

Screenplay for the film "1949 - Temptation by the Bomb. Historical Chronicles with Nikolai Svanidze" written by Marina Zhukova, translated by AI, and preceded by a summary also written by AI.

Screenplay Summary:

The text is a broad historical and political narrative about the origins of the Soviet atomic bomb, detonated on 29 August 1949, and the people and structures that made it possible. Nuclear physicists form a new Soviet postwar elite: they are, unusually for the USSR, allowed relative intellectual freedom, because the regime desperately needs their minds. Beria and Stalin, though surrounding them with surveillance, tacitly accept that “only people without fear” can build the bomb.

The story is embedded in a global context. Before World War II, nuclear physics is an international and largely apolitical field, dominated by figures such as Becquerel, the Curies, Rutherford, Fermi, Bohr, and Joliot-Curie. The discovery of nuclear fission in 1938–39 triggers a chain of scientific and political decisions. In France, Joliot and his group patent designs including a uranium bomb and contemplate a test in the Sahara, but the German occupation destroys the French lead. In Britain and the United States, scientists like Leo Szilard and Einstein push governments to recognize the military implications of fission, leading to the Uranium Committee and, eventually, the Manhattan Project. Publications are restricted, huge resources are concentrated, and nuclear research is militarized.

The Soviet Union, by contrast, falls behind for political and structural reasons. The Molotov–Ribbentrop Pact makes any discussion of a German bomb politically taboo; the Great Terror decimates scientific networks and cuts off international contact; journals arrive weeks late; and Western physicists stop exchanging sensitive information with Soviet colleagues after the Stalin–Hitler deal. A handful of older, pre-revolutionary scientists – Vernadsky, Khlopin, Fersman – try in 1940 to alert the Soviet government to the strategic importance of atomic energy, prompted in part by a New York Times article forwarded by Vernadsky’s son from Yale. Their letter leads to a uranium commission, but without a large-scale industrial response.

The text also resurrects an earlier “atomic project,” centered on radium in imperial Russia. Around 1910–1914, radium research was funded by private capital and philanthropic foundations such as the Ledentsov Fund and the Riabushinsky family. Russia was on the verge of a powerful alliance between science and big business and could plausibly have become a nuclear power in the 1920s. The revolution, nationalization, and civil war destroy this trajectory. In an ironic twist, radium produced before 1917, stored and never sold when world prices dropped, is used in the 1940s to make polonium for the neutron initiator of the first Soviet bomb.

During World War II, Soviet intelligence obtains detailed information about British and American nuclear projects through agents like John Cairncross, Klaus Fuchs, and Alan Nunn May, yet Stalin and Beria initially distrust these reports, fearing disinformation. Kurchatov receives the intelligence files only in 1943, concludes that the USSR must focus on a plutonium bomb and that the problem can be solved faster than previously thought, and writes two key memoranda that become the intellectual foundation of the Soviet program. After 1945, espionage material greatly accelerates Soviet progress, but state distrust of both intelligence and domestic scientists persists.

Once Stalin finally decides to fully mobilize, the Soviet system brings its characteristic tools to bear. Beria assumes political control; the Gulag supplies vast amounts of forced labor; construction is financed on an “open account” without budget constraints; and scientists and engineers are personally responsible for deadlines. Some 750,000 people work on atomic installations, most of them prisoners or semi-coerced military builders. Alongside them, young female graduates – not convicts – work unprotected with polonium and plutonium, developing severe, often lethal illnesses. They become, in the narrative’s words, the “nuclear shield of the Motherland.”

At the same time, a brutal ideological campaign unfolds. From 1949 onward, leading physicists are branded “cosmopolitans,” a label that combines antisemitism and hostility to the Western-oriented intelligentsia. The campaign destroys genetics as a discipline and threatens to do the same to physics, just as happened in Nazi Germany. Kurchatov is forced to confront the regime with a stark choice – “either ideological games, or the bomb” – and Stalin chooses the bomb.

The text ends with Stalin’s cold strategic view of atomic war. He does not fear a nuclear conflict with the United States; he assumes the USSR can compensate with overwhelming land forces and territorial expansion. From 1949 he builds up Soviet and Eastern European armies and even deploys an army in Chukotka with a possible future landing on Alaska in mind. While young women slowly die in plutonium plants, unaware of these plans, the leadership thinks in terms of global war and the size of the Soviet-controlled territory as the true measure of power.

Screenplay:

1949 – The Bomb

On 29 August 1949, the Soviet atomic bomb was detonated.

The people of nuclear physics are the very top of the Soviet scientific elite – simply a new Soviet postwar elite. They are, to the greatest extent possible in the USSR, intellectually free. At first, before the war, they are free because the authorities show no interest in them and they manage to move in the mainstream of world scientific development. Then, after the war, a unique situation arises. The authorities need their intellectual freedom, because the creation of the atomic bomb depends precisely on it. Naturally, there are listening devices installed in the apartments of all participants in the atomic project, and their relatives and acquaintances are kept under special surveillance, but, as one of the directors of the atomic facility Arzamas-16 recalls:

“At a certain stage, they made us understand that we could say whatever we wanted and nothing would happen to us for it. Thought is born only in the freedom of the mind, and it seems to me that Beria and Stalin at some point understood this. They needed the atomic bomb, and only people without fear could make it.”

Already in 1944, at the very beginning of the atomic project, the younger brother of the corresponding member of the Academy of Sciences Isaak Kikoin, in a conversation with a colleague, expressed doubt about the wisdom of the country’s leadership.

The colleague informed on him. A few days later, Beria himself appears in Kikoin’s laboratory to dispel any concerns about his brother. Beria gathers a trio of scientists – Kikoin, Alikhanov, Kurchatov – and says:

“There is no reason to worry about the fate of your relatives – their complete safety is guaranteed.”

Only the atomic bomb, for the first time in all of Stalin’s rule, makes such words possible. From the side of the state, the atomic project is headed by Beria. From the side of science – by Kurchatov.

With the beginning of the atomic project, Kurchatov grows a beard. That is what they will call him: “The Beard.”

His colleagues said that with the beard he looked like a priest. In his house, near the fireplace, there is a figure of Mephistopheles, the chief tempter of the human race. The possibility of seeing the practical result of one’s scientific efforts is a powerful temptation for a great scientist – all the more so a result such as the explosion of an atomic bomb.

On 24 January 1949, in the Paris Palais de Justice, the trial begins in the case of Viktor Kravchenko concerning his book *I Chose Freedom*. Engineer Viktor Kravchenko, an employee of the Soviet purchasing commission in Washington, requested political asylum in 1943 and soon published a book in which he wrote about collectivization in the USSR, the famine in Ukraine, the Stalinist camps, and why he decided to remain in the West. After the book came out in French, the communist weekly *Les Lettres Françaises* printed a satirical piece titled “How Kravchenko Was Fabricated.” Its gist: Kravchenko’s book is a CIA plot against the USSR. The famous playwright Jean-Paul Sartre immediately writes a play in which he likewise clearly hints that Kravchenko is a creation of the CIA. The very left-wing French intelligentsia will, right up until the appearance in the West of Solzhenitsyn and his *Gulag Archipelago*, deny the truth about Stalinism. In 1949, Kravchenko brings a libel suit against *Les Lettres Françaises* and wins. In court, the so-called “witness of honor” against Kravchenko is the Nobel Prize-winning physicist Frédéric Joliot-Curie.

Frédéric Joliot is known for his leftist views. The Soviet leadership makes use of the French scientist’s publicly professed leftism.

The Soviet leadership had begun communicating with him during the war.

In 1944, the Soviet intelligence representative Lev Vasilevsky meets Frédéric Joliot. The scientific theses for the spy’s conversation with the scientist are written by Kurchatov. The conversation shows that Joliot is ready to cooperate with the USSR in the use of atomic energy in both industrial and military fields. In the summer of 1945 he writes a letter to the president of the USSR Academy of Sciences, Komarov: “I would like to have a conversation with Molotov and Stalin on the extremely urgent question of atomic energy.” The president of the Academy passes the letter to Stalin. Stalin says nothing in reply.

In September 1945, after the American atomic bombardment of Hiroshima and Nagasaki, Beria prepares for Stalin a memorandum analyzing Joliot’s proposal for cooperation:

“Professor Joliot and his colleagues would be useful to us if it were possible for them to move to the USSR for permanent or long-term work here. However, it has turned out that Professor Joliot envisages cooperation in the form of mutual consultations. The form of cooperation proposed by Joliot is unacceptable in view of the secrecy of uranium work.”

For four decades, right up to the start of the Second World War, what dominated the development of nuclear physics was scientific interest. Politics played no role.

This branch of science developed with exceptional speed; one could say it was fashionable and,

most importantly, international. The movement that would lead to the creation of the atomic bomb was represented by a worldwide cosmopolitan company of scientists: Becquerel, Marie and Pierre Curie, Rutherford and Soddy, Chadwick, Cockcroft and Walton, Enrico Fermi, Irène and Frédéric Joliot-Curie, Bohr and Wheeler, Dirac, Weizsäcker.

In December 1938, Otto Hahn and Fritz Strassmann of the Kaiser Wilhelm Institute in Berlin enter this story. Even before their article on the results of bombarding uranium nuclei with neutrons is published in *Die Naturwissenschaften*, Otto Hahn describes the experiment in a letter to his colleague Lise Meitner, who had fled Germany after the adoption of antisemitic laws and was living in Sweden. Lise Meitner shows the letter to her nephew, the physicist Otto Frisch, who has come to visit her for the Christmas holidays. Frisch too has fled the Nazis and is now working at Niels Bohr's institute in Copenhagen. They – that is, Otto Frisch and his aunt – go skiing and endlessly discuss the problem. Their conclusion:

“The splitting of the uranium nucleus under the action of neutrons is a new type of nuclear reaction.”

They call it fission. Frisch returns to Copenhagen and tells Niels Bohr everything. Bohr is so astonished that he nearly misses his ship to Sweden. From there Bohr is to travel on to the United States, where he plans to spend several months at the Institute for Advanced Study. Einstein, who fled Germany, is working there. The great Einstein has already been declared in Germany to be the leader of “Jewish physics.” Bohr is still en route to the United States when, in Copenhagen, Otto Frisch repeats the experiments of Hahn and Strassmann. News of the discovery spreads around the world. From Bohr in New York, Enrico Fermi hears about it. The Italian Fermi is working in the States: his wife is Jewish, and he was forced to leave fascist Italy.

In Fermi's laboratory that same evening they carry out an experiment similar to Frisch's in Copenhagen. Fermi and Bohr travel to Washington for a conference on nuclear physics. Bohr announces the discovery that has been made. In front of an astonished audience, Fermi suggests that neutrons are emitted during the splitting of the uranium nucleus. And so a chain reaction is possible. This is late January 1939. In March 1939, the Hungarian physicist of Jewish origin Leo Szilard, who has emigrated to the United States, conducts an experiment and convinces himself that Fermi's suggestion is correct. Independently, Frédéric Joliot's group in Paris performs the same kind of experiment. In fact, by 1939 the French have every chance to be the first to move on to the practical use of nuclear energy. Frédéric Joliot receives funding for his research and, after some hesitation, patents his work. One of the five patents covers the design of a uranium bomb. There is even discussion of a test explosion in the Sahara. The German occupation of France forever erases from history the possibility of French primacy in the atomic field.

Meanwhile, Frédéric Joliot plays a special role in the fact that Britain, Germany, and the United States launch their atomic projects. In the last prewar year, when war is already hanging over Europe, Frédéric Joliot continues to adhere to the iron rule of his famous mother-in-law, the Nobel laureate Marie Curie: “Information about every scientific discovery must be published.” But in 1939, the era has changed. Every publication is a step toward a new weapon. American nuclear physicists, above all Leo Szilard, are already fully aware of the danger of this topic. The danger is linked to the probability that the results of their research will be used in the military sphere – and could be used by Hitler's Germany.

Szilard asks Frédéric Joliot to suspend the public reporting of research results. Joliot does not listen. On 22 April 1939, his article appears in *Nature*, stating in black and white that a chain reaction is possible. The British respond to the French article. In Britain, the uranium problem is taken up by the Committee for the Scientific Survey of Air Defence under the Air Ministry. Soon, the MAUD Committee is created, which will directly oversee the British atomic project.

In Germany, the project for research into nuclear fission is approved in September 1939. The Kaiser Wilhelm Institute for Physics is subordinated to the War Ministry. All publications on the subject are prohibited. In the United States, on 2 August 1939, Albert Einstein, on behalf of his colleagues, writes a letter to President Roosevelt warning that Germany has begun moving toward the atomic bomb. In October 1939, the Uranium Committee is created in the United States. Leading American scientists and editors of major scientific journals voluntarily decide to stop publishing on fission.

In the Soviet Union at this time, physicists openly publish their work. Neither the Soviet scientists themselves nor the state feel any need for restrictions.

Physicists do not flee Germany for the USSR. We have no anxiety about the possibility that the Nazis might create an atomic bomb. Moreover, the conclusion of the Molotov-Ribbentrop Pact on friendship with Hitler's Germany makes any talk of a German bomb generally inadmissible, as it contradicts state policy. Stalin's official friendship with Hitler injects an element of carelessness into nuclear physics. It prevents timely mobilization of scientists to solve applied problems, while Britain and the United States already understand how urgent those tasks are. As a consequence of the Molotov-Ribbentrop Pact, our lag in the nuclear sphere begins. In addition, after the conclusion of the treaty between the USSR and Hitler's Germany, Western physicists stop exchanging scientific information with their Soviet colleagues in the most sensitive area of science. Stalin's deal with Hitler strikes a blow at Soviet nuclear physics at the very moment when, in the world, this science is making a huge, international, antifascist leap forward. Stalin does not think about a bomb in Hitler's hands. He will take an interest in the bomb when it appears in the hands of the United States.

Soviet scientists learn about uranium fission with some delay. The Great Terror of 1937–1938 meant not only the physical destruction, among others, of people from Soviet science. With the onset of the wave of mass repressions, international scientific contacts are curtailed. Specialist journals reach the USSR with a delay of six to eight weeks. When information about nuclear fission finally arrives, it arouses great enthusiasm among Soviet physicists. They follow the same paths as world science. The names that will become famous in the Soviet atomic project are already visible. Since 1932, Kurchatov has headed the nuclear physics department at the Leningrad Physico-Technical Institute under Ioffe. In Kurchatov's department, the heads of laboratories are Abram Alikhanov, Lev Artsimovich, Dmitry Skobeltsyn. All three will become academicians. Kurchatov's colleague Flerov and his colleague from the Radium Institute Petrzhak conduct an experiment on spontaneous fission at the Dinamo metro station in Moscow and are the first to demonstrate the phenomenon predicted by Bohr and Wheeler. From Ioffe's institute, the Institute of Chemical Physics is spun off. It is headed by Nikolai Semenov, a friend of Pyotr Kapitsa and future Nobel laureate. In this institute are Khariton and Zeldovich, future academicians.

Under the influence of Khariton and Zeldovich's work, physicists Maslov and Shpinel submit, in October 1940, a secret application to the Inventions Bureau of the People's Commissariat for Defence of the USSR for an invention "On the use of uranium as an explosive and poisonous substance." In 1940, the application receives a negative review.

At this time, most Soviet scientists are skeptical about the use of nuclear energy.

Paradoxically, it is the scientists of the older generation who look at the problem in a much more practical way.

On 12 June 1940, a letter is sent to the deputy chairman of the Council of People's Commissars, Bulganin, signed by the famous Russian scientist Academician Vernadsky, his friend, the director of the Leningrad Radium Institute, Academician Khlopin, and the prominent mineralogist Academician Fersman. All of them belong to the pre-revolutionary Russian academic science. It is precisely they who, in 1940, write to the government:

“We believe that the time has come for the government to take a number of measures for the technical use of atomic energy, which would ensure that the Soviet Union does not fall behind foreign countries. The importance of the question of using atomic energy is fully recognized abroad, and, according to information received from there, feverish work on this problem is under way in the United States of America and Germany, and large sums are being appropriated for it.”

It is interesting what exactly prompted this letter. This situation perfectly characterizes the isolation in which Soviet science was driven.

On 5 May 1940, *The New York Times* publishes on its front page an article by William Laurence titled “Vast Store of Atomic Energy Discovered by Science” (approx.). The author writes, first, about cutting-edge work at Columbia University with newly obtained samples of U-235 and says that this work will have “a colossal influence on the outcome of the war in Europe.” Second, he speaks of work on uranium in Germany: “Every German scientist – physicist, chemist, engineer – has been ordered to devote himself solely to this work.” The son of Academician Vernadsky, George, long since emigrated from the USSR, is teaching history at Yale University when the article appears. Knowing his father's interest in the uranium problem, he cuts out the article and sends it to the USSR in a letter. Academician Vernadsky receives his son's letter while he is at the academic sanatorium “Uzkoe” near Moscow. Vernadsky is stunned by the information he receives. He literally runs to see Khlopin, who is also at Uzkoe. On the basis of this newspaper article, they immediately write to the government and to the Academy, demanding urgent prospecting for uranium deposits. On 26 June 1940, the newspaper *Izvestia* publishes information about the creation of a “troika” – a traditional form of organizing work in the Soviet system – which this time consists of Vernadsky, Khlopin, and Fersman. To his son in the USA, Vernadsky writes: “Thank you for the clipping from *The New York Times* about uranium. It was the first news of this discovery that reached me and Moscow at all.”

In the summer of 1940, the Commission on Uranium is established under the Academy of Sciences. This decision is formalized by a resolution of the Central Committee. In his notebooks, Vernadsky gives his own explanation of this party decision. On 29 August 1940, a year after the signing of the treaty of friendship between the USSR and Hitler's Germany, Academician Vernadsky writes:

“Hitler proposed to Stalin and Molotov that they organize an exchange of scientific achievements in the field of science between Germany and the Soviet Union. A commission from the NKVD was sent, with Beria himself. Apparently, so far it has not come to a tragedy. Perhaps the Central Committee's decision on uranium is connected with Hitler's proposal?”

That is, Vernadsky assumes that the Soviet commission went to Germany in connection with the uranium problem. If so, if the great scientist was right, then Beria's path to leadership of the Soviet atomic project began with experience in atomic cooperation with Hitler's Germany.

Many years later, in the 1960s, the founder of the nuclear center in Dubna, corresponding member of the Academy of Sciences Meshcheryakov, after reading Vernadsky's notebooks, will say:

"How important this is! With what distrust the director of the Radium Institute, Vitaly Grigorievich Khlopin, regarded Beria. How he thwarted Beria's attempts to crack down on his staff. There were Jews there. When, in March 1946, there was an instruction from Beria – by then already head of the atomic department – to 'cleanse ourselves' of these six people, Khlopin looked at this list with his half-blind eyes, took a pen and wrote his own name first – 'Khlopin' – and said: 'Please. But me – together with them.' And they could not do without Khlopin; he was the only major radiochemist who understood this problem. Because in the uranium problem, after the discovery of nuclear fission, everything else is technology: problems of chemical separation, problems of metallurgy. And here all the cards were in Khlopin's hands."

The Beria–Khlopin situation would not be the only one. In 1949, leading Soviet physicists Ioffe, Landau, Leontovich, Zeldovich, Khariton, Kapitsa, Frenkel, Mandelstam are labeled cosmopolitans – that is, henchmen of bourgeois idealist science and therefore anti-patriots. They come under Stalin's newly launched campaign against so-called "cosmopolitanism."

In the universal, non-Stalinist language, a cosmopolitan is a citizen of the world. This concept has existed since antiquity; it is originally positive in meaning and has long been honorary. It is evidence of personal merit before humanity. In the years of Stalin's twilight, the foreign word "cosmopolitan," whose meaning is unknown to the majority of the population, acquires, through propaganda, a completely different meaning. First, "cosmopolitan" is perceived by the population as one of the official terms for ethnic Jews. This is natural, because as cosmopolitans there appear almost exclusively people with Jewish surnames. But cosmopolitans need not be Jews. They may simply be representatives of the intelligentsia of any nationality who, by virtue of their professional – say, scientific – interests are indirectly connected with the Western world. That is, every person of intellectual labor should be suspected of cosmopolitanism and therefore of not loving the Motherland. In this way, not only national hatred is inflamed, but social hatred once again.

The campaign against cosmopolitanism, which begins with a publication in *Pravda* on 28 January 1949, will encompass all spheres of intellectual activity. The most frightening example is the final destruction of genetics under the classic slogan "Genetics is the venal whore of imperialism."

Physics, in which many major scientists are Jews by origin, stands on the brink of the same kind of destruction that occurred in Nazi Germany in the 1930s. In 1949, Niels Bohr's famous Copenhagen school is anathematized. Yet Bohr is one of the few Western scientists who, before and during the war, closely follow the successes of Soviet physics and hold them in high regard.

It comes to the point where the devastating ideological campaign puts the atomic project itself at risk. This moment is so critical that Kurchatov can afford to present the authorities with an alternative:

"Either ideological games, or the bomb."

Stalin chooses the bomb. The labor of Jewish specialists had also been used as an exception in Nazi Germany. They were called “economically useful Jews.” Göring liked to say: “I myself determine which of my subordinates is a Jew.”

In fact, the Soviet atomic project is not the first in our history. The first began in Russia during the economic boom that preceded the First World War.

In 1910, at a general meeting of the Academy of Sciences, Vladimir Ivanovich Vernadsky said:

“In the phenomena of radioactivity lies the source of atomic energy. No state or society can remain indifferent to how, by whom, and when these sources of atomic energy will be used.”

In 1910, the Radium Commission of the Academy of Sciences is created. State expeditions are launched to prospect for uranium deposits. At the same time, in the same field, a private company called the “Ferghana Society for the Extraction of Rare Metals” is operating. It delivers ore to Petersburg, extracts uranium preparations from it, and exports them to Germany. Radium remains in the waste. But the company does not know how to extract it.

In 1911, on Vernadsky’s initiative, the first laboratory for extracting radium is created. The laboratory is located in Petersburg in the former studios of the famous painters Ivan Kramskoi and Arkhip Kuindzhi.

Funding for the start of the first Russian atomic project is provided by Russian business. Vernadsky’s laboratory is equipped with instruments from the Ledentsov Fund. The fund, created by the will of the major entrepreneur Khristofor Semyonovich Ledentsov, supports – as we would say today – innovative research and entire scientific directions. With Ledentsov’s money all the equipment for Academician Pavlov, the future Nobel laureate, is purchased, as well as for Tsiolkovsky, Zhukovsky, Zelinsky, Lebedev. The fund finances the brains of Russia. The Ledentsov Society will be closed in 1918 by Lenin’s personal order. The money that went to science is nationalized.

Parallel to the Ledentsov Fund, the Riabushinsky brothers are at work. This family stands in the front ranks of Russian business. In 1913, Vernadsky gives a talk on radium in the house of Pavel Riabushinsky. The subject is new sources of energy. The Riabushinskys provide huge sums for geological exploration. On 29 June 1914, the State Duma approves the government budget for radium research. There is one month left before the outbreak of the First World War.

The year 1916, the last pre-revolutionary year, is a year of strategic turning point – the time of the emergence of a promising alliance between Russian science and the military-industrial complex. In 1916, a wartime year, they are welded together by patriotic spirit. And what is extremely important – by enormous private capital that Russian business invests thoughtfully, with an eye to the future. Just before the revolution, Russian business creates a unique situation: the money is there – the word is up to science. In this sense, the first Russian atomic project was simply doomed to success. If the pace of development of the early twentieth century had been maintained, Russia could have become the world’s leading power in the 1920s, taking the place that America later took. Its transformation into a nuclear power raises no doubts. This would have been an economically natural course of events. The atomic project would not have drained the economy to the last drop, as happened in 1949. In 1914, at the request of the U.S. administration, two thousand Russian engineers were sent to America to share Russian experience with the Americans.

After the October coup, the remaining stocks of uranium ore from the “Ferghana Society for the Extraction of Rare Metals” are confiscated. In May 1918, the radioactive materials are removed from Petrograd for safekeeping. In the Perm province, on Lenin’s instructions, an attempt is made to create an industrial installation for producing radium. At the end of 1918, Kolchak’s army enters the region. The story of the train loaded with gold that Kolchak took with him in retreat is widely known. In fact, part of the wagons in this train were filled with uranium ore. The remaining ore was transported to a plant in the village of Bondyugi on the banks of the Kama. It is there that in 1921 Khlopin and Bashilov obtain the first radium. The plant where radium is produced is one of the most advanced chemical enterprises in Russia. It was built by the Russian entrepreneur Pyotr Ushkov. From 1925 onward, the plant is abandoned.

Lenin’s personal instruction regarding radium production is not explained at all by an interest in advanced science. What attracts Lenin is the world price of radium and, essentially, the possibility of trading it. At the start of the First World War, one gram of radium costs 180,000 dollars – roughly as much as 160 kilograms of gold. However, in 1922 the price of radium falls. Apparently for this reason the radium preparations are not sold, are kept in storage, and will lie there until the mid-1940s, when they are suddenly in demand.

After a quarter century in the vaults of the Ministry of Finance, the sealed ampoules of radium are taken out and brought to the just-created NII-9 – the “Ninth” Research Institute – located right next to Kurchatov’s Laboratory No. 2. There, from the radium that Lenin did not sell, using an installation in a shed, under the supervision of Zinaida Ershova, who had done an internship at Marie Curie’s institute in Paris in 1936, polonium is obtained. From this polonium a neutron initiator for the first Soviet atomic bomb is made. At this same institute, in 1947, the technology for producing plutonium – the main filling of the bomb – will be developed. Uranium for producing plutonium is irradiated in Kurchatov’s reactor. And this uranium is produced near Moscow, in the town of Elektrostal. German specialists brought from Germany in 1945 are employed in uranium production. The work is directed by Dr. Riehl, a native of pre-revolutionary Petersburg. They work at an enrichment plant built in 1916 by a major Russian businessman, Nikolai Vtorov. Zinaida Ershova was married to his nephew – a physicist. Asked what she would have been doing if there had been no revolution, she answered: “The same as now. The uranium problem.”

In 1941, Britain is leading in bomb research. A secret report already speaks of both uranium and plutonium bombs. The conclusion: the atomic bomb can be created before the end of the war. Then the Americans make a leap forward and take the lead. Full-scale work on creating the atomic bomb – the famous Manhattan Project – begins in July 1942. In 1943, during a meeting between Roosevelt and Churchill, British participation in the Manhattan Project is agreed. British physicists move to the United States.

From September 1941, the NKVD begins receiving detailed information about the course of work in Britain. The sources of this information are John Cairncross and Klaus Fuchs. Up to the spring of 1942, the Soviet authorities do not in any way respond to this strategic information. They have no time for the bomb. The USSR, catastrophically unprepared for the German attack, is going through the most difficult and tragic period of the war. In March 1942, Beria writes a memorandum to Stalin whose main point is: the problem of the atomic bomb is on the way to being solved by the British. Consultations with scientists begin. At the end of 1942, Stalin decides to resume nuclear research. Kurchatov is recalled from the front, where he has been working on demagnetizing warships. At the end of the year, he is in Moscow, together with Alikhanov and Kikoin. They are asked to provide

information on the possibility of creating a bomb and the time required to produce it. In early 1943, Kurchatov meets Molotov. Molotov recalls:

“The youngest and still unknown Kurchatov came to see me. I summoned him, we talked, he made a good impression on me.”

On 10 March 1943, Kurchatov is approved as the scientific director of the project. Molotov continues:

“I decided to give Kurchatov the materials from our intelligence service. For several days, Kurchatov sat in my Kremlin office studying these materials. It was sometime after the Battle of Stalingrad, in 1943.”

In other words, until that moment, the government had been consulting scientists without showing them the documents that were of decisive importance.

Kurchatov is under a tremendous impression from what he sees in these documents. His main conclusion: from the intelligence materials it follows that solving the uranium problem requires much less time than Soviet scientists, who do not know what is being done abroad, had thought. Kurchatov writes a detailed memorandum about this to Pervukhin, deputy chairman of the Council of People's Commissars.

Two weeks later, Kurchatov writes him a second memorandum. Its essence: we should move not toward a uranium bomb but toward a plutonium bomb. These two memoranda by Kurchatov are fundamental for launching the Soviet atomic project. They show that Kurchatov the manager is already ready for the work. They also show that Kurchatov the scientist is full of admiration for the very high quality of his foreign colleagues' work. To Molotov, Kurchatov says:

“Remarkable materials. They add exactly what we lack.”

Molotov introduces Kurchatov to Stalin. On 12 April 1943, a secret decree is adopted on the creation of a new laboratory for Kurchatov. To mislead, it is called Laboratory No. 2, not Laboratory No. 1.

In reality, right up to 1945, until the explosion of the American bomb, work on the atomic project proceeds extremely slowly. A memorandum from Kurchatov to Beria in the autumn of 1944 is characteristic:

“Abroad, a concentration of scientific and engineering forces has been created on a scale unprecedented in the history of world science. With us, the state of affairs remains completely unsatisfactory.”

Soviet intelligence begins to receive materials from the United States. Klaus Fuchs, among the British specialists, arrives in the U.S. and passes on essential and complete information. In addition to Fuchs, the British physicist Alan Nunn May works as a source. In the first week of 1945, he manages to pass a microscopic sample of uranium-235 and uranium-233, which are sent to Moscow. Kurchatov and Khariton decide to use the American information in designing the Soviet bomb. After the capitulation of Germany, Kurchatov continues to insist to the country's leadership that it is urgently necessary to design and build atomic industry plants. From intelligence materials, Kurchatov knows about the gigantic work carried out in the United States. The authorities show no

interest. One explanation for this curious fact is given by the intelligence officer Yakovlev (Yatskov), who worked on the project. Yakovlev says:

“Beria did not believe the intelligence reports. Beria suspected disinformation, believing that in this way the enemy was trying to drag us into enormous expenditures on work that had no prospects. He didn’t believe it even when work on the bomb was in full swing. He said: ‘If this is disinformation, I’ll send you all down to the basement.’”

Suspicion toward intelligence is layered on top of the Soviet leadership’s traditional distrust of Soviet scientists. The authorities do not support the ideas of Soviet scientists until they are confirmed by Western experience.

Stalin summons Kurchatov to him only on 25 January 1946. Kurchatov notes some impressions of the conversation. Stalin says:

“There is no point in dealing with small-scale work; it is necessary to conduct it on a broad scale, with Russian sweep. In this respect the broadest assistance will be provided.”

Stalin says:

“We must not look for cheaper paths.”

Stalin says:

“Our state has suffered greatly, but it can always ensure that several thousand people live in glory, and several thousand people live even better.”

Creating the atomic bomb is, above all, creating an atomic industry; it is a situation in which the economy must demonstrate its industrial and technological capabilities. The Soviet economy demonstrates what it can – its own technology of organizing labor. The well-established camp system is deployed onto the atomic project. Here Beria has all the cards in his hands.

It was Kurchatov who proposed Beria for leadership of the project, fully understanding that, apart from his resources, we had nothing with which to solve the assigned task.

Igor Golovin, Kurchatov’s deputy at Laboratory No. 2, recalls:

“Was convict labor used in implementing the project? On the broadest scale. All the construction sites, the mines, the atom-cities, even our institute in Moscow – on all these sites convicts worked. Have you seen our club building? It used to be a prison. It was surrounded by a high, solid wall, with guard towers with machine gunners at the corners. The first reactor was built by convicts’ hands. All the specialists saw this and knew everything.”

A total of 750,000 people work on the construction of atomic facilities. More than half of them are convicts. A third are military construction troops with the rights of convicts. And ten percent are free wage workers whose freedom of movement is severely restricted. Most of the convicts are prisoners of war released from Nazi camps.

From the memoirs of military builder Anatoly Osipov:

“The front-line soldiers who had been in captivity were immediately sorted by the criterion of who, by which troops, had freed them. There were three categories: those

liberated by the Americans, by the British, by Soviet troops. The so-called 'Americans' were considered the most unreliable. Accordingly, the food and clothing."

All construction costs are paid by the State Bank at actual cost, without submission of estimates or calculations. This is called an "open account." Unlimited money, unlimited slave labor, plus talented scientists and engineers who answer with their heads for deadlines. Against this background, the high regard for Beria's administrative abilities looks out of place.

Doctor, Professor Angelina Guskova recalls:

"Mostly young girls work in the laboratory for extracting plutonium. This is a high-risk group. The disease of these people is called plutonium pneumosclerosis."

Academician Petryanov-Sokolov recalls:

"I was struck by the sight of these young women who had to deal with plutonium and polonium. They had a strange gait. They moved slowly. And a deathly pale complexion. I was told that all of them had 'bad blood'. And there were no protective measures."

These women are not convicts. They are young specialists. It is they who are the nuclear shield of the Motherland. They believe in the threat of atomic war and save the Motherland from it at the cost of their lives.

Stalin has his own view of atomic war. War with the United States seems to him probable. It interests him and does not cause alarm. In July 1952, Stalin says to Italian socialist Pietro Nenni:

"For America, destroying Moscow is not enough, just as for us destroying New York is not enough. It is necessary to mobilize ground forces for a third world war in Europe and Asia. Where will the United States find millions of soldiers to wage a third world war?"

From 1949, Stalin increases Soviet armed forces in Germany and reorganizes the East European armies. By 1953, the year of Stalin's death, they amount to one million men. The Soviet armed forces number more than five million. In 1949, Stalin deploys the 14th Army in Chukotka with a view to a possible landing in Alaska. In that same year 1949, in the "Offtackle" plan, the Joint Chiefs of Staff quite accurately catch the drift of Stalin's thinking:

"It is expected that the Soviet Union will begin an offensive in Western Europe and the Middle East, bombing of the British Isles, and selective air attacks on North America. The Western allies will be too weak to hold Western Europe, but will try to hold North Africa, from where they will begin an offensive with the aim of returning to the European continent."

If Stalin knew this assessment, it could not have failed to please him. In his view, the might of a state has always been determined only by the size of its territory. The women who worked and died in plutonium production knew nothing of this.

