



2007 AAAS/Subaru Essay Writing Competition for K-12 Educators, Finalist Essay



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Young Scientists and Nuclear Politics

It's not every day that your American history class of juniors and seniors break into song. And it's even rarer for a group of New York City public school students weaned on hip-hop and Shakira to sing an "American Bandstand" hit from 1957. But as soon as I placed the CD into the player, they began singing along:

"Atom bomb baby, boy can she start
One of those chain reactions in my heart
A big explosion, big and loud
Mushrooms me right up on a cloud!"

Day two of our discussion of "atomic bomb" songs had certainly begun with enthusiasm...if not a few false notes!

In the spring of 2006, I offered an elective seminar class entitled, "America's Nuclear Age" at Bard High School Early College. Bard is a joint educational project between the New York City Department of Education and Bard College. Its students represent a diverse cross-section of the city. The school offers an educational atmosphere that nurtures academic creativity and excellence in the students. Furthermore, in this supportive, collaborative atmosphere, teachers are encouraged to create new and interdisciplinary classes.

The idea of a class on the intellectual and cultural impact of nuclear weapons on American society seemed a daunting proposition in the fall of 2005 when I first proposed it. The idea emerged, as most interesting ideas tend to do, from a conversation with thoughtful colleagues. Sitting over my bagged lunch at a biology teacher's desk one day, I noticed the weighty physics textbook on the sagging shelf. I related my plan to take science and math classes when I was old and grey and retired. "Forget reading *War and Peace*," I laughed, "*Fundamentals of Physics* is a great book for a summer porch!" My friend sighed over her wish to skip her grading of lab reports in favor of Tolstoy, but the Physics teacher in the room told me not to wait until my social security years. "Ask me anything," she offered.

Such generous offers can easily get forgotten in the usual rush of papers and lessons and photocopying. And this is probably what would have happened. But days later in a used bookstore I randomly fell upon Richard Rhodes' Pulitzer Prize-winning history book, *The Making of the Atomic Bomb*. Hunched in the dusty corner for an hour, I could barely pull myself away from the pages to make the purchase. The idea of an interdisciplinary class that examined both the political, scientific, and cultural impact of the scientific search into the mysteries of the atom as well as the decisions to create and use nuclear weapons seemed possible. As I imagined a room full of young scientists and politicians in training, I reflected that a class that would give historical context to the geopolitics of present day was more than possible, but perhaps necessary too.

The semester-long class began with the almost clichéd premise that when the United States dropped the atomic bomb on the Japanese city of



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Hiroshima in August 1945, the world changed forever. As a class, we investigated the intellectual and cultural impact of nuclear power on American life. What were the scientific, political, and moral consequences of the explosion? How did scientists, politicians, and ordinary people deal with the existence of the bomb and the potential of nuclear power? We examined the Manhattan Project, Hiroshima, the Cold War, monster movies, literary responses, the anti-nuclear movement, the politics of museum commemoration, and current nuclear weapons programs.

For typical American history classes, nuclear power is discussed solely within the bounds of President Harry S. Truman's office. The American history survey textbook refers to the explosions in Hiroshima and Nagasaki but the entries are short and hardly inviting to larger discussions on the relationship between the scientific and political communities in the United States. I wanted my students (many who were taking an intensive year-long physics class) to study the historical discovery of the atom and the development of nuclear energy in the years before the fateful decisions of World War Two. I wanted them to think about the relationship of science to political policy and the role of the scientist beyond the laboratory. For these young scientists, I wanted them to realize that these are essential questions that they will face in their own careers: What are the political applications of scientific discoveries? What is the relationship of the scientist to the American public and the American political process?

We began our course with the history of nuclear fission and excitement of scientific discovery. We traced the impact of war on the international physics community and debated issues of nationalism and security. We studied the

Manhattan Project and the debate over weapons, spending considerable time looking at the Franck Report and the changing opinions of Leo Szilard on the uses of weapons. We read John Hersey's *Hiroshima* and debated the 1995 controversial attempt by the Smithsonian Museum in Washington, D.C. to commemorate the decision to drop the bomb. We studied the literature, music, and movies of Americans confronting a vastly different political and moral landscape post-Hiroshima. While watching a movie about giant ants (*Them!*) and listening to "atomic songs" was welcomed at first by students as a "silly" diversion from real work, our discussions opened up the much deeper concerns about scientific accountability that popular culture at the time addressed. They examined the *Life* articles on honeymoons spent in bomb shelters with thoughtful questions on the role of science and society.

Our class considered the anti-nuclear movement as well as contemporary discussions of the peaceful uses of nuclear power. We ended our semester reading contemporary newspaper accounts on the contemporary world and place of nuclear weapons in the future.

As a historian, I relied heavily on my colleagues in the science department as well as my own students who welcomed the chance to discuss splitting the atom in a humanities class. It was an exceptional experience for me to read my students' writing journals as they wrote of their reaction to the events of the twentieth century and their hopes for the future as young scientists. I learned as much as they did and I am grateful for the opportunity to have facilitated their investigation into the world they have inherited and will someday lead.