

WHO IS RICHARD FEYNMAN...

... AND WHY ARE THEY WRITING A PLAY ABOUT HIM?

ALAN ALDA STARS IN *TUVA OR BUST!*, A PLAY ABOUT THE NOBEL PHYSICIST

BY DAVID KEITH & SUSAN POOLE

Why a play about Richard Feynman, a Nobel prize-winning physicist whose main professional achievement was to untangle some mathematical problems of quantum mechanics half a century ago? And not an obscure play, but a Los Angeles premiere starring Alan Alda at the Mark Taper Forum.

Feynman's bare-bones biography paints the picture of a brilliant physicist, but not necessarily the subject for a play billed as "overflowing with curiosity and fun." Growing up in Queens in the 1920s, as a young boy Feynman built a small laboratory in his room. By eleven, he was so proficient with electronics that he made money fixing people's radios. By high school he had taught himself calculus. He was a star physics student at MIT and then Princeton. Still in his 20s, he was drawn into the vortex of the Manhattan project at Los Alamos, and as head of the computation group was considered by Robert Oppenheimer the smartest of the young physicists working on the atom bomb.

After the war, Feynman taught at Caltech and won the Nobel Prize in 1965 for his fundamental contributions to the development of quantum mechanics. Unlike many in the high pantheon of physics, Feynman didn't long dominate a single area of physics, nor was he particularly productive either of students or published papers, two standard measures of academic success. Instead, he was apolitical, tackled problems across many disciplines, and resolutely shirked entanglements in the bureaucracy of postwar science. Even among physicists, his biographical essentials don't explain his extraordinary reputation.

Yet Feynman is famous. Of 20th-century physicists, he is arguably second only to Einstein in fame. A Google search of Web pages with his name yields 80,000 hits, ten times less than Madonna, granted, but many times more than other Nobel laureates. In old media, there are more than 50 books about Feynman in print including *Genius*, James Glick's Pulitzer Prize-winning biography.

Why so many hits? Feynman was both an exceptional physicist and a charismatic showman. His magnetic personality captivated men and women alike. Whether lecturing or playing the bongo drums, Feynman always played to his audience, and he never played the straight man. He had a thick New Jersey accent, cultivated low-brow tastes, and was proud of his "rough informal manners." In contrast to his peers, Feynman enjoyed appearing uncultured and anti-intellectual. His outrageous exploits—cracking safes at Los Alamos Labs, teaching himself to smell like a bloodhound, his unapologetic womanizing—earned him the status of folk hero in the physics community. His reputation reached the larger public when his stories appeared on the bestseller list under the title *Surely You're Joking Mr. Feynman!*

Richard Feynman was brilliant. His independent curiosity was the root of his being; it was the magic that attracted everyone and the engine of his scientific success. Feynman had an extraordinary drive to understand the physical world in his own terms. Ever dissatisfied with other people's explanations, he often refused to read his peers' scientific papers and insisted on

building his own understanding from the ground up. He was a master mathematician, but he was never satisfied with purely mathematical explanations and always sought a direct intuitive understanding of the physical world. Independence and deep intuition enabled Feynman's creation of a new method for quantum mechanical calculations, a method that before it was widely adopted, allowed him to calculate in hours results that took his colleagues months to complete.

In 1986 Feynman brought his unabashed showmanship to a national audience during hearings on the Space Shuttle Challenger explosion. He demonstrated that the Challenger explosion was due to a loss of elasticity in the O-rings on the Shuttle's booster rocket during the cold weather preceding liftoff. NASA had denied the panel data about the O-rings' performance in the cold, and Feynman was determined to provide an honest, simple answer. Without warning, he performed a real experiment live on national television. He grabbed a sample of the O-ring rubber, dipped it into his glass of ice water, and instantly unmasked the root cause of the explosion. As a colleague said, "The public saw with their own eyes how science is done, how a great scientist thinks with his hands, how nature gives a clear answer when a scientist asks a clear question."

David Keith is a physicist now working on climate science and policy at Carnegie Mellon University. While he once sat beside Feynman at a Caltech colloquium, they never talked. Susan Poole is an artist, papermaker, and former editor of the San Francisco Symphony program book.

BOXED:

Tuva or Bust!, the new play about Richard Feynman, runs March 11–May 6 at the Mark Taper Forum, Los Angeles, (213) 628-2772, www.TaperAhmanson.com.