

## HISTORY

# Dreaming of the bomb

Istvan Hargittai explores a life and work of Manhattan Project leader, physicist J. Robert Oppenheimer.

A towering yet enigmatic figure among theoretical physicists, J. Robert Oppenheimer directed the US laboratory in Los Alamos, New Mexico, that, between 1943 and 1945, built the first atomic bombs. He earned the label 'father of the atomic bomb' and worldwide fame, and features in numerous books. In the latest, *Inside the Centre*, Ray Monk — biographer of Bertrand Russell and Ludwig Wittgenstein — brings a philosopher's nuanced perception to Oppenheimer's life and work.

Oppenheimer grew up in a privileged upper-west-side Manhattan family, but felt burdened by being Jewish and "tried to pretend that he wasn't", in the words of his friend, the Nobel-prizewinning physicist Isidor Rabi. A lonely childhood was followed by a troubled youth; he even showed signs of destructive tendencies. Oppenheimer was trying, as he would all his life, to discover an identity and an avocation.

Oppenheimer followed the customary path of budding US scientists of the time, completing his education in Europe. In 1925, he joined Ernest Rutherford's Cavendish Laboratory in Cambridge, UK, where he was mentored by future Nobel prizewinner Patrick Blackett. Rumours persist of a bizarre incident in which Oppenheimer left an apple laced with a chemical — believed to be cyanide — on Blackett's desk. In any case, Oppenheimer was unhappy: he had little aptitude for experimental physics. Moving to Max Born's lab in Göttingen, Germany, a hotspot of theoretical physics, he became a top player.

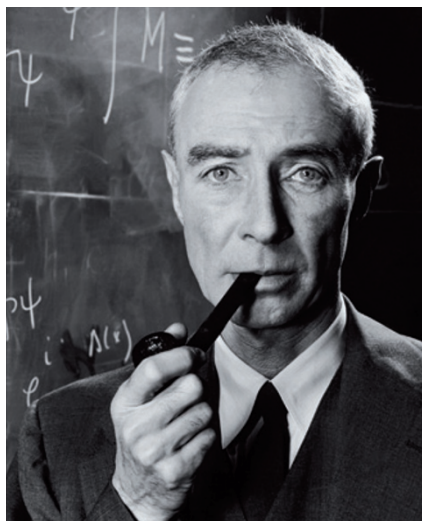
In 1929, Oppenheimer returned to the United States for good. He worked at the California Institute of Technology in Pasadena and the University of California, Berkeley, building up an American school of theoretical physics. Soon, an influx of brilliant scientists fleeing the Nazi takeover in Europe arrived to bolster his efforts. Among the glowing successes were contributions to what later became known as the black-hole concept and astrophysics. By the time the field could contribute to the war effort, he and his colleagues were ready.

For a long time, the well-to-do Oppenheimer was oblivious to the economic difficulties around him and had little interest in world affairs. His political awakening in the mid-1930s occurred as a consequence of the hardship he observed during the Great Depression and the intensifying persecution

of Jews in Germany. He was drawn to the Communist Party, although he always denied having been a card-carrying member.

When nuclear fission was discovered in Germany in 1938, the Manhattan Project was initiated to develop an atomic weapon. Its final phase was bomb production — for which the Los Alamos Laboratory was created in 1943. This powerhouse drew in other Manhattan Project resources: brainpower from the Metallurgical Laboratory in Chicago; uranium-235 from Oak Ridge, Tennessee; and plutonium from Hanford, Washington. Oppenheimer, however, seemed an odd choice as leader, having never directed anything. What no one foresaw was his remarkable ability to inspire associates.

Oppenheimer never regretted his role in making the bombs. He saw their deployment against Japan as helping to end the Second World War quickly, saving millions of lives, despite having killed some 150,000 Japanese in Hiroshima and Nagasaki. In 1947, he declared that "physicists have known sin".



Robert Oppenheimer in 1958.

Later, he clarified that he meant the sin of taking pride in their achievements rather than the sin of having caused destruction.

Once involved with the Manhattan Project, Oppenheimer gradually dissociated himself from communism. However, even while directing Los Alamos, he was constantly being investigated by US security organs over his communist activities and connections. In his eagerness to demonstrate loyalty

to his country, Monk reveals, Oppenheimer lied despicably about friends and former pupils. For example, he unjustly accused his gifted former student, Bernard Peters, who had participated in anti-Nazi street-fights in Germany, of being a dangerous Red.

After the war, Oppenheimer was in great demand, and seen as a hero scientist.

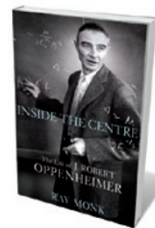
He chaired several committees, including the General Advisory Committee of the Atomic Energy Commission (AEC), which sometimes caused conflict of interest. For example, the Pentagon gave up the idea of the hydrogen bomb after Oppenheimer told them it was technically unfeasible. He then told the AEC that the Pentagon wasn't interested in developing the bomb. Spreading himself too thin also impaired his judgement: he humiliated others, made powerful enemies and hurt his chances of maintaining a leading role in government affairs, which he craved.

During the McCarthy era between 1950 and 1954, Oppenheimer's leftist past caught up with him. His concocted stories surfaced, and his only explanation was: "I was an idiot." Monk's presentation of the well-known story of the 'Oppenheimer hearing' before an AEC security panel is a highlight of the book.

Oppenheimer had the highest level of security clearance because of his sensitive position. By the time his clearance was about to expire, his loyalty and trustworthiness had been questioned by a number of people. The AEC set up a personal security board to decide on an extension and, in 1954, many scientists testified before it. The damaging testimony of nuclear physicist Edward Teller is often held responsible for Oppenheimer's downfall. The most relentless advocate for a US hydrogen bomb, Teller viewed Oppenheimer as an obstacle to his efforts. But the 'prosecution' had already destroyed Oppenheimer's veracity by the time Teller stepped into the witness stand. Teller's testimony ultimately harmed him more than it did Oppenheimer.

Oppenheimer was both a brilliant physicist and a poor politician; a sophisticated speaker and an inconsistent debater; an inspirational colleague and a disloyal friend. In this highly readable book, Monk makes great strides towards fully understanding the phenomenon that was J. Robert Oppenheimer. ■

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**Inside the Centre: The Life of J. Robert Oppenheimer**

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Jonathan Cape: 2012.  
832 pp. £30