



John "Alf" Thompson 1954 - 2010

John Alfred Thompson, one of many cold fusion researchers who worked behind the scenes and kept a fairly low profile, passed away suddenly on November 16, 2010 at the age of 56.

Alf, as he was commonly known, was born in Nassau, Bahamas on September 30, 1954. He received undergraduate and graduate degrees in engineering from the University of Miami.

Much of Alf's life revolved around the wonders of the Bahamian waters: boating, fishing and diving. For many years, he and wife Barbara operated Bahamas Marine Farms, the first successful fish farm on the islands. They had three children, John, Sarah and Stefan.

Alf and his partner Angela Darville split their time between homes in Nassau and Eleuthera, but he was known to travel the world to cold fusion conferences.

Alf spent the latter part of his life working in various scientific fields, with a main focus on cold fusion. As a result of an accident in a cold fusion lab, he and the late Dr. James Patterson discovered a revolutionary blood clotting powder. Biolife, LLC has sold over five million applications of the solution in the U.S.

His many friends knew Alf as a witty, personable man. Stephen Claridge describes Alf perfectly: "He was a library of knowledge, but a humble teacher to all. His thirst for scientific adventure led him to a search for the Holy Grail of experimentation. Each test that failed was one step closer to success."

Alf worked closely with a number of cold fusion researchers. He was an open-minded, inquisitive soul who enjoyed the rigors of cold fusion experimentation. One of his most recent collaborations was with Dr. Mitchell Swartz, who provided the following detailed account of some of Alf's most recent endeavors in cold fusion:

Alf successfully pushed the boundary of scientific knowledge forward by sterling scientific effort. His absence has left a hole in place of his steady contributions to our already dwindling field.

His colleagues in biomedicine and alternative energy recognized that Alf's quiet and unassuming manner was the veneer to his outstanding charm, grace and intelligence. Alf's work, contributions and creative ideas have been significant in both the LANR/CF field and in biomedicine.

One of Alf's contributions was his observation of radioactivity-count changes in his very novel system, composed of diatomaceous nanoparticles containing palladium, radium, and loaded with an isotope of hydrogen as gas, and an electrical current, during his experiments. As a result of the full procedure, there

followed a decrease in the radioactive count-rate over several hours. This decrease of a few percent was followed by a partial return of counter-detected activity over several hours to days. Alf meticulously worked in his laboratory to determine the etiology, especially the differential result of adding the hydrogen isotopes to discern if there was an CF/LANR-induced impact. Alf conducted his material science studies over years in collaboration with Charlie Entenmann, and then shared it with us, and Nie Luo, and George Miley at the University of Illinois.

Alf shared data that showed the presence of a possible optimal operating point, and to further develop the mathematical model which Alf and I were working on to help deconvolve this complex problem associated with his discovery. My examination of the data revealed diligent laboratory effort over thousands of hours of experiments, where Alf slowly but tirelessly collected data. As a result, Alf was invited and came to the Massachusetts Institute of Technology to present his work on the "Investigation of Radioactive Material Inactivation" at the 2009 Colloquium on CF/LANR at MIT. It was the first time he shared his important experimental effort publicly.

Alf worked on the developing theory of what was actually going on in his samples. We developed an impulse response model based upon the different penetration ability of the ionizing radiation (X-rays) released by the daughter products of radium. Then, with the additional dedicated help of Nie Luo and George Miley, Alf's observations in his long-running series of experiments were confirmed at that location. Those studies have also begun to help determine the relative contributions of the observed radioactive decay rates from the chemical environment and the temperature-related distribution between radium daughter products. A paper "The Apparent Change of Radioactivity with Temperature in a Radium-226 Decay Chain" was in the final stages of being written when Alf died. Separation of the role of thermal loss from possible transmutation is now ongoing, having been led there only by Alf's efforts.

The impact of Alf's findings will have important implications to the study of radioactive dating in archeology, chemistry, and to cold fusion and solid state condensed matter nuclear reactions.

Alf's tireless effort, willingness to learn and explore, and general humanity will be greatly missed. Donations in memory of John Alfred Thompson can be made to the Bahamas Marine EcoCentre (formerly The Danguillecourt Project, www.tropicbirds.org), a non-profit dedicated to celebrating the Bahamian environment through education, research and art: Bahamas Marine EcoCentre, P.O. Box SS-6206, Nassau, Paradise Island, Bahamas.



In Memory of John “Alf” Thompson

***George H. Miley, with Charles Entenmann
February 2, 2011***

The unexpected passing of John “Alf” Thompson was a great loss to his family, friends and scientific colleagues, including members of the Condensed Matter Nuclear Science (CMNS, aka “cold fusion”) community. I am sure I speak for all of these people when I extend to his family and relations our deepest sorrow and belief that Alf made a positive difference in this world. He had a lifelong quest to preserve our environment and to develop cold fusion to provide plentiful power for future generations. I first encountered Alf as a scientist, but soon learned he was a truly wonderful human being, dedicated to helping others and continuously working for and hoping for a sustainable society.

I began writing this note about Alf on December 4, 2010 on a plane departing from the Miami International Airport. I had just connected there on a flight from Chicago during a long planned trip to Aruba. This is only weeks after Alf’s totally unexpected death. I had intended to write something to honor Alf’s life earlier, but was overwhelmed with other obligations. However, I am glad that fate caused me to start when I did. As I sat in the Miami airport waiting for my connection, memories of my very first meeting with Alf flashed through my mind. It was in this very airport, maybe the same waiting area, that we happened to meet by chance. I had organized a special session on cold fusion for the American Nuclear Society meeting held that year in Hollywood, Florida and I was waiting for a flight home. Alf came up and introduced himself. He had attended the ANS session and was flying back to his home in Nassau. Alf explained he was trying to do some cold fusion experiments in collaboration with his good friend Jim Patterson and his father-in-law, Charles Entenmann. Charles had made his mark with the famous Entenmann Bakery Company, but was retired and enjoyed working on scientific projects such as cold fusion. Jim was a retired chemist from Dow Chemical Company with many patents, especially pertaining to manufacture and use of small (micron size) plastic beads. Among other things, these beads were widely used commercially in bulk quantity as a sterile “talcum powder” for such things as enabling surgeons to easily slip tight fitting gloves on for operations. Other uses involved electrochemistry and a variation of that became the basis for the famous “Patterson (cold fusion) power cell.” Jim “Doc” Patterson’s invention of this power cell arose somewhat accidentally. He worked on a storage container for hydrogen during the “fuel shortage” in the 1970s, noticing that the nickel and palladium covered plastic beads were always warmer than they should have been. Only

later did he realize that what he had seen was not an error, but something else was going on. Jim teamed with his grandson, Jim Reding, a graduate from the University of Texas business school, to form CETI, a company located in a small building near Jim’s home in Sarasota, Florida. The objective of CETI was to commercialize the Patterson power cell. Alf was closely associated with Jim and CETI, doing auxiliary experiments in a welding shop in Nassau and also frequently flying over to Florida to help out there. Charles Entenmann, who was fascinated with the science of fusion, was also frequently involved in these experiments. The three, Jim, Charles and Alf, formed a real team effort. They frequently met to plan next steps in the experiments and hold forth an ongoing discussion of the interpretation of recent data. They also attached a number of talented (such as Dennis Cravens and Dennis Letts) scientists as consultants to CETI. This group came together periodically to provide advice and also plan auxiliary experiments in their labs. The CETI power cell was a remarkable unit but still required much R&D before it could be commercialized. Jim did obtain some support from a hot water heater company to develop it for that purpose. However, traditional gas-fired heater designs have been used for many years and would be hard to displace. Also, revisions to the Patterson cell were required to fit this task, so that effort dragged out, without significant financial income. Thus to raise more money to support their cold fusion research, Jim, Charles and Alf decided they should form another near-term, money making company. They considered a number of possible directions that this new company might take. One was a new method to separate tritium from ground water based on one of Jim’s old electrochemical patents. This was a hot topic then, especially at Brookhaven National Laboratory on Long Island, New York, where the lab faced fines and lawsuits due to detection of tritium leaking into soil around their research fission reactor facility. The tritium problem was huge—almost every nuclear lab site or power plant was in trouble, but it turned out that DOE (in its wisdom) decided that since the half-life was “only” 12.5 years for tritium, then they could simply wait until it went away. It probably would take 25 years for them to decide what to do anyhow!

The group founded a company, Biolife, to manufacture and market products. In their search for a product or process to sell (to raise money for cold fusion research) we were working on Alf’s process for producing ferrate. Ferrate was known for years as an oxidizing agent (stronger than chlorine) but very hard and expensive to produce. Alf invented and patented his

process that produced inexpensive K_2FeO_4 -50% concentration. While 50% concentration was not enough for some uses, it was fine for water treatment. We were looking for a market for it in the “hard to treat waste water” field—such as removing cyanide from the water used in “heap leaching” gold extraction and other hard to remove trace pollutants. The thought was that ferrate could do more than chlorine for water treatment. But still, it didn’t cost more! One day, while working at the lab, Doc Patterson cut his hand by accident. Since he was on blood thinners, he knew he would be bleeding all day and might need medical attention to stop it. But, his hands were covered with the ferrate he was using. It got into his wound and stung terribly. (When K_2FeO_4 gets wet, KOH is one of the products. This is very caustic and causes stinging.) But, Doc noticed that the bleeding stopped right away. Alf and Charlie also heard about this and they all wondered what had happened; they realized it offered amazing clotting properties. When things settled down, they began to strategize about making the material for use on cuts and wounds (and maybe even make a few bucks). But it stung too much! Alf and Doc looked into what made it sting, then they realized it was the very high PH of the KOH. So they looked for and found a hydrophilic polymer Doc had worked on, which was a source of hydrogen when wet. So, they mixed up batch after batch of hydrophilic polymer and potassium iron oxyacid salt (ferrate). This worked well and did not sting, since the PH was near neutral when wet. Alf was the test bed for the blood clotting tests we made in the lab. His leg was a mess of dermal cuts and blood clots. Until the right ration of ingredients were found. The products is now in use and available in some Walgreen’s drugstores. It is called “Woundseal.” Many doctors and hospitals use it as well.

Alf assumed a major role in Biolife, frequently flying over to Saratoga, Florida to work on the powder manufacturing process. He would often make batches of power sufficient for several weeks use at Biolife and return home. As time progressed, Jim, who disliked administration work, withdrew from direct involvement in Biolife to return to his beloved lab to work on cold fusion. This left Alf and Charlie as the major founding directors at Biolife. Other business development and sales personnel were in place by this time and major orders developed, especially from athletic organizations (great for a quick fix of cuts suffered in sports games). All this time, Alf continued his part-time work on cold fusion in Nassau. He was in frequent contact with me and others via email, describing his experiments, discussing issues and significance of work by others, and raising questions. Also about this time, I spent a week with Jim, Charles and Alf at CETI in Sarasota, mainly working with Alf to evaluate a pulsed high-voltage electrolysis experiment he had developed. It was inspired by some of the high power electrolysis experiments reported by Tadahiko Mizuno where a glowing plasma region formed around the electrode. The focus of this work was measurement of “excess heat.” However, the time-dependent condi-

tions and issues of reproducibility (attributed to subtle differences in electrode materials) made dependable calorimetry very difficult. Alf obtained some excellent results the first few days, only to have them disappear in attempts to recreate conditions (unfortunately, an all too often experience in cold fusion research in those days). Alf persisted with these experiments and variations, both in Sarasota and Nassau, for many months. But eventually he moved on to a new direction. I am not entirely sure why. I will not attempt to discuss, nor do I fully know, the many cold fusion experiments Alf considered and/or tried. He was, in addition to searching for a high excess heat, very intrigued by transmutation reactions. This was often a major topic in our various discussions.

In addition to my several visits to Saratoga, which were timed so both Alf and Charles would be present, they visited my lab at the University of Illinois two times. Each time they came was in winter, and each visit was memorable in several ways. They were fascinated with my transmutation studies and in addition to encouragement, offered many comments and raised questions, which caused excitement among us all. And, in addition, during the first visit the University power plant suffered an extended outage and my whole building lost power for the first time this had happened in many years. We sat there trying to communicate in the cold dark room (plus take care of several interrupted experiments); finally, in frustration Alf suggested that we move back to their motel room for our discussions. Some way we managed to have a fruitful interchange there despite the lack of my favorite blackboard and chalk. Luckily they were still game to return again after that experience! That trip turned out to be in a snow blizzard fouling up air travel—something that again caught the attention of those guys from Florida and Nassau!

When Alf decided to use some radioactive material in one of his cells, he had to go to unusual sources for it. Since he had no permit to buy or transport it, there was no way to get some. But, being very resourceful (which he was), he and Charlie tramped thru an airplane junk yard in Miami with a Geiger counter. And sure enough we found some “hot” signals from a pile of cartons in a shed. They were fuel gauges from a World War II warplane in original packs—unused condition. So, Alf took several home, cleaned the paint off the dials, cleaned it to removed paint and had the radioactive radium he needed. They had been designed to “glow in the dark” for night flying. Only Alf would think of this. Alf had to be resourceful because he lived and worked in Nassau, Bahamas. There were no supply houses nearby so he made his own palladium chloride and other chemicals he needed out of recycled old “cells” or reprocessed household materials. He had been a commercial “fish farmer” for years in Nassau so he was a plumber, mechanic, electrician, diesel mechanic and farmer. He dealt with all things a farmer has to do, plus maintain an environment for the fish. So he was very resourceful. He sold the fish farm and devoted his time to “cold fusion” because he thought it was easier. Anyone can make a

mistake! But, to put the record straight, Alf wanted to give the world a sustainable energy source that was no mistake! It was a long, hard struggle for Alf and the rest of the group. Doc Patterson passed away a few years ago and moved to new quarters. Over all of this time, Alf had kept busy at the lab in Sarasota and in his home in Nassau. In spite of all he had to do, he was always ready to help his friends and neighbors at home. Everyone came to Alf when they needed help and he always gave all he had. In addition to his friends and neighbors, he did the same with scientific colleagues.

Alf had a real knack for keeping track of many interesting articles and developments on the web. Anyone on his email list frequently received notes with links to this information, which was typically very intriguing. Last year he sent one about “crop pictures.” These designs in a farm field, frequently the UK, were originally discredited as a “hoax” (not as a message from an alien or UFO). However, a group continuing study of more recent formations claims their origin cannot be explained coming from local farmers (or others) attempting to continue the “hoax.” I vaguely remembered the original discovery that some local farmers had created the picture, so thought this was nonsense. However, I looked at the web and found there were some fascinating sightings that had yet to be explained. I talked to Alf about this and found he was intrigued and had been studying this (via the web) for several years. He did not necessarily think aliens were the explanation, but agreed with the view that the explanation was not understood. I had just happened to hear Paul Davies, author of *Eerie Silence*, speak on Public Radio about his book. He reviewed the 50 years of SETI’s searching for a signal without a definitive result and suggested maybe other possible interactions, e.g. microbes, should be studied as well to determine their relationship, if any, to life from outer space. I asked him about crop pictures, but he said they were like UFOs, just hoaxes. But as I thought about it more, crop pictures are different from UFOs in that we have the technology, such as satellites, to definitely find out how they are being formed. Proponents claim several sightings a year in the UK and Europe cannot be explained as manmade! Alf and I discussed this and ended up, along with several others from my lab here in Illinois, submitting an abstract along those lines to the SPEIF 2011 space technology meeting where I am giving a talk on fusion propulsion. It went to a special SETI session there. The SETI people turned it down and would only say it was outside the area of coverage of their session. In fact they clearly did not want competition for money since after 50 years of trying they fear their supporters may be getting anxious! This irrational attitude seems reminiscent of the situation with cold fusion! Seems some scientists, like government bureaucrats, are closed minded when something new comes along. That was one thing that really distinguished Alf—he was always inquisitive and opened minded about scientific things. He attacked research in an unbiased scientific fashion—searching for the

truth! Thus, when Alf went to a cold fusion meeting and heard interesting new results, he always left wanting to think about how he could further investigate that approach, reproducing and often extending it.

Fast forward to Alf and my most recent collaboration. Last summer Alf began an email discussion of experiments he had been performing using a high-voltage electrolysis technique to shorten the half-life of radioactive radon. Alf had already obtained some encouraging results, but needed to add more high accuracy radiation measurement equipment to reduce error bars and present convincing results. He asked if I (plus my group) could help since radiation measurements were our field. I said “yes” but since I was tied up with other matters, I suggested that my colleague, Nie Luo, take the lead for us in this effort. Subsequently Nie visited Alf in Nassau for a week to review measurement protocol and plan the next steps. This was very successful. While Alf and Nie did the “hands on” work, Charles Entenmann, Mitchell Swartz and I provided thoughts about the data analysis and next steps. During recent months just prior to Alf’s death, we were working on a first journal article based on this work, with emphasis on its impact on geological dating technique and interpretation. We had decided the results were more relevant to that important field than power production by cold fusion. Alf was the lead author. Just the day before his death this group had exchanged an email about the first draft of the article. Alf was very proud of this work, but, characteristically, he wanted to do one more experiment to further clear up some points. We (Nie, Mitch, Charles and I) are now determined to finish this work and article in Alf’s honor. He would be so proud of that. We are proud of having had the opportunity to know and work with such a wonderful person. So, all of us (Charlie, Nie and myself) have lost our best friend and partner. The broader energy community has lost a wonderful scientist and human being. We hope some new young people have the vision and are inspired by Alf’s life to take up where he left off. There is still a lot to do!

[The paper, “The Apparent Change of Activity with Temperature in a ^{226}Ra Decay Chain,” by John Thompson *et al.* was published in March 2012 in the *Journal of Radioanalytical and Nuclear Chemistry* (Vol. 291, Issue 3, pp. 753-761), <http://link.springer.com/article/10.1007/s10967-011-1403-5>]