FOREWORD

Background

It has been a great honor for me to organize ICCF11 in Marseille, France, my hometown. During the ICCF10 in Cambridge, it occurred to me that Marseille was an ideal choice for the ICCF11. The field had matured, and it was obvious that the scientific demonstration of Cold Fusion had been made, and so I proposed to organize the ICCF11. Certainly, a lot more is needed to be accomplished in the field of research and technology, but we had answers to many of the questions of the scientific community. We knew then for sure that the phenomenon announced in 1989 by Professors Martin Fleischmann and Stan Pons was real. Moreover, they had not foreseen all the discoveries that have been made since their announcement, in particular, the discovery that hydrogen, not only deuterium may be nuclear active under certain conditions. Although much work needs to be done, it had been shown that transmutations of elements were occurring, indicating that the simple D + D producing helium reaction was not the only reaction channel. It occurred to me at that time that more than science and technology; we had to focus on public relations. My goal in proposing to organize ICCF11 was to bring Cold Fusion to the attention of both the scientists and to the ordinary citizens.

There are many things that we do not know about our research, but we are sure of one thing; it is not only about fusion. We have observed fission and transmutation beyond doubts but there are probably more reactions than we currently know. The name of the conference is now International Conference on Condensed Matter Nuclear Science. For the sake of simplicity and continuity, we have decided to keep the old acronym ICCF.

In order to meet our goal of creating awareness about this, we had the great honor to have Brian Josephson come to the conference. He is the Nobel Prize winner in 1973 in physics for the discovery of the effect that bears his name. I would like to use this opportunity to thank him for his support, as he took the risk by associating his name to a controversial topic. He came to the conference and lectured on "Good and Bad ways of doing Science." It was a great pleasure for me to meet him. He added a lot of weight to the conference. The city of Marseilles under the patronage of the Société Française de Physique (French Physical Society) granted him and Martin Fleischmann the medal of the city during a ceremony at the City Hall.

One full day of the conference was held at the Faculté des Sciences de Luminy, the University where I teach and do research, so that my peers at the university could attend. This has been an opportunity for students and faculty members to come and listen to other scientists than myself on the subject. A demonstration unit was even displayed in the hall of the cafeteria, where many students could see for themselves the reality of the phenomenon.

As we now known, the international thermonuclear experimental fusion reactor (ITER) will be built in Cadarache, which is less than 1 h by car from the conference location. Support for ITER was very popular in France at the time of the conference and it was very difficult to get the local press to talk about alternative energies. The television stations refused to cover the event, although 170 people from 20 different countries had come to the conference, and the keynote speaker was Brian Josephson, the Nobel Prize Laureate. This goes to show how science and politics are mixed up. Nevertheless, a couple of short papers were published in the newspapers, and a few months later a national business newspaper "Les Echos" published a half page article on the conference and CMNS.

The conference was held at the hotel Mercure. This was a posteriori a good choice because it means mercury in French, and is one of the key ingredients used by the alchemists in the past to make gold!

The Conference

Several important new results were presented during the conference. The joint US/Israeli team, headed by MD Irving Dardik, confirmed that the superwaves they use in their electrolytic experiments help in producing more heat. Also Iwamura *et al.* showed new transmutation effects in their experiments of diffusion of deuterium gas through a complex structure of palladium and calcium oxide. In addition to the traditional Cold Fusion community, a team of Russian scientists claimed that their experiments show the existence of light monopoles. The theory was developed by Lochak from France. They try to explain the Chernobyl nuclear accident by the interaction of the monopoles with uranium nuclei, changing the half-life of the nucleus. A German team, comprising of Czerski and Huke, who were working in high-energy physics, discovered CMNS when they lowered the energy of the deuterium beam. They demonstrated that the cross section of the deuterium with deuterated metals was much higher than expected. To explain their experimental data they needed to add a large screening potential. They came to the conclusion that they were doing Cold Fusion, and for the first time attended to the conference. Another important contribution was the one from the Vysotskii team from Ukraine, who confirmed their biological transmutation experiments. Certainly there is a lot more to be discovered. This is very exciting news for science, mankind, and us as scientists.

On the theory front, I must confess that there appears to be far too many. The initial idea of the necessity of high deuterium loading in metals to obtain the effect seems to be relevant only for cathodically loaded Pd wires. The fact that hydrogen is also active, and that in some cases the loading is obviously low indicates that something else is happening. Storms mentions "active sites," but what are they? Can we use classical quantum mechanics or quantum electro dynamics? Do we need poly-neutrons, neutron band structures, or magnetic monopoles? Nobody knows for sure, but every theory developer is convinced that he/she is on the right path to obtain the solution.

The Proceedings

When accepting papers for the conference, we decided to be open and to avoid filtering. This is in reaction to the attitude of the scientific community, in its large majority, regarding CMNS. If we publish everything, all kinds of foolish and false ideas can be put forward, but if we are too narrow in our choices, great ideas can be lost. By opening up, we took the position that everyone is capable of deciding for oneself what is good and bad science. We did not want to have a committee to decide and thereby take the risk of missing a great opportunity. These proceedings follow the same philosophy, and therefore the reader must use his/her own understanding to judge the quality of the works presented here. As the editor of this book, I take full responsibility for this choice, and I hope that the future will prove me more right than wrong. Peter Hagelstein from MIT, who organized ICCF10, was a great support in helping me with the quality of the proceedings. He found a company that reformatted all the papers that I had received in numerous formats. This was a precious help and I believe the readers will appreciate it.

The Future

The ICCF12, as has been decided, will be held in Japan, and the following one in Russia. This is good news because both the countries are very active in the field. After ICCF10, the International Society for Condensed Matter Nuclear Science was created, and helped us to organize the conference. In the future, this society is likely to play a major role in organizing international events.

My feeling is that we have now entered a new era, and that the various effects of CMNS will revolutionize science and technology in the near future.

Acknowledgements

First of all, I would like to thank Jed Rothwell who has put in tremendous work by improving the quality of the papers. English has become the international language for science. However, more than two-thirds of the contributions were made by people coming from non-English-speaking countries. Jed read them all and did his best to understand their contents. Especially, difficult papers were theoretical papers. All my thanks to Vittorio Violante as well from ENEA Frascatti, who co-chaired the conference. I am also grateful to the scientific committee who trusted me and helped me in making decisions. This is also a good place to recognize the role of the sponsors: Infinite Energy, the City of Marseilles, the Département des Bouches du Rhône, the University who financially helped and made this conference a success. Finally, I am very proud of the help of my two elder children, Mélanie and Gabriel without whom this conference would have been a disaster. They worked day and night to the satisfaction of all the attendees.

Dr. Jean-Paul Biberian,
Chairman, ICCF11,
Marseilles, October 2005

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