

Caltech News



David Politzer, second from left, in a scene from the 1989 feature film, *Fat Man and Little Boy*.

OUR MAN ON THE MANHATTAN PROJECT

*More than a decade before he was summoned to a walk-on in Stockholm, Caltech Professor of Theoretical Physics David Politzer was cast in the movie *Fat Man and Little Boy*, playing a physicist involved in the building of the atomic bomb. This article is adapted from a piece that was published shortly before the film's release, in the August 1989 issue of the Caltech alumni quarterly, *Caltech News*, written by the paper's current editor, Heidi Aspaturian.*

Caltech professor David Politzer, a man who does not own a television set, went to work last fall for the entertainment industry, playing a theoretical physicist in a movie about the Manhattan Project to make the atomic bomb. This was not such a departure as it may sound, since Politzer is himself a theoretical physicist, as well known within his profession as he is unknown to moviegoers. But all that could change this fall when *Fat Man And Little Boy*, the Paramount Pictures production in which he appears, premieres in movie houses across the country. Politzer, who achieved an international reputation in

physics while he was still a graduate student, says he is not contemplating a career switch.

Fat Man And Little Boy was conceived, written, and directed by Roland Joffé, who has a distinguished reputation as director of *The Killing Fields* and *The Mission*, and a penchant for casting nonactors in parts they play in real life. His casting of Politzer, the only professional physicist in the cast, has the elements of a Hollywood Cinderella story in that the professor, a brown-eyed unknown, will be making his screen debut opposite the well-known blue-eyed salad-dressing entrepreneur, Paul Newman. Despite this inducement and a longstanding interest in the Manhattan Project, Politzer did not originally want to be in the movie. Joffé had to spend long hours conversing with him about science, the cinema, the human condition, and other imponderables before he changed his mind. The director also had to convince the scientist that a fling with Hollywood would not compromise his research into elementary particle physics, cosmology, and other projects. After being assured that the role would not require too much in the way of time or talent, Politzer relented. In the finished film, he says, "I have maybe half a dozen lines, and I work hard to look scientific."

Fat Man And Little Boy (the title refers to the code names of the atomic bombs dropped, respectively, on Hiroshima and Nagasaki) chronicles the history of the Manhattan Project from its start in 1942 through the successful Trinity Test in 1944, to the August 1945 bombing of Hiroshima. Most of the action takes place in Los Alamos, New Mexico, where a coterie of scientists under the direction of the brilliant U.S. physicist J. Robert Oppenheimer (played by actor Dwight Schultz), designed and built the world's first nuclear weapons.

In the film Politzer plays Robert Serber, then a close colleague of Oppenheimer, today a professor of physics emeritus at Columbia University. [Serber died in 1997, eight years after this article was published.] Other characters (all played by professional actors) include the physicists Hans Bethe, Enrico Fermi, and Edward Teller. Paul Newman plays General Leslie Groves, overlord of the Manhattan Project and the man who gave Oppenheimer his job over military-intelligence protests that the scientist's leftist ties and moody personality made him too much of a security risk.

According to Politzer, one of the movie's key themes is how the scientific and military personnel at Los Alamos coped with one another's very different styles—and with the idea that the rational pursuit of physics might someday have the irrational consequence of blowing up the planet. "Most accounts of Los Alamos have focused on the technical triumphs or personal idiosyncrasies—how the clever scientists created the bombs in such a short time or how they confounded military protocol," he says. "Joffé wanted to address dilemmas and questions that usually aren't considered, including why the atmosphere of the time made so many physicists willing to work on a weapon of mass destruction. . . . I thought Joffé was right in wanting to tell

this story, and I thought a lot of his point of view. He really believes that people should think seriously about nuclear weapons, about what is developed and who controls them, and about how the nuclear age began."

Politzer's involvement in *Fat Man and Little Boy* came about last spring as Joffé and his casting director were getting ready to cast real scientists in their movie and realized they didn't know any. Through a contact at Pasadena's Mount Wilson Observatory, they found their way to Politzer. Several weeks after a screen test that was "not much, mostly improv," Politzer was on his way to Durango, Mexico, for six days of on-location filming. He ultimately visited the set four times between October and December 1988, investing about two weeks of his life in show business.

By now his interest was more than academic. "I was intrigued to see how Joffé's ideas, his script, and his cast, would come together as a movie. Where does the magic that makes a film come from? Real life is not something you want to pay to watch for two hours, so it has to be something else."

He also enjoyed working with Joffé—"an absolutely electrifying personality and a brilliant man. He was very good at making everyone feel important and valued." Along with two Stanford physics students, Politzer wrote most of the physics equations for the film's blackboards and offered up other trade secrets.

"What Joffé wanted most from us was assistance in making the atmosphere realistic. One of my jobs was to suggest how real scientists would have reacted to physics information they were receiving from Oppenheimer, especially why a particular detail would have been new or exciting or initially would have sounded crazy. Joffé was perfectly happy to have us replace our dialogue with something that sounded more realistic."

He recalls his first week in Durango as being "kind of like camp. We worked together as a group, doing a lot of theatrical and role-playing games, and sharing ideas. In one role--playing exercise we each gave an autobiographical sketch that had to contain at least three lies, and then the rest of us tried to work out what was false. I couldn't believe what turned out to be true. There were ex-car thieves, ex-drug addicts. The truth was much more astounding than the lies, of course. It always is."

Another assignment was for each actor to give the group a talk on some aspect of his or her life. "After thinking it over I gave mine on what I did in physics. I couldn't believe it—here I was in the middle of Mexico, giving a talk on relativistic quantum mechanics and particle physics to the cast of a movie about the atom bomb. It actually went over well."

Politzer says that throughout his stay, he was amazed by the talent of the professional actors in the cast. "The actor playing [physicist] Hans Bethe wanted to know more about what Bethe had actually done," he recalls. "So I

gave him a copy of 'Bethe's Bible'—three seminal articles on nuclear physics written in the 1930s. He went away and studied them, and then gave me his new reading of Bethe. He had the scientific jargon and the terminology down pat. It was very good. Actually, it was more than that. It was" His voice fades as he considers the curious question of whether an actor playing the part of a physicist is in fact more convincing than the real thing.

As for his own performance, Politzer suspects that it will not send panic through the ranks of Actors' Equity. He has met the real Robert Serber, whom he calls "quite a character," but made no effort to imitate him on screen. (Reached by phone at his home in New York City, Serber said that he had heard Politzer was "mixed up" in *Fat Man* but had no idea who he was playing.) With Joffé's encouragement, Politzer relied largely on his teaching instincts and experience, plus a few tips from Paul Newman, to shape his performance.

"I tried," he says, "to put myself in the situation I'm in when I lecture, when you're trying to talk to a room full of people about a subject as if it were the most fascinating thing in the world. Teaching and acting aren't identical, but there are similarities. Neither is like being a human being."

While Politzer's take on movie making will not offer much to those who seek parallels between scientific and artistic creativity, the experience does seem to have heightened his appreciation for both. "I didn't see much affinity between doing science and making a movie—in fact, it was mostly the opposite. The output is different, what is valued is different, how you judge people is different. While I was there, I became very fond of nearly everyone in the production. They were all extremely sweet. That's how they make their living—by being personable. Scientists, on the other hand—well, all this is irrelevant to their business. I must say I enjoyed myself immensely."

Visit Caltech News on the Web at

<http://pr.caltech.edu/periodicals/CaltechNews/>

CTNHome

Article Archive

@ Caltech

Caltech Home