

Half-Life: The Divided Life of Bruno Pontecorvo—Physicist or Spy?

Frank Close (Basic, 2015), 378 pps.

Reviewed by John Ehrman

Was he or wasn't he a spy? This is the unanswered, and possibly unanswerable, question that has been asked about Bruno Pontecorvo for more than 60 years. Pontecorvo was from a prominent Jewish-Italian family and became one of the world's most prominent physicists in the mid-20th century, living and working in Italy, France, the United States, Canada, and the United Kingdom. He was, however, also a secret communist and defected to the Soviet Union in 1950. Now, in a carefully researched and generally well-presented biography, Frank Close untangles the threads of Pontecorvo's life.

Pontecorvo came from a privileged background. Born in 1913 to a family that had become wealthy in the textile industry, he was one of eight children. Bruno was athletic and intellectually gifted and, at the age of 16, entered the University of Pisa as an engineering student. He switched to physics, however, and transferred to the University of Rome, where he became a protégé of Enrico Fermi and, at 21, joined the great physicist's team. Soon he was engaged in the work that would eventually make him a pioneer in research on neutrinos.

Pontecorvo began his career at a time of enormous ferment in both physics and international politics. Nuclear physics was in its infancy, and Close gives a good sense of the excitement in the field, as new discoveries about the atom seemed to come every week. At the same time, however, fascism was descending on Europe. With official anti-Semitism taking hold in Italy, Pontecorvo moved in 1936 to Paris, where he joined Frederic Joliot-Curie—the son-in-law of Madame Curie—and his laboratory. Also in Paris, Pontecorvo married a Swedish woman, Marianne Nordblom, and under Joliot-Curie's tutelage, became a communist. In 1940, Bruno, Marianne, and their young son fled from France to Portugal and then came to the United States.

At this point, Pontecorvo's story starts to become murky. When he arrived in the United States, Pontecorvo settled in Tulsa and went to work in the oil industry,

applying his discoveries about neutrons to the search for oil deposits. After the United States entered the war and started the project to build the atomic bomb, Pontecorvo was quickly recruited for atomic work. Instead of going to Los Alamos, however, he went to Canada and worked on the Anglo-Canadian end of the atomic project. After the war, he moved to England to work at the new British atomic energy establishment at Harwell.

Even though he remained scientifically productive and received offers of professorships at several prominent universities, the late 1940s were not a good time for Pontecorvo. The start of the cold war and then the arrests of the atomic spies in the United States and Britain led the FBI and MI-5 to start looking into his background and reports of communist ties. As questions about him grew, the British decided to ease Pontecorvo out of Harwell and into a nonsensitive position at the University of Liverpool. Before this could happen, however, Pontecorvo and his family left Britain in the summer of 1950 for a vacation in Italy and from there disappeared. It was not until 1955 that the Soviets confirmed he was in the USSR.

The exact reason for Pontecorvo's defection remains unclear; it is the question at the heart of *Half-Life*. Close makes an admittedly circumstantial case that Pontecorvo had spied for the Soviets before he left for Moscow, noting in particular that no one has yet determined how the Soviets obtained blueprints for the Canadian reactor where Pontecorvo worked or samples of uranium from Canada. He also argues that Pontecorvo's defection was so sudden that it may have been the result of Soviet instructions, perhaps because Moscow feared he was about to be caught.

Close's case is not convincing however. Pontecorvo's name does not appear in Venona or the Mitrokhin volumes, he has not been conclusively linked to known spies or rings, and Close has not uncovered any admission by Pontecorvo or his associates that he had been involved in

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espionage. One suspects that, had Pontecorvo truly been a Soviet spy, we would know it by now.

Perhaps the best explanation of Pontecorvo's defection is the simplest: he was a communist and, with the deepening of the Cold War and communists under pressure in the West, simply decided that he would be better off living in the USSR. Supporting this is Close's overall portrait of Pontecorvo, which is the familiar one of a man who was a brilliant scientist but, in the political realm, childishly unsophisticated. It is striking to note that Close does not give any examples of Pontecorvo discussing politics or communist theory, let alone in a thoughtful way. Instead, *Half-Life* gives the impression of a man who was devoted to science and gave little thought to politics but joined the communists because he was told they opposed the fascists who persecuted him and his family. Pontecorvo's communism appears superficial, but even that would have been difficult to explain to security investigators in 1950.

Not surprisingly, the Soviet Union hardly turned out to be a land of dreams. The Pontecorvo family first was housed in Moscow and then at the nuclear research facility at Dubna, living in isolation and forbidden to have contact with family and friends in the West. Bruno continued his work, but Soviet secrecy and a lack of access to the more advanced facilities in the West meant that his colleagues in Europe and the United States were able to build on his earlier research and then surpass it; Close believes this cost Pontecorvo an otherwise almost-certain Nobel Prize.

This part of Pontecorvo's story is similar to that of Joel Barr and Alfred Sarant, the two members of Julius Rosenberg's industrial espionage ring who escaped to the USSR and helped found the Soviet microelectronics in-

dustry. Barr and Sarant had great hopes for their industry but found to their sorrow that Soviet bureaucracy, state controls, and internal politicking left them further and further behind the West.

Defection took a toll on Bruno's family, too. Marianne, already psychologically fragile, fell into depression and was in and out of hospitals. Nonetheless, Bruno stayed true to his communism and it was not until after the invasion of Czechoslovakia in 1968 that he began to admit that his faith had been misplaced. Finally allowed to travel to the West in the late 1970s, Pontecorvo visited Italy and other European countries until his death in 1993. With the USSR crumbling, he fully realized the terrible political, personal, and professional mistakes he had made, admitting to a journalist "I was a cretin." (290)

Half-Life is a solid account of a life that, while not wasted, certainly went off the rails. Close, a physicist at Oxford, has mined the archives and talked to Pontecorvo's surviving family members to give a nuanced, detailed portrait of him. Close's explanations of the science of neutrinos, muons, pions, and other subatomic topics are generally clear enough for the layman but did get dense in places.

Close seems to be exercised about McCarthyism, noting several times the horror of this period in American history; this is a point that need only have been made once. These passages play mostly a supporting role, however, and the biographical, political, and intelligence aspects of the book easily carry the story and make for the most interesting reading. *Half-Life* is well worth the time of anyone interested in the intersection of science, politics and—perhaps—espionage.

