOE Huizenga Report" as their excuse for ignoring world class events in this field; (6) the leading electrochemist in Europe, former head of the Max Planck Institute of Physical Chemistry in Germany, and a bitter foe of cold fusion, has reversed his opinion and sent a letter to the German universities and the German government stating that they are in "DANGER" (verbatim quote) of being criticized by the public for allowing other nations, "especially Japan", to get ahead of Germany in investigating this epochal discovery, "neglect of which in Germany is no more justified"; (7) Japan's MITI has announced a new budget of \$25 million over the next five years to *augment & encourage* private Japanese investment in cold fusion R&D; (8) yet according to quotations of you which I see in the media you have continued to ridicule cold fusion as not worthy of the DOE "wasting any further time or

money".

The preceding 8 points suggest that you may have been in cahoots with EPRI to help them "steal" this new source of energy from the public (by getting the jump on all competitors in the USA before admitting that the phenomenon is real). Another less ignoble possible motive, which would nonetheless constitute actionable malfeasance in office by you, is suggested by the accusation at Nagoya, October 21-23, by a French scientist that his government funding was cut off when he started getting positive results with cold fusion because such an "unplanned development" would constitute "a threat to the energy plans of the current French government" (which has already made a gigantic commitment to fission power, even though the lessons of Three Mile Island and Chernobyl are clear enough). In this connection, I should note that Dr. Eugene Mallove (whose reporting I have hitherto found to be a paradigm of excellence as regards accuracy) has stated in print that when Dr. Ed Storms of LANL announced that he had successfully replicated the Takahashi experiment, the DOE Hq cut off his research funds! (I saw Ed Storms a few weeks ago but forgot to ask him if that report is true.)

First off, if cold fusion is a genuine discovery, then both doubters and believers AGREE that "it is the most important technological breakthrough in recorded history". (When I was interviewed on CNN I included the qualifying phrase "if it can be rendered reliably reproducible (which it since HAS been), and if it can be scaled up (which no one has found any serious reason to doubt)".)

You know that this is not a gratuitous slam at Catholicism (because I am planning to become a Catholic myself), but in my opinion the *NADIR* of human civilization occurred 359 years ago when the Pope told Galileo that if he did not recant the Copernican system he would be tortured to death as a heretic, and even led him through the torture chamber and showed him the torture instruments that would be applied to Galileo's aged body. Thus the origin of Science was almost strangled in the cradle.

I am dead serious in predicting that future generations will regard the APS/DOE suppression of cold fusion as a historic scandal on a par with the Galileo scandal, and a *criminal* event of government corruption on a par with Watergate (where 20 government lawyers, including the Attorney General, got sent to jail).

As Lord Acton concluded after his monumental study of the Papacy: "power corrupts, and absolute power corrupts absolutely". Today it is not the Church which is corrupt, it is Science! As Presidential science adviser & speechwriter Ralph Lapp said in his book, today the profession of Scientist has become *The New Priesthood*. Yet, sadly, most scientists are oblivious to what has happened to a profession supposedly devoted to the UNBIASED & IMPARTIAL search for Truth.

When I attended *Lasers '85* in Las Vegas in December, 1985, Presidential Science Adviser George Keyworth III spoke on SDI and then took questions from the audience. It is possible to purchase tape-recordings of that meeting, and I wish that I had, because I could then show you that my question to Keyworth was the ONLY question from anyone which brought about spontaneous and prolonged *APPLAUSE* from the 500 scientists in attendance! Judging from the applause, one would think that Keyworth "lost" this little public debate with me; however, mulling it over in my mind, about a year later I decided that Keyworth was correct and I had been wrong! From my question, you might have thought that I was a "com-symp" or "pinko", but my question was actually predicated on the old American ideal of FAIRNESS (which is why the audience unexpectedly burst into applause). My question was something like this: "Since the Gross National Product of the USSR is only about 40 percent of ours, to keep up with us in an Arms Race in outer space would demand a far greater sacrifice on the part of the average citizen of

the USSR than we would be demanding of our people; therefore, even though we proclaim that the purpose of SDI is *purely defensive*, are they not justified in characterizing it as, on our part, *economic aggression*?" [Prolonged unexpected audience applause.] Keyworth's reply, when the applause subsided, started out "HOGWASH!" and then he launched into a quotation from Lenin or some early Soviet official about how capitalism needs to be destroyed. About a year later I concluded mentally that Keyworth had been correct, namely that "in a fight, it DOES matter as to 'who struck the first blow', and since they had declared war on capitalism, the capitalists are justified [*in self-defense*] in fighting back".

So, as I said earlier, if the published reports are true that you are the person who triggered President Reagan into turning up the heat on our SDI efforts [which, under a different name, had already been cooking], then all mankind owes you a debt of gratitude (including the citizens of the former USSR -- who are falling over themselves to confess that their regime was even worse than the most ardent ant-communist ever depicted it!). Consequently, *in the SDI matter* I regard Admiral Watkins as someone who has served as one of God's agents in bringing to pass godly purposes on earth.

But, sad to say, I have to indict you for having (through Sloth [?] -- one of the Seven Deadly Sins) somehow succumbed to the blandishments of Lucifer and having allowed to happen ON YOUR WATCH, and after patriots like me had "blown the whistle" and tried in vain to warn you, the WORST national catastrophe since Pearl Harbor!

Haven't you done your homework on the History of Science (or the history of patent law, in which there is Judge-created Case Law to the effect that '*NEGATIVE RESULTS BY COMPETITORS ARE TO BE GIVEN NO CREDENCE!*') ?

First off, read *The Brain-Bank of America*, an indictment of the National Academy of Sciences by a former full-time journalist for the AAAS monthly mouthpiece *Science*. He took 10 cases where the government had asked the National Academy of Sciences for an "expert opinion" on a scientific matter involved in public policy, and demonstrated BEYOND DOUBT that in all 10 cases the answer given by the NAS was (in hindsight!) DEAD WRONG!!! Furthermore, he showed how the issues had become "politicized" and that scientists with equally good *prima facie* credentials could be found on either side of the question and that once one knew the identity of the committee picked to render judgment, one could INFALLIBLY predict the outcome of their supposedly impartial study (based on the known biases of the experts chosen for the committee -- a different group would have rendered the exact opposite verdict). Worst yet, he demonstrated that in every case, the *IGNOBLE* biases which caused the "experts" to give the government the (later, demonstrably) wrong answer were readily discernible in conflicts of interest (such as funding disputes and 'territoriality' or 'turf protection', or simple greed for continuation of the lion's share of existing Establishment-assigned funding, or petty professional jealousy, or other lamentable motives).

When I was on active duty as a 2nd Lt. in the USAFR I was assigned to two years in the ANP (Aircraft Nuclear Propulsion) program, but (by intervention of the Air Force's Chief Scientist, a Princeton department head on leave of absence), I got the ANP to assign me to Project Matterhorn (which is now the Princeton Plasma Physics Lab [PPPL]). While there I discovered GIGANTIC SCIENTIFIC FLAWS in the stability criteria which were being used to design this nation's prototype fusion reactors. (They omitted two all-important factors, without which it is impossible to get the right answer: they set *thermal conductivity*  $\kappa$  equal to zero and they set the *speed of light*  $c$  equal to infinity, (the same as setting  $(1/c) = 0$ ) without which, namely unless

$$(\kappa/c) \neq 0$$

one CANNOT predict the unstable *electromagnetosonic* waves which can occasionally

be triggered by "lack of robustness" of the confining magnetostatic field, leading to 'magnetic braiding' and 'magnetic chaos' and the *unpredictable 'violent disruptive instability'* which shakes the whole building, and which I have disclosed in a patent issued in the USA and 20 other countries and on which I have *patented the cure before the supposed 'experts' have even diagnosed the disease!!!*

But, when I dissented from majority opinion, and even showed elementary mathematical counter-examples to the over-simplified theory being used, the Head of the Theoretical Division (who was one of Will Happer's predecessors as head of the DOE Office of Energy), Dr. Ed Frieman, called me in and said: "Bob, you have got to get on the ball and believe what the rest of us believe and start pulling your weight, or I am going to tell your commanding officer in the Air Force to send you to Alaska!" Fortunately, I got Research Professor Emeritus, Solomon Lefschetz [Fields Medalist, Member of the National Academy of Science, and under Lyndon Johnson, later National Medal of Science winner], to approach Ed Frieman on my behalf; Ed told him, "if you will take the responsibility on behalf of the taxpayers to see that he is working toward a contribution to the controlled fusion program (rather than a paid two-year vacation), then I will let Bass go and sit in your office in Fine Hall (instead of the Forrestal Research Center) and you can supervise his work until his ROTC obligation is completed." This was accepted and so I continued to study the problem, but independently from the commonly-accepted starting assumptions. I fulfilled my legal patent obligations to the DOE nine months after leaving Princeton, when I sent them a 42-page mathematical letter, which I painfully typed myself, and which was ignored at the time; but in 1959 I had no constructive answers to my destructive criticisms (so I can't blame them too much for not wanting to pay attention). However I fulfilled my moral obligations in this matter a decade later when I went back to PPPL and gave a lecture on the Ultron concept (which was kindly received by several of my old colleagues in the Theoretical Division, but which was snubbed by their new Lab director).

Therefore it is not my mere opinion, but a FACT of which I am an EYE-WITNESS, that the national fusion power program of the DOE has often proceeded by "group-think" and "enforced consensus", and that is why it has got nowhere. My good friend Dr. Melville Clark, Jr., a former professor of Nuclear Engineering at MIT and co-author of an MIT Press book on fusion power, when he was a full time consultant to PPPL, gave me a written certificate that he believed that I had in fact discovered THE Necessary & Sufficient Condition for a hot plasma to be (exponentially asymptotically) stable, but all he accomplished was to alienate certain people in power at the DOE. Another good friend, Dr. Tom Dolan, spent 9 years writing a 3-volume book, *Fusion Research*, which covers some 43 apparently viable approaches to hot fusion power, and says that "only a tiny handful" of the known approaches have ever been given serious consideration (because of internal politics at the DOE labs and in DOE Headquarters); later, he circulated among his students and colleagues a Memo stating that the latest MIT/Princeton proposal for a Kidney-Bean Tokamak "bears a *striking resemblance* to the BYU Topolotron"; still later, he sent me an unsolicited offer to collaborate with me on an Improvement Patent for a *steady state* Topolotron! Still another friend, Dr. Reece Roth, formerly NASA's leading expert on fusion energy, was a total stranger when the head of NASA, Dr. Jim Fletcher, first asked him to take a look at the BYU work; later, he sent an unsolicited letter to PPPL, suggesting that "intellectual honesty" should have required them to mention my and BYU's priority; and in his recent, excellent, 650-page book *Fusion Energy*, in a four-page section on my Topolotron he explicitly mentions our patent and flatly calls the MIT/Princeton-proposal for a Kidney Bean Tokamak "a (unacknowledged) scale-up of the BYU Topolotron".

While working on SDI, I was once stuck in Washington, D.C. for a 4-day weekend with nothing to do and so I studied carefully from cover to cover (it took me about 40 hours) two books on the history of the US hot fusion program. The first book, *MIT Press*, was based on hundreds of hours of tape-recorded interviews with key players (most of whom I have known personally) in the hot fusion program. The second book, by a noted science journalist, was also based upon now-available taped interviews, and took up where the first one left off and brought the story up to date (as around 1985). I will now save you 40 hours of work by telling you the **BOTTOM LINE** that any careful student of both books will validate: in the past 40 years of the DOE hot fusion program, there has been hardly a single major decision that was based on **OBJECTIVE SCIENTIFIC MERIT**; virtually **EVERYTHING** was 'internal politics'! In 1969 I visited every national fusion lab, including General Atomics, lecturing on my Ultron concept (later patented as the *BYU Topolotron*); without exception, the head of **EACH** fusion lab told me something about his counterparts that, if the taxpayers knew it, would have sent them all to jail. For example, the head of ORNL told me of the head of PPPL: "He is a fine scientist and a nice guy, but he is not really interested in producing a practical solution to the controlled fusion problem in the here and now; he just wants to run a happy little empire! If he thought that you were showing him a **BLUEPRINT**, brought back from the 21st century in a time machine, of the **OPTIMAL** fusion reactor design, and yet he was afraid that it would 'rock the boat' with DOE politics and disturb his happy little empire, he would never offer you a job." Since each head essentially told me that about his peers, it is no wonder that I never got a job with any of the DOE labs, though history will record that I had in my hand and was showing them the demonstrably **ULTIMATE**, demonstrably **OPTIMAL** magnetic bottle for hot fusion plasma confinement!

If you doubt the correctness of what I am telling you, then read the very latest popular book on hot fusion, by a lady journalist who lives in Princeton (I loaned my copy to a student, so can't recall the particulars of title & author). This lady is not even a scientist, but after interviewing everyone at PPPL, LANL, ORNL, and LLNL she figured out all by her little laywoman's self the truth: toward the end of the book, she voices the suspicion that if mankind doesn't have hot fusion power yet, it is essentially the designated 'experts' "*own damned fault*". She says that they are too happy "playing in their [DOE-funded] scientific sandbox" and know that if they permitted the problem to be solved before their own date of retirement then they would be rendering themselves unemployed!

I once wrote a 20-page essay in which I documented the cases of a score of qualified scientist/inventors who had discovered or invented alternative approaches to hot fusion power, and who had all been, with total intellectual incompetence/dishonesty, deliberately **DISCREDITED & DESTROYED** by the DOE 'fusion mafia'. In every one of the scores of separate incidents (names such as Siegel, Maglich, Koloc, Bussard, Farnsworth, Kapitza, Bass, etc. come to mind), the politicized leaders of the DOE fusion labs behaved like the worst 19th century predatory monopolists: "*grab & steal, or destroy*" was their consistent *modus operandi*. If you don't believe it, ask Dr. Robert W. Bussard, formerly one of the 3 people in a 'troika' running the DOE fusion program in Washington, D.C. One of the victims of the DOE fusion mafia policy was Kieve M. (Kip) Siegel, who was so mistreated by the politicized 'scientists' in the DOE labs that he complained to Congress and was given an opportunity to testify; while testifying before Congress, he was so appalled at the lack of ethics of DOE personnel which he was being forced to remember that he actually *dropped dead of apoplexy* while testifying! These people not only should all be sent to jail for defrauding the taxpayers, they have blood on their hands!

As you know, Lord Cherwell was Winston Churchill's chief science adviser



during WWII. The late Jim Tuck (erstwhile Fellow of my own Oxford college, Wadham) was the chief adviser to Cherwell; after WWII he was asked by Admiral Strauss, head of the AEC, to lead the hot fusion effort at LANL. Tuck once told me privately (during two weeks when I was a consultant to Dr. Fred Ribe at LANL in the late '70s) that (a) when it came to getting money from the government, "the people at Princeton did not behave like scientists, they behaved *like PIGS!!!*"; (b) after retiring, and seeing what his own "scientific integrity" approach had accomplished [or failed to accomplish] at LANL, he changed his mind about the optimal strategy and regretted that he had not cynically hitched the fortunes of his lab to the construction of some giant machine, that would cost hundreds of millions, and take many years, during which the scientists could get on with their own research, without being bothered by administrators in Washington, D.C.

Do you remember the incident a few years before your time in office when Dr. Lawrence Lidsky, editor of the journal *Fusion Energy*, was fired by MIT from his job as Associate Director of the MIT Fusion Power Lab when he had the honesty to state in the MIT alumni magazine that the DOE-preferred Tokamak approach was so inefficient that even if it could be made to work, "no utility would ever want it"? A critic wrote in and compared Lidsky to someone who would have ridiculed the Wright brothers. Lidsky's riposte was that his great uncle would not have disparaged the Wright brothers, but he would have disparaged Prof. Samuel Langley's efforts if the Smithsonian had "employed two thousand Ph.D.'s for thirty years to build the world's first coal-fired, cast-iron biplane!"

It is no accident that the presently planned ITER is supposed to take 6 years, and then it is planned to take another 25 years before a "commercially viable" fusion reactor is developed; this is just a case of scientists behaving like the worst feather-bedding labor-union leaders in protecting their own job security.

Only a VERY few DOE-employed fusion scientists have ever *dared* to really try to produce a fusion reactor within a few years, and suffer the penalty if they failed. One such courageous fellow was Dr. Fred Ribe, who (correctly) figured that Tuck's theta pinch, if it could be bent into a torus, would be the most straightforward way to demonstrate fusion scientifically. The people at PPPL and LLNL got so frightened that they would "lose" the competition that they prevailed upon Dr. Steve Dean to give LANL an *ultimatum*: they had to stabilize the Scyllac within 9 months or face cancellation. (Unfortunately Ribe got incompetent help from his supposed automatic feedback control 'expert', Dr. Keith Thomasson, and failed, although I had written him a letter of warning in 1969 [to which he replied "such questions I leave to the theoreticians"] and in the early 70s he was visited TWICE by a well-published expert from UCLA on both automatic feedback control AND plasma stabilization, Dr. P.K.C. Wang, who told him that what his LANL 'expert' was doing was pitifully incompetent & foredoomed to failure.) I cannot fault Steve Dean for canceling the Scyllac (because at the rate they were going they would NEVER have stabilized it), but in 1985 when I discussed it with Steve Dean he agreed with me and said, "Oh, I believe that TODAY we could stabilize the Scyllac!" Which amazes me; why is he not shouting it from the rooftops? (Because a high-beta machine like the Scyllac is intrinsically THIRTY-SIX TIMES more economically productive than a low-beta machine like that at Princeton.) A cynic would say that one should look into the fact that after Steve left the DOE he became a highly paid lobbyist for Grumman, etc. who were the biggest financial beneficiaries of the failure of the LANL Scyllac and the ascendancy of the PPPL Tokamak! (Furthermore, the Soviet inventor of the Tokamak, Academician Artsimovich, gave *photographed* death-bed testimony that the LANL Scyllac was the most promising USA invention, more promising even than his own invention!)

Outside of Fred Ribe, the only other former DOE fusioner that I can think of who actually TRIED to produce fusion in our lifetimes was Robert W. Bussard. You should be proud of Bussard, since he is a fellow Roman Catholic. You should also get and STUDY CAREFULLY the entire issue of *Omni* devoted to how the DOE fusion-mafia almost literally crucified Bussard when he broke ranks and decided to "go for broke" with a 'compact ignition Tokamak' originally thought of by Dr. Bruno Coppi at MIT. One Congressman who reviewed the record stated in print that he regarded the outburst of propaganda against Bussard from the DOE fusion labs as "near hysterical and apparently orchestrated."

When I recently spoke for 15 minutes to the FEAC (Fusion Energy Advisory Committee), which advises Dr. Will Happer the same way as the Huizenga committee advises you, I told them: "there is no one here more enthusiastic about hot fusion power than I am. But you are pursuing a suicidal course to try to discredit cold fusion. A month after the Fleischmann-Pons announcement I sent them a congratulatory Open Letter in which I predicted that the advent of cold fusion would indeed reduce the relative importance of hot fusion, but that it would simultaneously increase the absolute importance of hot fusion, because there are certain NATIONAL GOALS (such as involve national projects as in space or defense) wherein either extremely high power density or extremely high thermodynamic efficiency is a requirement and for such goals cold fusion can never be competitive; but as the public sees the millennial benefits of cold fusion, they will wonder why hot fusion has never been perfected and demand that the hot fusion community quit stalling." (I expect history to vindicate that advice as prophetic.)

I not only have an ISSUED PATENT (1980) on a toroidal geometry magnetic-confinement fusion reactor which is demonstrably "optimal" by any of a half-dozen different definitions of optimality, and whose demonstrated characteristics make those of the DOE fusion-mafia preferred designs look pitiful in comparison, but I have also an internationally issued patent (1984) on the demonstrably optimal laser-sparked, inertial-electrostatically-confined spherical geometry approach similar to and competitive with (though not exactly the same as) what has gone on in Inertial Confinement fusion at LLNL.

As an example of the intellectual dishonesty with which LLNL greets "outside" competition, let me tell you facts of TWO encounters which I had with Dr. Edward Teller. (It was never my idea to consult Teller, but the people with whom I was dealing thought of it and insisted on it.) Just before I went to BYU in 1971 some engineer friends of mine got a promise of \$10 million from a venture capital firm "if Edward Teller endorses your idea" (which I then called the Ultron). I drove 500 miles to Teller's office at LLNL and when I got there he had left a message with his secretary for me to call him at home. When I did he said, "for us to meet would be a waste of time; I showed your Ultron idea to my colleague Dr. Ken Fowler and he said to me 'I can't find anything wrong with it, but I don't believe it either!'" Then after BYU tried fruitlessly for a decade to get DOE support for our Topolotron, I turned to a lower-tech alternative and got a patent on my Plasmasphere (1984). My Oxford classmate Dennis Stanfil (then retired from being Chairman & CEO of Twentieth Century Fox -- where he gave the OK to George Lucas to produce the *Star Wars* movies) told me that he would help to raise funds to test the Plasmasphere if Edward Teller would endorse it. Teller had by then forgotten our 1971 encounter. He wrote me a polite brush-off saying, "Even if you are correct, it would take at least 10 years and cost at least \$10 billion" to test my idea. Later, after my friend Darryl Gammill paid Stone & Webster Engineering \$500,000 to make a blueprint of a proof-of-principle prototype Plasmasphere, Stone & Webster gave us a FIXED PRICE bid that they would assemble a Plasmasphere anywhere in the world within two weeks and guarantee it functional for just \$5 million! So Teller, in order to protect his beloved DOE

LLNL from outside competition, over-estimated the cost by a FACTOR of 2,000 and overestimated the schedule for completion by a FACTOR of 260 !!! I regard Teller as a national treasure, and am willing to forgive him his lapse of integrity while trying to protect a DOE lab, but this is an incontrovertibly DOCUMENTED instance of the way that the DOE fusion-mafia has successfully (but to the detriment of humanity) monopolized almost all serious investment in this field for the past four decades!

I was once in some other state (I seem to recall it was either Montana or Idaho) and I met a state official, who had worked in the fission power business for the DOE for decades before retirement, and whose card said "Secretary of State [for the State of ZZZZ] for Energy" or somesuch. I told him about my decades of observations of the way the DOE fusion-mafia habitually operates. He said, "That is no surprise to me. During my decades in the fission power business, the AEC/ERDA/DOE insiders had exactly the same attitude toward all 'outsiders': smash and grab!"

When I met Presidential Science Adviser Dr. George Keyworth III (who had been administratively OVER hot fusion R&D at LANL) and voiced some of the preceding complaints about the DOE fusion-mafia's habits, he replied to me in the presence of half-a-dozen bystanders, (unauthorized paraphrased quote from memory) "The people who run the fusion program are 'little' people." (By that I took it to mean that they are concerned only with their own small parochial interests, such as long-term future guaranteed employment, NOT with solving the practical fusion power problem.) He went on, "When I got into the White House and encountered at first hand the unethical things that scientists are willing to do to get funding or to deny funding to competitors I became almost ashamed to be a scientist!" I replied, "Do me a favor and write that down & sign your name to it!" I think that he never has, and he is now (I hear) a lobbyist himself, perhaps himself eventually corrupted by an inherently corrupt system; but I hope that this letter will induce you to seek his advice, and I hope that he is as candid and honest with you as he was with me back in December, 1985!

It is impossible for you to do a good job for President Bush, and ultimately, a good job for the public, if you don't have your eyes opened to the DOE-establishment-insiders' way of doing things for the past four decades!

I am NOT asking you to take my word for it: consult former HIGH government officials, George Keyworth (over fusion at LANL), and Robert Bussard (over all of the fusion labs at DOE Hq). If even a fraction of the things I have hinted at turn out to be VERIFIABLY CORRECT, then you should regard the Huizenga Committee with the deepest suspicion. They have taken cruel advantage of your naiveté, and (for selfish, anti-public, unpatriotic reasons) mis-advised you into presiding over the worst government scandal since Watergate and the worst national disaster since Pearl Harbor!

If you take Holy Communion 7 days a week, then you are either a truly devoutly sincere person or else a pretentious, hypocritical crook like famous Catholic philanthropist Charles Keating, now serving a jail sentence for defrauding widows and orphans.

Is your public piety an act? If not, then you have an OBLIGATION to Our Lord to SEEK the TRUTH (for He is the Truth, as the priest who was giving me Instructions in Catholicism told me).

It is not good enough for you to just slink away without facing and confessing your errors.

I sympathize with Will Happer in having to "preside over the dissolution or down-sizing of the DOE's great research empire". However, regarding the matter at hand I think that he has never taken the TIME necessary to look into the matter in sufficient detail to arrive at an objective judgment; he is just parroting what his friends (with varying degrees of self-interest and

disingenuousness) have told him.

The Huizenga committee based its conclusions only on work done in the very early part of 1989 by people who had EVERY conceivable motive to want NOT to believe the new discovery. They were invariably asked by someone in administrative power "is this true or not", and they gave it a perfunctory examination and then with relief went back to what they were really interested in.

The fact is, there are at least three "critical thresholds" which must be reached or the phenomenon at issue will not appear. First, the material has to have minimal imperfections. (The second batch of Palladium from Takahashi's manufacturer didn't work, though his first batch did, and his stunning experiment was duplicated by MANY people *throughout the world*; however, Dr. Ed Storms of LANL found microscopic imperfections in the second batch that was not in the first batch, and the manufacturer recalled it all.) Secondly, there is a minimum current density. Thirdly, the palladium lattice needs to be loaded with deuterium until it passes (at least, in some spots) from the *alpha phase* (two-thirds as many deuterons at palladium ions) to the *beta phase* (an equal number of deuterons as palladium ions). There are PUBLISHED definitive tests for the adequate loading; e.g. the cathode visibly swells up about 15% in volume, which is measurable hydraulically; more importantly, if the resistivity of the cathode is continually measured during the loading process, it must go up to a maximum and then down to a minimum when the loading is complete. But not a single one of the alleged "failures to replicate" cited by the Huizenga Report had made any effort to meet these three criteria (all well known from almost the beginning to those genuinely interested in the field). If I am wrong, then I challenge you to cite chapter & verse of someone who VERIFIED all of the conditions and then got no excess heat!

When Will Happer talks to me about "sloppy science" he is talking through his hat: most of the negative critics only claimed no better than a few percent accuracy in their calorimetry, whereas Pons achieved accuracy of one-tenth of one percent and published how he did it! Furthermore, even though a lot of the electrochemistry is outside of my personal competence, the way that Pons reduced his data, using "nonlinear regression" to fit an accepted differential equation model and discover the various unknown parameters *simultaneously*, is a subject in which I personally have had decades of experience. (In fact, I "wasted" two years of my life, 1970 at Douglas Aircraft, and 1980 at Hughes Helicopters, in trying many "recommended" approaches to *empirical parameter identification*, until at Litton in 1983 I finally learned about the "best method", which worked marvelously.) When I heard Stan Pons explain the technical details of how he had reduced his data I thought to myself, "if he is as competent in his own field as he is in my field, then the physicists who have called him 'incompetent' are just looking into a mirror!"

Because of my decades of experience in seeing how unethically the DOE fusion plasma establishment operates (and how other scientific establishment groups have also abused their power), I was not in the slightest surprised when the DOE fusion-mafia establishment and their buddies in the high-energy physics establishment erupted in a 'hysterical' frenzy of denunciation of Fleischmann & Pons.

Have you, Admiral Watkins, taken the trouble to read an objective account such as Eugene Mallove's *Fire From Ice*? Mallove holds a Master's in Astronautical Engineering from MIT and a Doctorate in Environmental Science from Harvard. In an article more recent than his book he tells how the MIT fusion lab suckered him, as MIT's spokesperson, into telling public lies to defend them against media accusations which he later learned, by listening to a tape-recording, were the truth! Also, he has printed the raw data used by MIT,

which shows a curve fluctuating about a horizontal 10% excess energy line, and then, four days later, was, in the "official version", arbitrarily *moved downward* to oscillate around the zero energy line! This is not simply unethical; this is overtly *criminal* misbehavior (fraud on the public) and I am going to bring to Mallove's attention the little-known Abraham Lincoln Law under which he can prosecute the perpetrators whether the "Justice" Department wants to act or not!

One expert who examined the raw data used by Harwell to discredit cold fusion called it a "travesty" of honest research.

Three internationally respected calorimetrists have made independent analyses of the raw data used by Dr. Nathan Lewis at Caltech (whose teacher at MIT is one of the most vehement critics of cold fusion) and showed IN WRITING that he got about 10% excess energy which he was unable or unwilling to admit; their papers have been rejected by *Nature* (which appoints Lewis as the referee).

Dr. Steve Koonin of Caltech, who publicly called F&P "incompetent & perhaps deluded", had EARLIER submitted his own paper to the APS organ *Phys. Rev. Letters*, in which he laid out a *prescription* for an adequate theoretical explanation of the unexpected phenomenon of cold fusion. After his paper was rejected, he withdrew it, though he had enough integrity to send me a copy when I requested it. In July of 1991, more than 18 months ago, I sent Dr. Koonin a copy of a paper (and pending Patent Application on my new idea of Quantum Resonance Triggering as the key to cold fusion) which PURPORTS to fulfill Koonin's *prescription* for a plausible explanation of the phenomenon. On at least 3 occasions during the past 18 months Dr. Koonin has personally assured me, on the phone or in written messages from his secretary, that he will read my paper "in the near future", but in 18 months it has never been of sufficiently high priority for him to find out if he was mistaken. (He arrogantly thought that if HE himself could not think of any theory to fulfill his prescription, then because he has tenure at an elite place like Caltech, no one else could either!)

I am not particularly praising my own work, because it is admittedly just a combining of the best features of prior work by Dr. Leaf Turner at LANL, by Dr. Robert T. Bush of Cal Poly Pomona, and by Nobel Laureate and Emeritus Prof. Julian Schwinger of UCLA. Schwinger has been so disgusted by the behavior of the high-energy physics mafia and the fusion mafia that in protest he has *resigned* from the APS! (He is certainly the greatest living theoretical physicist.)

Will Happer tells me that competent theoreticians whom he trusts have given technical reasons to reject Schwinger's theory, but when I ask for details he can't give any. If I live long enough I am going to bring a court case which results in the Supreme Court ruling that the practice of using anonymous referees, in the case of government-subsidized science, is a violation of a citizen's Fourteenth Amendment Rights! I agree wholeheartedly with Dr. Simon Ramo, founder of TRW, when he was lobbying to become Presidential Science Advisor, that there is NOTHING which will end the present abuses of power by establishment insiders but the introduction into Washington DC of a new *Science Court* in which the key players are subjected to rigorous cross-examination under oath and penalty of perjury. It is ONLY by such methods that one can bring to light the often HIDDEN conflicts of interests and covert Vested Interests which prejudice scientists and cause them to become willfully blind. (In the Solar Energy controversies of the mid 70s, I was an eye-witness to a sincere man being bankrupted by false expert testimony, when neither the judge nor the jury knew that the academic 'expert witness' was secretly a major stockholder in the victim's chief competitor!!!) If you are really a devout Catholic, then you know that "the ONLY theological proposition which is empirically demonstrable is the doctrine of Original Sin" (i.e. the fallen nature of Lucifer-tempted humanity). So why do you TRUST what famous establishment scientists tell you when they have an obvious VESTED INTEREST in disparaging competition? If they were honest, they

would be voluntarily RELINQUISHING POWER, and the five thousand years of written human history show that VERY, VERY few humans are sufficiently idealistic to voluntarily relinquish any power that they may have achieved.

If you are really a devout Catholic (and not a pious fraud like Charles Keating), then you will recognize that in your final weeks in office you have a DUTY TO HUMANITY to get to the bottom of this and to make a clean confession to those whom you have harmed (namely, your President and the public).

I don't want one cent of DOE money. All I want is the DEAD HAND of the DISHONEST HUIZENGA REPORT OFF MY NECK!!! My friend Dr. Hal Fox, who is trying to fund 5 separate start-up cold fusion companies, could raise \$25 million tomorrow if it were not for the DOE's dishonest but successful discreditation of the subject at the behest of Vested Interests in the APS!

This is going to be remembered for a thousand years (like the Galileo scandal).

Do you want to be remembered like one of the foolish Cardinals who refused to look through Galileo's telescope at the miniature solar systems in orbit around Jupiter?

Before you leave office, do the RIGHT thing!

The only RIGHT thing is to DIRECT Dr. Will Happer to "drop everything else" and focus all of his energy in the remaining two or three weeks of his service as a political appointee to studying the question of whether or not his high-energy physics friends and his PPPL friends have misled him as much as he has allowed you to be continue to be misled by the self-serving Huizenga Report.

If you will send me a ticket to Washington, D.C. and direct Will Happer (and any "seconds" that he wants to bring) to debate the reality of cold fusion with me, in your presence, and have the debate filmed for posterity, you will soon find out that you have presided over a worse disaster for the public than Pearl Harbor.

You don't have to be a "rocket scientist" yourself in order to discern with accuracy which of two alleged 'experts' has the facts on his side, and which is just bluffing & prevaricating; non-technical lawyer-Judges who listen to court-room debates between diametrically opposed 'experts' have to decide every day who is lying and who is sincere (or who is self-blinded by wishful thinking and who has looked at ALL of the relevant facts in an objective manner).

I am not a one-note monomaniac; I have spent scores of thousands of hours, and decades of my life, trying to bring hot fusion to practical utility; I have no vested interest (other than search for truth) in cold as opposed to hot fusion. Because of my bitterness at the abuses of power perpetrated by the DOE-insider fusion mafia during the past three decades, you may suspect me of the improper motive of REVENGE; however, like you, I believe that giving False Witness for such an ignoble & selfish motive would be a MORTAL SIN. (Viewed from an eternal perspective, people who seek revenge hurt themselves, by twisting their own souls, a lot more than they hurt their enemies.)

When I phoned Will Happer last week, he had enough integrity to return my call; however, he soon begged off due to the lateness of the hour and the press of "more important matters".

Can't you see that NOTHING you have presided over in your tenure as Secretary of Energy has any importance in comparison to the question of whether or not cold fusion is a delusional fiasco or a millennial discovery?

When I mentioned to Will Happer that though I deplore the misguided behavior of the heads of Fermilab & Brookhaven in denouncing cold fusion (which they are obviously doing partly as 'turf protection' against upstart chemists, and partly to help their buddies who direct PPPL, ORNL, LANL & LLNL), I did send testimony (as an admittedly 'hostile witness') to several Senators about the potential value to our grandchildren of a 20 Tev collider; recently, I got two letters of

thanks from Senators who voted FOR the SSC, and I fancy that I may have helped to sway the mind of Senator Cranston, who had earlier announced implacable opposition to the SSC.

By way of thanking me for help in a common cause, Will Happer mentioned to me that I needn't worry about his opinions much longer, because he will be out of office "in two weeks", and "President-Elect Clinton listens to fellow Rhodes Scholar, Ira Magaziner who has already testified before Congress favorably about cold fusion."

Will also invited me to tell his successor that in my opinion he, Will Happer, is an "unpatriotic traitor" [for letting the Japanese get a THREE-YEAR jump on us].

However, I don't suspect Dr. Happer of being a traitor; since he is a Professor of Physics at Princeton (which I regarded as the intellectual center of the universe during my three years there in 1956 and in 1957-59), I am sure that he knows in his heart that this is not a truly political question, on which equally well-intentioned, equally well-informed, and equally sincere persons often come to opposite conclusions. This is a matter of FACT, not of mere opinion.

The essence of science is OBJECTIVITY. Now EITHER some low-temperature deuterons (in low-temperature deuterated lattices) have been converted into helium nuclei which were not there originally, OR they have not; and EITHER this has been accompanied by the release of heat in the form of phonon excitations of the host lattice, OR it has not. If Happer could bring himself to study the evidence with sufficient care, he would see that the skeptics have perpetrated a GIGANTIC MISCARRIAGE OF JUSTICE in the form of a FRAUD ON THE PUBLIC!

There is not a single facet of the matter in which the evidence is not OVERWHELMING that alpha particles have been created out of the deuterons in heavy water in a low-temperature electrochemical cell (for those with the disinterest and the stamina to examine the evidence without prejudice).

For example, consider the DOUBLE-BLIND test that Dr. Mel Miles of China Lake performed in connection with experts in mass-spectroscopy in U of TX at Austin. His paper notes that he encrypted his samples of effluent gas from FP-type cells, run in parallel on heavy water and on ordinary water, with meaningless numbers (such as the birthdays of his own children). Thus the people in TX who got his samples did NOT know which of the 4 cases they were testing:

- (1) ordinary water electrolyte;
- (2) heavy water electrolyte;
- (3) excess heat production being measured;
- (4) excess heat production not being measured.

But the samples of helium-4 which they found were in PERFECT CORRELATION with the cold-fusion hypothesis:

- (a) NO helium was EVER produced by an ordinary water cell;
- (b) helium was NOT produced by a heavy water cell when it was also NOT producing excess heat;
- (c) SMALL amounts of helium were produced when only SMALL amounts of excess heat were being produced;
- (d) LARGE amounts of helium were produced when LARGE amounts of excess heat were being produced.

Can you, Admiral Watkins, look me in the eye and with a straight face say that you BELIEVE that the aforesaid correlations (a)-(d) were simply COINCIDENTAL ARTIFACTS of supposed EXPERIMENTAL ERROR? (The statistical improbability of that would be greater than the alleged improbability of cold fusion!)

To take another example: the Bell Labs of Japan, NTT, has announced that in an experiment repeated successfully five separate times they have produced massive amounts of helium-4 in a deuterated palladium lattice that was sealed on

one side by gold foil and on the other side made semi-permeable by an oxide layer, and the fusion of deuterium to helium was triggered EITHER by the passage of an electric current or by subjecting the sample suddenly to a large amount of external heating! (There was no electrolyte; the sealed foil was in a vacuum chamber [after having been gas-loaded].)

Or what about the paper, published just last week (and not known to Will Happer) by Prof. John O'Mara Bockris, a world-renowned electrochemist who was on the faculty at the university of London when Martin Fleischmann, FRS was a graduate student there. In this paper, outside labs (one, a DOE funded lab, ETEC) found "massive amounts of BOTH tritium and helium-4" in the spent cathode of a successful FP cell which had produced excess heat. Bockris emphasizes the Tritium (which in my mind is unimportant) because it is INCONTROVERTIBLE PHYSICAL EVIDENCE of a fusion reaction. And how can you explain this: when I heard (at the San Francisco ASME meeting in December, 1989) several scientists from ORNL report striking positive results with FP type cells, the authors manifested some fear that their paper would displease the DOE management; they said, "the excess heat is real, but we are not calling it 'fusion'"; someone in the audience said, "if it is not fusion, then what about Tritium?", and the ORNL scientists replied, shame-facedly, "when we got our official briefing from DOE Hq on the Huizenga Report, the word Tritium was NEVER MENTIONED!" (What unbelievably perfidious intellectual dishonesty of DOE officialdom!)

The first point of scientific incompetence in the Huizenga Report is to DEFINE "fusion" in such a way as to equate it to what has been theoretically predicted and experimentally verified only for collisions between essentially isolated particles in a vacuum. In that case, the calculations of Gamow and others predict what is observed, namely that when two deuterons collide, with ABOUT equal probability two cases result:

(i) one of the neutrons in a deuteron is nearest to the other deuteron; it experiences the strong nuclear force of the other deuteron, and gets attracted to join it, or fuse with it, leaving:

- (ia) a proton; and
- (ib) a triton [nucleus of hydrogen-3]; and
- (ic) a gamma ray;

(ii) one of the protons in a deuteron is nearest to the other deuteron and by tunneling gets through the Coulomb barrier of repulsion by the other proton; it then experiences the strong nuclear force of the other deuteron, and gets attracted to join it, or fuse with it, leaving:

- (iia) a neutron; and
- (iib) a helium-3 nucleus.

Consequently in a hot fusion plasma, the "diagnostic criteria" are that EITHER one finds tritium and a gamma ray, OR one finds neutrons (which if passed into water produce secondary gamma rays).

The people denouncing cold fusion have FORGOTTEN the derivation that predicts the preceding (experimentally confirmed) alternatives. The ASSUMPTIONS reduce to near zero probability the very rare case:

(iii) wherein two deuterons close together behave like an excited helium-4 nucleus, which somehow gets rid of the energy of excitation (e.g. by emission of a 23.8 MeV gamma ray) and falls into the stable state of an unexcited helium-4 nucleus.

The dogmatic ignoramuses (such as those at MIT) who keep repeating, "if there are not lots of neutrons and not lots of gamma rays (to fry the experimenters), then it's NOT fusion!" are simply revealing their own scientific incompetence regarding underlying theory.

If one tries to use the Gamow-type of calculation inside of a crystal lattice, IGNORING SPATIAL PERIODICITY, then (as demonstrated explicitly in a



recent paper by Dr. Scott Chubb of the NRL) one gets answers that are wrong by astronomical orders of magnitude!

Inside of a lattice, Bloch's Theorem *requires* that no solution of Schrödinger's equation (of quantum mechanics) be allowed unless its logarithmic derivative is a *periodic* function with the *lattice periodicity*! (Will Happer tells me has known about Bloch's Theorem since he "was a child"; why then does he not draw the obvious consequences about the INCOMPETENCE of the reasoning provided to him by his anti-cold-fusion friends?)

Julian Schwinger won the Nobel Prize for his work on QED (Quantum Electrodynamics). Schwinger says that inside of a lattice there are known QED *selection rules* which FORBID the emission of a gamma ray in case (i) above!!! Therefore, when the excited triton drops into a more stable state, it gets rid of the excess energy NOT by emission of one or more *photons* (particles of light waves) in a gamma ray (as the under-informed expect) but by emission of *phonons* (particles of sound) as excitations of the ambient lattice. I admit that I am not competent in post-1948 QED, but if Schwinger is wrong, why cannot the 'expert critics' who rejected his papers in APS publications SHOW ME exactly how & where he is wrong? When they refuse, and huff and puff dogmatically (as does Prof. Adair of Yale), then I suspect that they are just bluffing, and in the absence of explicit published proof to the contrary, I will continue to take the attitude: "if Schwinger does not know how to use QED, then WHO does?"

Accordingly, in the presence of a *periodic* lattice, one has to use quantum mechanics in a way which explicitly or implicitly takes into account Bloch's Theorem. The result is that the probability of either case (i) or (ii) is drastically reduced, and case (iii) predominates.

All of the high-energy *EXPERIMENTAL* physicists with whom I have spoken repudiate this possibility by arguments that are, amazingly, simply technically incompetent. For example, if those types of arguments were correct, the accidentally discovered but Nobel-Prize-worthy Mössbauer Effect would be impossible! (When I explained this to BYU Prof. Steve Jones, he published an apparent refutation of my argument by permitting himself to use the Heisenberg Inequality with the inequality sign in the wrong direction, which he justified by talk about 'virtual particles'; but this again is just theoretical incompetence, because phonons are not virtual particles (which *transmit* interaction forces); they are *real* particles which [according to quantum mechanics] instantaneously come into existence throughout the entirety of the lattice [not as localized particles which the experimentalists want to imagine].)

When I stood before FEAC (which included the heads of most of the DOE-funded fusion labs and affiliated university projects), I challenged anybody there to debate me on the reality of cold fusion; but I got no takers. Why?

When I talked to Prof. Adair of Yale (who expressed great glee that Schwinger's papers were rejected in the USA and had to be published in Germany, and even then with an editorial disclaimer) he commented pompously: "I have been working in nuclear physics for 30 years and I know what is possible and what is not possible." So I said, "Well, if you are convinced by such a simple argument that cold fusion is impossible, you must be able to write it down on the back of an envelope." He admitted that this was true. I then invited him to SHARE this argument with me so that I could point out possible mistakes. At this point he said: "I will be blunt. I do not believe that you are remarkably qualified. I have better things to do with my time than to discuss this matter with unqualified persons. I have already discussed it with highly qualified persons and I have no time to waste on others."

Therefore, Admiral Watkins, I challenge you in the name of the God you supposedly honor (another of whose attributes is "the Truth"), EITHER admit that the people who have advised you were bluffing, OR else force them to set down on

paper, so that I can examine them in the light of day, the EXACT mathematical arguments by which they have entitled themselves to reject Schwinger's papers and to so intimidate their colleagues that even in Germany they are afraid to publish Schwinger's papers without accompanying large-type editorial disclaimers!

Just let Will Happer bring in ANY and ALL that he may want, including the entire membership of the closed-minded, incompetent, biased and intellectually-dishonest Huizenga committee (as his "seconds" to whisper advice in his ear), and let me bring in my seconds (such as Schwinger, the Chubbs, R.T. Bush, L. Turner & E. Storms of LANL, Srinivasan of India, Takahashi of Japan, Bockris of Texas A&M, Hagelstein of MIT, McKubre of SRI, Huggins of Stanford, etc.) and schedule us to formally debate this matter in front of you and the individuals (scientists or not) whose judgment and discernment you trust the most! I suggest one two-hour debate per day for three days (which will give both sides ample opportunity to prepare Rebuttals and Sur-Rebuttals).

If the side I represent, and the 250 people who signed the petition to Congress asking for re-investigation of the Huizenga Report, are "on the side of the angels", and the other side (as I have tried to show above) represents misguided people who have succumbed to one or more Luciferian temptations (such as to exalt Pride, or Vested Interest, or Old Friendships, above the Truth), then you have a DUTY to both God & Country to accept the above challenge rather than shrug it off, as does Will Happer, with the comment that "I'll be out of office in a few weeks, so why do you care what my position has been?" That is not the way of a truly God-fearing man.

I predict that if you do accept my challenge, and ORDER your advisers to prepare for such a debate, then they will quickly fold their hands (implicitly admitting that they have been bluffing) and you will then have CONCRETE EVIDENCE of the reality of the great national tragedy which you have chosen to preside over by ignoring the warnings of professionally-qualified whistle-blowers such as myself.

Thank you for your attention.

Sincerely,

P.S. In reading over the preceding letter, some might mistakenly get the misimpression that I do not value highly the output of the "working level" fusion scientists of the DOE. To the contrary, I could reel off scores of names of personnel of PPPL, LANL, ORNL, and LLNL (not to mention affiliated university groups such as at the Courant Institute of NYU) who in my opinion have made world-class contributions to the basic scientific research of plasma physics. Many of them know more about e.g. plasma physics than I will ever know. And if my patented Topolotron and Plasmasphere fulfill their potential of being allegedly "optimal" improvements of what has been studied at the DOE labs, then it will be because I had the privilege of "standing on the shoulders of giants" (specific acknowledgments presented *in extenso* in the texts of my Patents). In no way do I disparage the fundamental, and invaluable contributions to human knowledge made during the past four decades at the DOE labs, which is already an INDISPENSABLE foundation for further progress; what I am disparaging is their politicized "managers". In many cases, I sympathize with their heavy burden of having the responsibility for "keeping bread on the tables" of the dependents of the hundreds of Ph.D. scientists staffing their labs, and for the fact that their previous careers as researchers have not prepared them for the unenviable managerial responsibilities which they have accepted. Moreover, in the scores of cases cited above where genuine and undoubted EVIL was perpetrated by DOE employees, it was just a few people (not the *thousands* of good people employed in the DOE labs who would probably be as shocked as I am if they also knew the

facts). Also, in some cases, the Lab Director himself may not have been responsible: remember, the King never told his men to assassinate the Archbishop of Canterbury, it was just that they felt they "knew" what the King needed and took it upon themselves to "do what had to be done". It is the *circumstances* in which Science is conducted these days (with cut-throat competition for funding, and promotion in academic life frequently explicitly contingent upon success in securing external funding) that has led to the atmosphere in which many outstanding scientists in the DOE labs have told me privately that they are *afraid* to make any public statements, even a scientific finding, that is not in sync with the prevailing "party line".

My friend Dr. Norman Rostoker of UC Irvine, who received the APS Plasma Physics Div.'s prestigious *James Clerk Maxwell Award* a few years ago (and yet who was rebuffed when he tried to get modest funding from the DOE to test my Plasmasphere patent) told me recently: "the plasma physics community functions rather like a private club; if you are not a member, they won't listen to you; and even if you are a member, they won't listen to you if you depart from the prevailing party line."

Are you not horrified by the state of corruption thus admitted? Does it not remind you of the medieval church when potential heretics were cowed into silence by the occasional sight of a convicted heretic (such as Giordano Bruno) being roasted alive?

If that is the *high-level insider-admitted STATUS QUO* of the plasma physics community, can you doubt that it is the same in the high-energy physics community? And if both of these *corrupt communities* find their most precious Vested Interests (power, influence, funding, privileges) threatened by some unexpected claims, are you surprised at the cries of "*heresy!*" and the witch-hunts which ensue? The amazing thing is not what has happened, but that a supposedly morally-serious person like yourself could be taken in by such *transparent self-interestedness* for so long!

COPY  
for  
Dr. Will Happer

3  
Dr. Robert W. Bass, M.A. Oxon  
[Prof. of Physics, BYU, '71-81]  
Registered Patent Agent  
P.O. Box 6337  
Thousand Oaks, CA 91359  
(805) 373-6256

Saturday, December 11, 1992

Dr. Richard L. Garwin  
IBM Research Division (914) 945-2555  
Thomas J. Watson Research Center  
P.O. Box 218  
Yorktown Heights  
NY 10598

Dear Dr. Garwin,

Thank you for your courtesy and fairness in sending me a copy of the letter which you sent to Admiral Watkins on November 22, 1989 -- now more than three years ago.

In re-reading your letter, it *sounds* like a very convincing and effective defense against the charges in my letter, and as history shows it convinced Admiral Watkins to ignore my letter; but there must be some holes in your seemingly good defense, as the history of the past three years shows (I am referring to the major review articles of *hundreds* of papers printed in refereed archive journals and reviewed independently by eminent electrochemist Bockris, by Srinivasan (a neutron physicist from India), and by Storms (a nuclear physicist at LANL).

Perhaps the key to the holes in your defense is the last sentence of your letter, which struck me as a total irrelevance. Since, as explained in painstaking detail in my new letter to Admiral Watkins, looking for neutrons as diagnostic of "true fusion" is a theoretically incompetent proposition based upon repeating certain past ideas as dogmas (without understanding how they were derived and under what circumstances they could be expected to remain true).

The new book by Huizenga demonstrates for the whole world to see how utterly biased *from the beginning* his committee was.

I have appended to my new letter a list of factual references obtained from Dr. Eugene Mallove. Have you read his book?

In my new letter to Admiral Watkins I have "indicted" him for failure to pay attention to my letter of November 10, 1989 (or the letter from Dr. Hal Fox of November 17, 1989) and, as a result, having presided over *the worst government scandal since Watergate* and *the worst national disaster since Pearl Harbor*.

Have you by now realized that it is impossible to defend the indefensible?

Please study the enclosed materials carefully before replying. I will be interested to know what your present position is *AFTER* you have reviewed the massively overwhelming evidence that I present.

Thanking you for your attention, and hoping for a reply at your earliest opportunity, I remain

Sincerely,

FUSION FACTS Newsletter  
Post Office Box 58639  
Salt Lake City, UT 84158-0639  
Telephone (801) 583-6232

November 17, 1989

The Honorable James D. Watkins  
Secretary of Energy  
Department of Energy  
1000 Independence Ave. S.W.  
Washington, D. C. 20585

Reference: Letter to you from Dr. Robert W. Bass in re DOE Cold Fusion  
Panel Report to Energy Research Advisory Board. (Dated: Nov. 10, 1989)

Dear Sir:

Dr. Bass has asked me to share some important scientific information  
with you.

Enclosed with this letter is a copy of an article to appear in the  
forthcoming issue of FUSION FACTS. The title "What Fusion Theory Must  
Explain." suggests the contents. The article cites eminent scientific  
work from the U.S., India, Spain, Bulgaria, etc. and emphasizes certain  
factual scientific findings on cold fusion. As far as we know, this is  
the first compilation of such scientific evidence to help guide those  
scientists who are struggling with explanations for cold fusion.

There are only two possible explanations for this massive evidence:

1. Cold fusion is a scientific reality, or
2. There is the most insidious collusion of international scientists  
that the world has ever known.

As a former regular officer in the U. S. Air Force (S.N. 22880A), I  
know the importance of good staff work. You are being betrayed in your  
position by dishonest or, at least, highly prejudiced staff work.

Personally, you will not want to preside over an important government  
agency that doesn't know that cold fusion is a reality when 18 teams of  
scientists in India and over 85 scientists in Japan are working on cold  
fusion theory, experiments, and applications.

Sir, I hope this will help you. How else can I help?

With best personal regards,

  
Hal Fox, Editor Fusion Facts

Encl: ✓ Theory Article, Copy of Fusion Facts Oct. 1989,  
✓ India/Japan Fact Sheet.

cc: Senator Jake Garn, UT and Senator Orrin Hatch, UT  
Dr. Robert W. Bass; Dr. Gale Dick, Grad Dean, U of U;  
Dr. Brophy, V.P. Research, U of U

R.L. GARWIN



Thomas J. Watson Research Center  
P.O. Box 218  
Yorktown Heights, NY 10598

PROOF that Admiral  
Watkins was warned more

(2)

Richard L. Garwin  
IBM Research Division  
Thomas J. Watson Research Center  
P.O. Box 218  
Yorktown Heights, NY 10598  
(914) 945-2555

than 3 years ago!

November 22, 1989

Admiral James D. Watkins  
Secretary of Energy Designate  
Department of Energy  
Forrestal Building  
1000 Independence Avenue, S.W.  
Washington, DC 20585

Dear Admiral Watkins:

I have just received a copy from R.W. Bass of the long letter he wrote to you 11/10/89. At the top of the copy he wrote to me

"Dear Dr. Garwin,

I know from our correspondence over SDI that although you may disagree with someone you remain an HONORABLE GENTLEMAN who is committed to COURTESY & FAIRNESS! Please send this to the other members of the DOE Cold Fusion Committee (whose names I don't know) and please yourself ponder the FACTS set forth below.

Sincerely,  
Robert W. Bass

I was a member of the Cold Fusion Advisory Panel that submitted its final report early in November. Contrary to Dr. Bass's allegations, our Panel was not relying "on the word of other scientists whose judgment we trust." We investigated the experimental work firsthand and read the theoretical papers. We were totally open to communications from everybody, including all of the people mentioned by Dr. Bass in his letter. Most of the items he presents as new evidence are familiar to me personally. Within days of the announcements in march, 1989, from the University of Utah and from Brigham Young University, one of my colleagues raised with me the "forgotten 1938 Oppenheimer-Phillips effect." In fact, it figures in my report of 04/20/89 on a meeting I helped organize in Erice, Sicily, which was attended both by Professor Steven Jones and by Dr. Martin Fleischmann.

---

Also Adjunct Professor of Physics at Columbia University  
(Views not necessarily those of IBM or Columbia)

I believe that your Panel on Cold Nuclear Fusion already contained members who were advocated by individuals supporting cold nuclear fusion, who objected to the original composition of the Panel. I believe that your Panel has rendered a reasonable judgment based on all of the efforts which they could exert. I personally visited the research establishment at Frascati, Italy, to see the exciting work there (June 8, 1989). Unfortunately, not a single detection of neutrons has been made at Frascati since my visit.

Sincerely yours,

Richard L. Garwin

cc:

R.W. Bass, Thousand Oaks, CA.

W.L. Woodard, ERAB Cold Fusion Panel, DOE.

RLG:jah:326%JDW:112289.JDW

ER-16 R.G.  
RGajewski  
6/23/89

JUN 23 1989

Mr. Walt Anderson  
8901 Viking Drive  
Austin, TX 78758

Dear Mr. Anderson:

This is in response to your April 12, 1989, letter to President Bush.

Your perception of the potential significance of the cold fusion discovery, as first reported by Fleischmann and Pons, is correct. If confirmed, it would call for a major initiative on the part of the Government as it has the potential to revolutionize energy economy on a global scale.

Let me hasten to add that to this date there exists no evidence that the heat reportedly evolved in the experiments at the University of Utah, and in similar experiments at Texas A&M and Stanford University, results from nuclear reactions. The nature of the reported phenomena remains unexplained and an intensive quest for their understanding is presently under way. The Department of Energy is actively supporting and carefully monitoring those research activities. Furthermore, a specially constituted Cold Fusion Panel of the Department's Energy Research Advisory Board is presently reviewing the scientific evidence on the reported cold fusion phenomena.

The Secretary of Energy, Admiral Watkins, has requested recommendations from the Board as to any future course of action for the Department in the matter of cold fusion. The Board is scheduled to submit a preliminary report to the Secretary by July 31, with a final report due November 15, 1989.

Thank you for your letter. Your concern about the recently reported discoveries receiving proper Government attention is appreciated.

Sincerely,

Original signed by:  
Ryszard Gajewski

Ryszard Gajewski, Director  
Division of Advanced Energy Projects  
Office of Basic Energy Sciences, ER-16

bcc:  
ES/4, ER-60, ER-61, ER-16, ER-622 (Forstl)  
ER-16:RGajewski:sad:3-5995:6-21-89:c:ES:Anderson  
Retyped:tla:6/23/89:3-3054  
89-008489 89-254





Department of Energy  
Washington, DC 20545

June 23, 1989

Mr. Walt Anderson  
8901 Viking Drive  
Austin, TX 78758

Dear Mr. Anderson:

This is in response to your April 12, 1989, letter to President Bush.

Your perception of the potential significance of the cold fusion discovery, as first reported by Fleischmann and Pons, is correct. If confirmed, it would call for a major initiative on the part of the Government as it has the potential to revolutionize energy economy on a global scale.

Let me hasten to add that to this date there exists no evidence that the heat reportedly evolved in the experiments at the University of Utah, and in similar experiments at Texas A&M and Stanford University, results from nuclear reactions. The nature of the reported phenomena remains unexplained and an intensive quest for their understanding is presently under way. The Department of Energy is actively supporting and carefully monitoring those research activities. Furthermore, a specially constituted Cold Fusion Panel of the Department's Energy Research Advisory Board is presently reviewing the scientific evidence on the reported cold fusion phenomena.

The Secretary of Energy, Admiral Watkins, has requested recommendations from the Board as to any future course of action for the Department in the matter of cold fusion. The Board is scheduled to submit a preliminary report to the Secretary by July 31, with a final report due November 15, 1989.

Thank you for your letter. Your concern about the recently reported discoveries receiving proper Government attention is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Ryszard Gajewski".

Ryszard Gajewski, Director  
Division of Advanced Energy Projects  
Office of Basic Energy Sciences, ER-16

CORRESPONDENCE CONTROL FORM  
OFFICE OF THE EXECUTIVE SECRETARIAT

ACTIVITY ADD SOURCE CODE WB WHITE HOUSE BULK  
 NOT DETACH FROM ORIGINAL CORRESPONDENCE 16:39  
 SPEC INT: DATE CORR: 04/12/89 DATE RECD: 06/13/89 DATE CNTRL: 06/13/89 CONTROL NO: ES89-008489  
 TER: X MEMO: TWX: OTHER: TO: SECY: DEP SEC: UN SEC: OTHER: WH

MANDERSON, WALT TX 0

REMARKS:

SUBJ: NUCLEAR FUSION  
 NEED FOR A MANHATTAN-TYPE PROJECT TO RAPIDLY DEVELOP NEW COLD FUSION RESEARCH

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ACTION REFERRED TO	DATE	RETURN TO	DUE DATE
1			
2			
3			

ACTION TO: ER TYPE ACTION: Reply direct SIG OF: ER

CONCURRENCE: INFORMATION: DS US EH MA1.22 D04  
 FILE CODE: WMANDERSON-ES89008489

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U.S. GPO 1987-171-219

FROM: White House Anderson, Walt		DATE OF DOCUMENT: 4/12/89	DATE RECEIVED: 6/19/89	NO: 89-254
TO: George Bush		LTR: X	MEMO:	REPORT: OTHER:
REG. NO:		DUE DATE: 6/26/89	ORIG: X	CC: OTHER:
DESCRIPTION (Must Be Unclassified) Need For A Manhattan-Type Project To Rapidly Develop New Cold Fusion Research		FILE CODE:	CLASSIFICATION/CONTROL MARKINGS: Uncl	
ENCLOSURES:		DATE ANSWERED:	BY:	
		REFERRED TO:	DATE:	RECEIVED BY:
		Gajewski-Action	6/19	
		I. Adler-Info	6/19	

**ACTION**

DESTRUCTION RECORD:  
 COPY NUMBER(S) PAGE COUNT DATE:  
 DESTROYED BY:

89-008489 Reply direct

Wed 12 Apr 1989

LETTER FROM: Walt Anderson  
8901 Viking Drive  
Austin, TX 78758  
PH: 512-837-5086

ADDRESSED TO: President George H. W. Bush  
The White House  
1600 Pennsylvania Ave. NW  
Washington, DC 20500

SUBJECT: Need for a Manhattan-Type Project to Rapidly  
Develop New Cold Fusion Research

The spectacular discovery recently announced by Pons and Fleischmann at the University of Utah... and confirmed by Martin, Marsh, and Gammon at Texas A & M... pales to insignificance anything since the first atomic bomb.

The full implications and potential benefits to the United States, and all of humanity at this critical ecological, energy, fiscal, and geo-political juncture in history are so compelling as to defy full analysis.

We are rightly proud that Texas A & M is generally acknowledged to have played a key role in the confirmation of the Utah discovery. Surely a smiling God has given us this remarkable opportunity to balance the books with regard to the exploration and exploitation of nuclear energy. But more importantly... the needs of all humanity for this safer and more benign method for extracting energy from the seas must drive us forward with all deliberate speed to seek practical results to ease the multiple crises now facing the world (famine, pollution, greenhouse effect, water purification and distribution, etc.).

For perhaps the very first time in our lifetimes (and perhaps never before in all of history) we have realistic reason to hope that real and effective solutions are within our grasp. The magnitude of this promise carries equal responsibility that petty jurisdictional disputes, crass commercialization, or glory-seeking be sublimated to the larger global goals. It is worthy of no less focus and coordinated effort than that which attended the development of the first practical atomic weapons under the aegis of the Manhattan Project in World War II.

Most Respectfully,

*Walt Anderson*