# Dr. John O'M. Bockris 1923 - 2013

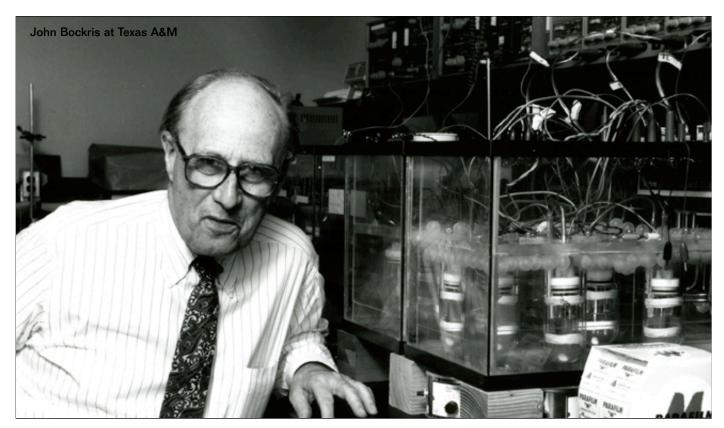
Our friend and esteemed colleague, Professor John O'M. Bockris, passed away on July 7 at the age of 90 after a period of failing health. He continued to work and communicate with colleagues in the cold fusion, transmutation, electrochemistry and chemistry fields until the end (including a thoughtful letter we just published in #110).

Dr. Eugene Mallove in *IE* #32 ("The Triumph of Alchemy: Professor John Bockris and the Transmutation Crisis at Texas A&M," online at http://www.infinite-energy.com/images/pdfs/MalloveIE32.pdf) wrote that Bockris was "one of the top two or three electrochemists of the 20<sup>th</sup> century. He must be counted as a lineal intellectual descendant of one of the greatest scientists of all time, Michael Faraday. . .Bockris and his student protégés pioneered many of the current directions in electrochemistry."

Bernhardt Patrick John O'Mara Bockris was born January 5, 1923 in Johannesburg, South Africa. He attended schools in Brighton, England. He received a B.Sc. from Brighton Technical College and went on to earn his Ph.D. ("Electrochemistry of Non-Aqueous Solutions") in 1945 from Imperial College of Science and Technology, considered "England's MIT." The University of London awarded Bockris a D.Sc. in 1952; this is only awarded to people who have at least 50 publications and Bockris had more than 60 publications by 1952.

Bockris was on the faculty at Imperial College from 1945 to 1953, where he was an influence on science greats such as Roger Parsons, Brian Conway and Martin Fleischmann. He was professor of chemistry at the University of Pennsylvania from 1953 to 1972. At Flinders University of South Australia he was professor of physical science from 1972 to 1978. Dr. Michael McKubre honored Bockris at ICCF17 in 2012 with the Preparata Medal (http://www.infinite-energy.com/images/pdfs/BockrisMedal.pdf), noting, "One of the first names I encountered [in electrochemistry] was that of Professor John Bockris, and his books, papers and teachings have guided me ever since—probably more than any other."

Bockris was a distinguished professor of chemistry at Texas A&M University from 1979 until his retirement in 1997. In 1989, Bockris and his research group (which numbered as many as 16 people, working 24 hours a day to start) began work on cold fusion. The Texas A&M saga is covered in-depth in the *IE* #32 story mentioned above, in which Mallove related the "story of the scientific and personal courage of a great scientist under the most withering and unfair attack against the free experimental investigation of nature." Cold fusion work led Bockris into transmutation and he organized two symposia on transmutation, the first at Texas A&M in 1995 and the second held off-campus in 1996 at a local hotel after the university refused to allow the



meeting on campus. Bockris chronicled his experience at Texas A&M in two papers: "The History of the Discovery of Transmutation at Texas A&M University" (ICCF11, 2004, http://www.lenr-canr.org/acrobat/BockrisJthehistory.pdf) and "Early Contributions from Workers at Texas A&M University to (So-Called) Low Energy Nuclear Reactions" (Journal of New Energy, Vol. 4, #2, 1999). New Energy Times has archived some of the key documents related to Bockris' fight at Texas A&M: http://newenergytimes.com/v2/sr/taubesfabrication/taubesfabrication.shtml

In Accountability in Research (Vol. 8, 2000), Bockris summed up ("Accountability and Academic Freedom: The Battle Concerning Research on Cold Fusion at Texas A&M University") his approach to research efforts: "Historically, big discoveries have been made by following up experiments anomalous to the theory of the time. At a first class research university, the aim of the professors in the sciences. . .should not be primarily to perfect the knowledge of the time by the publication of papers consistent with the known theory, but to carry out researches which have the aim of finding anomalies in the existing paradigm." He continued: "At present the attitude towards paradigm-inconsistent findings is automatically to reject them, with anger, insisting that they are due to sloppy experiments of fraud. That is dangerous, for it may keep alive a horse which should be led out to pasture. Science is a changing, developing body. The key to progress is to find experimental anomalies to the present view and investigate them. . ."

Bockris authored/co-authored over 700 papers and 24 books in the areas of physical electrochemistry, environmental chemistry, photoelectrochemistry, bioelectrochemistry, quantum electrochemistry and condensed matter nuclear reactions ("cold fusion"). Bockris was interested in the use of hydrogen as a pure fuel and is credited with coining the phrase "the hydrogen economy."

In addition to the Preparata Medal, Bockris has received numerous other awards, including: University of Louvain Medaile D'Honour (1951), Australian Chemical Society Breyer-Gutmann Medal (1975), London Chemical Society Faraday Medal (1979), Swedish Academy Chemical Lecture Award (1979), American Chemical Society Development of Modern Fuels Award (1982), Euro-Solar Society Award for Development of the Hydrogen Economy (1982), Electrochemical Society Teaching Award (1985), International Society for Hydrogen Energy Jules Verne Medal (2000).

The New Energy Foundation, in partnership with Bockris' family, has set up the Bockris New Paradigm Fund. Donations can be made to the Foundation in Bockris' memory to help us reprint his most recent book, *The New Paradigm: A Confrontation Between Physics and the Paranormal Phenomena* (2005, currently out of print). Contributions can be sent to: New Energy Foundation, P.O. Box 2816, Concord, NH 03302-2816

Bockris is survived by a daughter, Anna Bockris of San Francisco, California and a son, Victor Bockris of Gainesville, Florida. A memorial service was held on September 7 at Forest Meadows Funeral Home Chapel in Gainesville, Florida.

Professor Bockris had a tremendous impact on the lives and careers of so many scientists who are also in open-minded pursuit of scientific advances. Many of his students and colleagues fondly remember his impact on their lives in the memorials that follow.

## — Dr. Michael McKubre —

The news of John's passing came to me in the middle of the Cook Strait in New Zealand crossing between the South and North Islands, within sight of the place where John first stormed into my life and changed it forever-Victoria University of Wellington where four decades earlier I was a Masters student to one of John's first Ph.D.'s, John Tomlinson. I took my Ph.D. with John T, and J. O'M. B was a frequent visitor. On one occasion Professor Bockris gave the most impressive display of intellectuality I have ever witnessed. Conducting a lecture on no set topic to the mixed Chemistry Department, answering questions on any subject, he fielded perhaps a dozen questions in an hour or more, dealing with each thoroughly using direct quotations and complete citations written out on the blackboard—all from memory. I was exceedingly impressed and somewhat awed as I was about to go to Southampton for my postdoc (studying with another J. O'M. protégé—now Sir Graham Hills). I wondered if they are all that good, how will I survive? They were not. There was only one John.

Apart from my father, no man has affected me more than John Bockris. At first through his approach to his discipline. Then via his books, papers and his immediate students. In the end, directly. John Bockris was the father of modern electrochemistry with emphasis on physical mechanisms rather than analysis. His contribution to cold fusion and participation in the triple discovery of tritium was vital to the establishment of the field as nuclear. John was fighting to have been the first to publish the observation of tritium via his student Nigel Packham. He was strenuous on this point. Chino Srinivasan presented him with evidence of priority at BARC although Chino was willing to let it go to John. Ed Storms and Carol Talcott did a beautiful job measuring tritium in electrochemical cells. Neither Ed nor Chino cares about individual priority. The key point is that the three studies were independent, without knowledge of the other: Bockris and Packham; Srinivasan and Iyengar; Talcott and Storms. On another front John was attacking "cold fusion." We had argued to the point of his accepting the helium data and he well knew that what had been discovered was of nuclear origin, but he had not accepted fusion. It was not that "fusion" was Martin's word (or wasn't) but that it was

I was engaged in an increasingly spirited discussion with John by email for the last year or more. I was glad to be able to help him, but in some ways it was time to end. He was always the leader and would fight for that right until his last day. The world will miss this man. He had big ideas. His Hydrogen Economy predated the present anthropomorphic  $\mathrm{CO}_2$  preoccupation by 30 years. He saw what could be coming and attempted to do something about it by the only means he knew and the only way possible, intellectually.

## — Dr. Mahadeva Srinivasan —

I first met Prof. John Bockris during ICCF1 in March 1990 at Salt Lake City where both of us presented results of observation of tritium in Pd-D systems. Naturally we became good friends. He invited me to visit him at Texas A&M University (TAMU) in College Station. I made it a point to drop in at TAMU whenever I traveled to the U.S. until both of us retired in 1997. On his invitation one of our BARC colleagues, Dr. R. Sundaresan, an electrochemist, joined the TAMU cold

fusion team during 1992-94.

Bockris and I had this long-standing but friendly dispute as to who reported/published tritium results first. Dr. McKubre alluded to this above. The BARC tritium work was first reported at a meeting in Karlsruhe in July 1989; but Dr. Bockris insisted that it is not a peer-reviewed publication. His most recent observations were made just before his death. On May 28, he wrote: "Thanks for your note about tritium. Our first publication in tritium was N.J.C. Packham, K.L. Wolf, J.C. Wass, R.C. Kainthla and J.O'M. Bockris, Journal of Electroanalytical Chemistry, 170, 1989, 46. Now we did not come to the meeting in Germany that your man came to and so you had the first presentation of a nuclear reaction in aqueous solution but we had the first publication and our publication went through two returns to the referees before it was accepted so it was carefully looked at. Now, if you are interested in this kind of thing of who was first in various things, I think that in the normal understandings of the word our paper was the first published paper in a refereed journal. However, I wrote a paper with the former editor of *Infinite Energy* and we looked into all the previous publi-

cations which in a way had claims to be considered. . .I am happy to retire on the basis of being the first to have an identified nuclear reaction in the cold, published. The one by Fleischmann and Pons was never identified, you know, at least not in anything published, though I think that Fleischmann always would say later on that really it was the so-called first reaction, which I now dispute as having involved fusion at all."

BARC got involved in "carbon arc under water" experiments following a 1991 talk at BARC given by Dr. Roberto Monti of Italy. Actually Dr. Mahavir Singh of the Spectroscopy Division of BARC challenged Monti and set up the experiment to disprove Monti's claim that iron can be detected in the arc debris. But surprisingly the BARC group

too observed iron. Bockris heard about this through Dr. Sundaresan, who was doing a post doctoral at TAMU at that time, and asked Sundaresan to replicate the experiment. I remember during this period Bockris called me almost every day to exchange info, especially the experimental conditions required for successful observation of Fe. Eventually both the BARC results and TAMU papers on the carbon arc studies were simultaneously peer-reviewed and published in the October 1994 issue of *Fusion Technology*, with editor George Miley writing a special editorial for these two papers alone.

During the summer of 1992 I was traveling in the U.S. and took the opportunity to visit many of my cold fusion friends. Everywhere I went I heard that somebody in the U.S. had succeeded in making gold in an alchemical experiment, but they refused to divulge who it was or where it was done. Eventually I landed at College Station and during the lab visit was surprised to see my old friend Roberto Monti engaged in some experiments! On enquiring as to what he was doing at TAMU, he called me aside and said in a hush hush voice that they were making gold from mercury, that he was telling me because I was his good friend but I was not

supposed to talk about it to anyone else! That night I was invited to Bockris' home for dinner where Bockris himself revealed they were making gold. In fact, he said he had been called for a top level meeting at the Office of Naval Research (ONR) in Washington, D.C. on the following Monday to review these developments. When I bumped into Bockris later that year at the Nagoya meeting (ICCF3), I asked him what transpired at that ONR meeting, for which his answer was that he indeed traveled to D.C. but on the morning of the meeting he was informed that the meeting was called off without any reason given.

Very few people are aware of Bockris' interest in paranormal phenomena. He started collecting references and articles pertaining to all such phenomena after retirement and decided to write a book about it—*The New Paradigm: A Confrontation Between Physics and the Paranormal Phenomena*. In the Preface he states: "One must retire to something and I looked for something to work upon. The phenomena of telepathy, far-viewing and precognition came to my attention. The more I read and discussed widely with colleagues the more I saw a deepening discrepancy between the stan-

dard model of physics and the studies which were being published mostly under a rigor of scientific conditions which exceeded those in research in physics. . .We need a new paradigm to make the new results acceptable."

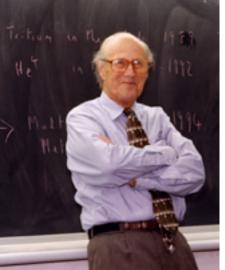
His 500 page long book, published in early 2005, is a very comprehensive collection of many phenomena which fall outside the domain of mainstream science. He was approaching the age of 80 when he completed this monumental work. Hats off to his tenacity! He sent me an early draft version of the contents of the book for my comments, as he was aware of my interest in such topics. In fact, he included a few pages from one of my articles (see *IE* #36).

In his Foreword to *The New Paradigm*, Dr. Larry Dossey wrote: "The decisions

scientists make about what is acceptable to investigate and what is not will shape our destiny for centuries, and may even determine the fate of humankind and our planet. To Professor John O'M Bockris and his courageous defense of the free pursuit of knowledge I bow deeply." I am sure readers of *IE* will join me in wholeheartedly endorsing this homage to an intellectual giant of the 20<sup>th</sup> century.

# — Dr. Melvin Miles —

Professor John Bockris was not only a great electrochemist and an author of important books and many publications, but he was also one of the main players in the early days of cold fusion. His early reports of tritium production in his electrochemical cells helped to inspire me to continue my cold fusion research when my first six months of research at the China Lake Navy laboratory in 1989 failed to produce any evidence of excess heat in my calorimeters. I have always admired Bockris' courage in the face of many critics such as the science writer, Gary Taubes, and even his own fellow faculty members at Texas A&M. I remember Professor Bockris well from all the early ICCF meetings at Salt Lake



City, Como, Nagoya and Maui. His work and publications in this field stand as a credit for the cold fusion community.

Professor Bockris has kept me busy the past several years with many emails and even large packages about helium. This has led to our extended debate about helium-4 formation in cold fusion experiments where Bockris has recently proposed possible measurement errors. Professor Bockris announced late in 2012 regarding helium that he would "have it out with Miles in 2013," and I now have a new folder almost two inches thick of our emails and related articles just for this year alone. I have to admit that I sometimes got too frustrated, and now wish that I had been more patient in these exchanges, but I had no idea that he would pass away this soon. Because of his vigorous writings, I thought that he was on the path to live to be 100.

Some of his emails this year did lead to some interesting ideas, such as prompting me to do some calculations on the thermodynamics and Eyring rate calculations for the D + D = He-4 fusion reaction. I may write a short paper on this that I would dedicate to Professor Bockris. I am saddened by this loss, and I will miss our exchanges.

## — Dennis Letts —

My earliest contact with John Bockris (or Dr. B as he was known around Texas A&M) was in the form of a letter dated February 24, 1992. I had sent him an informal paper on my early results with RF stimulation and his response letter contained many thought-provoking questions and six items under the heading of "things to consider."

Item No. 4 was "Dirty solutions work, not clean ones."

This single phrase stood out for me and I have kept it in mind for two decades. Since 1992 I have produced 752 cold fusion cells and the ones that worked have always been "dirty" with dark cathode surfaces. I have become known for laser stimulation methods and I must say that I have never observed laser-stimulated excess power from a shiny, clean cathode.

Such was the genius of John Bockris to make a prediction that would hold for 21 years with just six words.

The last time I saw Dr. B was over lunch at his home in College Station, Texas—a short while before John and Lily moved to Florida. I knew this would be the last time I would see Bockris. That was July 10, 2004.

I had the privilege of co-authoring my first cold fusion conference paper with Bockris and his group, which he presented at ICCF4 in 1993.

My early work on RF triggering was reported to the field for the first time by Bockris and marked my entry into the field of cold fusion/LENR.

I continue to use his two volume work *Modern Electrochemistry* as a primary reference, being constantly reminded of his standing as a giant in the fields of electrochemistry and cold fusion.

## — Dr. T. Nejat Veziroglu —

John O'Mara Bockris was the first person to call the hydrogen energy system "Hydrogen Economy" in a paper entitled "The Hydrogen Economy: An Ultimate Economy?" co-authored with John Appleby and published in *Environment This Month* in 1972. I thought it was an excellent way of describing the hydrogen energy system, since energy is the locomotive of economy. Consequently, when I

was planning the first international conference on hydrogen energy in 1973, I named it The Hydrogen Economy Miami Energy (THEME) Conference, which was held on March 18-19, 1974 in Miami Beach, Florida. I invited John and a few others working on hydrogen energy as invited lecturers to the conference. Personally, I met John for the first time at this conference. Although we had the same alma mater, the Imperial College London, and we were there at the same time in 1940s, we never met there, as John was studying electrochemistry at the Royal College of Science and I was studying mechanical engineering at the City & Guilds College.

At the THEME Conference, together with nine other hydrogen energy enthusiasts and/or scientists, John and I met at the penthouse of the Playboy Plaza hotel in Miami Beach, where the THEME Conference was being held, on the evening of Monday, March 18, 1974. At the meeting, there was a passionate, yet deliberate debate. It was agreed that the hydrogen energy system was an idea whose time had arrived. It was the permanent solution to the depletion of fossil fuels. It was the permanent solution to global environmental problems. Then, the discussion turned to whether there was a need for a formal organization. John and Anibal Martinez (incidentally the one who took part in establishing the petroleum cartel OPEC) urged the founding of a society dedicated to crusade for the establishment of the inevitable and universal energy system, the hydrogen energy system. It was ironic that Anibal was proposing the establishment of an organization that would make OPEC obsolete. As a result of the meeting, the International Association for Hydrogen Energy (IAHE) was established by the end of the year 1974. All those who participated at the penthouse meeting formed the first Board of Directors of IAHE, and I was elected the President.

After the THEME Conference, John and I became very close friends. We had the same aim—to establish the hydrogen economy throughout the world. We co-authored a book entitled *Solar Hydrogen Energy: The Power to Save the Earth*, and three papers: "A Solar-Hydrogen Economy for U.S.A.," "A Solar-Hydrogen Energy System for Environmental Capability" and "Estimates of the Price of Hydrogen as a Medium for Wind and Solar Sources." In 1986, John and I testified to the Energy and Environment Committee of the Congress in Washington, D.C., about the advantages of the hydrogen energy system.

John served on the IAHE Board of Directors until 2000, when he received the Emeritus Board Director status. He has promoted awareness of hydrogen energy amongst scientists, engineers and laymen through hundreds of publications and lecture presentations around the world. The hydrogen energy community mourns the loss of John O'M. Bockris. We offer our sincere condolences to his surviving family members and friends.

# — Dr. John Dash —

In 1972 I took sabbatical leave from Portland State University. John Bockris expressed an interest in my research on the effects of magnetic fields on electrolysis, and he invited me to spend my leave working with him at Flinders University of South Australia. The research was fruitful, so John suggested that I take the research to Australian National Laboratory, which had a much better electromag-

net. Unfortunately, my wife had a troubled pregnancy, so I had to return to the U.S. We did not meet again until 1993 when I presented our LENR results at ICCF4. He was delighted to know that we and others were finding anomalous elements in our experiments. These results supported his results that transmutation is possible.

John had a huge capacity for research, and he inspired others to at least try to follow his example. One of his students co-authored two books with John. It is not likely that the community of scientists will ever find another John Bockris.

## — Professor Akito Takahashi —

Professor John Bockris' passing is really sad news. Even though the lifetime of human beings is limited, around 100, we shall miss the great mind of this scientist.

Bockris was a well-respected leader in electrochemistry for many decades. For me he was one of the most respectful and brave pioneers in CMNS/CF research since the day of the 1989 Fleischmann-Pons announcement. Personally, I visited his laboratory at Texas A&M University (TAMU) twice and had the honor of staying at his home for two nights.

I was greatly impressed with his target-hitting intuition in experiments and explanations of cold fusion and transmutation experiments.

After his retirement from TAMU and move to Florida, Bockris has continued to elucidate the "secrets" of cold fusion claims and mechanisms by sending his letters of questions and assertions to well-known leading CMNS researchers. It is with regret that I could not properly give him my view as a nuclear physicist and convince him of the nuclear mechanisms in cold fusion.

I am still reading the thick textbook *Modern Electrochemistry*, which he kindly gifted me last year. May we all continue in the spirit of this scientific pioneer, but in our own way.

## — Dr. George Miley —

I had heard of John's international reputation for research in electrochemistry but had never met him until one of the early ICCF meetings. I introduced myself and told him about some of the transmutation experiments I was working on. Not only was he interested but he responded saying he had found some similar results. He wanted to get my views as a nuclear physicist. This discussion led to a series of email exchanges and an invitation to attend the second LENR meeting he was planning at Texas A&M. He was forced to hold the meeting off campus, but it was an excellent experience and John added much information to the discussion panels. What I really appreciated about John was his inquisitive and open mind about research. That is not to say that he would accept any new results without looking into them very deeply. That is one of his positive attributes that unfortunately got him into trouble at A&M. The review committee set up to investigate his student accused (without any proof) of spiking samples with tritium was a very unfortunate event. Along with a number of others, I sent a letter to this committee defending John and suggesting the investigation should be cancelled. After John retired, he still sent me periodic emails about his thoughts on LENR plus asking me about my views on nuclear physics issues related to LENR theories. He was actively thinking about LENR until his last days! The field has lost one of its greats. He will be missed by all.

## - Dr. Edmund Storms -

John Bockris was destined to get involved in the cold fusion controversy because he loved new ideas, especially ones outside of normal beliefs. Anyone willing to explore after-death experiences and mental telepathy would find cold fusion entirely to their liking. Besides, John had the advantage of being an expert using electrolysis and having Martin Fleischmann as a friend. He jumped in before anyone else and quickly made tritium by using electrolysis of D<sub>2</sub>O. Then the problems started. Gary Taubes accused his student of adding tritium to the cell, an accusation proven false after investigation. His life was made even more unpleasant when a professor at Texas A&M took a pathological dislike to the claim and worked hard to discredit John. Many of his friends turned their backs on him and he became an outcast at the university, yet he continued to contribute understanding and insights. His experience demonstrated the fragile nature of academic freedom at some universities and the courage many people need to investigate a phenomenon as important and controversial as cold fusion. John was a rare, gifted and creative spirit we all will miss.

## — Dr. Jean-Paul Biberian —

I knew John Bockris only from reputation. I was aware of the very good work he had done in the measurement of tritium during electrolysis of heavy water with palladium electrodes. That was an important contribution to the field. However, I met John Bockris only once, at the ICCF11 conference in Marseilles in 2004. In December 2010, John Bockris sent me an email stating that after ten years he was back on the subject of cold fusion. He ended his email with good words for me: "I have known your work quite well for many years and wanted to show you my appreciation of it." I did appreciate this, knowing the scientific quality of the person. Later on, he sent me papers for publication in the *Journal of Condensed Matter Nuclear Science*, and I could see that in spite of his age, he was still very concerned with the field. I will miss him.

## — Dr. Fernando Zinola —

Our Mighty Professor has passed away. There are no words to describe my feelings. The pioneering work of Prof. Bockris is in my mind. Thus, the only thing to do is to make other scientists interested in electrochemistry since there is still a lot of work ahead.

Four years ago, I edited and published *Three Aspects of Electrocatalysis: Computational, Experimental and Industrial* (CRC Press, 2010). Prof. Bockris wrote Chapter 1, "About Electrocatalysis Until 2000." In this book four main electrochemical processes (hydrogen production, oxygen electrochemistry, chlorine production and electroplating) are reviewed and updated from the electrochemical engineering point of view. After working with Prof. Bockris on the book, we began discussing the Marcus theory as well.

Dr. George Miley's book *Life at the Center of the Energy Crisis* (World Scientific) has just been released. Issue #112 will feature an interview with Miley and a review of the book.