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Sculpting with nukes

Forget boring old bronze or marble. When an artist wants to make something that speaks to the future, the material has to be radioactive

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The sculptor James Acord lives and works in a big steel shed with no windows, right on the edge of "the most contaminated site outside Russia on planet earth". The Hanford Nuclear Reservation in Washington State takes up 560 square miles, half the area of New Jersey. It's the place where they made the plutonium for the bomb dropped on Nagasaki. It houses nine nuclear reactors, four processing plants and the repositories for all the high-level waste in the United States. And it's where 25,000 people earn their livings.

Acord didn't have to live here. He could have remained in Vermont, making tombstones by day and works of art by night. But he read an article in Scientific America shortly after the accident at Three Mile Island in 1979. The author predicted that if we stayed with a nuclear-powered economy, granite would eventually be mined for its uranium content. I thought, 'Wow! The very stone I'm carving could be radioactive. How am I going to address this?'"

Another 10 years would pass before Acord finally made the move to Hanford. In the meantime, Chernobyl had convinced him that there was no issue more important. He was also convinced that "the fine art of sculpture" could make a contribution to society's understanding of matters nuclear.

Still, the US department of energy was not exactly overwhelmed by his offer to become its artist in residence. "'Get outta here,' was the first reaction," he admits. But Acord, 54, is nothing if not persistent. He wrote enough letters to paper the wall of his steel shed. He went to Washington DC to put on slide shows of his work for baffled civil servants and to Boston to address the American Nuclear Society. Two and a half years later, his persistence paid off: the energy department granted his heart's desire - a licence that made him the only private individual in the world granted the right to own and handle radioactive materials.

It meant so much to him that he had the licence number tattooed on to his neck. It's hidden from view, though, when we meet in Britain, at a Nottingham-based exhibition called Atomic. The space between his jacket and the back of his severe crew cut is covered by a wide white collar. The top button is undone and his tie is pulled askew. Braces defy the laws of gravity to keep the hems of his trousers suspended a couple of inches above his shoes. One lens of his spectacles is riven by cracks and the little finger on his left hand is missing, the result of a more serious accident in his granite-carving days.

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Not a man, then, to worry too much about his appearance or, indeed, his safety. Acord lives alone and has no children, but he's an engaging character and it comes as no surprise to learn that he has plenty of friends who worry about him. After all, what he's doing could seriously affect his health. If I were holding a Geiger counter instead of a pen, it might well crackle like his phone line does when the National Security Agency is tapping into his calls. But then, as he points out: "Sculpture can be a risky undertaking. I breathe in toxic fumes when I weld and I risk silicosis when I work in stone. My desire to utilise the fine art of sculpture to rectify the radioactive dilemma we're caught in is worth any small risk I take.

"As it is, I go entirely by the book. Most of the guys who work in the plants don't take the same precautions. I know because I drink in the same pubs as them and we sometimes have a beer together."

But they must know that his ultimate aim is to put them out of a job? "Sure. There are some people in the industry who hate my guts. But others recognise that I've gone to enormous lengths to get where I am and they respect me for it."

Acord is one of three artists contributing to the Atomic exhibition at Wollaton Hall, a handsome Elizabethan mansion on the edge of Nottingham. Mark Waller has produced Glow Boys, a 15-minute film about contract workers in a nuclear plant, and Carey Young has contributed a collection of eerie colour photographs, taken in Russia, of space-race debris - an old Sputnik here, an abandoned moon suit there.

On the opposite wall are photos of Acord by Arthur S Aubrey. One shows him signing for the receipt of a big wooden case packed with spent uranium fuel rods. Although he's licensed to work with radioactive materials, he's not licensed to transport them. Accordingly, much of what he produces has to remain away from public view in his windowless shed. Not much chance of contributing to society's understanding there, I suggest. He takes my point, but says: "I kinda feel that the creation of these works of art contributes to making the world a better place, even if no one else can see them."

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His exhibits in Nottingham are purely symbolic. They're housed in an old wash-house, where Acord likes the dim lighting and the church-like aura on the bare walls. "I can't help feeling," he says, "that today's nuclear industry is not unlike the Church of the 12th and 13th centuries. We have a priesthood living in remote areas, interacting only with each other. Yet these are the people who make decisions for you and me."

Using this religious analogy, he has created three wooden boxes shaped like church windows and designed to hold symbolic relics of the nuclear industry, much as medieval reliquaries contained alleged fragments of the cross or locks of Christ's hair. Each reliquary is fastened to the wall at about the same height as a pub dartboard. On the inside of the doors, though, are mathematical formulae or scientific information. Did you know that there are 17 isotopes of sodium having mass numbers from 19 to 34? Or that in the 20s and 30s, uranium was used for decoration? It

bestowed a bright glaze on innocent household items like the red Fiestaware salt cellars that Acord has mounted here on a dark background.

There's a message here about the dangers of radiation and the loss of innocence of the "goodies" in their battle against the "baddies" during the second world war, when all uranium was confiscated for weapons production. But I doubt I'd have seen it had the artist not been talking me through it. Explanatory panels are noticeable by their absence. Acord works at the frontier between art and science. "Like all artists, I skipped as many maths classes as possible at school," he admits. "But when I moved to Hanford, I realised that the only way to gain respect from nuclear scientists was to learn their language. It took me three years and it was the toughest thing I've ever done. The scientists and engineers were laying bets that I wouldn't pass. In the end, I scraped through in all my grades."

What's on the blackboard is his formula for transmuting radioactive technetium 99 into safe ruthenium 100 - "eminently suitable for the creation of art," he says. "I'm not saying this is something that could be economical in the long term, but as a metaphor for our nuclear age it's perfect." Somehow he persuaded the physics department at Imperial College, London, that what it needed was a community artist.

Thanks to Imperial, Acord now has access to a small-scale reactor. But his most audacious scheme yet remains unrealised. He wants to build a nuclear Stonehenge in Hanford. "I feel the site should become a national sacrifice area. I want a sculpture park to show future generations what we've done and to warn them not to drink the water or grow crops hereabouts."

Oddly enough, his communications with the department of energy on this subject have drawn a blank. As we know, James Acord is nothing if not persistent. And he's overturned some extraordinary odds in the past 10 years. A nuclear Stonehenge in the next century? Don't bet against it.

Atomic, collated by the science-art agency Arts Catalyst, is at the Yard Gallery, Wollaton Park, Nottingham (0115-915 3920), till November 28.