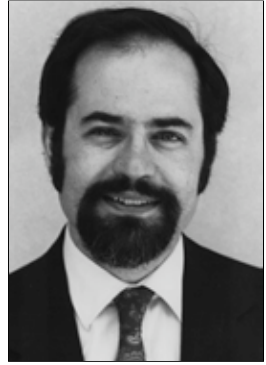


# WELCOME ICCF-7!

## — Seeing the “Big Picture”



For those fortunate enough to be attending the Seventh International Conference on Cold Fusion (ICCF-7) - a very big *Welcome* from the staff of *Infinite Energy Magazine!*

If you are at ICCF-7 in beautiful Vancouver, Canada, you have before you a complimentary copy of a magazine with global reach—it has subscribers now in 37 countries. Attendees at ICCF-5 in Monte Carlo (1995) and ICCF-6 in Hokkaido, Japan (1996) received earlier issues. For those few who haven't done so already, isn't it about time to subscribe and get “The Big Picture” on Cold Fusion and New Energy six times a year? Join those few thousand lucky people who don't have to wait 15 months between international conferences to receive the next issue of *IE!*

We in the cold fusion and new energy community are scientists, engineers, technicians, inventors, investors, environmentalists, perceptive journalists, and concerned citizens. We know that the pathway before us leads ultimately to the end of the Fossil Fuel Age and the end of “business as usual” by the Scientific Establishment—ignoring and disparaging data that does not fit preconceived “theories of everything” in physics. Please see our new “Words to Eat” feature (first in a series!) that recalls the silly and hurtful insults against us by academics who don't much care to “look through the telescope” at revolutionary vistas.

Those of you who did *not* make it to Vancouver will be getting a full report from *Infinite Energy* in Issue #19 (to be published by late May 1998) as we enter our fourth year of service to the cold fusion and new energy community. ICCF-7 will no doubt have new reports of nuclear-scale excess energy in both heavy and light water systems. There will also be reports of helium production associated with excess heat, which was one of the first nuclear pathways proposed for cold fusion reactions. In this issue, engineer Mike Carrell provides an excellent and thorough overview of the excess heat and helium work of Drs. Arata and Zhang, which is sure to be examined anew at ICCF-7.

Two feature stories in this issue give

remarkable testimony to the need to keep in mind “The Big Picture.” The provocative “Nuclear Augmented Combustion” tells of an excess energy phenomenon in fossil fuel combustion that has solid data supporting its general features. A very small addition of lithium compound to fossil fuel prompts dramatic changes in combustion energy—and there are good measurements of alpha particles from the flame as well! They need to be confirmed, of course. But there is *overwhelming* evidence supporting an excess energy beyond the pre-measured chemical energy for the power boiler systems tested. The measurements are absolutely conventional — standard stuff that cannot be pierced. The energy augmentation per atom of lithium potentially reacted is in the million-electron volt (MeV) range. Hmmmm...? Smells nuclear.

Then “Enter Miracle #2”—the startling effect of “Electrochemical Activation” that is the *immediate* answer to the quest for dramatic reduction in the energy cost of producing clean water. (See how quickly Dr. Cravens' plea in Issue #17 was answered!) But that's not all. The confirmed and technologically implemented phenomenon implies physical mechanisms within water that for now appear impossible to fit into conventional physics. Lovely. Cold fusioners: learn from this and expand your vision.

As reported in many previous issues of *Infinite Energy*, the observation of heavy element transmutation in cold fusion cell materials—what I have termed “electroalchemy” (see Double Issue #15/16)—is becoming an increasingly prominent feature of this science. Certainly the generation in cold fusion experiments of tritium, helium, very low-level neutrons, and other nuclear signatures were initially a shock to those who now find themselves convinced by the evidence. Yet it has been harder for these same people to accept that heavy elements can be cold fusion-fissioning in similar systems. This is a major expansion of the Big Picture.

There are now at least two companies (CETI and the Cincinnati Group) that have technologies for changing radioactive elements, such as uranium and thorium, to lower atomic weight non-radioactive species. These claims have been sig-

nificantly validated by independent laboratories; there *may* even be a few reports of these validations presented at ICCF7. Moreover, work by scientists associated with the U.S. Dept. of Energy nuclear waste remediation effort is inexorably leading to acceptance of this technology within that community. This is the “back door” of cold fusion that will inevitably *force* the Department of Energy to re-examine its negative rush-to-judgment report of 1989.

What is the lesson in this brief history? Simply to keep one's mind fully open for surprises connected with excess energy and nuclear changes at low energy. In other words, it is not scientifically helpful—frankly it is downright *unseemly*—for “mainstream” cold fusion people to ignore the full body of evidence that is emerging. You certainly don't have to accept it all before doing your own due-diligence, but how can science in this field proceed effectively when some cold fusion scientists consciously ignore or avoid data that may be a bit unsettling to *their* preconceived theories or experiments? As an example, there was a bit of that at ICCF-6, when one senior and respected scientist in his summary of ICCF-6 failed to mention the transmutation work that had been reported there. We trust that will not happen at ICCF-7.

There are many other parts of this Big Picture besides heavy-element transmutation, though that is one of the most important additions. Cavitation-produced excess heat and associated nuclear changes is one new direction to which you should be very open. There have been many failures and successes in this area, but we have always had faith that the evidence is basically correct.

We had intended to run a cover story on a newly-emerged water-based cavitation reactor, which appears from data reported to us to be massively over-unity at the multi-kilowatt level. We hope to have this device profiled in Issue #19, once we have either verified or rejected,

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with our own measurements, the alleged extremely promising and fully repeatable performance. Bear with us and stay tuned.

In this Big Picture are also underwater "arcs and sparks"—a primary example being the apparently over-unity energy generation in water-carbon arc systems (AquaFuel or CarboHydrogen™ gas—see *IE* issues #9 and #10). Any system that involves electric excitation with hydrogen has to be examined very closely for possible anomalies. These systems include not only water-based devices, but the gas-phase regime explored by Dr. Jacques DuFour.

There is another important message from The Big Picture that we have distilled from nine long years of the "Cold Fusion War." It has been a very hard lesson to learn, but we have no doubt that it is true: Sad to say, no matter the quality of a published scientific paper in excess energy or low-energy nuclear transmutation, whether it is peer-reviewed or not, it will NOT convince most members of the Scientific Establishment that this field has any merit.

And just what is this powerful "Scientific Establishment"? Start with *Science* and *Nature* magazines, which are the key barometers of the world of science. Do you seriously think that either of those centrally influential magazines has any intention of ever publishing anything like the many quality peer-reviewed papers in this field that have been published elsewhere? If you think so, think again, because you are seriously wrong. The appearance of even one such paper in either of those journals would be the death-knell for the despicable farce that those journals have perpetrated against cold fusion. Know well that virtually no scientist in this field is any longer hopeful enough to waste his or her time submitting cold fusion papers to these journals.

What does this mean? It means that all but a small handful of the several thousand science journalists in the world are going to ignore you and your work or will write in disparaging or tongue-in-cheek terms about cold fusion. The prototypical format has become familiar: "Ha, ha, hee, hee! Cold fusion scientist-X says that he can produce nuclear-scale excess heat and perform low-energy transmutation of elements! We all know that's impossible. There is no theory that would support this claim, thus it is rubbish. Aren't those pathological cold fusion people ever going to learn?"

A recent real example: science reporter William Broad of the *New York Times* was shown the excellent published work by Drs. Arata and Zhang in the *High Temperature Society of Japan* journal (January 1997). He said he would not write anything about it unless it was first reproduced by someone else—perhaps someone in the U.S. Hah! If that standard were applied to reports of hot fusion experiments or high-energy physics, there would be precious little about those topics written in newspapers and popular magazines. Broad is not inherently a bad man. He is a good writer, and what he covers, he generally covers well. It's just that he knows what will happen to him if he wrote about cold fusion in other than mocking terms. So, he thinks, "Best to ignore it."

The physicists would cut him off from access to them as sources and would attack him for writing about cold fusion. He would lose respect. He saw how they trashed Jerry Bishop of the *Wall Street*

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duce more alphas and so on.

The most important question here is, does it work? The answer is yes. Early trial runs have alpha counts of 1,000,000 per minute. These have been obtained in small experiments and we are confident of being able to quickly obtain 1,000 times improvement. For safety considerations, we want to move slowly at this point. We want to make some measurements and computations on dynamics of the reaction before proceeding on to higher levels. It should be noted that the alphas we count are those that are escaping from the flame before being used to regenerate the reaction. They represent a lower count to the extent of the reaction we are seeing. As the counter is moved from the flame, the count level drops abruptly at the end of the alpha range (in 5 - 6 cm.), as expected for the 8 cm alphas. At greater distances the count continues at a much lower rate as a result of measuring the fast protons. These all die out slowly and by 1.5 meters they are no longer detected. Some very weak, soft gammas (500 Kv) are found at longer distances. These are monitored and can be easily shielded, (1/8" steel).

#### Safety and Operating Benefits

In considering the safety of this reaction, it should be noted that the reactants and the final product are neither poisonous nor radioactive. The alpha particles, for example, give up all of their energy to become ordinary helium atoms; suitable for filling balloons for children's parties. Some fast protons will be formed by the alpha particles. They, like the alphas, will travel in air until they have lost most of their energy. This is a bit longer than for alphas but in about 24 feet they will be slow enough to pickup an electron, and with oxygen of the air, form water, or be consumed in some other benign reaction. The main reaction produces no residual radioactivity. Even without shielding, it will be difficult to detect any radiation (except for a very small amount of soft x-rays from some of the auxiliary equipment). This is experimentally true at the present time with low level experiments.

The most important contrast is that in the lithium-proton reaction everything happens instantly and there is no residual radioactivity. In a fission reactor a failure might release fission products that are intensely radioactive and will last for thousands of years to come. In contrast there is nothing to clean up if there should be a failure in the lithium reactor.

A second safety consideration, is that

the main reaction produces no long range effects. No gamma rays and no neutrons are produced. These are emitted in copious amounts by the material in the core of the standard nuclear power reaction. These are effectively screened in a fission reactor, but the screens are extremely bulky and expensive.

It should also be noted that a lithium power generator could go through a major earthquake with only physical damage to the reactor comparable to the physical damage to the surrounding buildings. There would be no radioactive material to spread around.

While the main reaction is a very clean one, there are, some possible side reactions which are accompanied by some gamma rays and neutrons. These are expected to be of much lower probability than the main reaction. Experimentally, they have not been observed, even in the presence of 1,000,000 alpha counts/minute from the main reaction. Some soft x-rays have been observed, but they are effectively shielded by a 1/8" steel plate.

This count rate (1 million/min.) is very high compared to the count rate observed, for example by Friedlander et al at Brookhaven National Laboratories as reported in *Phys. Rev. Letters* (63,1292 [1989], Sept. 18, 1989) and in most newspapers. Their count rate was 1 event per 6 seconds. (10/min.) Even though our results represent only a small fraction of a BTU/hour, it is to my knowledge, far ahead of any of the many competing fusion projects, and ours is also cheaper by about the same ratio. As stated above, our values are only lower bounds to the actual amount of reaction we are getting.

#### Biographical Information on Emeritus Professor of Chemistry William D. Gwinn from UC Berkeley Communications Office, from a 1977 document.

William D. Gwinn received his AB in chemistry, mathematics, and physics at the University of Missouri in 1937, his M.A. (University of Missouri) in 1939, and his Ph.D. from Berkeley in 1942. He is a member of the American Chemical Society and a Fellow of the American Physical Society. He has held a Guggenheim Fellowship, a Sloan Fellowship, and a Research Professorship in the Miller Institute. He joined the Berkeley faculty in 1942.

Professor Gwinn's research interests have covered a number of topics, mainly in the fields of chemical physics and theory. These have included statistical thermodynamics, photochemistry, micrometeorology, infrared and Raman spectroscopy, quantum mechanics, microwave spectroscopy, energy transfer, astrochemical physics, and the development of methods of solving chemical problems using computers

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*Journal*, who was hounded into silence on cold fusion (and his articles were severely truncated when they appeared at all even before he retired.

So, how can we gain respect and recognition for this field to which you have devoted so much of your time and energy? Are you going to wait around for a "miracle" to happen? Are you going to go to your grave without wider recognition? For some of you, sad to say, perhaps you will.

But there *is* a solution—a powerful "nuclear weapon" that is waiting to be unsheathed and unleashed against the farcical science/media establishment. This weapon can wreck total havoc against that unholy alliance. It is simply this: Manufacture and sell demonstration heat-producing devices. Make them so widely available — *give* them away initially, if you have to— so that the noise they will make will quickly grow deafening.

Just try to imagine where this field would be today if a reliable excess heat device illustrating the "cold fusion effect" had been sold through the very popular Edmund Scientific Company's *Scientifics* Catalog on a "see it for yourself" basis. Can you imagine the effect of unleashing this to all the high-schools and colleges on the planet? After that it would make no difference what nonsense Caltech or MIT professors spouted. The *students* would get rid of them by proving them wrong. Ah, but you say, "I am fearful of losing control of my proprietary technology." We have just one word for this attitude, NONSENSE!

We know, this latter message is getting to sound like a broken record. The only problem is this: *most of you aren't getting it!* Are you deaf or blind or are you masochists? How much more of this beating up by the Establishment do you want to take?

All right, not all of you have experiments and technologies that are at the stage where demonstration devices can be sold, but many of you *are* at that point. *We know this.* In many cases we have seen or inferred what you have behind closed doors. For those of you who are not even close to such demonstrations — OK, pursue your quiet science, but don't expect research funding or respect until some one or more group is out there vending energy-producing devices to the world.

When demonstration devices and then scaled-up commercial products that heat water and generate electricity are avail-

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organics. As the sample is heated up to 1300° C, these will evaporate and dissociate and recombine in the effluent vapor into simpler compounds. Deuterium is present in nature in a concentration of about 0.01% that of hydrogen. Deuterium is thus present even in the non-deuterated samples. The essentially level output with time of the non-deuterated trace at mass 3 is assigned to DH and its source may be from the larger mass of ambient D in the surface contamination which winds up as DH in the chemical reactions involved with the heating. The non-deuterated mass 4 trace rises with time. It is assigned to D<sub>2</sub> and is the expected four orders below the H<sub>2</sub> levels. It rises with time, which may be due to dissociation of larger molecules containing D by the sample heating. Note that for both mass 3 and 4, the highly deuterated samples from the cathode show levels of mass 3 and 4 nearly an order of magnitude higher than for the unprocessed samples.

### Appendix B: Determination of <sup>4</sup>He / <sup>3</sup>He Ratio

Mass 3 contains both <sup>3</sup>He and DH. They can be separated by selection of the ionization potential of the QMS. Below 24.5 V, the hydrogen isotopes and compounds such as DH are ionized. Above 25 V, the helium series, including <sup>3</sup>He and <sup>4</sup>He are ionized. By a series of comparative measurements, A&Z determined that four parts of <sup>4</sup>He are produced for every 3 parts of <sup>3</sup>He. This is also direct evidence against the Rutherford reaction. ☐

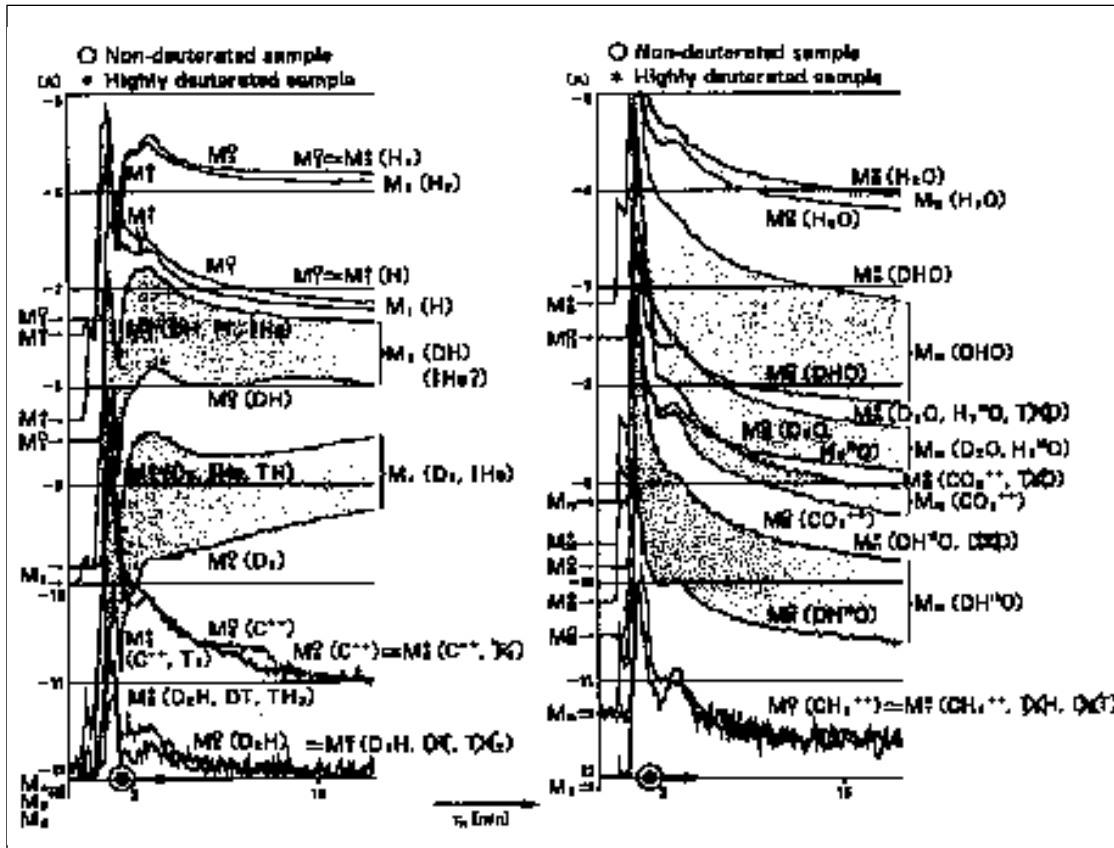


Fig.19. Composite QMS Data for Mass 1-22 for Heavily Deuterated and Non-Deuterated Pd-black Samples as a Function of Time, Using "Limited QMS" Procedure

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able, the game will be over for the Science Establishment. It will have no choice whatsoever but to cover this work seriously and plead for your submitted papers to *Science* and *Nature*.

Who knows, our dear Dr. Douglas Morrison of CERN, who perennially asks when he will be able to have his "warm cup of tea" from a cold fusion reactor (not understanding that *right now* such devices exist at several cold fusion/new energy companies), might even stop coming to these conferences. He might stop writing from the viewpoint of his hobby specialty (apart from neutrino detection) — "pathological science." As we all know, Morrison's reports influence journalists and scientists. This makes a mockery of your work. So why not give him something truly different to write about — that warm cup of tea.

Rounding out this Big Picture, we are going to leave you with a warning, of sorts: Don't think you have forever to carry out your jobs as scientists and engineers in this field. You have a responsibility to bring your work to a dramatic turning point as soon as possible. If you don't do so, you may well wither and fall by the wayside.

We don't want that to happen to you, but it might. You are all heroes, so be

heroic in the final stretch. There are commercial activities and demonstrations in this field that *are* going to make dramatic progress — so much so that these may cast *your* efforts in a less publicly significant light. To some extent this has happened already, and this may have been inevitable. For example: For technical reasons, excess heat devices that use ordinary water have been far more successful than heavy water-palladium.

There is a social and ethical imperative here too. The world *desperately* needs you to break through and show it that a technological and scientific new age is about to dawn. Millions are hungering for this Millennial Hope: cheap energy, clean water, and an end to atmospheric pollution. You have the power to give this Hope. Open your minds, open your hearts, grasp the Big Picture, and Race to Victory. Good luck to you all... ☐

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