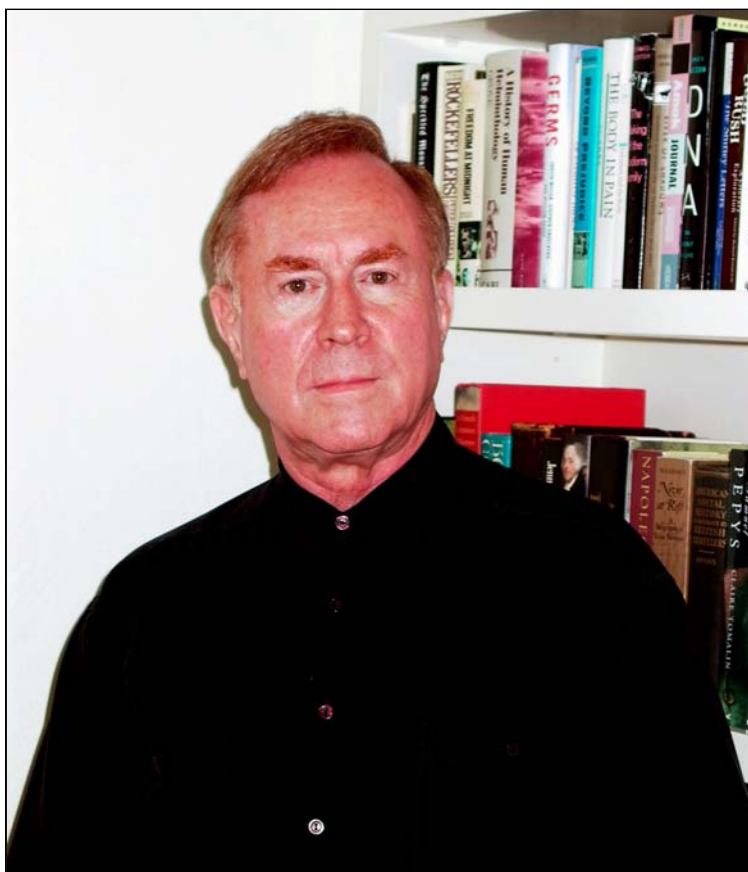


# PROFILES IN RADIATION PROTECTION: **Richard Rhodes**

*Laura Brady*



*Photo courtesy of Gail Evenari*

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He was awarded the Pulitzer Prize in General Nonfiction for his book *The Making of the Atomic Bomb*.

His book *Dark Sun: The Making of the Hydrogen Bomb* was one of three finalists for a Pulitzer Prize in History. The television documentary “Race for the Superbomb” was based on this book.

He has spoken before the House of Representatives Subcommittee on Energy and Environment, Committee on Science, advocating the expanded use of nuclear power.

His message is clear and powerful. Below is an excerpt from his presentation to the House of Representatives.

*The fundamental advantage of nuclear power is its ability to wrest enormous energy from a small volume of fuel. One metric ton of nuclear fuel produces energy equivalent to 2 to 3 million tonnes of fossil fuel. Thus, one kilogram of coal generates 3 kilowatt-hours of electricity, but one kilogram of nuclear fuel generates 400,000 kilowatt-hours. This remarkable difference in fuel volume between nuclear and fossil fuels results in vastly different environmental impacts. Running a thousand-megawatt-electric power plant for a*

year requires 2,000 train cars of coal or 10 supertankers of oil but only 12 cubic meters of natural uranium. The pollutants that result are equally diversely scaled: from the nuclear power plant, about 20 cubic meters of spent fuel and low- and intermediate-level waste, a volume so small (roughly the volume of two automobiles) that it can be and is meticulously sequestered from the environment; but from the fossil-fuel plant, thousands of tonnes of greenhouse and noxious gases, particulates, heavy-metal-bearing (and radioactive) ash and solid hazardous waste, far too much to allow for sequestration even with the most stringent pollution controls. A plant burning coal produces up to 500,000 tonnes of sulfur annually, for example; a plant burning oil more than 300,000 tonnes, and 200,000 tonnes of sulfur even burning natural gas. The Harvard School of Public Health estimates that pollution from coal-burning alone causes about 15,000 premature deaths annually in the United States. And because coal contains uranium and thorium, a thousand-megawatt coal plant releases about 100 times as much radioactivity into the environment annually as a comparable nuclear plant. Coal-fired power plants are in fact the world's major sources of radioactive releases into the environment<sup>1</sup>.

I spoke recently with Richard Rhodes and found him to be a delightful speaker and an articulate supporter of nuclear power.

Among his many honors are included:

- Pulitzer Prize in General Nonfiction, 1988 (for *The Making of the Atomic Bomb*);
- National Book Award in Nonfiction, 1987 (for *The Making of the Atomic Bomb*);
- National Book Critics Circle Award in General Nonfiction, 1987 (for *The Making of the Atomic Bomb*);
- Pulitzer Prize Finalist in History, 1995 (for *Dark Sun*);

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<sup>1</sup> Prepared Testimony before the Subcommittee on Energy and Environment, Committee on Science, U.S. House of Representatives, 25 July 2000

- History of Science Society Watson Davis and Helen Miles Davis Prize of 1997 (for *Dark Sun*);
- Los Angeles Times Book Prize Finalist, 2004 (for *John James Audubon*);
- Doctor of Humane Letters, Westminster College, Fulton, Missouri, 1988;
- American Nuclear Society Special Award and honorary membership, 2001; and
- Modern Library 100 Best Nonfiction Books of the 20<sup>th</sup> Century (for *The Making of the Atomic Bomb*).

***You've written on a number of varied topics, what got you interested in the atomic bomb and nuclear energy?***

I was 8 years old in 1945. In fact, all of my childhood was in World War II. I remember opening *LIFE* magazine and seeing that mushroom cloud over Hiroshima and reading the headline, "This bomb ended the War." That's when I began to be interested in science. I took a physics course in college but it was 'Physics-for-Poets.' Perhaps I should have become a physicist. But instead I write about it.

I attended Yale University on a four-year scholarship. My major was cross-disciplinary, an interdivisional honors major called History, the Arts and Letters - what was essentially intellectual history. It had a broad scope, science to literature to history to art. It gave me a good background for writing.

***What in your opinion has changed in the field since 9/11?***

Change is coming.

It looks as if we may get more nuclear power plants built in the near future. Energy demand is again increasing, outpacing our present capacity to produce energy. In the 80s and 90s we saw a drop-off of demand following the Arab Oil Embargo, due in part to the implementation of conservation efforts and also an increase in nuclear power plant efficiency. But demand for

energy is again increasing. There are many countries overseas where nuclear power is going strong. China, South Korea, and India are committing heavily to nuclear power to produce energy. The Bush administration supports nuclear power development. Even environmentalists are beginning to get on board with an energy source that doesn't contribute to greenhouse gases.

***What do you think it will take to gain universal acceptance of nuclear power?***

A broader acceptance of nuclear power requires two things: leadership and education. We need leadership to stand up and be counted in support of an energy source that is clean, green and reliable. Leaders like Senator Pete Domenici, United States Senator from New Mexico, who is pro-nuclear and has taken the lead in supporting its development.

My own experience may be relevant. I started off, back in the 1970s, writing about nuclear power with an anti-nuclear bias. I didn't know much about it, but I knew it must be bad. What changed for me is that I learned more. I could not credibly maintain my ignorance. People, journalists in particular, need to put radiation and nuclear energy in perspective, as I tried to do in my Senate testimony and in the essay I published in *Foreign Affairs*, "The Need for Nuclear Power."



*Photo© 2005 by Deborah Brown Penrose.*

***Do you have any recommendations for RSOs today?***

I wish we could come together as a community to resolve the confusing and expensive controversy about whether low doses of radiation are harmful or not. We are spending so much money on handling low levels of radiation, perhaps unnecessarily, that it would be wonderful to definitively resolve this issue.

My next book, which will look at international nuclear politics across the past 20 years, will open with the Chernobyl accident. It seems that the Russian government used the very low international standard for radiation exposure in determining who among those exposed to fallout from Chernobyl should be listed as disabled and compensated with lifetime pensions. The level was set so low that that it is actually less than normal background (activity) in many places around the world. With the breakup of the USSR, that burdensome financial commitment devolved upon the new states, and they're struggling to sustain it.

There is such "radiophobia" in America today. It's a shame, for example, that 10,000 people die in the U.S. every year, many more are sickened, and vast quantities of food are spoiled and wasted when those outcomes could easily be prevented with irradiation.

RSOs do important and honorable work in monitoring and maintaining radioactive materials and processes that are of great value to our society—the radioactive isotopes used in medicine and industry in particular. It's work that deserves to be honored and celebrated.

***On the Lighter Side...***

***What is it like to win a Pulitzer Prize?***

It's wonderful. It certainly gives more visibility to my work.



*President Stanislav Shushkevich of Belarus and wife Irina, their translator and Richard Rhodes.*

### ***Personal Tidbits?***

In completing *The Making of the Atomic Bomb*<sup>2</sup> I had a lucky break. We sent out advance copies to several of the leading physicists who worked on the Manhattan Project, to solicit endorsements. Two of them wrote back and said that I'd gotten some of the physics wrong and offered to help fix it up. So I know the physics is correct and I still have their pungent handwritten comments in the margins of their copies.

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<sup>2</sup> *The Making of the Atomic Bomb*. Simon & Schuster, 1987. Touchstone, 1988.

We had two very special guests visit us here in northern California last year: Stanislav and Irina Shushkevich. He was the first head of state of Belarus when that nation came into existence with the dissolution of the Soviet Union in December 1991. He's a physicist (so is she, actually), and their laboratory in Minsk, the capital of Belarus, was one of the first to register fallout from Chernobyl, which was just 110 kilometers south. His outrage at the irresponsible management of nuclear power by the Soviet authorities is what led him to go into politics.

My travels often take me to nuclear reactors in this country and abroad. I've visited reactors in Bulgaria, Japan and Russia as well as the U.S. My friends think it's an odd hobby.

### ***Favorite Color/Food/Hobby?***

Up until recently, I didn't really have time for hobbies. This year my wife and I have taken up classical drawing. When I was doing research for my book on John James Audubon<sup>2</sup>, I was reminded that back then everyone drew. It wasn't a question of inspiration—there weren't any cameras. So, if you wanted a record of a person or a place, you had to make a drawing. Drawing is like writing—there's no limit to how much you can improve if you work at it. I'm enjoying the change.

*Thank you, Richard Rhodes, for sharing this information about yourself with our readers*

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<sup>2</sup> *John James Audubon: The Making of an American*. Alfred A. Knopf, 2004. Vintage, 2006.

*Richard Rhodes brings his message to the 50<sup>th</sup> annual meeting of the Health Physics Society in Spokane, Washington on July 12, 2005.*

*Richard Rhodes has written 22 books, both fiction and non-fiction, and numerous articles and short stories. References to some of his many works that may be of particular interest to our readers are provided below:*

*Deadly Feasts: Tracking the Secrets of a Terrifying New Plague*. Simon & Schuster, 1997. Touchstone, 1998.

*Dark Sun: The Making of the Hydrogen Bomb*. Simon & Schuster, 1995. Touchstone, 1996.

*Nuclear Renewal*. Whittle Books/Viking Penguin, 1993.

*The Making of the Atomic Bomb*. Simon & Schuster, 1987. Touchstone, 1988.

"Nuclear Reaction." *Frontline* documentary. WGBH Television, 1997. Correspondent and narrator.

"Race for the Superbomb." *The American Experience*, WGBH Television, two hour special, 1999. (Based in part on *Dark Sun*.)