

## SUMMARY OF NARRATIVE

**Subject:** Iu. A. Mozzhorin

**Position:** For 30 years General Director of TsNIIMash, the main research and design institute of the Ministry of General Machine Building (MOM), responsible for missile production

**Location:** Institute for Defense Studies (INOBIS), Moscow

**Date:** April 1993<sup>78</sup>

**Duration:** Approx. 1.5 hrs. total

**Language:** Russian

**Prepared by:** Ellis Mishulovich, based on audio cassette tape

A clear, dependable strategy for the maintenance of peace, even in conditions of large nuclear arsenals on both sides, was not always understood by the leading military commanders, veterans of WWII. Based on their experience of the preemptive attack, utilizing massive armed formations, they viewed the doctrine of the retaliatory strike as a passive anticipation of attack and a repetition of 1941, which had greatly complicated the ensuing military operations, and had led to great losses which could have been avoided. Although this view did not win out in the end, it was reflected in specific technical characteristics of the missile designs being developed during a certain period.

The debate regarding the size of our warheads illustrates this lack of understanding. Some commanders demanded the biggest possible warheads, regardless of the complications to missile design, starting mass (launch weight), etc. I often spoke about the advantages of introducing small missiles with warheads of limited size. They would invariably reply, "What are you talking about? They hit us with megatons and we hit back with peanuts?" When we tested a 50 megaton bomb they suggested that we develop a missile with a 50 - 100 megaton warhead. It took a lot of effort to prove the uselessness of this idea, and instead we got the Proton missile.

It was equally difficult for the military to understand the idea of the single-missile silo designed for a single missile launch. "What kind of cannon is this, with only one shot in it? We have to have three to four missiles. Otherwise it is too expensive," they objected. As a result we built group silos with four launch tubes. The evolution of this idea was quite interesting. The reserve missiles needed to be protected from the effects of the shock wave. Horizontal surface storage sites were large and expensive, while the silos were considerably better. Silos eliminated the need to move missiles from one launcher to another. Later it became much easier to demonstrate the expediency of single silo launches.

The question of the need to create silos with enhanced protection against attack, as a result of increased accuracy of the Minuteman and Trident missiles employing MIRVs,<sup>79</sup>

<sup>78</sup> INOBIS carried out the interviews resulting in this narrative at various times during the month of April 1993.

<sup>79</sup> MIRV — Multiple Independently Targetable Reentry Vehicle — Each warhead on a MIRV is guided independently to a specific target once released by its missile "bus."

was also difficult. My Institute was practically alone in proposing this against the objections of the leadership of the Ministry of Defense and the Ministry of General Machine Building, and eventually won over Brezhnev, Ustinov, and Smirnov. This was known as the "debate of the century," in which the views of the Ministry of Defense, and in particular, of the Minister of Defense A. Grechko, were clearly formulated regarding the question of warfighting strategy. This should be described in detail.

After a series of technical delays, the resolution on strategic nuclear missiles for 1966 went into the planning and implementation stage, having satisfied both the customers and the producers. Naturally, the arguments of my Institute regarding the necessity of building missile silos with a high degree of protection, and the upgrading of protection on existing ones, did not meet with support from either the Ministry of Defense or of the Ministry of General Machine Building. It violated the established process of force building. There were Institute reports on the matter. There were sessions of the Scientific-Technical Council, but the decision was not taken. Certain arguments were developed justifying the rejection of these proposals: lack of experimental data on the spread of shock waves in soils and their effects on underground constructions; cost too high; the same money could be spent on production of more missile complexes, thereby increasing the chances of survivability through greater numbers. General Designer Chelomei put forward some data showing that the problem of the survivability of missiles could be solved more effectively through the creation of an ABM system. Some high-ranking military people began more and more assertively to promote the idea that we would launch prior to the arrival of the attacking side's missiles; therefore, silo protection was not critically important. This idea was disturbing. In 1966 D. F. Ustinov, the secretary of the Central Committee of the CPSU, convened a high level meeting of the leadership of the Ministry of Defense and the Ministry of General Machine Building. I asked my minister to get me an invitation to attend. D. F. Ustinov, opening the proceedings, said that a proposal had been made to create hardened silos and wanted to know whether a mistake had not been made in keeping the existing design. The response was unanimous: "Not at all, Dmitrii Fedorovich, there's been no mistake." The Deputy Minister of Defense for production reported that the savings had allowed the production of 72 extra missiles. I could not control myself and quipped, "If you had built them of wood, you could have built much more than that." Ustinov looked at me sternly, but did not say anything. Some of the military again expressed the view that they will employ the retaliatory-meeting strike and will clear the silos in time. I jumped into the conversation of my superiors uninvited one more time, saying, "Dmitrii Fedorovich, this is not realistic. We discuss considerably less complicated questions for hours. Do you really think it is possible in 10 minutes to make a decision based on the report of a general on duty looking at a radar screen, to push the button that may take millions of lives?" Everyone was silent in response to this second tactless remark. As a result of the discussion it was decided to work out in detail the designs for hardened silos and hardening existing ones. The final decision would be taken pending the design review.

After 1 1/2 years the matter had not advanced much further, as there was no one particularly interested person, and a number of technical and political stumbling blocks had also come up. Furthermore, a new divisive matter having to do with options to modernize aging missiles had come up. I felt that the whole matter was wilting. Grechko announced in my presence, "We will not repeat the mistakes of 1941 and will not sit and wait until we are hit over the head, as some are proposing." I decided to raise the question of military doctrine with the General Secretary, L. I. Brezhnev. The attempt to discuss the matter with the leadership of the SRF was not supported. I was told not to bother about matters that did not concern me. They told me, "Your business is to build good missiles, and our business is to use them." I tried to continue the conversation by saying, "There is no such thing as a 'good' missile, as such, just as there is no such thing

as a 'good' airplane, as such. There are good interceptors, good attack planes, good bombers, etc. The missile designer has to know whether the missile he is designing is intended for a retaliatory strike or a preemptive strike."

In June of 1968 the Ministry of Defense held a military-technical council on the expediency of building hardened silos and ways to modernize missiles. It was chaired by the Deputy Minister of Defense S. L. Sokolov. Grechko also was present, as were General Designer Chelomei, other designers-integrators, representatives of the Ministry of General Machine Building, and Ministry of Defense specialists. Everyone who spoke unanimously rejected the proposal to upgrade the protection on existing silos and those under construction. Silo hardening was postponed, along with the creation of a new generation of missiles. I was the only one in favor of the proposal. During my 15-minute presentation the Minister of Defense stood up and cut me off by saying, "Don't scare us, we will not act according to your scheme." I replied as politely as possible: "We have thoroughly worked out and modeled the results of preventive and retaliatory-meeting strikes. The war cannot be won. I don't have time to give you the results of the modeling effort. Please, invite me to come in and I will give you the detailed results of all our materials." Without sitting down, he pointed to his watch, letting the chairman know that it was time to quit. I objected that in the preceding two and a half hours of talks only one side of the issue had been presented, and that I was the only opponent on this super-important question. I was allowed to finish my presentation, but it had no impact on the decision of the council. Only G. N. Pashkov, Deputy Chairman of the VPK, supported me. After the conclusion of the council I said to Sokolov, "I am defending the interests of the Ministry of Defense, but the Ministry is so sharply critical of me." To which he replied, quite amicably, "We cannot doubt the General Designer. The Design Bureau stands behind him." "But 1,000s of workers of the Institute stand behind me. Such complicated questions should not be decided by a vote of the Council, but by examination by objective experts," was all I could do to register my objection.

## RECORD OF INTERVIEW

**Subject:** Iu. A. Mozzhorin

**Position:** For 30 years General Director of TsNIIMash, the main research and design institute of the Ministry of General Machine Building (MOM), responsible for missile production

**Location:** Office of Vitalii Kataev, Mayor's Building, Moscow

**Interviewer:** John G. Hines

**Date:** April 14, 1993

**Duration:** Approx. 1 hour total

**Language:** Russian

**Prepared by:** Ellis Mishulovich, based on audio cassette tape, notes

**Q:** Why was the military not concerned about protecting its missiles from nuclear attack?

**A:** The Minuteman missile represented a qualitative leap in accuracy and other missile design characteristics. Many in the military argued that investment should go into improving Soviet missiles, rather than silos. There were two sides to the debate. One side was taken by aggressive wartime leaders who wanted at all costs to avoid a 1941-style surprise attack. On the other side were those who believed in the retaliatory strike. While the U.S. protected its strategic forces, the Soviets sought superiority in numbers. I opposed this philosophy, warning that it would lead to an arms race. Eventually the Soviets acquired very good silo protection, including protection against EMP,<sup>80</sup> neutrons, gamma radiation, and other blast effects.

**Q:** To what extent did the military rely on a rapid political decision to launch missiles?

**A:** This was the most difficult problem [with the retaliatory-meeting strike]. No launches could be made without a political decision. I argued in favor of giving the SRF the physical quick reaction capability, but not the "practical" capability to launch.

**Q:** Was the concept of deterrence ever adopted?

**A:** Yes. Brezhnev supported it, despite the opposition of Grechko and others. Deterrence was officially adopted as doctrine during the July 1969 meeting [of the Defense Council] in Yalta. This meeting took place approximately on July 23-25, 1969. At this meeting it was decided to manufacture invulnerable missiles, rather than many vulnerable ones.

**Q:** Did the Soviet Union test the vulnerability of silos to air bursts vs. ground bursts?

---

<sup>80</sup> EMP — Electro-Magnetic Pulse.

A: Yes, silo stability was modeled and tested. As a result of this testing silos were eventually overprotected and made virtually invulnerable to both ground bursts and air bursts. We assumed Americans did as much or more of similar kinds of tests as Soviets. We would have communicated to Americans the survivability of Soviet missiles if this was deemed necessary in a conflict situation.

Other points:

- The Soviets thought the U.S. was far ahead of them in testing "Super-EMP" weapons.
- After approximately 1965, when the Soviet Union had obtained the "long arm", i.e., ICBMs in sufficient numbers, the Soviets did not seriously expect a war and thought it would not happen.