

ART IN THE NUCLEAR AGE: WASTE INTO ART

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I walked into the nuclear age inadvertently, thinking of other things. Art, like science, is a pursuit of truth unfettered by practical considerations.

Of the fine arts, sculpture is clearly an art of technology. The creation of this art involves the selection of materials and processes (as well as artistic vision) and is buttressed upon technology. My use of nuclear technology in art came about through a traditional pursuit of sculpture. In searching for durable materials to withstand today's polluted outdoor environment, I arrived at granite (the most radioactive of the traditional sculpture materials) and the advanced metal alloys associated with the technology of the nuclear age.

Some twelve years ago, as an aesthetic consideration, I wished to use small amounts of uranium in my sculptures. After considering a variety of sources, I selected the uranium oxide in the glaze of certain ceramic tableware manufactured before the Manhattan Project. Safely containing this radioactive material in my sculptures became an issue of considerable interest.

On the one hand, colleagues were alarmed at my using radioactive material in art. Concerns ranged from safety to the environment to the dire consequences of glorifying nuclear materials. As it happened, my studio at that time was located in a "nuclear-free zone".

On the other hand, radiation control agencies expressed great concern about an artist using radioactive materials in sculpture. All work with radioactive material is regulated.

During this period, a colloquia grew from the sculptures. I discovered that the addition of the word "nuclear", even when joined to "art", provoked an intensity of debate more akin to medieval theology than to art or science. In 1989 I moved to Richland, WA, home of the Hanford Nuclear Reservation, and a community unlikely to become a "nuclear-free zone".

Until I moved to Richland, I had missed the whole point. What marks this as the nuclear age is not the adjunct advances in metallurgy and fabrication technology, but our understanding and control of nuclear process. The alteration of matter at the nuclear level, releasing the primal energy of the universe, the creation of new elements, this is the reality of the nuclear age. As with every entrance into a new age, this accomplishment has profoundly altered the human condition. And profound changes in the human condition are the stuff of art.

This compelling observation haunted me: how could the art of sculpture address nuclear process? The answer came in the spring of 1990 with the announcement that the Fast Flux Test Facility Reactor (FFTF) was to be made available to private users. The opportunity to use America's most advanced nuclear reactor for the creation of art was at hand.

With considerable help from the Eastern Washington Section of the American Nuclear Society, I submitted a proposal for the first fine art use of nuclear process. My idea is to transmute Technetium to Ruthenium via fast neutron capture in FFTF. The milligrams of non-radioactive ruthenium produced by this nuclear process will be incorporated in large works of sculpture created with granite and advanced metal alloys supplied by Siemens AG. This use of America's most advanced reactor, for the transmutation of a fission by-product into a stable metal, will accomplish a number of things in addition to the creation of art. It brings art and science together, demonstrates how the activities of the scientist and

the artist are related through creativity and gives symbol and metaphor to the nuclear age.

SUMMARY

For civilization to express itself in works of art (created with the most advanced process technology and from the wonder materials of the time) is a tradition three-hundred and fifty centuries old. Long before recorded history, sculptors created art which reflected and contributed to the values of the civilization that produced it. Today, the use of nuclear process for the creation of art is not only logical and inevitable, it may supply something necessary toward society's understanding and mastery of the nuclear age in which we live.

The pursuit of insight and truth through art and science is no mere impulse, but rather a fundamental instinct inseparable from the human condition. The insight and truths thus gained become our culture, which is the accumulation of art, science and technology that we refer to as civilization. In art, as well as science, the future is not someplace we are going, but one that we are creating. The paths are not found, but made. Now, at the advent of the nuclear age, I believe that creating art with nuclear process can help make that path, changing both the maker and the destination. As we send our culture (our technology and our selves) beyond the narrow plot of ground of a human lifetime, we should accompany it with art that embraces both our hallowed past and our bright future.

PRIMARY PROJECT

To use nuclear processes (transmutation) in the creation of sculpture. This project will enjoy America's most advanced reactor, the Fast Flux Test Facility (FFTF) located on the Hanford Nuclear Reservation in Washington State, to transmute a radioactive isotope of Technetium to a stable (non-radioactive) isotope of Ruthenium. The transmuted Ruthenium will then be incorporated into stone and advanced metal alloy sculpture.

Through a four-year residency in the Hanford scientific community the following milestones in this complex, collaborative art work have been accomplished: 1) formation of a Technical Advisory Committee of scientists and engineers who meet regularly to assist me in this sculpture; 2) gained the cooperation of U.S. Department of Energy and Westinghouse Hanford Co. in the fine art use of FFTF; 3) received 12 advanced metal-alloy components (Breeder-Blanket Assemblies from the SNR-300 Reactor) for sculpture from Siemens AG (Germany); and 4) been issued Radioactive Materials License # WN-IO407-1 (expires Sept. 1997).

This artistic undertaking brings art and science together in a timely exchange of ideas as well as creating sculpture with civilization's most advanced technology.

ADDITIONAL WORKS-IN-PROGRESS

Chief Executive Officer, Material Balance Control and Accountability Custodian, Radiation Safety Officer and sculptor of *Hanford Nuclear Sculpture Works* (a sole proprietorship).

Also: Contract stone-carving for architects, artists and the monument industry; continuing consulting, demonstrations and lecturing on modern sculpture; its materials and processes.