

## The Pontecorvo Affaire Reappraised: Five Decades of Cold War Spy-Stories (1948-1998)

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In August 1950, the nuclear physicist Bruno Pontecorvo suddenly left Rome for Stockholm and disappeared without leaving any trace. Pontecorvo had joined the British atomic bomb project. His abrupt disappearance quickly became an international affaire, causing much concern to the western intelligence services, who were worried about the escape of atomic secrets to the Soviet Union, especially after Fuchs' famous case. In the Union of Soviet Socialist Republics (USSR), Pontecorvo was welcomed with honour, but also isolated from the rest of the world for many decades. He always denied any direct involvement in the Soviet nuclear programme. According to him, he moved to Russia because of his socialist beliefs, working only on particle physics and peaceful applications of atomic energy. Who was really Bruno Pontecorvo? A pacifist like Robert Oppenheimer or a communist agent like Klaus Fuchs? Did he have access to any information about the Manhattan Project during the war, thanks to his friendship with Enrico Fermi? Did he spy on the Anglo-Canadian programme like Igor Gouzenko, before moving to Russia? Did he join Soviet military projects across more than 30 years in Dubna? The author will discuss how the perception of Pontecorvo's case changed in the public opinion from the 1950s until the 1990s, as a mirror of the tensions between the two blocks. The whole affaire was object of harsh political confrontation in Italy for almost 50 years. Therefore, the author will also focus on the role played by the Italian communists in Pontecorvo's defection to the USSR as well as on such a local debate, which reflects the history of the post-war Italian Communist Party (PCI) until the end of the Cold War.

*Keywords:* Pontecorvo, affaire, Cold War, spy-stories

On August 31, 1950, in the middle of a holiday in Italy, the physicist Bruno Pontecorvo (see Figure 1) abruptly left Rome for Stockholm with his wife and his three sons, apparently without leaving any trace. He was expected to come back to England in a few weeks, since he was appointed to the chair of experimental physics at the University of Liverpool, which was due to take up in January, 1951. Hypotheses and suspects frantically followed one to another in the next months, especially on British and Italian newspapers: Kidnapped by Soviet agents because of his work on the Anglo-Canadian atomic project? A deliberate defection to the Union of Soviet Socialist Republics (USSR) across the Baltic sea or the Finnish-Russian border, maybe bringing top-secret documents with him? Anyway, no doubt that he was on the other side of the Iron Curtain.

Pontecorvo was the youngest member of the "Via Panisperna boys", the research group on atomic physics led by Enrico Fermi in Rome from 1929 to 1938 (see Figure 2). In 1934, he contributed to Fermi's famous experiment showing the properties of slow neutrons, which led to the discovery of nuclear fission. As he would

have told in several interviews after 1990, Pontecorvo felt increasingly oppressed by the fascist regime and scared about the idea of an alliance between Italy and Nazi Germany.



*Figure 1.* Bruno Pontecorvo (1913-1993).



*Figure 2.* From left to right: Ettore Majorana, Emilio Segrè, Edoardo Amaldi, Franco Rasetti, and Enrico Fermi. Source: Photo by Bruno Pontecorvo.

In 1936, Pontecorvo moved to Paris to work with Irène and Frédéric Joliot-Curie on the effects of collisions between neutrons and protons by studying radioactive isotopes and isomers. During this period, his leftist ideas turned into an open adhesion to communism, also because of Joliot-Curie's influential personality as socialist physicist. In 1938, he knew Marianne Nordblom, a young communist student from Sweden, who would have become his wife. Being of Jewish origins, Pontecorvo was unable to come back to Italy because of

the “racial laws” approved by the fascist government in the same year. In 1939, he met Luigi Longo and many other political refugees from Italy, joining the clandestine Italian Communist Party (PCI). He remained in Paris until 1940, when the Nazi occupation forced him to move to Spain and shortly after to the United States.

At that time, America was still a neutral country with the largest Italian community-living abroad, while Great Britain was facing the threat of a German invasion, dealing with the problem of “enemy foreigners” on its territories. For an Italian refugee, it was definitely easier in 1940 to establish in the US. Furthermore, the British intelligence service had already opened a file on Bruno Pontecorvo. This early report of the Military Intelligence Security Service (MI5) defined Pontecorvo as anti-fascist but moderately unwelcome, because he belonged to Joliot-Curie’s leftist entourage.

Thanks to Emilio Segrè who had moved to Berkeley in 1938, Pontecorvo was recommended to Serge Alexander Scherbatskoy and Jacob Neufeld at the Well Survey Incorporated (WSI) in Tulsa (Oklahoma), a pioneer company engaged in the application of nuclear physics and geophysics to mineral prospecting and well-logging. Since the very beginning of his scientific career, Pontecorvo was interested in the interactions between nucleons and atomic/molecular structures. The idea of studying the absorption and scattering of slow neutrons to detect the physico-chemical properties of different geological layers occurring in an oil well came directly from his previous work in Rome and Paris. The combination of electron, gamma-ray, neutron and well-logging could provide a much more accurate prospecting, also for deposits of radium and uranium (Bonolis, 2005).

Pontecorvo worked at the WSI for two years, before shifting his attention from the geophysical applications of radioactive sources to the sources themselves and their detection, visiting different laboratories of the East Coast and meeting Fermi in Chicago. Despite his close friendship with Fermi, Pontecorvo was not called upon to take part to the Manhattan Project, probably because of his committed socialist beliefs. On September 25, 1942, Pontecorvo’s house in Tulsa was accurately inspected by two Federal Bureau of Investigation (FBI) agents, since Pontecorvo had become “enemy foreigner” even in the US and he was working on strategic subjects. During the inspection, they found Marxist literature and pro-communist leaflets, which was the origin of a second, much more important file on the Italian physicist. This American “Pontecorvo dossier” is still today classified and all we know about comes from the declassified documents of the British intelligence.

In 1942, Fermi and Pontecorvo had several occasions to confront their data on the propagation of neutrons across different materials, but as far as we know, Fermi never told him why he was so interested in the subject. We do not even know if the FBI itself prevented Fermi from involving Pontecorvo in the American atomic programme, but Fermi must be informed of their recent visit to his friend’s house and he was very cautious about such issues. However, in 1943, Pontecorvo was invited to join the Montreal and Chalk River Laboratories in Canada, where he concentrated on prospecting of strategic minerals, design of nuclear reactors moderated by heavy water, and safety issues related to anti-radiation shields. He was also interested in theoretical particle physics, cosmic rays, neutrinos, and the decay of muons.

Pontecorvo was thoroughly examined during a preliminary interview by the security board responsible for Tube Alloys, the nickname of the Anglo-Canadian atomic project, but nothing really suspicious was found. On the contrary, he seemed to be the right person in the right place. His leftist views were after all a guarantee of active collaboration against Nazi-fascism, without considering that the Soviet Union was still an allied country at that time.

In 1945, Igor Gouzenko, former employee at the Soviet embassy in Ottawa, confessed to the Canadian authorities that he was part of an international espionage network made of Narodnyi Komissariat Vnutrennikh Del (NKVD) officers and Western scientists which had infiltrated Tube Alloys. It came out very soon that the atom spies were not “enemy foreigners” but British and French physicists, like in the famous case of Alan Nunn May, arrested in 1946. Nunn May’s claim that helping the USSR to develop its own nuclear programme was vital to defeat Germany, as later Robert Oppenheimer’s concern that only the end of the Anglo-American monopoly on nuclear technology would ensure world peace through atomic deterrence, was not necessarily connected with communist beliefs and pro-Soviet feelings.

This would have become less and less obvious after 1945. One usually says that Hiroshima and Nagasaki were at the same time the last act of the Second World War (WWII) and the first act of the Cold War. The collective hysteria raised by the “Red Scare” in McCarthy’s era was functional to Henry Truman’s containment policy against the USSR and its new allies: The communist block would have been able to overcome the military and political supremacy of the “free” world only by means of its spies and collaborators disseminated in the West.

The hunt for the “fellow travellers” did not affect Pontecorvo yet, because of his fundamental contribution to Tube Alloys, but he felt more and more upset by the security restrictions imposed by James Chadwick to all the physicists working in the programme, after the Gouzenko and the Nunn May affaires. In 1948, he obtained the British citizenship (maybe helped by Fermi) and was invited by John Cockcroft to join the Nuclear Physics Division in Harwell to contribute to the British atomic bomb project at the Atomic Energy Research Establishment (AERE) secret laboratories.

As far as we know from documents declassified in the 1990s, Scotland Yard and the MI5 had been informed in the meanwhile by their FBI counterparts that Pontecorvo was a member of the PCI since 1939, even if he did not seem to be actively involved in communist propaganda. Despite his socialist commitment, Pontecorvo seemed to be trustworthy enough to work for the Royal Army, even if he was constantly surveyed by the secret services, as many other nuclear physicists in Great Britain at that time. The information evidently came from the FBI dossier opened in 1942, enriched with new details about the pro-communist activities of other members of the Pontecorvo family who lived in Italy, like Bruno’s youngest brother Gillo and his cousin Emilio Sereni. Both were former communist partisans during the Nazi occupation and had a prominent role in the post-war PCI.

Of course, none of these things was known to the general public, at the time. Anyway, Pontecorvo’s position was becoming more and more difficult in an age of anxiety, suspicion, and paranoia, especially after another famous case of atomic espionage, that of Klaus Fuchs in 1948-1950. Differently from Nunn May, Fuchs was precisely the kind of “enemy foreigner”, the allied military services were so afraid of during the first years of WWII. Moreover, there was no doubt that his spying activity, begun in 1942 when he joined the Manhattan Project, was due to a strong and aware commitment with the Soviet system, dating back to his youth as German Communist Party (KPD) militant in the late Weimar Republic.

From this point of view, Fuchs was the first atom spy of the Cold War who deliberately acted as such, being recruited in Chicago as formal collaborator of the People’s Commissariat of Internal Affairs (NKVD). Furthermore, it was the first case of atomic espionage which really attracted the attention of the media at international level, shaping in different but complementary ways the collective imaginary of both sides of the

Iron Curtain. After 1948, atomic secrets, “fellow travellers”, and spy-stories related to them became key issues of public domain, in the political debate as well as in popular culture. The Fuchs affaire was by the way the *casus belli* of an underground war between officially allied intelligence services, which was also an invisible war between the two founders of the the North Atlantic Treaty Organization (NATO), with their divergent political visions (Williams, 1987; Friedmann, 2006).

Great Britain had developed a much more pragmatic attitude towards the Soviets, because of its geopolitical closeness to Europe, while the Americans blamed this accommodating policy as inadequate to ensure security in the new world scenario. Furthermore, the British claim for strategic independence from the USA was regarded by the American administration as a sign of unreliability, when unity, loyalty, and transparency were indispensable to fight against the “Red Threat”. The high permeability of Tube Alloys to the Soviet espionage was a serious failure for the British intelligence and might turn into a great scandal. Security controls and investigations must be stricter, following the example of Herbert Hoover’s anti-communist campaign as executive director of the FBI. Scotland Yard could not risk a Pontecorvo case, after that of Klaus Fuchs. What was just suspicious, before 1950, was now sufficient to prevent a nuclear physicist from working on secret projects.

Pontecorvo was actually removed from all his duties in Harwell, his access to classified files denied. Cockcroft wanted to avoid any publicity to the whole thing, so he strongly recommended Pontecorvo for the chair of experimental physics in Liverpool, which was to become a high-rank research centre for theoretical and particle physics, but with no direct link to the British atomic programme. Pontecorvo was appointed ordinary professor in Liverpool in July 1950, despite the opposition of some members of the evaluation panel, who would prefer a British physicist and did not understand Cockcroft’s personal interest in his nomination. He was free to work at his best topics, i.e., neutrinos, mesons produced by colliding nucleons, cosmic rays, and particle astrophysics, with no secrecy issues.

However, Pontecorvo seemed to be very unhappy with this solution, which sounded more like a confinement after an arbitrary condemnation. It was clear to him that Liverpool would have been a hostile environment for a Jewish-Italian scientist suspected of being a communist spy. Moreover, in 1948, he had joined the collective legal action carried on since 1946 by Fermi, Amaldi, Segrè and Rasetti against the American government to claim for their rights and for adequate royalties upon any nuclear technology patented in the US which was based on the properties of slow neutrons. A former refugee and maybe a “communist traitor” who was openly accusing the US administration of having tricked the Italian physicists exploiting their work for free because of the urgent needs of the war: Another good reason for the British and American intelligence to put him under surveillance. The action would have only come to an end in 1951, with a refund of almost \$300,000: Far less than the sum originally asked by the “Via Panisperna boys”. In the meantime, it had assumed the meaning of a scientific, economic, and diplomatic controversy between Italy and USA.

On July 24, 1950, Pontecorvo wrote to James Mountford, rector of the University of Liverpool, that he would have travelled across Italy to visit his relatives and friends. His sudden flight from Rome to Stockholm on August 31 could be explained as an unforeseen stay in his wife’s hometown, right before coming back to the UK. The day after, however, the Pontecorvos moved to Helsinki and then vanished. Their abrupt disappearance soon became an international affaire in a period of increasing tensions between the two blocks, causing much concern to the British and American intelligence, who was worried about the escape of atomic secrets to the Soviet Union. Initial rumours about Pontecorvo being kidnapped by the Komitet Gosudarstvennoi Bezopasnosti

(KGB) quickly turned into the open suspicion that he had deliberately moved to the USSR, probably helped by Soviet agents.

Facing the embarrassing possibility that Pontecorvo was really a communist spy defected to the Soviet Union, maybe bringing classified material along, the British authorities immediately pointed out that he had had very limited access to secret subjects. Even later, no official allegation of transferring military secrets to the Soviets was made against him (Turchetti, 2007), but in the meanwhile, Pontecorvo had already become a second Fuchs case, with the exceptional case of a Western nuclear physicist who had managed to cross undisturbed the Iron Curtain.

By the way, there are two different versions of his travel, which is still nowadays controversial: (1) He moved from Stockholm to Helsinki by plane and from Helsinki to Leningrad by train, after a short transfer from the airport to a Russian base in Finland on a Soviet diplomatic car; and (2) he went directly from Stockholm to Leningrad on the boat *Belostrov*. The circumstances of his hasty departure are obscure, because Pontecorvo never wanted to tell them in detail: Something that raises many questions, even today. Did Pontecorvo need to protect someone who had helped him during his travel by keeping his identity secret? Was he instructed or even forced by the KGB to behave in this way? We know for sure from the registers of the bureau of Scandinavian Airlines in Rome that he paid \$ 602 for the tickets: By cash and with six banknotes of \$ 100. At that time, they were not available at any bank, only at embassies and consulates, like the Soviet embassy in Rome.

Combining this information with that coming from the secret archives of the former PCI, now accessible to historians, we are able to provide a plausible reconstruction of those events. Pontecorvo's cousin, senator Emilio Sereni, was a very important figure of the PCI under Palmiro Togliatti's secretaryship, at least until the "De-Stalinization" of the party after 1953. Today, we know that he was member of a secret security commission (together with Pietro Secchia and Giulio Seniga), headed by Togliatti himself and unknown to the rest of the Central Committee. They coordinated the activities of a clandestine network, later known in Italy as "Red Gladio" and directly connected with the KGB. This paramilitary structure had already helped many Italian communists to emigrate to the East between 1945 and 1950, providing false passports and safe passages through the Iron Curtain, mainly across the Austrian-Czechoslovakian boarder. It must be ready to take over the Central Committee, if the survival of the largest communist party in the West was in danger (Mafai, 1983; Caprara, 1996, 1997a).

Pontecorvo's hurry in those days leads to the conclusion that his defection was not prepared from long time, but decided just a few weeks before. Since he met his cousin Emilio Sereni during a brief stay on the Dolomites, right before going to Rome, he probably discussed with him the possibility of becoming a Soviet citizen. Pontecorvo and his family were also close to the Partisans of Peace, a pacifist organization which was quite similar to the Pugwash movement, but part of the Comintern (Cominform) and led by Sereni himself. Joliot-Curie was among its most active members. As already noticed by Albert Einstein in his last years, however, the Partisans of Peace were "pacifist" in a very particular sense: They strongly criticized the western nuclear policies as the aggressive and neo-colonial side of capitalism, but they tended to justify the Soviet atomic programme as the inevitable response to them (Giacomini, 1984).

Historians actually agree that Pontecorvo was helped by Emilio Sereni, who contacted the Soviet embassy in Rome and organized the whole operation, providing him with the money he needed. Probably, he never mentioned the role played by Sereni to protect his cousin, his own family, and the "Red Gladio" from a

political scandal in Italy (Caprara, 1997b; Donno , 2001; Turi, 2004). Nevertheless, the Pontecorvo affaire assumed since the beginning of a particular significance in the Italian political debate, so strongly polarized between pro- and anti-communists, especially after 1948. The local newspapers soon raised the question of the alleged support given by the PCI to Pontecorvo in his defection to the East, claiming that this strong suspect might seriously affect the diplomatic, political, and economic relations between the young Italian Republic and the other NATO countries, destabilizing its inner and foreign policy.

In the USSR, Pontecorvo was welcomed with honour (see Figure 3). He was given many privileges usually reserved to the Soviet Nomenklatura and awarded the Stalin Prize in 1953, the membership of the Soviet Academy of Sciences in 1958, and two orders of Lenin. Anyway, he was isolated from the rest of the world for many decades, a part from one official press conference on March 1, 1955, when he was authorized to appear in public for the first time after his defection in order to explain to Western journalists the reasons of his choice. According to him, he had moved to Russia because he rejected capitalism and wanted to live in a socialist system. He would have reached such a decision after having left Canada in 1948, abhorring the idea of working for the sake of Anglo-American imperialism. Having been one of Fuchs' closest friends in Harwell, he did not want to live as renegade in a paranoid society obsessed by communist traitors.



*Figure 3. Pontecorvo in Moscow (1955).*

Of course, we must be very careful about statements like these, which might have been “suggested” in some way. The 1955 press conference was an international event which immediately gave the Western media the occasion to speculate about what was “behind the scenes”, the true reasons of such a long silence before announcing to the world that he had become a Soviet citizen. Pontecorvo always denied of being a spy recruited by the NKVD (later KGB) and informed about Fuchs' activity, as well as he always maintained to work exclusively on high energy particles and oscillating neutrinos, denying any direct involvement in the Soviet atomic programme. This last statement seems to be another half-truth. If it is so, why did the Soviets confine him and his family in a hotel room in Leningrad for several days, before transferring them to Moscow

and then to Dubna? Did they want to make sure about his reliability? Did they interrogate Pontecorvo on his previous research activity? They could take a great propagandistic advantage from presenting him immediately as the great physicist, former member of Fermi's group in Rome, who had chosen to support the "right side" of the Cold War. They could also compare him to the "socialist hero" Klaus Fuchs and to many other victims of anti-communism campaigns in the West. Why did they wait five years?

Even more important: Did Pontecorvo really work on non-strategic subjects in Dubna, where most of the secret nuclear laboratories of the USSR were concentrated and most of the German specialists recruited by the Soviets had been employed right after the end of the war (Holloway, 1996; Kojevnikov, 2004)? Did he just work on cosmic rays, high-energy particles, oscillating neutrinos, and decaying muons? If it is the case, why did the Russians prevent him from having any contact with the outside world for almost 30 years? Only in August 1978, he was allowed to leave the USSR and to come back to Italy for two months to attend a symposium in Rome on the occasion of Amaldi's 80th birthday. We know from newspapers and personal memories of the participants that Pontecorvo's visit was a surprise for many people, causing different reactions. Segrè in particular was still upset by Pontecorvo's choice. He had openly criticized his 1955 press conference, claiming that his defection to the USSR had been a serious problem for the "class action" led by Fermi against the US government. Since then, however, Pontecorvo was relatively free to travel to the West, even if for short periods.

Today we also know from declassified documents of the KGB that, in 1950, he was examined by a mixed commission of nuclear physicists and officers of the Red Army at the Institute for Physical Problems in Moscow, before being transferred to Dubna. Maybe he did not know anything new on atomic bombs, but his expertise in reactor design, anti-radiation shields, and neutron logging applied to geological prospection must be very useful: In a few years, the Soviets filled the techno-scientific gap both in the design of reactors moderated with heavy water and in uranium prospection that, in 1950, still divided them from the US. Furthermore, we know from other declassified sources of the British intelligence that Pontecorvo was sighted in 1953-1954 as member of a Soviet delegation at the western boarder between USSR and China (Goodman, 2007). Did he contribute to the development of the Chinese nuclear programme, before the end of the Soviet-Chinese cooperation in 1958? The question still waits for an answer, because everything concerning the Chinese atomic project is top secret.

The Pontecorvo affaire has been object of a harsh political debate in Italy till the end of the Cold War, very close to the Iron Curtain, where the strongest and most "heterodox" communist party in the West was excluded from any role in the national government since 1948 but always maintained its cultural hegemony over the country until 1990. Who was Bruno Pontecorvo, beyond his unquestioned scientific achievements? A model of "socialist science" or a utopian scientist, victim of a totalitarian illusion as many other intellectuals in the 20th century? A man of science who always promoted peaceful applications of atomic energy and never wanted to have anything to do with the military, like Franco Rasetti or Norbert Wiener? A communist spy who contributed to pass strategic information to the East? A physicist who soon realized that the Soviet atomic bomb was the only way to balance the nuclear power of the USA and, therefore, to preserve global stability, like Oppenheimer? All these things together and/or none of them in particular, to a certain extent?

The perception of Pontecorvo's case changed in the public opinion from 1950 to the early 1990s, as a mirror of the local and global tensions of the Cold War. Anyway, it constantly oscillated across different times and contexts between two main narratives, which is not necessarily incompatible: Let us say the "pro-Soviet

atomic spy”, from one side, and the “pro-socialist nuclear physicist”, from the other. In Italy, it also reflected the complicated history of the post-war PCI, from Stalinism to anti-Soviet euro-communism, until the social-democratic turn of the late 1980s. The huge amount of primary sources that such an inquiry would need range from newspaper articles to historical essays and popular books, from interviews and personal records to TV documentaries and related materials recently published on the Web. Pontecorvo’s autobiographical notes and statements, starting from those concerning the evolution of his scientific, social, and political views as Jewish-Italian-Soviet physicist, should be confronted with the “revelations” made in the mid-1990s by some former agents of the KGB like Pavel Sudoplatov, which had renewed the public interest for the 1950 affaire and re-opened the Pontecorvo dossier, so to speak.

According to their “indiscretions”, which is obscure and contradictory in many points, Pontecorvo was not a formal agent, like Fuchs, but an informal collaborator of the Soviet intelligence since 1940, after he joined the PCI. He would have passed crucial information about the very early stages of the Manhattan Project during his short stay in the USA, something that Fermi would have been suspicious about but unable to prove. His secret activity would have continued in Montreal, spying on the Anglo-Canadian nuclear programme. As member of the AERE project in Harwell, Pontecorvo would have had access to top secret files which were extremely useful for the Soviets. His decision to escape to the East would date back to the conclusion of Fuchs’ trial in 1950 (P. Sudoplatov & A. Sudoplatov, 1994).

The “real” Pontecorvo finally revealed or just an attempt from former Russian spymasters to sell the most (in)convenient truth to Western press, in order to gain money, credit, and visibility after the collapse of the USSR? An important consequence of Gorbacëv’s glasnost or rather the last version of Soviet disinformacija? Again, we deal with half-truths and true lies: typical of this kind of people and of their epoch. On the one hand, historians of science are very sceptical about the reliability of such “testimonies”, even if they are important sources for cultural history on their own. On the other hand, we should be cautious with reconstructions biased by some apologetic attitude towards contemporary scientists.

The same might be said for Pontecorvo’s late reflections upon his political commitment. He defended dissident colleagues like Andreij Sacharov and admired Gorbacëv as reforming leader, but he was definitely disillusioned about the Soviet system. This does not imply that he abandoned socialism for capitalism: Like in the case of Lev Landau, his frustration came rather from having realized that the USSR was all but a socialist country. This was probably the “error” he referred to, talking about his decision to live in Russia (Mafai, 1992).

Anyway, as former Soviet citizen, Pontecorvo was the strongest opponent of early NATO attempts to exploit strategic human and techno-scientific resources by means of a mass immigration of Russian specialists to the West, immediately after the dissolution of USSR and the political chaos that followed. On the contrary, he supported Carlo Rubbia’s international effort to save former Soviet academic institutions and research laboratories with a sort of “Marshall Plan” built by the world scientific community. As a matter of fact, the Pontecorvo affaire is still far from being solved... as many other secrets of the Cold War.

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