http://atomicinsights.com/making-art-with-radioactive-materials-in-memory-of-jame-acord/

Atomic energy technology, politics, and perceptions from a nuclear energy insider who served as a US nuclear submarine engineer officer

Making art with radioactive materials – In memory of James Acord

Rod Adams · January 29, 2012

An alternative title for this piece might be – Seeing the art that already exists in radioactive materials.

Until today, I had never heard of James Acord, a sculptor who devoted more than 20 years of his life to sustained efforts to create art from radioactive materials. The first part of that struggle involved 12 years and reams of paper that eventually became a part of an art exhibit as he followed the rules to obtain a radioactive materials license from the US Nuclear Regulatory Commission. The US NRC finally granted Acord a possession license; he celebrated that achievement by having the license number – WN-I0407-1 – tattooed on the back of his neck.

I regret having never met the man or heard of his efforts to help an expanding number of people understand the geometric symmetry and beauty that he saw in the materials used to create nuclear energy. It would have been fun to talk to someone else who recognizes the incredible material beauty and geometric structures that seem to be inherent parts of causing and controlling atomic chain reactions.

Acord's story is, on one level, a tragic one – he ended his own life in January 2011 at age 66 after a long struggle with schizophrenia. That disease could not have been helped by his frustrating struggles with government rules and by his focus on creating art that was personally, vice commercially pleasing.

Despite his tragic end and apparently lengthy periods of unhappiness, Acord was able to create some fascinating and haunting works of art. He spoke to interested audiences around the world and put together conferences for nuclear scientists and engineers to help them see the connection between material-focused sculpture and the work that they did every day.

In 2010, Acord gave an invited speech to The Influencers, an annual arts conference held in Barcelona, Spain. The conference focuses on visionary projects that explore the marriage of arts and activism. In that speech, he described his effort to become technically competent in nuclear engineering and nuclear science that was a part of his effort to be the first – and perhaps only individual to obtain a radioactive material handling license.

He talked about how the art of sculpture has always reflected the materials used by the society where the art was created. As participant in the Nuclear Age, he thought it was an important contribution to his art form to find a way to access and use nuclear materials in his artwork. He also talked about how inspired he was as he learned more about the beautiful pieces of material art inside nuclear reactors that few people ever see.

Towards the end of the speech, he dropped a bomb by stating that he had successfully produced plutonium, a material that is illegal for anyone to possess. He got a chuckle from the audience when he pointed out that this was the first time he had admitted that fact in public and that he had been careful to do it outside of the United States.

He then went on to describe the apparatus that he used and how he wanted to display his device as a work of creative art. (He mentioned the great care with which he shielded the device; from his description, it sounded like the shielding would have added to the beauty since it included thick leaded glass.)

His homemade device reminded me of the laboratory apparatus that Enrico Fermi used in the mid 1930s to determine the effect of neutron bombardment on a whole range of elements. Acord used smoke detectors, emeralds, paraffin and Fiestaware to accumulate essentially the same elements as Fermi's neutron generator.

Acord started his creation by attacking common smoke detectors with a rock. He extracted Am-251, which has a 432 year half life and decays by alpha emission, from several destroyed smoke detectors. He put the AM-241 onto a stand that focused the alpha particles into crushed emeralds, which contain a large amount of beryllium.

During a creative February in 1932, (almost exactly 80 years ago) James Chadwick used beryllium to prove the existence of neutrons, the key to atomic chain reactions and the philosophers stone that enables atomic alchemy.

Aside: The most common isotope of beryllium has atomic weight of 9 amu with a nucleus that includes 4 protons and 5 neutrons. When hit by an alpha particle (which is a helium nucleus with 2 protons and 2 neutrons) beryllium-9 has a reasonable probability of turning into carbon-12 (6 protons and 6 neutrons) plus an extra neutron. Since there were a total of 7 neutrons involved when the beryllium nuclei was hit with an alpha particle and C-12 only needs 6 neutrons, one is set free. You can see an animation of the reaction at CambridgePhysics.org. **End geeky aside.**

As Irène and Frédéric Joliot-Curie determined in early 1932, passing neutrons through paraffin slowed them down and gave them a higher probability of interacting with other nuclei.

In 1942, Glenn Seaborg discovered that neutrons can convert a predictable portion of uranium into plutonium. (Of course, another predictable portion will fission, releasing concentrated energy and additional gamma and neutron radiation.)

Acord obtained the necessary uranium for his plutonium production device by crushing FiestaWare plates and using the fact that uranium oxides are heavier than clay to separate the

uranium from the colored pottery. In his Influencers video, Acord describes his action as "panning" for uranium.

The purpose of Acord's creation was to demonstrate what he considered to be the illogical policy of shielding nuclear knowledge from public view. He also wanted to show how damaging it is to the development of nuclear energy applications that governments have put such tight restrictions on nuclear materials. As Acord pointed out, (incredibly expensive) efforts to keep nuclear knowledge from the public have not made the world a safer place.

The necessary information is freely available to anyone who really wants to use it to cause harm. Instead, obscuring nuclear knowledge prevents the public from making intelligent technology tradeoffs and providing useful input to atomic decision making.

The Influencers audience was suitably impressed by Acord's talk and asked penetrating questions that illustrate just how much work nuclear advocates need to do in our efforts to share our nuclear fascination with the rest of the world.

One questioner asked Acord if he was worried about his health as a result of handling radioactive materials. Acord answered by stating that sculpture is a risky occupation with frequent exposure to fine particles, welding vapors, asbestos, and other hazardous materials. He told the audience that he took sensible precautions to protect himself and his audience from the negative effects of radioactive material. He emphasized that it was just one of many risks of his normal occupation – and not all that high on his priority list.

Another asked if Acord was worried that revealing the specifics of his device might cause authorities to decide to remove smoke detectors from the market. Acord said he did not expect that to be the response. However, just imagine how many people might have an elevated risk of death if that was determined to be an appropriate response by radiophobic regulators.

I am happy to have spent a little time this weekend learning more about a man whose work may yet have a positive impact on the way that people approach and understand radiation, radioactive materials and nuclear technology.

Here are embedded videos of Acord's 2010 speech at The Influencers.

James Acord – The Influencers 2010 from The Influencers festival on Vimeo.

James Acord – The Influencers 2010 (2) from The Influencers festival on Vimeo.

James Acord – The Influencers 2010 (3) from The Influencers festival on Vimeo.

James Acord – The Influencers 2010 (4) from The Influencers festival on Vimeo.

Additional Reading

James Acord: Remembering the artist and his work

Ionactive: James L Acord – Nuclear Artist, my thoughts and memories

The Arts Catalyst: Atomic, London

The Monstrance and Me

Postscript: James Acord, Alchemist for the Nuclear Age

Categories: Atomic Advocacy, Irradiation, Nuclear Communications, Nuclear regulations, Radiation



About Rod Adams

Atomic energy expert with small nuclear plant operating and design experience. Financial, strategic, and political analyst. Former submarine Engineer Officer. Founder, Adams Atomic Engines, Inc. Host and producer, The Atomic Show Podcast. Resume available here. Please subscribe to the Atomic Show RSS feed.

12 Responses to "Making art with radioactive materials – In memory of James Acord"

Read below or add a comment...

1.  *DV82XL*

   January 29, 2012 at 6:30 PM

   I had never heard of him ether until he was mentioned in the last thread. His work is a legacy that has fallen to us to keep alive.

2.  *Daniel*

   January 29, 2012 at 8:22 PM

   This man's story deserves to be told and made into a movie. If he were alive, he would be sculpting in Fukushima right now.

   -  *Atomikrabbit*

     January 30, 2012 at 9:12 AM

     I agree. I'm sure he would appreciate these beautiful manifestations of the weak and electromagnetic forces:

     Radiation performance art: http://www.youtube.com/watch?v=Efgy1bV2aQo

     Celestial radiation performance art: http://www.youtube.com/watch?v=XbnOUDCCPew

3.  *Ioannes*

   January 29, 2012 at 10:29 PM

   The man was a schizophrenic who smashed smoke detectors to access radioactive Americium. God knows what else he did. He was a danger to himself and others. It's sad he died. But what he really needed wasn't being stroked as some sort of great artist (I have yet to see any modern art worthy of the legacy of Sistine Chapel or other true works of art). He needed to be sequestered in a mental health facility where he could have gotten the medical attention he needed so that his suicide could have been prevented.

   So sad that a mad man is held up as some sort of example. Under liberal Democracy murder is choice, filth is marriage and insanity is sane.

BTW, you'll just love my latest blog entry. Ha! Ha!

4.  *Ioannes*

   January 29, 2012 at 10:31 PM

   Ah yes, delete my comments. Don't publicize them. Democrat! Just like Robespierre.

   -  *Rod Adams*

     January 30, 2012 at 4:02 AM

     @Ioannes – always so pleasant of you to drop by.

5.  *Kelly*

   January 29, 2012 at 11:01 PM

   I have heard of him. I didn't realize that he had passed away. Thank you for this post, Rod.

6.  *Mark*

   January 30, 2012 at 2:12 AM

   Thanks for putting this post up on James Acord Rod. I would just add here now, in response to any current or future comments about his mental health etc, meeting someone is key (not just what you read). Having met him on a number of occasions, and shared

many conversations over several cups of coffee in Knightsbridge (London), he never once came over as anything other than totally fascinating and a true gentleman.

That said, he did have a struggle over in the UK (and elsewhere) getting time on machines (nuclear reactor / particle accelerator) in order to make a piece of art. He wanted to transmute Tc-99 to ruthenium-99 and make a sculpture with the resulting material. This was supposed to show, using art, the physics of transmutation and how one day this might be used to deal with radioactive waste. Many who had the keys to such sources of neutrons looked upon this as a non-justified (trivial?) use of technology. This is where many 'in the industry' felt that James Acord was dangerous and I know this frustrated him greatly.

7.  *Rick Maltese*

February 2, 2012 at 3:52 AM

I was amused by two comments he made. He said that when he was teaching Art to Nuclear engineers that they usually felt that their least talented children would wind up in the Arts. And also when he was looking for a gallery to show his self made plutonium that he was not very welcome. He said he was the Nuclear Industries worst nightmare. I can think of a few worse nightmares. But thanks Rod for posting them.

Have any of you seen the latest gimmicky novelty item being sold at fairs etc. that is a heating pad that is a plastic bag full of colored liquid and a coin shaped metal trigger that when squeezed causes the liquid to heat up and crystallize. The heat lasts for a couple of hours. To reuse them the solidified crystal needs to be heated in a microwave or boiling water and after cooling down they are ready to use again. Really fascinating. I was seeing some crossover to this discussion. Art and chemistry in this case. Functional, non-toxic pretty colored bags become heaters. I don't see the connection to nuclear yet but there is one there I just can't put my finger on it.

8.  *Daniel*

February 4, 2012 at 8:10 AM

Super Bowl ads. Wanna bet that either gas, oil or the unreliables may take a crack at it ?

Nuclear misses an opportunity. I am sure there is a way to think outside the box. Too bad we can’t pick James Acord’ brain on that. What a creative mind he had.

9.  *DMcB*

   April 12, 2012 at 12:26 PM

   I was so happy to read this. . I was the one to issue Jim his license and did several inspections of his place. He did indeed tatoo the license number we (the State of Washington) gave him. He was a joy to work with as you can tell by this article. I had lost track of him but heard he had died. I will share this with others who appreciated what he did. I am co-president of a local organization – The Society of Radioactive Women (we have a large men’s auxillary too) . we give an annual Award for Valor and he was the 5th recipient.

10.  *Malcolm*

    November 3, 2013 at 11:15 PM

    I knew Jim pretty well. More than one beer was exchanged. He taught me alot about granite carving,along side of some nuclear art.

    Reviewing some of his work as I watch Fukushima unfold.