

STALIN, FUCHS AND THE SOVIET BOMBS

It is the purpose of this letter to draw attention to recent publications in the Soviet press about the history of the USSR's plutonium bomb.

Moscow News (an English weekly written in Moscow) of 12 April 1988 contains the first publication in full of a letter to Stalin written in April 1942 by Georgy Flerov. Before the war Flerov, now director of a laboratory at the Joint Institute for Nuclear Research in Dubna, had discovered the spontaneous fission of uranium-235, together with Konstantin Petrzhak. Flerov wrote his letter, addressed "Dear Iosif Vissarionovich," after having noted that recent physics journals from the US, Britain and Germany contained no reference whatever to fission. From this he had correctly inferred that scientists in those countries were up to something. He pleaded with Stalin to take an initiative "concerning the feasibility of the uranium problem," noting that earlier letters to "Comrade Kaftanov" (the State Defense Committee's representative for science) "are simply being passed over in silence."

Further information is found in an interview, published in *Moscow News* of 8 October 1989, with Igor Golovin, who participated in the Soviet atomic bomb effort in the 1940s and who was assistant to Igor Kurchatov from 1950 to 1958. According to Golovin, in the autumn of 1940 Kurchatov reported to the Soviet Academy of Sciences on the possibilities of a chain reaction. It was decided at that time that too little was known to justify approaching the government for major funding. After the invasion of Russia by Germany, in June 1941, various defense-oriented projects received priority.

According to Golovin it is not (yet) clear what caused the Russians to reconsider the atomic bomb option. Flerov's letter may have played some role, he believes. At any rate, in November 1942 Stalin ordered four academicians—Abram F. Ioffe, Peter Kapitsa, V. G. Khlopin and Vladimir I. Vernadski—into his presence "and asked them bluntly how serious the information he had was concerning

the possibility of developing the atom bomb in the next few years. . . . His guests unanimously confirmed the importance of this work." Whereupon Stalin decided that a project should be started and personally chose Kurchatov as its leader.

Real work on the Russian bomb started only after the conclusion of the war in Europe. First Vyacheslav Molotov, then Lavrenti Beria, became chief administrator. All construction projects employed the labor of prisoners.

The first Soviet reactor became operative on 25 December 1946. Thereafter the scientists concentrated their efforts on a plutonium bomb. Sometime in 1949 Kurchatov, some of his coworkers and a few government officials gathered in Stalin's Kremlin office. Kurchatov had brought along a box holding a nickel-plated ball, about 10 cm in diameter, that contained plutonium. "Here is a ready charge for the bomb," he said to Stalin.

"How many more have been made?" asked Stalin.

"There aren't any more; here is all the plutonium we have accumulated."

After a pause Stalin said: "How do we know that this is plutonium, not a sparkling piece of iron? And why this glitter? Why this window dressing?"

Kurchatov: "The charge has been nickel plated so that it would be safe to touch. And to satisfy yourself that this is not merely a piece of iron, instruct anyone to touch the ball. It's warm, whereas iron would be cold."

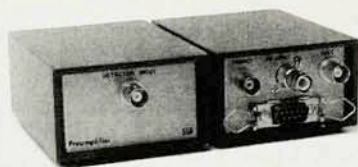
Stalin himself put his hand on the ball. "Yes, it's warm. And is it always warm?"

"It always is, Iosif Vissarionovich."

That was the material used in the first Soviet test, on 29 August 1949, witnessed by Beria among others. That blast was announced on the following 23 September by President Truman.

I have not seen similar Soviet accounts of their hydrogen bomb development, but I anticipate that some information should be forthcoming before too long. Western scientists

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would in particular be interested to see a Soviet account of the information they received concerning that weapon from the confessed spy Klaus Fuchs. In that connection I add two recollections of my own.

I vividly remember a remark made to me by Robert Oppenheimer right after Fuchs had been arrested. He said, more or less verbatim, that he hoped Fuchs had told the Russians all he knew about the "Super" (the hydrogen bomb) since that would set back their efforts by several years.¹

Next, again about Fuchs: In the spring of 1956 a small group of US physicists (we were 13, I seem to remember) visited the USSR. We were the first postwar invitees to an international physical conference in Moscow. One evening we were entertained for dinner by Kapitsa. The conversation turned to atomic weapons. At some point one of my American colleagues, not known for an excess of tact, remarked that you, the Russians, had it easy because of the information received from Fuchs. Sitting next to Kapitsa I could well observe his reactions. He looked upward, as if trying to remember something, then said: Fuchs? Fuchs? I never heard of Fuchs. Then he turned to Artemii Alikhanian and asked, Have you heard of Fuchs? No, said Alikhanian, he had not heard either. Which goes to show how smartly our host put one of his guests in his place.

Reference

1. See also C. Norman, *Science* **247**, 151 (1990).

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3/90

Soviet Anti-Semitism in Perestroika's Wake

Just one week after my arrival in the US from Moscow I read in the March issue of *PHYSICS TODAY* (page 52) the pieces by Irwin Goodwin and Vitalii Goldanskii about rising anti-Semitism in the Soviet Union. I share those authors' deep anxiety about the future of Soviet Jews, and I would like to offer several additional, though naturally rather subjective, views on the problem, which is rapidly becoming more aggravated and more dramatic. My comments may be of interest to the physics community because I belong to a younger generation than the most frequent Soviet writers in *PHYSICS TODAY's* pages, and because I held the humble position of a researcher in the USSR Academy of

Sciences, whereas they come from the upper echelons. Thus I can give, so to speak, a view from the bottom.

It is obvious that life is changing in the Soviet Union, and the life of Jews is no exception. I could not have imagined five years ago, for example, that I (being half Russian-half Jewish with a Germanic surname, unmarried, not a party member and having no relatives in America) would be allowed to go to the US as a private person on a private visit.

Nevertheless, I feel that there is no future for Jews in the USSR. Soviet society is awfully ill, and the convalescence may take at least one or two generations. Anti-Semitism is deeply engrained in Russian life. The phenomenon is not confined to the Russian republic; it is widespread throughout the USSR. The totalitarian state actively enforced anti-Semitism in every aspect of life. Partially as a result of this policy, anti-Semitic feelings and intolerance are prevalent among substantial elements of Soviet society, especially in such "responsible" strata as the army, the KGB and the bureaucracy. Just how important and how substantial this part of society is one can judge from the fact that despite numerous appeals (such as the letter of ten scientists and writers to President Gorbachev published in the March *PHYSICS TODAY*), the highest leadership has not condemned this anti-Semitic "peculiar bias" held by probably its most reliable supporters.

Nor is anti-Semitism unknown or unacceptable in the scientific community. Science naturally reflects the state of society. Readers may know that one of the strongest centers of Soviet science is Akademgorodok, near Novosibirsk (the main seat of the Siberian branch of the USSR Academy of Sciences). But they may not know that Akademgorodok is also a notorious center of anti-Semitism, especially active in inflaming feelings that Russia must be "cleansed" and providing "scientific" foundations and support for blaming Jews for problems past and present, existent and nonexistent, from the Bolshevik revolution through drunkenness through *perestroika*.

Even if one day discrimination is prohibited by some decree, not much would change in practice, since life is not governed by the law and a lot is determined by those people "in the field" who previously carried the major burden for preventing Jews from entering educational, scientific and industrial institutions and who are still at their positions in personnel

continued on page 90

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