



Italian nuclear physicist Bruno Pontecorvo fled to Moscow in 1950, but there is no evidence he was a spy.

PHYSICS

Atomic secrets

Mystery lingers round the sudden defection of cold-war physicist Bruno Pontecorvo, finds **Sharon Weinberger**.

Governments love secrets. Nuclear secrets are the most prized of all, and their potential revelation is greatly feared. That is why, more than 60 years after the event, the defection of Italian nuclear physicist Bruno Pontecorvo to the Soviet Union is still so unsettling.

Was Pontecorvo — the only Western scientist involved in wartime nuclear projects to have defected — a Soviet spy or an idealist seeking to escape anti-communist hysteria? In *The Pontecorvo Affair*, historian Simone Turchetti re-examines this intriguing incident.

Stymied by the secrecy still shrouding the case, Turchetti cannot tell us whether Pontecorvo was a Soviet agent or not. But he upends the notion that Pontecorvo's limited access to atomic 'secrets' made his defection a minor

footnote to cold-war history. He argues compellingly that it was Pontecorvo's expertise in key areas of nuclear physics, rather than access to secret work, that made his defection significant. "Scientific knowledge," Turchetti writes, "cannot be smuggled in plastic bags."

He also offers new insight into what impelled Pontecorvo to flee to the East in 1950, and notes that both the US and UK governments were eager to downplay Pontecorvo's nuclear expertise to minimize the public impact of his defection. Even if he was not an atomic spy, Pontecorvo probably made a meaningful contribution to the Soviet nuclear programme, particularly in the area of geophysical prospecting — something that has not been

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For more on Bruno Pontecorvo's work:
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The Pontecorvo Affair: A Cold War Defection and Nuclear Physics
SIMONE TURCHETTI
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appreciated before.

The story of Pontecorvo's career begins with the familiar narrative of a Second World War émigré. As a scientist from an Italian Jewish family, he fled the march of fascism by leaving for the United States in 1940. Although never directly involved in the Manhattan Project, he became one of several prominent Italian scientists to work on nuclear programmes, including Enrico Fermi and Emilio Segrè. His contributions to geophysical prospecting involved looking at the interaction of neutrons with rock formations, which help to reveal the presence of oil underground. He was also involved in the 'pile physics' of nuclear reactors.

His Italian nationality aroused suspicion among Western security services, however. His family was known for its communist leanings: his brother Gillo later directed the iconic anti-colonial 1966 film *The Battle of Algiers*.

For a while, the suspicions did not hamper Pontecorvo's work, even on sensitive nuclear projects. After a stint in Canada, Pontecorvo left for the United Kingdom, where he worked on the British nuclear-bomb project. Eventually, however, the security noose tightened and Pontecorvo was forced out of his job at the Atomic Energy Research Establishment in Harwell. In 1950, he accepted an academic position at Liverpool University. Then, the well-worn narrative veers off course. Midway through a seemingly bucolic summer holiday, Pontecorvo and his family began a sudden dash across Europe, eventually heading to Stockholm and on through Finland to the Soviet Union.

Little solid evidence has been offered for why Pontecorvo fled when he did. Some accounts allege that he was a Soviet agent, whisked away by handlers who feared his exposure — particularly after the conviction earlier that year of atomic spy Klaus Fuchs. Turchetti, however, argues that the trigger was the battle brewing over the slow-neutron patent filed by Pontecorvo and other Italian scientists. This gave them a financial stake in the technology the United States was using to produce plutonium. At the time, the US government was producing it in a reactor that used graphite to slow the neutrons.

In 1950, one of the patent holders, Gabriel Giannini, filed a suit against the US government, seeking compensation. The suit caught Pontecorvo off guard, and Turchetti argues that the prospect of having his name tied to a public legal battle against the

► US government, combined with the mounting security investigation into his background, was what prompted him to flee. The timing is persuasive: the day the news of the suit reached Europe, Pontecorvo set his plans for defection in motion.

Turchetti is critical of contemporaneous media accounts and later books that allege Pontecorvo was a spy; some are based on recollections of former agents of the Soviet security service. Decades on, there is no firm evidence to support the allegation.

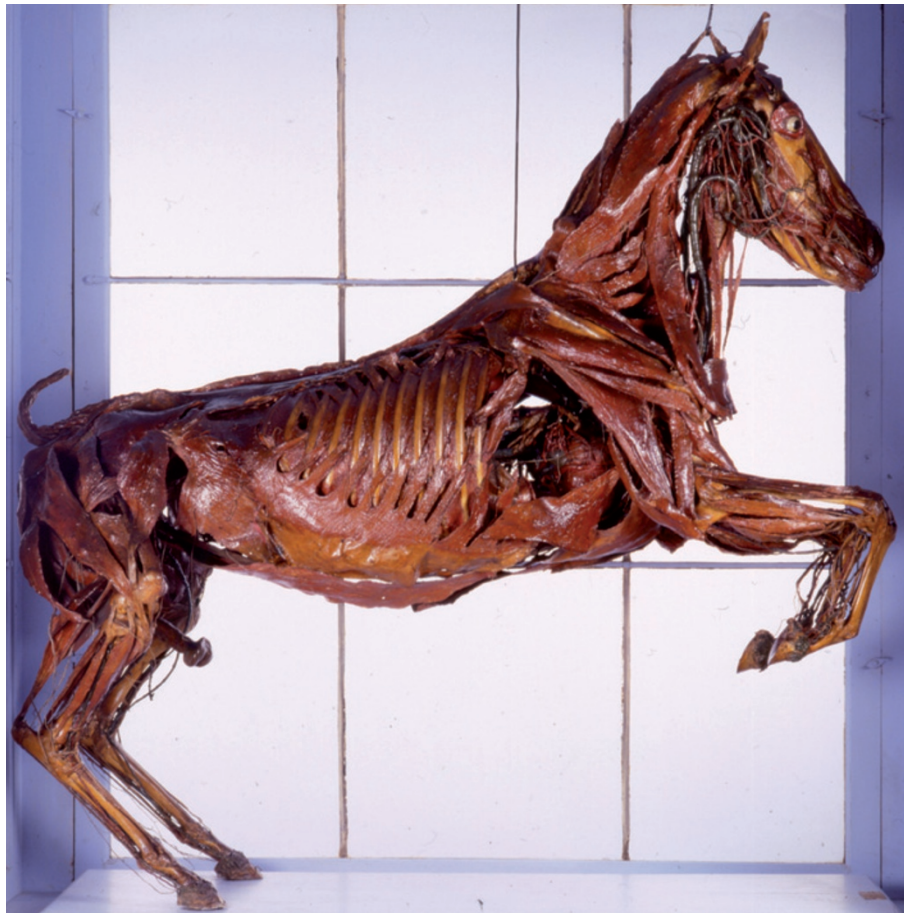
What did Pontecorvo offer the Soviet atomic weapons programme? Here Turchetti speculates, based on what is known. After his defection, Pontecorvo worked at the Dubna Institute for Nuclear Research near Moscow (now the Joint Institute for Nuclear Research) — ostensibly only on civil nuclear science. Turchetti argues that, in reality, his expertise would have allowed him to make important contributions to the Soviet atomic bomb without necessarily working on secret projects. In particular, Pontecorvo's geophysical expertise may have helped the Soviet Union to gain access to uranium reserves, which were in short supply in the 1950s.

Today, neither the Russian archives nor those of the US Federal Bureau of Investigation on Pontecorvo are open. Such secrecy tells us much about those times and about the post-cold-war mindsets on both sides of the fence, which remain riddled with paranoia. The allegations of espionage levied in 1999 against Wen Ho Lee, a Taiwanese-US scientist working at Los Alamos National Laboratory in New Mexico, demonstrate how those fears continue to guide, and misguide, investigations of such claims.

Wen Ho Lee was exonerated of espionage. Pontecorvo — who died in Russia in 1993, deeply disillusioned with communism — remains in posthumous limbo.

One thing is clear. If Pontecorvo was not a spy, and his defection was based simply on fear of persecution and a preference for life under communism, he made a poor choice. In the West during the cold war, scientists lost their jobs amid witch-hunts, but in the Soviet Union, at least under Joseph Stalin, the outcomes were more dire. Nothing in the book illustrates this better than Stalin's comment on a proposed conference organized by nuclear physicists: "Leave them in peace, we can shoot them later." ■

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A dynamic eighteenth-century exhibit of horse muscle anatomy from Pavia's Museum of Natural History.

MUSEUMS

Stripped assets

Paolo Mazzarello argues that the disposal of collections requires clear consultation with the public.

Museums are facing a sort of Malthusian constraint — an explosive increase in the volume of their collections, coupled with a severe reduction in funding, fuelled partly by the current economic crisis. Collections cannot be increased indefinitely and sustained forever. So what happens when a saturation point is reached?

The Museum of Natural History at the University of Pavia in Italy is an example of how things can go wrong at such a tipping point. Founded by naturalist Lazzaro Spallanzani in the eighteenth century, the museum was dismantled in the 1930s in the face of financial and other pressures. The collection — including some of the first animal specimens preserved by taxidermy — was then dispersed across a number of sites in Pavia and the surrounding area.

This was an extreme solution, but museums must evolve. The goal of museums, to

safeguard the evidence of important changes in the history of the planet and humankind, is an endless task. In response, they must be dynamic places, where the acquisition of objects is balanced by the planned deaccession or disposal of others.

Such an activity is at odds with the fusty image of a museum as a place where items are preserved in display cases or kept in storage. However, the disposal of materials demands care: whether justifiable or not, it is often highly controversial and can devastate an institution's image. From small civic archives to the vast Prado in Madrid, museums are the repositories of our collective past and identity, and that makes any broad discussion of disposal problematic.

Careful accession and deaccession policies are becoming increasingly important

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