

The Soviet Nuclear Program to 1949

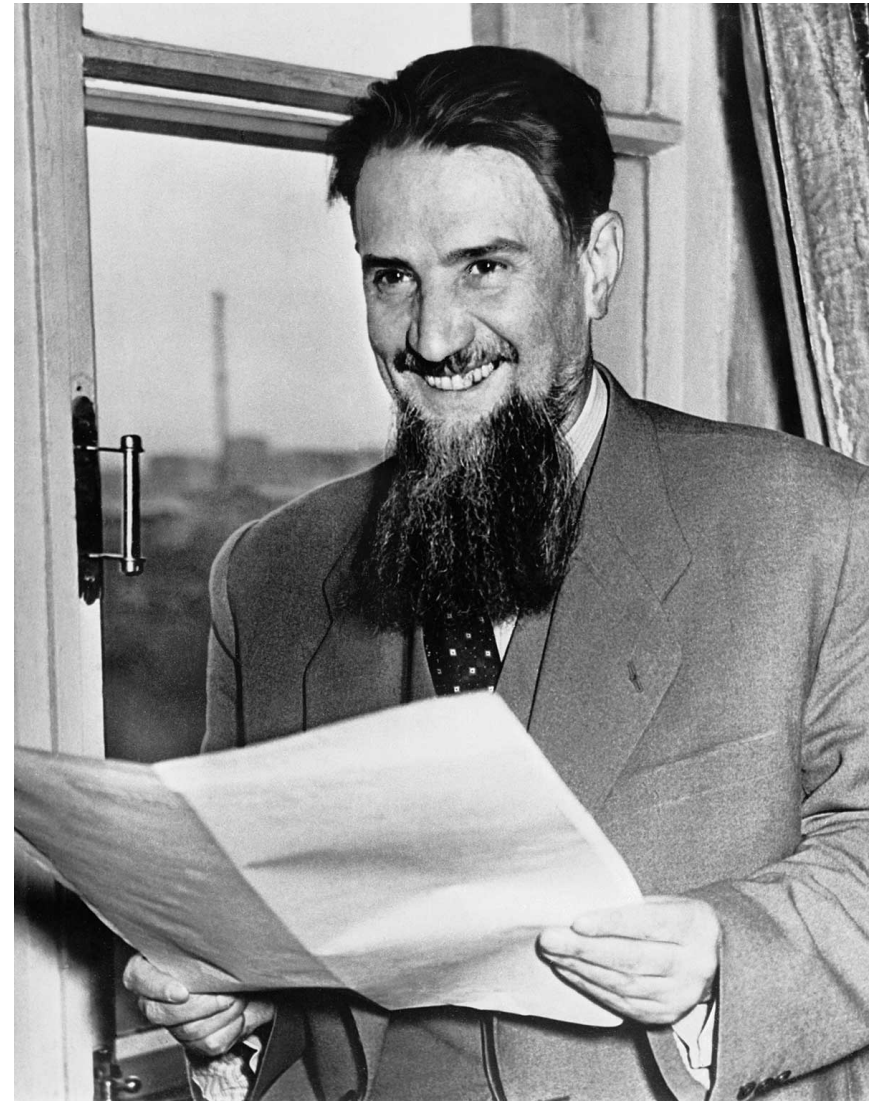
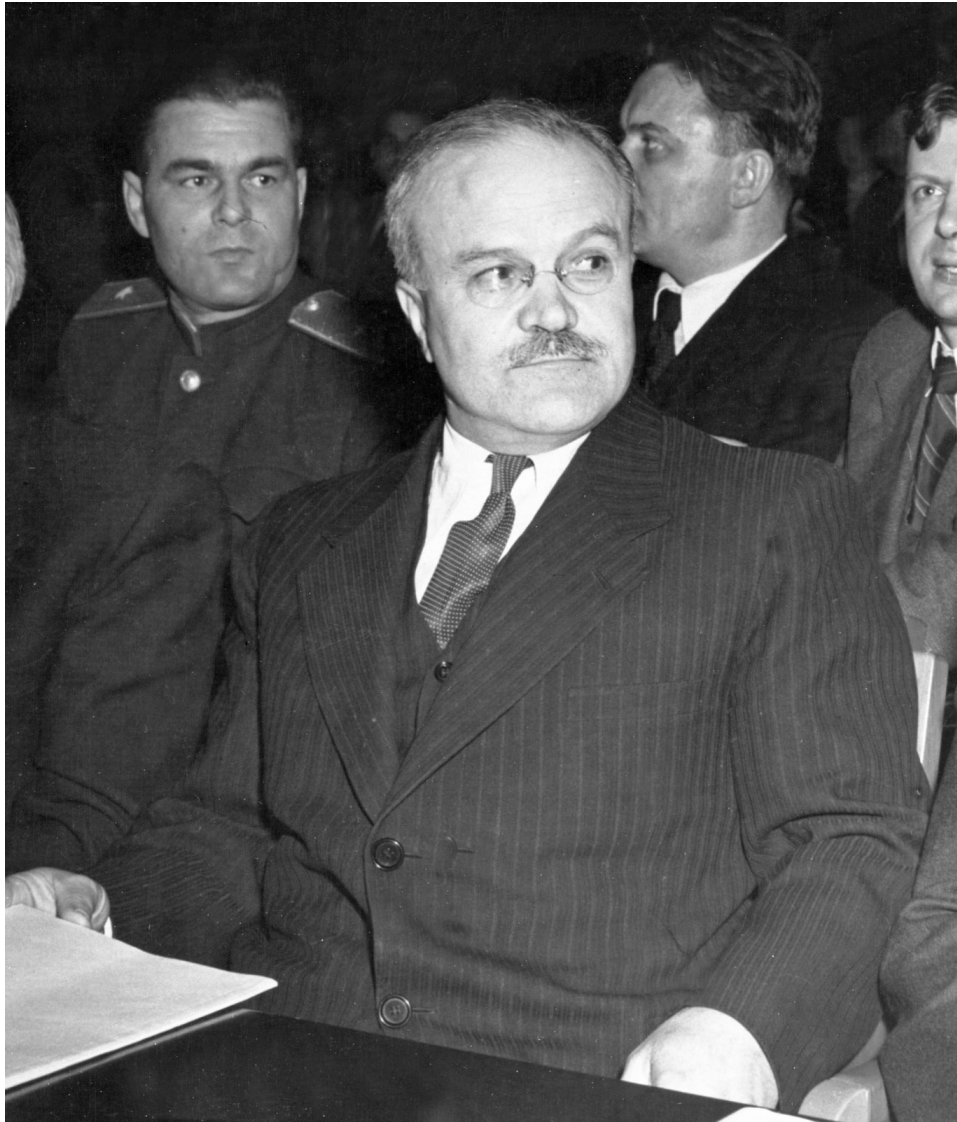
Jake Hecla

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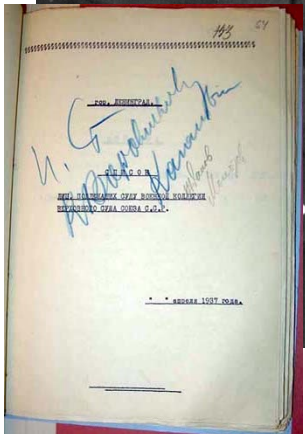
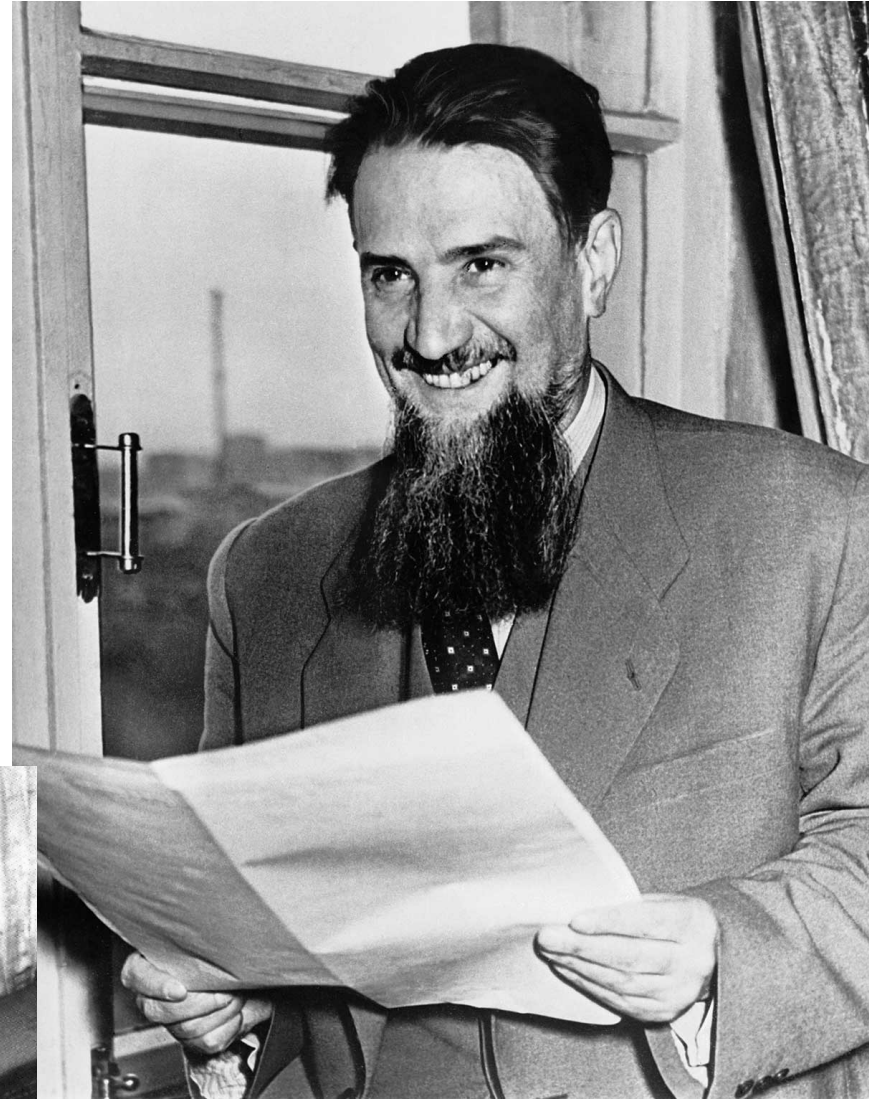
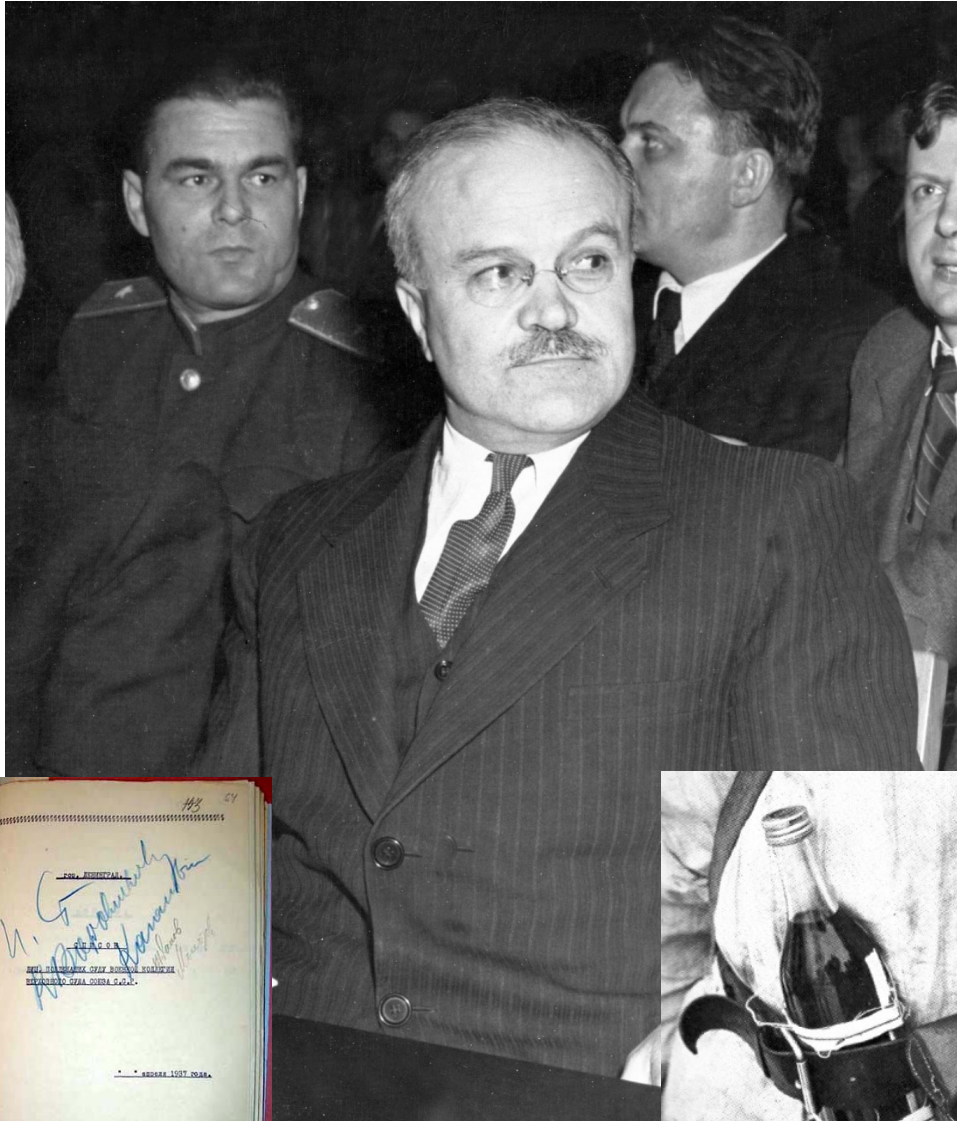
It all started with a letter



Wartime Soviet nuclear research was disorganized



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Molotov's term of management was not a success

- Laboratory #2: Kurchatov's reactor work
- Laboratory of Nuclear Reaction (Dubna under Flerov): "thermal reactions and Pu production" later xsec work
- Arzamas-16 built for theoretical work

Kurchatov Institute, 1950s



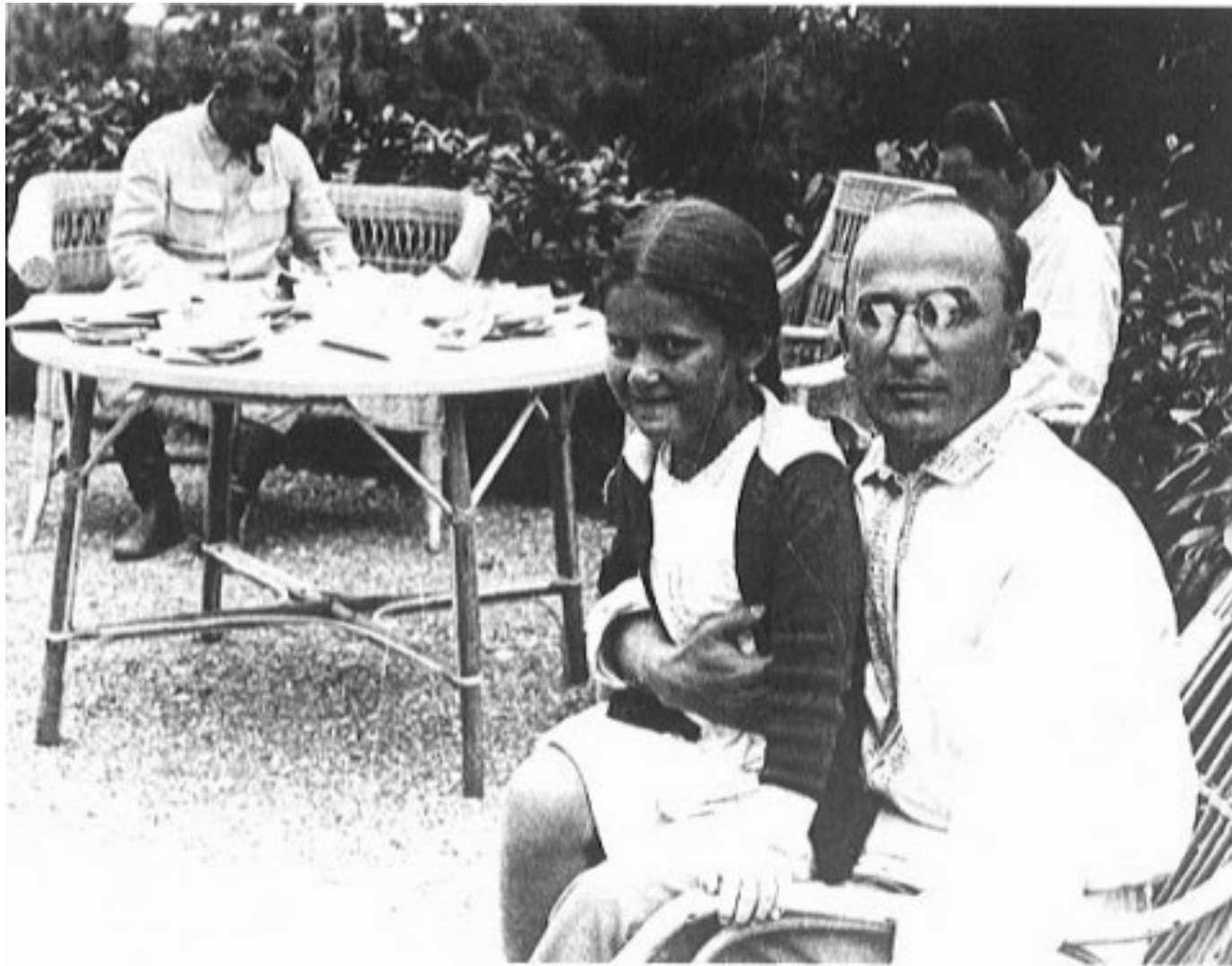
Potsdam, July-August 1945



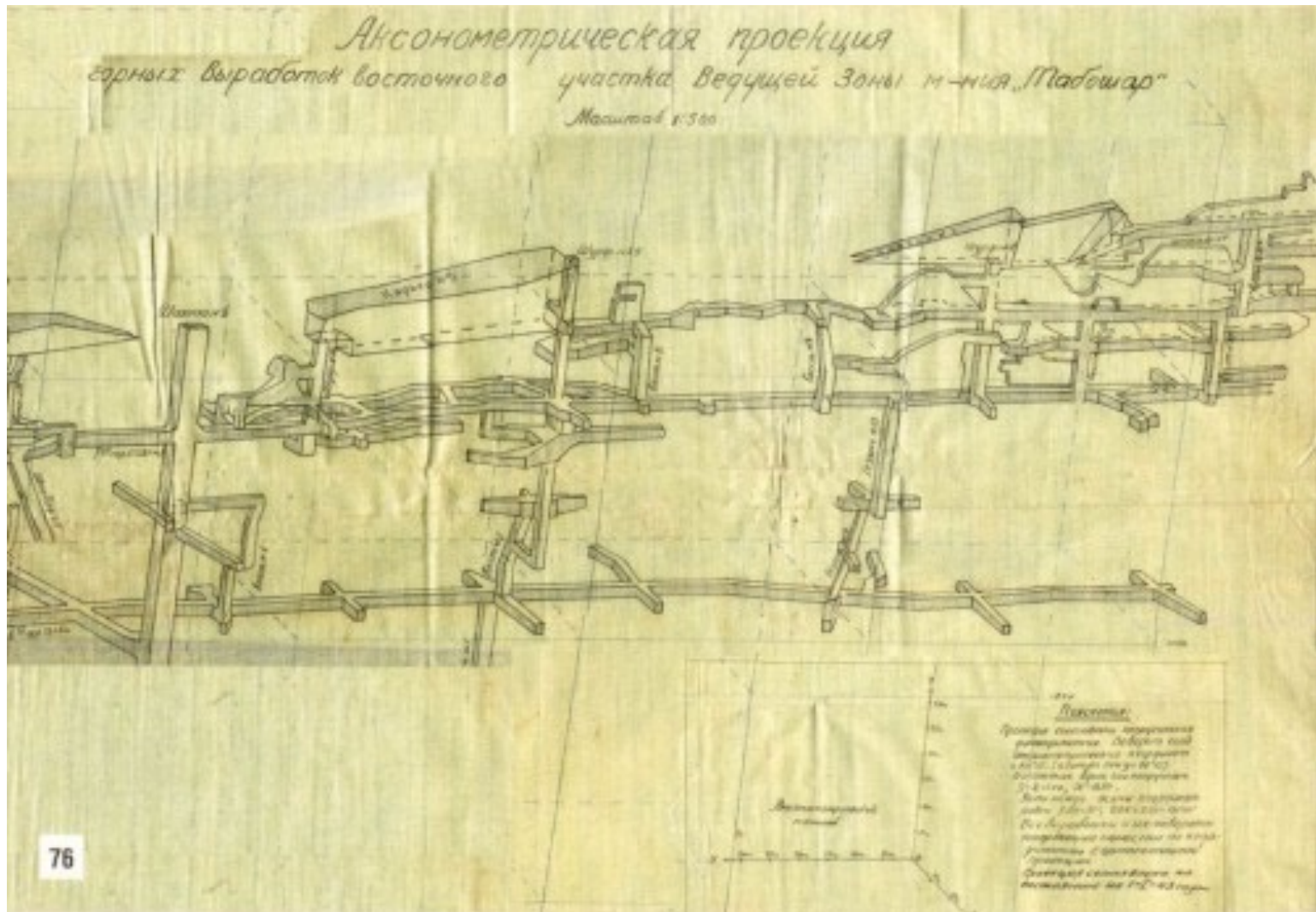
“What one side (for example, the United States) chooses to reveal to its opposite number is subjected to a series of questions: Was this an honest revelation? What was left out? Why tell specifically this piece of information? Why tell us now?”

Gordin, Michael D.. Red Cloud at Dawn (p. 15).

Late 1945: Project re-organized with Beria at the head



Limiting reagents: Uranium and labor

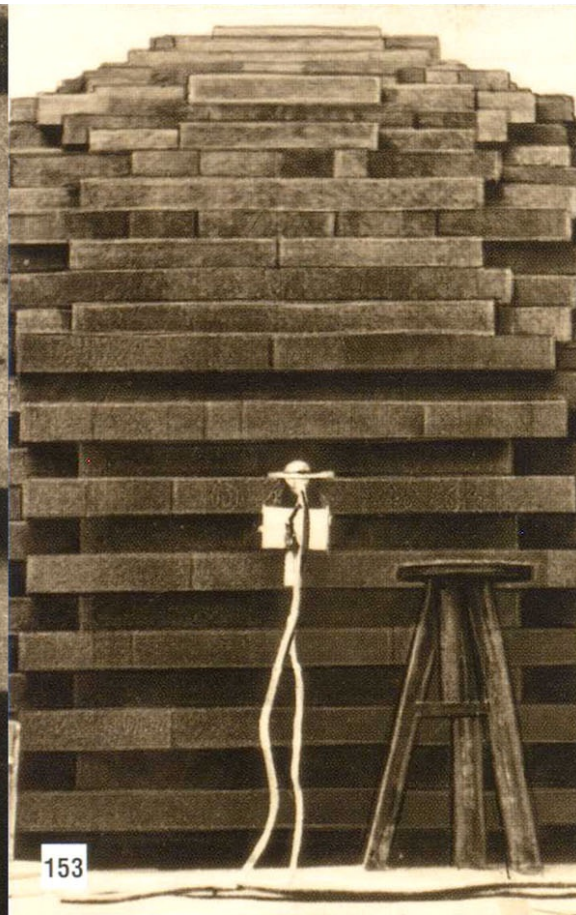


- Scramble for U left USSR without easy sources

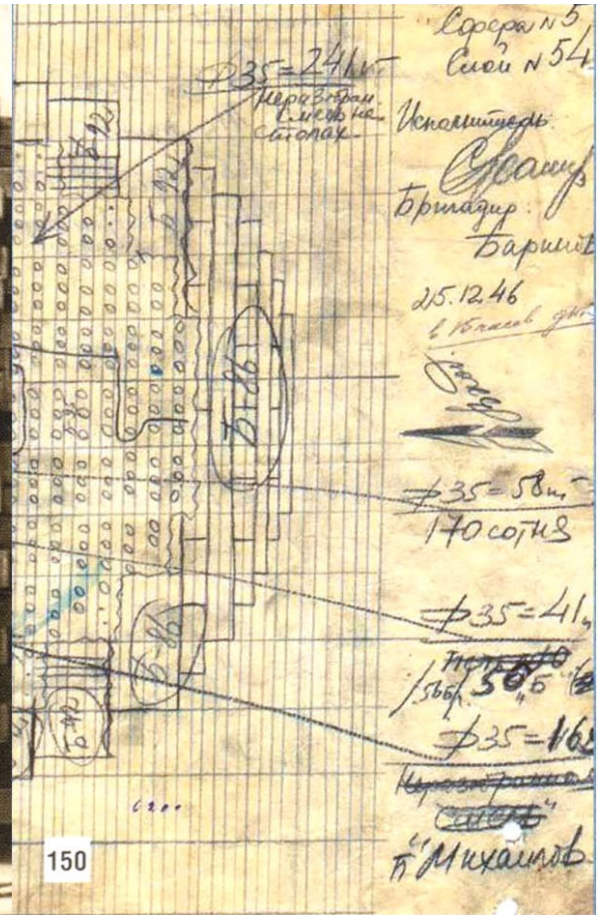
Under Beria, work accelerated dramatically



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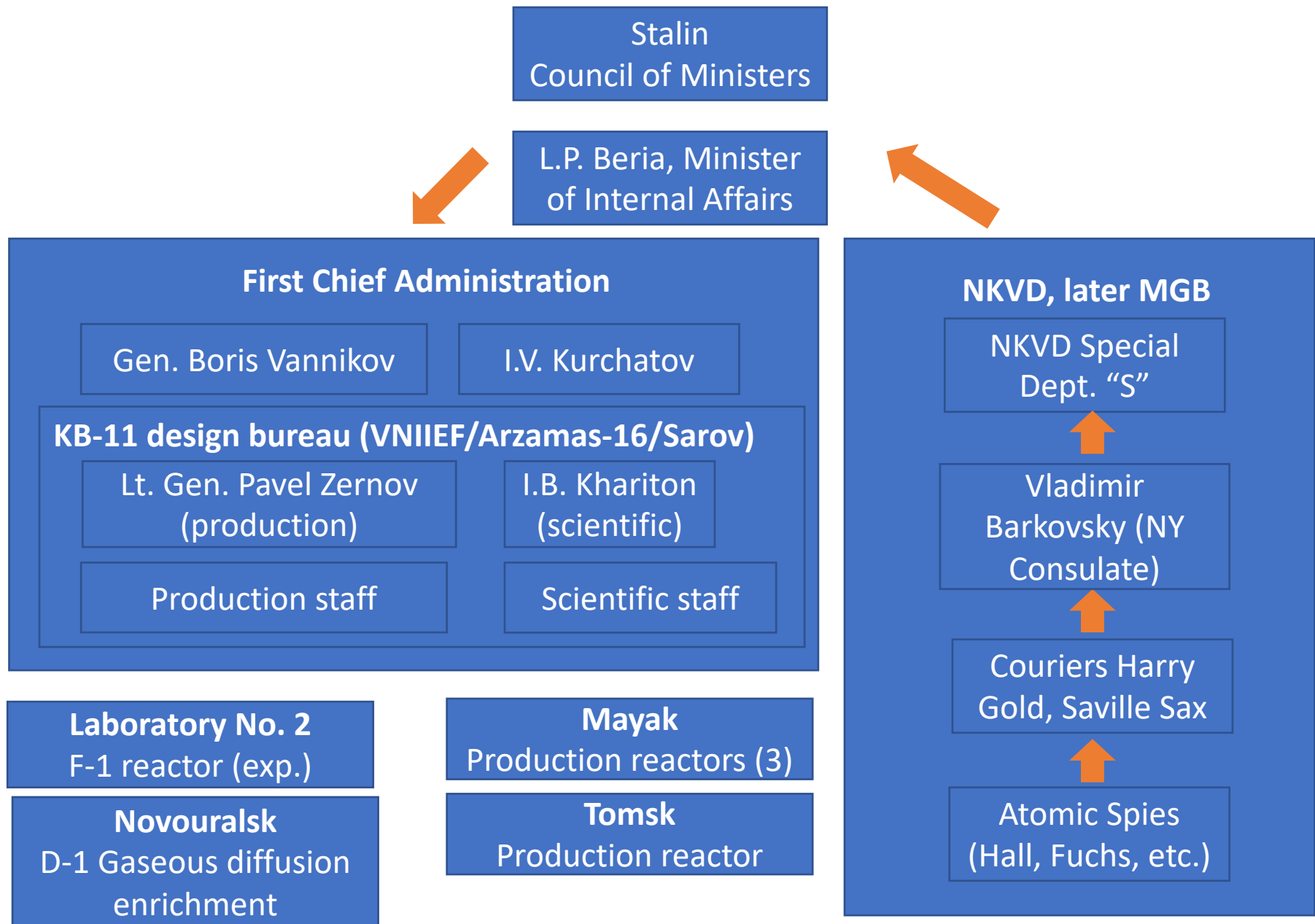
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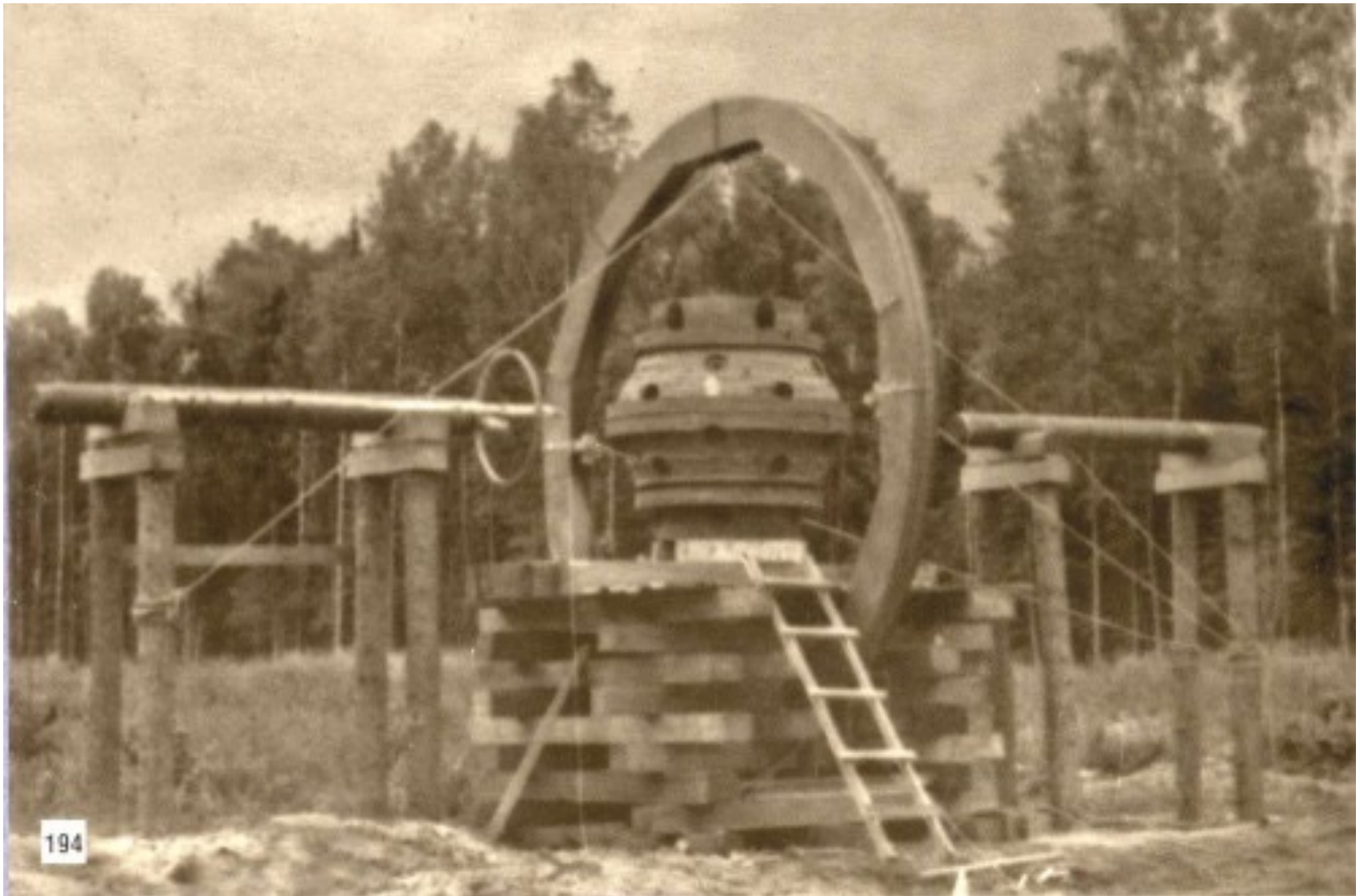
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- Special committee convened: August 1945
- First criticality of graphite pile: October 1946

Post-46 structure



Model of the device with instrumentation mounts



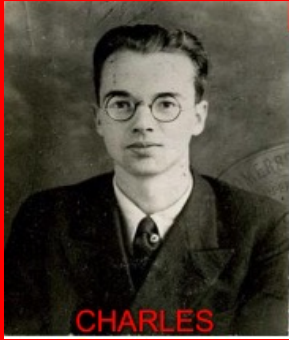


First bomb was a copy, not so with subsequent designs

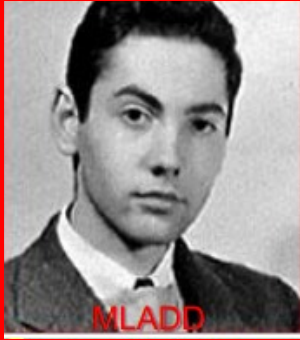


- Paraphrasing Sig Hecker “(I.B. Khariton) said that he knew from ‘45 onward how to build a far better bomb than Fat Man, but could not explore this until after the first test”
- Beria had promised to execute scientists if not successful -- > copy rather than innovate

Atomic Spies



CHARLES



MLADD



KALIBR



GODSEND



Agents with
access to
information



ARNO



STAR



ANTENNA

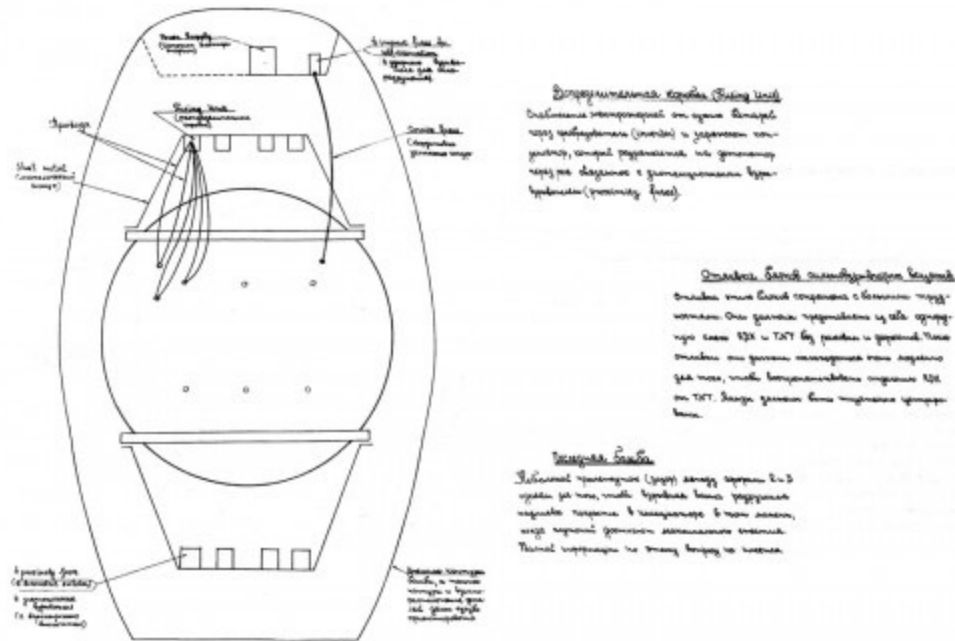


Couriers with access
to both agents and
official-cover officers



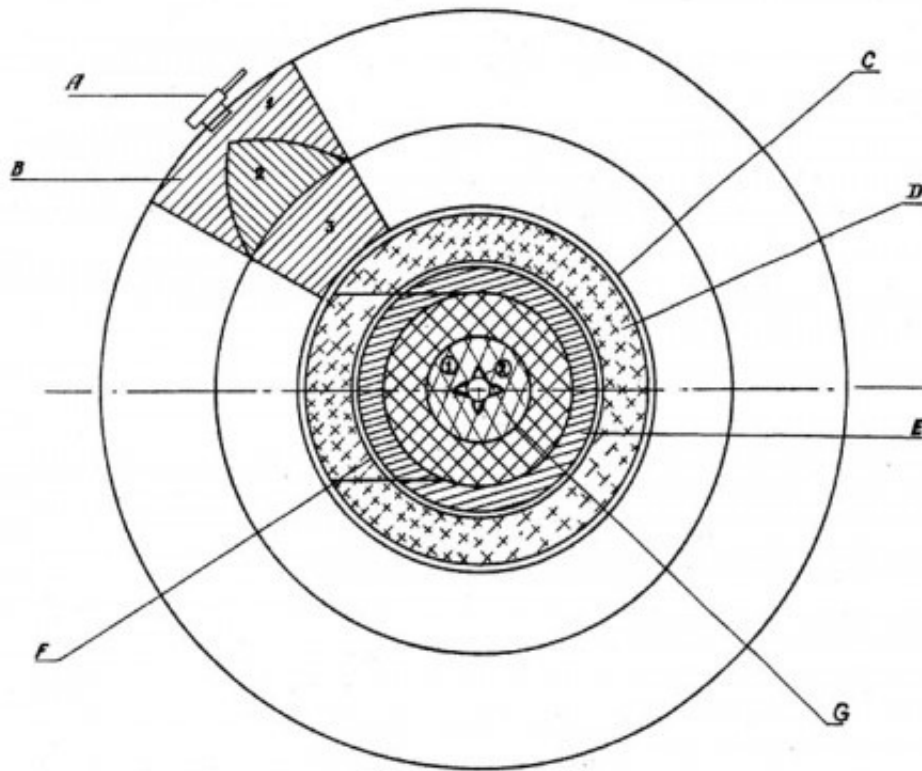
Intelligence officers at
Soviet New York Embassy

Espionage activities were hampered by excessive paranoia

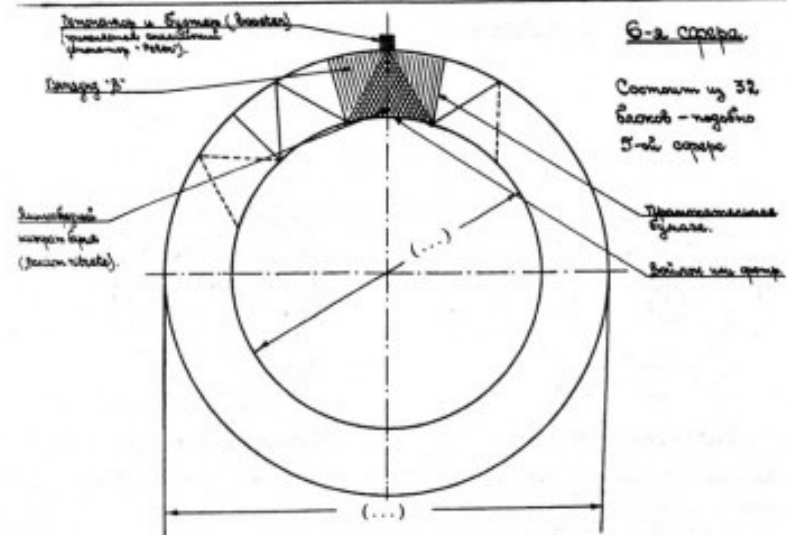
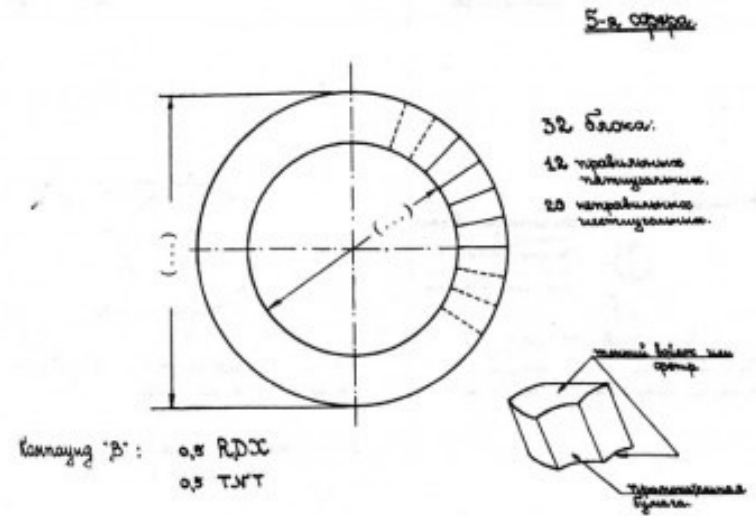


- Stalin and Beria feared that the Manhattan project documents extracted by Hall, Wheeler, Fuchs and others were compromised
- As a result, they were examined at extreme length by technical experts, delaying them and diminishing their effectiveness

So, did it matter?



Схематический чертеж
составленный без учета масштаба.



Н.В.