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2nd Cut

Cold Fusion: A Cold Hoax?

In March of 1989, chemists Stanley Pons and Martin Fleischmann created a huge stir in the scientific world with their claims of achieving excess energy in a "Cold Fusion" reaction. Cold Fusion is a nuclear reaction that involves smashing atoms together at extreme speeds but normal room temperature. It is called *cold* fusion because scientists believe it would take massive amounts of heat, perhaps thousands of degrees Celsius, for the reaction to occur, and room temperature is relatively cold compared to what it would be normally. In a media blitz, Pons and Fleishmann announced their achievement to the world and asked the US Department of Energy, which complied with their request, for funding to further their experiments dealing with the new discovery.

At first Pons and Fleishmann were highly praised. However, the American Physical Society failed in its attempts to reproduce the experiment, and doubts of the claim's validity became increasingly prominent. When asked to demonstrate the process, or at least give detailed instructions, they announced that it was a "secret" and would not let any information slip. By May the excitement of the scientific community had turned to resentment and Cold Fusion was dismissed as a hoax. Pons and Fleischmann were mistrusted and scorned. The bigger question left behind by Cold Fusion is why the two would have announced their claim so boldly if it was false all along.

Some scientists hypothesize that Pons and Fleischmann got overexcited and were sloppy with their experiment and measurements. They were chemists and not physicists trying to carry out a physics experiment, which, for example, is like heart specialist trying

to perform brain surgery. A brain surgeon is more likely to get it right. Steven Koonin, a Caltech physicist, said: "We are suffering from the incompetence and perhaps the delusions of Professors Pons and Fleischmann." Other physicists also tried to explain the possible errors of the experiment. For example “Pons and Fleischmann claimed that they had caused the nuclei of deuterium atoms, a heavy form of hydrogen, to fuse together to form helium, thus releasing radiation and heat energy. But, the physicists suggested, the radiation detected might have come from radon that was already present in the laboratory's air.” Physicists also doubted the measurements involved because they believed the solution had not been stirred well enough, and the thermometer used could have been put in a “hot spot.” “That conclusion moved Stanford physicist Walter Meyerhof to turn poetic. Said he: ‘Tens of millions of dollars are at stake, dear sister and brother,/ Because scientists put a thermometer at one place and not another.’”[1]

Scientists can hypothesize all they want, but because the chemists became so wrapped up in secrecy, Pons and Fleischmann never stated why they’d make such an outrageous claim without making sure the experiment was sound. Maybe they believed it would work, maybe they just wanted their fifteen minutes of fame. Most likely, Cold Fusion fits into “The history of science [which] documents many cases of ‘pathological science,’ … defined by Nobel laureate Irving Langmuir as ‘the science of things that aren't so.’”[2]

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[1] Dick Thompson, “Putting the heat on cold fusion; physicists dismiss the claims of Pons and Fleishmann,” *Time* (15 May 1989). Available from: Gale, Student Resource Center-Gold, Menlo School Lib.<http://library.menloschool.org> (accessed April 2, 2006).

[2] Stanley C. Luckhardt, “Cold Fusion: The Scientific Fiasco of the Century,” *Science* (24 July 1992). Available from: Gale, Student Resource Center-Gold, Menlo School Lib.<http://library.menloschool.org> (accessed April 2, 2006).