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A sad anniversary for cold fusion

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This week is the 20th anniversary of what would have been the greatest scoop of my journalistic career - if it had been true. Sadly it is remembered mainly as a classic “bad science” story.

Cold fusion made its first public appearance on the front page of the FT on March 23, 1989, ahead of a press conference at the University of Utah at which two chemists, Martin Fleischmann and Stan Pons, were to announce a sensational discovery. They had created a potentially unlimited source of clean energy, by carrying out controlled nuclear fusion - the reaction that powers the sun and the H-bomb - in a simple electrochemical cell.

Not surprisingly, cold fusion aroused enormous media interest. And, despite widespread scepticism, physics and chemistry labs around the world raced to repeat the Fleischmann-Pons experiment. After all, the pair were not scientific charlatans but chemistry professors with respectable academic backgrounds.

Scientists and journalists gradually lost interest, as others failed to obtain evidence of nuclear reactions in their laboratories. Within a year cold fusion was generally regarded as a sad mistake.

Even now, however, cold fusion retains a small band of believers. Some of them are reporting positive results this week at a [symposium organised by the American Chemical Society](#) to coincide with the 20th anniversary of the original announcement. (The phenomenon has been renamed “low energy nuclear reactions” or LENR.) For instance, chemists at the US Navy Space and Naval Warfare Systems Centre in San Diego presented evidence of tracks left in a special plastic by neutrons originating in an electrochemical cell similar to the one used by Fleischmann and Pons.

Such results suggest that it may indeed be possible to induce a low level of nuclear fusion in an ordinary chemistry lab. But, if fusion is to become a serious energy source later this century, most scientists believe big special facilities will be needed, such as the \$10bn ITER reactor to be built through an international collaboration at Cadarache in southern France.

The story of how I got the cold fusion scoop sheds an interesting light on the workings of science journalism. Here is an outline of what happened, for anyone who is interested.

The weekend before Easter 1989, I was visiting my parents in the English countryside. I happened to answer the phone before dinner. The caller was Martin Fleischmann, a colleague of my father at Southampton University, where both were chemistry professors. But I hardly recognised Martin’s voice – such was the tone of suppressed excitement. He told me at once that he was in America, and he did not want to talk to my father but to me – in confidence. And, once I’d assured him that I’d divulge nothing until he agreed, out poured his extraordinary tale of what became known as “cold fusion”. He wanted my advice, as a science journalist, about how to reveal to the world what he was convinced would be one of the most important research breakthroughs of the century – an unlimited new source of clean energy from nuclear fusion on a laboratory scale.

Martin was both excited and upset, because the University of Utah, where he was working on cold fusion with Stan Pons, wanted to hold a press conference in five days time, to announce their breakthrough. Martin, on the other hand, felt the press conference would be premature, because they hadn't yet submitted their work to a peer-reviewed journal. I advised him to resist the university's pressure to hold a press conference, if he possibly could – while being aware that such sensational news might leak out.

On Tuesday Martin called me again. He'd lost the battle. There would be a press conference two days later. For various reasons I could not fly out to Salt Lake City for the occasion, as Martin wanted. So he offered to give me the information in advance, under embargo, so that the FT could publish it in Friday's paper like everyone else. Only then did it occur to me that there wouldn't be an FT on Friday. Unlike American papers – or indeed most British papers – we never publish on Good Friday.

I quickly realised that I could turn this situation to my journalistic advantage, if I persuaded Martin to let me publish in Thursday's paper. And he agreed, accepting my argument that cool, calm coverage in the FT would help to set the tone for the press conference later that day. Martin faxed over some technical information, including a diagram of the Utah test-tube fusion apparatus. He also accepted that a story with such sensational implications – and no peer-reviewed paper – required some sort of third-party endorsement. So he agreed that I could contact Mick Lomer, head of the UK Atomic Energy Authority's fusion lab. He knew of the Utah experiment and gave me a short quote showing that his lab was taking it seriously and would be trying to reproduce the experiment. The scoop duly appeared in the FT, with a relatively modest piece at the bottom of the front page and more on the technology page inside.

Among historians and sociologists of science, the Fleischmann-Pons press conference and its aftermath are widely held up as a classic case of how not to release research results. But, regardless of the fact that it was bad science, what lessons can we learn from the episode about science journalism and communicating research?

1. The role of personal contacts – and sheer chance – in the way stories are picked up. Journalists may nurture their contacts but some stories fall into their lap by luck. Martin Fleischmann contacted me and agreed to give me a scoop because he happened to be a friend and colleague of my father, not because he was one of my prime journalistic contacts.

2. Journalists will take advantage of any opportunity to get in ahead of their competitors. In the cold fusion case, I used the fortunate fact that the FT would not be published on the day after the press conference, to talk Fleischmann into letting us run the story first.

3. Although everyone agrees that it really is best for research not to be released in the mass media before it has appeared in a peer-reviewed journal, the media will have no compunction about reporting sensational findings that have not been peer reviewed, so long as the scientists in question come from reputable institutions and have respectable research backgrounds, as Professors Fleischmann and Pons did. If independent experts say they are taking the work seriously, then so much the better.

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