

## II. SOVIET VIEW OF THE STRATEGIC RELATIONSHIP

### Parity

U.S. analysts differed on whether the USSR accepted strategic parity. The Director of the State Department's Bureau of Intelligence and Research argued that Soviet improvements in strategic forces were intended above all to avoid falling behind the United States in a strategic environment increasingly characterized by qualitative competition.<sup>12</sup> By Raymond L. Garthoff's assessment, the Soviet political leadership had disavowed the objective of military superiority.<sup>13</sup> Some observers agreed but added that the Soviet Union still made preparations to fight a nuclear war.<sup>14</sup> Others remained skeptical about the USSR's acceptance of parity. Soviet military planning, the latter argued, provided no measure for strategic adequacy and allowed for an open-ended process of arms accumulation constrained only by domestic resources and U.S. forbearance.<sup>15</sup> National Intelligence Estimates, by the mid-1970s, suggested that the persistence and vigor of Soviet weapons programs might indicate that the Soviet Union was trying to achieve strategic superiority.<sup>16</sup> Several U.S. analysts stated bluntly that the USSR was striving for strategic nuclear superiority,<sup>17</sup> indeed for the maximum attainable measure of strategic superiority,<sup>18</sup> and had made great strides toward achieving general military superiority.<sup>19</sup>

Disagreements also arose in identifying the stimulus for Soviet force modernization. Some experts emphasized external causes, depicting the USSR's weapons programs as

<sup>12</sup> *National Intelligence Estimate 11-3/8-76*, p. 4.

<sup>13</sup> Raymond L. Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," *Strategic Review*, Vol. 10, No. 4, Fall 1982, p. 47.

<sup>14</sup> David Holloway, *The Soviet Union and the Arms Race*, 2nd ed., (New Haven, CT: Yale University Press, 1984), p. 167; see also Fritz W. Ermarth, "Contrasts in American and Soviet Strategic Thought," *International Security*, Vol. 3, No. 2, Fall 1978, pp. 152-153.

<sup>15</sup> Benjamin S. Lambeth, *How to Think About Soviet Military Doctrine*, (Santa Monica, CA: RAND Corporation, P-5939, February 1978), p. 7; see also Thomas W. Wolfe, *Worldwide Soviet Military Strategy and Policy*, (Santa Monica, CA: RAND Corporation, P-5008, April 1973), p. 17.

<sup>16</sup> *National Intelligence Estimate 11-3/8-76*, p. 3. *Report of Team B*, p. 12, complained that before 1974, National Intelligence Estimates did not seriously consider the possibility that the USSR might be seeking strategic superiority.

<sup>17</sup> Harriet Fast Scott and William F. Scott, *The Armed Forces of the USSR*, 2nd ed., (Boulder, CO: Westview Press) p. 77; and Joseph D. Douglass Jr. and Amoretta M. Hoerber, *Soviet Strategy for Nuclear War*, (Stanford, CA: Hoover Institution Press, 1979), p. 55.

<sup>18</sup> *Report of Team B*, p. 46.

<sup>19</sup> Comment by Air Force Intelligence in *National Intelligence Estimate 11-3/8-76*, p. 5.

responses to perceived threats, particularly to the development of U.S. weapons technology.<sup>20</sup> Others stressed the internal stimulus of nuclear doctrine,<sup>21</sup> specifically the Soviet view that deterrence required formidable military capabilities.<sup>22</sup>

U.S. officials expressed contrasting opinions on the question of Soviet acceptance of strategic parity. Harold Brown, President Carter's Secretary of Defense, believed that Soviet leaders accepted parity. They did not think it feasible to gain a significant edge, because larger numbers of weapons did not necessarily provide greater capabilities and one side's advantages in particular weapons categories were offset by advantages on the other side.<sup>23</sup> James Schlesinger, Director of Central Intelligence and Secretary of Defense in the early 1970s, disagreed. He concluded that the USSR was exceeding parity by acquiring counterforce capabilities through deployment of SS-18s and SS-19s. Parity was incompatible with the development of Soviet warfighting capabilities, Zbigniew Brzezinski, President Carter's National Security Advisor, argued. The Soviets did not accept parity because they regarded the nuclear relationship as dynamic. At any given time, one of the two sides was either ahead or moving ahead.<sup>24</sup> Fred Iklé, Undersecretary of Defense for Policy under President Reagan, expressed the view that Soviet force deployments created the impression that the Soviet Union wanted more than parity. President Reagan himself expressed the belief that the USSR rejected parity until Mikhail Gorbachev became General Secretary and began to change the Soviet position.<sup>25</sup>

Soviet decisions on arms procurement, according to the consensus in Washington, were influenced by U.S. weapon programs,<sup>26</sup> but the extent of that influence was a subject of debate. Schlesinger asserted that the USSR did not imitate American force modernization, but U.S. programs did stimulate Soviet efforts. The Carter

---

<sup>20</sup> Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," p. 49; Robbin F. Laird and Dale Herspring, *The Soviet Union and Strategic Arms* (Boulder, CO: Westview, 1984), p. 106; Michael McGuire, "Commentary: Soviet Intentions," *International Security*, Vol. 4, No. 1, Summer 1979, p. 141; and citations in Stephen M. Meyer, "Soviet National Security Decisionmaking: What Do We Know and What Do We Understand?" in Jiri Valenta and William C. Potter (eds.), *Soviet Decisionmaking for National Security* (London: George Allen & Unwin, 1984), p. 257.

<sup>21</sup> *Report of Team B*, p. 15.

<sup>22</sup> Stanley Sienkiewicz, "SALT and Soviet Nuclear Doctrine," *International Security*, Vol. 2, No. 4, Spring 1978, pp. 93, 98.

<sup>23</sup> Interview with Harold Brown, November 8, 1991, *Vol. II*, p. 14. Mr. Brown was Secretary of Defense throughout the Carter Administration.

<sup>24</sup> Interview with Zbigniew Brzezinski, November 20, 1991, *Vol. II*, p. 16. Mr. Brzezinski was the Assistant to the President for National Security Affairs throughout the Carter Administration.

<sup>25</sup> Interview with Rod McDaniel, November 19, 1991, *Vol. II*, p. 120. Mr. McDaniel served on the NSC staff from 1985 to 1987 after working on a strategic planning project for the U.S. Navy.

<sup>26</sup> Brzezinski, November 20, 1991, *Vol. II*, p. 16; and McDaniel, November 19, 1991, *Vol. II*, p. 120.

Administration was split between optimists, who expected American restraint to encourage moderation on the part of the Soviet Union, and pessimists who thought that the Soviet arms buildup would persist even if U.S. modernization stopped.<sup>27</sup> Harold Brown interpreted the continued Soviet deployment of strategic forces as an attempt to offset growing U.S. technological advantages.

Other U.S. policy makers focused on the internal factors behind the Soviet arms buildup. Soviet deployments, argued Ambassador Robert Komer, a senior Pentagon official in the Carter Administration, were intended to strengthen deterrence but also to gain leverage over the United States.<sup>28</sup> Soviet weapons programs were influenced in part, but not much, by U.S. force deployments, Iklé concluded, because the USSR had its own seven-year cycle and track for arms procurement.<sup>29</sup> President Reagan reportedly believed that the Soviet leadership wanted a first-strike potential, not to use militarily but instead to surpass American capabilities.<sup>30</sup>

By the Soviet accounts, the Soviet arms buildup was not based on careful analysis of force requirements but rather took place in the context of the arms race. The perception of the USSR falling behind in the arms race stimulated the rapid development of Soviet ICBMs.<sup>31</sup> The Soviet military leadership was particularly intent on responding to technological advances in U.S. weaponry. Gareev reported that Marshal Ogarkov wanted to modernize the Armed Forces to make them more competitive on high-technology battlefields. Ogarkov first proposed to professionalize the armed services, to reduce spending on infantry, civil defense, and strategic air defenses located far from the USSR's periphery, and aircraft carriers, and to close some military academies. Dr. Vitalii Tsygichko of the GRU's NII-6, related that Marshal Ogarkov circulated a position paper to this effect around the Ministry of Defense in the summer of 1984, shortly before he was replaced on order of Minister Ustinov.<sup>32</sup> The resulting savings would be allocated to

<sup>27</sup> Interview with Andrew W. Marshall, October 22, 1991, *Vol. II*, p. 118. Mr. Marshall has been the Director of Net Assessment, Office of the Secretary of Defense, since 1972.

<sup>28</sup> Interview with Robert W. Komer, October 22, 1991, *Vol. II*, p. 105. Mr. Komer served as Advisor to the Secretary of Defense for NATO Affairs from 1977 to 1979, and then as Under Secretary of Defense for Policy until 1981.

<sup>29</sup> Interview with Dr. Fred C. Iklé, December 11, 1991, *Vol. II*, p. 77. Dr. Iklé was Under Secretary of Defense for Policy, 1981-88.

<sup>30</sup> McDaniel, November 19, 1991, *Vol. II*, p. 120.

<sup>31</sup> Interview with Gen.-Col. (ret.) Andrian A. Danilevich, December 18, 1990, *Vol. II*, p. 22. Gen.-Col. Danilevich served as Deputy Director of the General Staff's Main Operations Directorate until 1977 and then as Special Advisor for military doctrine to the Chief of the General Staff until 1988.

<sup>32</sup> Interviews with Gareev, April 30, 1993, *Vol. II*, p. 72; Tsygichko, March 30, 1991, *Vol. II*, p. 149; and Gen.-Maj. Iurii A. Kirshin, January 9, 1990, *Vol. II*, p. 102. Tsygichko was a former head of Theater Forces Modeling at the

development of modern high-precision weapons. Critics of Ogarkov replied that the Soviet Union lacked the technological base required to compete with the U.S. Gareev favored development of cheap strategic and operational countermeasures, such as the Operational Maneuver Group (OMG). The OMG was introduced on the assumption that high mobility would render less effective the enemy's precision weapons, because he would not know with certainty the position of Soviet forces.<sup>33</sup>

Notwithstanding their concerns about U.S. force building, former Soviet officials now admit that the Soviet Union was trying to gain strategic superiority. When parity was reached in the early 1970s, Tsygichko believes, the Soviet political leadership, with support from the Military-Industrial Commission (VPK), set out to attain nuclear superiority. The aim of achieving superiority was reflected in Soviet military programs and military doctrine. The concept of parity was officially adopted only after 1985.<sup>34</sup> The USSR, Danilevich acknowledged, strove to achieve superiority, "just as the U.S." did, but admits that its drive for superiority manifested itself more often in terms of quantity than quality of weapons.<sup>35</sup> Kalashnikov pointed out that the Soviet Union eventually even attained superiority in some areas, such as number of launchers, silo protection, warhead yields, and missile ranges.<sup>36</sup>

Many U.S. analysts and policy makers recognized that the Soviet Union was seeking strategic superiority. They cited as evidence Soviet ICBM deployments, which, Tsygichko acknowledged, were indeed part of the USSR's drive for superiority. Some U.S. observers emphasized the incompatibility of parity with Soviet nuclear warfighting capabilities, although remarks from the Soviet sources suggest that the USSR was trying not only to acquire specific military capabilities but also to move ahead of the United States, as a matter of competitive necessity. Failure to strive for superiority would quickly result in a serious negative gap in capabilities. The Soviet leadership, Danilevich's comments imply, regarded the nuclear relationship not as a stable balance, with one side's advantages offsetting advantages on the other side, but rather as a

---

General Staff's Center for Operational and Strategic Research (TsOSI). Gen.-Maj. Kirshin served as Chief of the Strategy Department of the Military Science Directorate of the Soviet General Staff.

<sup>33</sup> Ibid., pp. 72-73.

<sup>34</sup> Tsygichko, *Kommentarii k interv'iu V.N. Tsygichko v 1990-1991 godu*, unpublished comments, December 10, 1991, see Appendix E in *Vol. II*.

<sup>35</sup> Danilevich, September 21, 1992, *Vol. II*, p. 33.

<sup>36</sup> Interview with Aleksei S. Kalashnikov, April 1993, *Vol. II*, p. 91. After working for more than 25 years on missile and nuclear weapons testing, Kalashnikov served as Head of the Strategic Rocket Forces (SRF) Committee on Science and Technology (5 years), then as Chairman of the State Commission on Nuclear Testing at Semipalatinsk (10 years).

dynamic process in which one side or the other was always taking the lead. Thus, while many U.S. experts and officials reached accurate assessments of Soviet intentions, a number of others were mistaken in believing that the Soviet Union accepted nuclear parity to be an acceptable, stable condition of the strategic relationship.

Some U.S. observers overemphasized the internal factors stimulating Soviet force modernization. Others overestimated the influence of U.S. weapons programs on Soviet arms procurement decisions. The group of observers in the middle seemed closest to the mark. According to the Soviet officers, the arms race did contribute to Soviet force building, but the quantitative expansion of the Soviet nuclear arsenal was driven mainly by internal political and defense-industrial processes. The USSR would not necessarily temper its weapons deployments in response to U.S. moderation, because the Soviet Union did not plan to stop at parity. Moreover, persistent internal pressure to maintain or increase military production (discussed at greater length in Section IV) was relatively insensitive to events in the external environment. If the U.S. had curtailed its modernization programs, the USSR probably would have forged ahead in the hope of attaining superiority.

Soviet military industry would have continued to produce, because uninterrupted production itself was the underlying and driving force that justified the existence of the massive force that, in turn, legitimized the existence of the massive military-industrial sector. At the same time, security through strategic superiority was the overriding goal of the political and operational military leadership, although the latter group would have much preferred an approach to competition that placed far more stress on quality and less on large-scale production—even of obsolescent weaponry.

## Deterrence

Most U.S. observers recognized that the Soviet leadership believed in nuclear deterrence in the broad sense of maintaining a nuclear arsenal primarily to discourage the United States from employing nuclear weapons. By the interpretation of the majority of U.S. analysts, the Soviet Union relied on counterforce capabilities (rather than on the potential for destroying only cities) to provide the most credible deterrent.<sup>37</sup> Team B, in contrast,

---

<sup>37</sup> Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," p. 42; Lambeth, *How to Think About Soviet Military Doctrine*, pp. 6-7; *National Intelligence Estimate 11-3/8-76*, p. 18; Stanley Sienkiewicz, "SALT and

argued that Soviet leaders regarded nuclear weapons as a means of coercion, which would be employed or not employed as the situation dictated.<sup>38</sup>

Sharp disagreements arose over interpretations of the Soviet attitude toward mutually assured destruction (MAD). Raymond Garthoff asserted that in the view of Soviet political and military leaders, a strategic balance based on mutual deterrence was basically stable and provided the best means to avert nuclear war.<sup>39</sup> Others countered that the USSR considered the nuclear balance to be unstable<sup>40</sup> and rejected the concept of MAD as neither realistic nor desirable.<sup>41</sup> The Soviet Armed Forces, by the assessment of another expert, were deeply suspicious of ideas to keep Soviet society vulnerable and especially to cooperate with the adversary in preserving vulnerability.<sup>42</sup>

The consensus among U.S. officials of successive administrations held that the Soviet leadership accepted nuclear deterrence.<sup>43</sup> The Soviets, Brzezinski explained, practiced deterrence from the late 1950s to offset what they perceived to be significant U.S. advantages in strategic forces.<sup>44</sup> They believed that the U.S. would not attack without provocation, Schlesinger pointed out.<sup>45</sup> Policy makers differed on how Soviet leaders and military planners understood nuclear deterrence. Harold Brown expressed the conviction that the Soviet deterrent rested on a capacity to inflict unacceptable damage on the United States. In Brzezinski's judgment, the Soviets considered their warfighting capability a means to enhance deterrence.

In Brown's opinion, Soviet leaders accepted the concept of mutual deterrence, but they did not embrace MAD to the extent of renouncing efforts to limit damage or of relying entirely on a capacity to kill only civilians in order to deter the United States. Brzezinski

---

Soviet Nuclear Doctrine," *International Security*, p. 95; and Wolfe, *Worldwide Soviet Military Strategy and Policy*, pp. 6, 16.

<sup>38</sup> *Report of Team B*, p. 14.

<sup>39</sup> Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," p. 37.

<sup>40</sup> *National Intelligence Estimate 11-3/8-76*, p. 18, and *Report of Team B*, p. 14.

<sup>41</sup> Scott and Scott, *Armed Forces of the USSR*, p. 89.

<sup>42</sup> Sienkiewicz, "SALT and Soviet Nuclear Doctrine," p. 90.

<sup>43</sup> Interviews with Brown, November 8, 1991, *Vol. II*, p. 13; Iklé, December 11, 1991, *Vol. II*, p. 77; McDaniel, November 12, 1991, *Vol. II*, p. 120; and James Schlesinger, October 29, 1991, *Vol. II*, p. 128. Mr. Schlesinger was CIA Director in 1973 and later served as Secretary of Defense, 1973-1975.

<sup>44</sup> Brzezinski, November 20, 1991, *Vol. II*, p. 16.

<sup>45</sup> Schlesinger, October 29, 1991, *Vol. II*, p. 128.

disagreed. He argued that the USSR did not accept the logic of mutual deterrence as a substitute for developing credible warfighting capabilities.<sup>46</sup>

Other officials treated the question of Soviet adherence to MAD as largely academic, because they were mainly concerned with strengthening U.S. capabilities and thereby enhancing the credibility of deterrence.<sup>47</sup> Increasingly in the late 1970s, Soviet actions suggested that the USSR was setting targeting priorities and pursuing weapons programs to acquire a nuclear warfighting potential. Pentagon officials during the Carter Administration therefore saw a need to reinforce deterrence by placing at greater risk the things that the Soviet leadership valued most. The essence of Presidential Directive 59 (PD-59) was leaked in order to let Soviet leaders know that all three of what was believed to be the Soviet leadership's highest political priorities (to ensure their personal power, to preserve the structures of the Soviet state, and to hold on to Eastern Europe)<sup>48</sup> were selectively targeted by U.S. missiles (although Politburo members themselves were far down on the target list).<sup>49</sup> One of Schlesinger's greatest worries was the apparent growing Soviet belief that U.S. tactical nuclear forces in Europe were separate from the strategic arsenal, that tactical nuclear weapons would be used to defend Western Europe but U.S. strategic systems would not. So, he wanted publicly to back away very deliberately from the concept of MAD (in his discussions of limited nuclear options) in order to reestablish the linkage of the U.S. deterrent in Europe to the strategic arsenal. Credible MAD undermined extended deterrence, thereby increasing the likelihood of Soviet initiation of conventional war, which could lead to a NATO nuclear response and a general nuclear exchange.

By the account of Marshal Akhromeev, the Soviet Union had accepted nuclear deterrence by the late 1960s.<sup>50</sup> It had accumulated enough ICBMs, Mozzhorin added, that it did not expect a U.S. attack. Brezhnev supported deterrence, despite opposition from Defense Minister Grechko. The principles of deterrence were in effect adopted as doctrine,

---

<sup>46</sup> Brzezinski, November 20, 1991, *Vol. II*, p. 16. Fred Iklé, in his interview with the authors, observed that the Soviet Union did not share the U.S. view of mutually assured destruction, December 11, 1991, *Vol. II*, p. 77.

<sup>47</sup> McDaniel, November 19, 1991, *Vol. II*, p. 120.

<sup>48</sup> Personal power, the Soviet state, and control over Eastern Europe represented the Soviet leadership's three highest political priorities in the judgment of U.S. intelligence.

<sup>49</sup> Marshall, October 22, 1991, *Vol. II*, p. 118. The reasoning behind PD-59 was explained in the interview with Harold Brown, November 8, 1991, *Vol. II*, pp. 13-14.

<sup>50</sup> Interview with Marshal Sergei F. Akhromeev, the late Chief of the General Staff and Advisor to President Gorbachev, February 8, 1991, *Vol. II*, p. 6.

Mozzhorin stated, at a July 1969 meeting of the Defense Council,<sup>51</sup> which decided to manufacture survivable missiles rather than produce vulnerable missiles in large quantities.<sup>52</sup>

Soviet experts described deterrence in different terms from their U.S. counterparts, but the concept was, in many respects, similar. Gen.-Maj. Vladimir Dvorkin, Director of TsNII-4, the Central Scientific Research Institute of the Strategic Rocket Forces, reported that Soviet experts did not use the word "deterrence" (*sderzhivanie*) to describe Soviet doctrine. They used *sderzhivanie putem ustrasheniia* (deterrence through terror) to describe U.S. deterrence doctrine). Instead, they consistently used the expression, "not to allow" (*ne dopustit'*) the United States to believe that it could strike the Soviet Union without incurring a devastating retaliatory blow and "not to allow" U.S. leaders to feel such a sense of security and superiority that they would try to exercise their will in Europe with impunity. Finally, the Soviets would not allow the U.S., on a global scale, to perceive such a sense of overall military or nuclear superiority that U.S. leaders would pursue adventurist policies in the Third World.<sup>53</sup> Gen.-Maj. Dvorkin recited these objectives so matter-of-factly and with such almost weary familiarity that it appears that he was repeating a verbal formulation widely held and understood in the Soviet strategic nuclear community. The concept accommodated both basic intra-crisis deterrence against a nuclear attack in the USSR as well as a two-layered concept of extended deterrence, focused first on U.S. actions in Europe and the rest of the world.

Soviet strategists recognized that deterrence was, to some extent, mutual, because each side was capable of launching a retaliatory strike<sup>54</sup> and of inflicting unacceptable damage on the other.<sup>55</sup> They, nevertheless, considered their nuclear power the only guarantee of security from war, and they never examined the question of mutually assured destruction

---

<sup>51</sup> The July 1969 Defense Council meeting is described in Section IV on Struggles Among the Princes.

<sup>52</sup> Interview with Iurii A. Mozzhorin, April 14, 1993, *Vol. II*, p. 125. Mozzhorin served for 30 years as Director of the Central Scientific-Research Institute of Machine Building (TsNIIMash).

<sup>53</sup> Interview with Gen.-Maj. Vladimir Z. Dvorkin, June 24, 1993, *Vol. II*, p. 70. Gen.-Maj. Dvorkin is Director of TsNII-4, the Central Scientific-Research Institute of the Strategic Rocket Forces.

<sup>54</sup> Tsygichko, December 20, 1990, *Vol. II*, p. 145.

<sup>55</sup> Danilevich, September 21, 1992, *Vol. II*, p. 28.



as a condition they should accept, much less pursue (officially, the USSR did not threaten anyone, Tsygichko explained).<sup>56</sup> Danilevich asserted that the Soviet Union never embraced vulnerability as desirable.<sup>57</sup>

Soviet strategists considered the nuclear balance to be unstable, because technological advances and increases in the size of the arsenal could significantly augment the power of one side relative to the other, thereby upsetting the balance. The Soviets assessed overall nuclear power (*iadernaia moshch'*) to be a function of yield, total number of weapons, and accuracy. Accuracy had a particularly decisive effect as a multiplier of the overall nuclear power of a missile. By the early 1980s, greater accuracy, in combination with other factors, increased the effective power of the U.S. nuclear arsenal by a factor of 3, according to Soviet estimates.<sup>58</sup> Such great fluctuations in the relative power of the two sides made the balance extremely unstable and induced both the United States and the USSR constantly to upgrade their nuclear forces.<sup>59</sup>

Danilevich explained that, given military uncertainties, mutually assured destruction was only a *theoretical* conclusion. There was no guarantee in practice that a retaliatory strike would be launched and would inflict unacceptable damage on the enemy. If military art could be reduced to arithmetic, there would be no need for wars. One side would simply assess the correlation of forces and then tell its opponent, "we outnumber you 2-to-1; victory is ours; please surrender." In reality, however, one side can outnumber the other even by 3-to-1 and still suffer defeat, because actual fighting produces different results from what was calculated and planned.<sup>60</sup>

In the event of nuclear war, according to Danilevich, the Soviet Union planned to strike a mix of cities, industrial centers and military targets. The mix of military and industrial targets would depend on whether the USSR tried to preempt or launched second.<sup>61</sup> A preemptive Soviet strike would target the enemy's retaliatory forces, including ICBM

<sup>56</sup> Tsygichko, *Kommentarii k interv'iu*.

<sup>57</sup> Danilevich, March 5, 1990, *Vol. II*, p. 19.

<sup>58</sup> Kataev, June 23, 1993, *Vol. II*, p. 101.

<sup>59</sup> Soviet interview subjects acknowledged that U.S. upgrades were largely qualitative while Soviet improvements were related to quantitative increases, some improvements in quality, and considerable improvements, by the late 1970s, and early 1980s, in protection of strategic systems.

<sup>60</sup> Danilevich, September 21, 1992, *Vol. II*, p. 30. This comment seems to reflect the Soviet preoccupation with the effect of technological and operational surprise and command competence.

<sup>61</sup> *Ibid.*, p. 31.

silos, airfields, command centers, and naval bases.<sup>62</sup> A retaliatory strike, Tsygichko explained, would be aimed at soft military targets (such as airfields and C<sup>3</sup> facilities) and at U.S. infrastructure, including transportation grids and fuel supply lines.<sup>63</sup> Danilevich was much more direct. In a retaliatory strike, Soviet missiles would be retargeted against "cities." By the mid-1970s, such retargeting, he asserted, could be accomplished "within minutes."

Soviet military planners were concerned that weaknesses in their command and control systems might prevent timely and effective launches of retaliatory strikes. Aleksei Kalashnikov, a former chairman of the Strategic Rocket Forces (SRF) Committee on Science and Technology, complained that the USSR *never* managed to create an integrated C<sup>3</sup> system that was both sophisticated and survivable. Poor survivability was partly the result of inadequate cable communications. There was, for example, only one military communications cable linking Moscow with the Far East. Kalashnikov examined data from several scientific-research institutes (NIIs) and calculated that after sustaining a full-scale nuclear attack, the Soviet Union would be able to launch only 2 percent of its missiles. TsNIIMash had reported a figure of 6 percent and TsNII-4, the institute of the Strategic Rocket Forces, estimated that 10 percent of Soviet retaliatory weapons could be launched. Kalashnikov summarized these findings in a report to the General Staff which was very critical of Soviet C<sup>3</sup> systems and generated some movement toward C<sup>3</sup> modernization.<sup>64</sup> In follow-up questioning, he volunteered that, even in 1993, the improvements made in the Central System's survivability were not sufficient to reduce significantly the loss of ability to retaliate after absorption of a first strike.

The General Staff, Akhromeev recounted, undertook the task, in the early 1970s, of ensuring absolute control over nuclear weapons in order to prevent unauthorized use. He stated that, by the mid-1970s, the USSR had introduced command and control systems that gave the General Staff confidence in centralized control over Soviet nuclear forces.<sup>65</sup> Danilevich reported that after strengthening the command and control system's capacity to prevent unauthorized employment of nuclear weapons, the USSR turned its attention

<sup>62</sup> Danilevich, September 24, 1992, *Vol. II*, p. 40. The same targets are listed in Turbiville, *The Voroshilov Lectures*, p. 71.

<sup>63</sup> Tsygichko, December 21 and 23, 1991, *Vol. II*, p. 157.

<sup>64</sup> Kalashnikov, April 1993, *Vol. II*, p. 90.

<sup>65</sup> Akhromeev, February 8, 1991, *Vol. II*, p. 5.

to the problem of guaranteeing release of a retaliatory strike. It created a system for automated transmission of commands that was made redundant across several means of communication, including telephone, radio, and multi-channel systems.

The next step in enhancing the Soviet command and control system was the creation of a system of command missiles (*komandnye rakety*) that, even if launched late under attack, could help to ensure launch of the USSR's strategic missiles in a retaliatory strike. This system was similar in concept to the U.S. Emergency Release Communications System (ERCS) missiles designed to be launched to transmit nuclear release messages under various exchange scenarios. The command-missile system was comprised of a command missile or missiles deployed near, but outside of, clusters of silos. The command missiles were well concealed, housed in specially hardened silos capable of withstanding overpressures of up to 240 kg/cm<sup>2</sup> (3,412 pounds per square inch - psi), and were especially well protected against damage from electromagnetic pulse (EMP).<sup>66</sup> Each command missile was linked in its communications package with a specific set of launch platforms. Upon command, it would be launched into near space whence it would transmit launch orders to the cluster of ICBMs to which it was linked. According to Vitalii Kataev, initial design of the system began some time in the mid-1960s, and the missiles were operational by the mid- to late 1970s.<sup>67</sup>

The last step, which Kataev implied may have been undertaken concurrently with the command missiles, involved development of an automatic trigger mechanism which would ensure launch of the command missiles, even if positive human control had been rendered impossible. According to Kataev and other sources, the automated launch system, which became operational by the late 1970s, was known as the Dead Hand (*Mertvaia Ruka*).<sup>68</sup> Gen.-Col. Varfolomei Korobushin, who served for 10 years as First Deputy Chief of Staff of the SRF and was in charge of control systems, stated that the Dead Hand was designed to foil any attempt on the part of the U.S. to launch an unanswered decapitating strike against the Soviet leadership. It would ensure that a retaliatory strike would be launched under almost any circumstances. The Dead Hand trigger was not completely automatic. It had to be activated manually, presumably

<sup>66</sup> EMP is a pulse that is transmitted by a nuclear detonation and which tends to render inoperative solid-state electronics, thereby threatening unbuffered modern military communications systems.

<sup>67</sup> Kataev, June 23, 1993, *Vol. II*, pp. 100-101. Kataev assured the author that the development cycle for similar weapons systems was between 10 and 15 years.

<sup>68</sup> *Ibid.* See also Bruce G. Blair, "Russia's Doomsday Machine," *The New York Times*, October 8, 1993, p. A35.

during a crisis. Once activated, however, the system made Soviet nuclear retaliation automatic, eliminating the need for any living hand to push the nuclear button.<sup>69</sup>

There were two means by which each command missile might be launched to transmit its message to the ICBMs, Kataev continued. The first was under positive control from the central control system. The decision would be made to launch, and the time before impact of the enemy's strike would be considered insufficient to permit normal launch procedures. The second was the Dead Hand launch mechanism, whereby the decision maker would unblock (*razblikirovat'*) the central no-fire mechanism and, thereby, would release launch control to local automatic triggers associated with each command missile. The triggers, tied to numerous sensors, would launch their local command missile once the command missile was unblocked, which in turn, would transmit a launch order to its associated cluster of ICBMs. The triggering sensors were to launch the command missiles when excited by the *light, or seismic shock, or radiation or atmospheric density* resulting from an incoming nuclear strike. Unblocking of the Dead Hand, Kataev stressed, would be carried out on the assumption that the situation was extremely threatening to the political and military leadership and in the expectation that all decision makers would be dead when the command missiles automatically fired.<sup>70</sup> All of the interview subjects stressed the system's relationship to land-based ICBMs, although none ruled out involvement of SLBMs.

Although both Vitalii Kataev and Gen. Korobushin asserted that both the command missiles and the Dead Hand mechanism were, and continue to be deployed, the evidence for this is mixed. Viktor Surikov, the former deputy head of TsNIIMash, confirmed in detail the development of the Dead Hand system, claiming that he was personally involved in its design and presentation to the Soviet military leadership. He stated that the concept had been accepted by Iurii Mozzhorin, then director of TsNIIMash, and Oleg I. Baklanov, then Central Committee Secretary responsible for Military Industry. He claimed, however, that the concept was rejected by Marshal Akhromeev on advice of Gen.-Col. Korobushin, who had been the first interviewee to "reveal" to the authors, somewhat spontaneously and with anger, that the system existed and was still operational. As a consequence of this rejection, Surikov asserted, the Dead Hand trigger

<sup>69</sup> Interview with Gen.-Col. Varfolomei V. Korobushin, December 10, 1992, *Vol. II*, p. 107. Gen.-Col. Korobushin served for 10 years as First Deputy Chief of Staff of the SRF, then as Director of the General Staff's Center for Operational and Strategic Research (TsOSI).

<sup>70</sup> Kataev, June 23, 1993, *Vol. II*, p. 101. This scenario assumes that the ICBMs would be retargeted from counterforce to countervalue targets before they are launched.

system "was never realized."<sup>71</sup> Surikov's assertion is supported by Gen.-Col. Danilevich, who stated that, although both sides explored the possibility of such automatic trigger systems, the Soviets considered them too dangerous and unreliable and halted their development.<sup>72</sup>

Two conclusions may be made regarding this system. First, the Soviets were very concerned about the responsiveness and survivability of their command, control, and communications system and built redundant backup systems in order to ensure that a retaliatory strike could be launched. To this end, a command missile system, similar in many characteristics to the U.S. ERCS,<sup>73</sup> very probably was deployed by the mid- to late 1970s and subsequently upgraded. Second, TsNIIMash, the research arm of the Ministry of General Machine Building (MOM), probably took the concept of an automatic trigger mechanism for launching these command missiles to a level of development beyond basic research to design and, possibly, to prototype testing. It is not clear that this system, called the Dead Hand by the Soviets, was ever deployed and activated.<sup>74</sup>

Much of the U.S. analytical and policy community achieved an accurate understanding of Soviet thinking. Soviet leaders understood and applied the logic of nuclear deterrence, which, in their view, rested on the credibility of their potential to effectively counter-strike and inflict catastrophic damage on the enemy in the event of a nuclear attack. They rejected the desirability of mutual vulnerability, so they attempted to acquire the capacity to limit damage. U.S. officials probably were prudent to conclude that since the USSR was developing counterforce capabilities, the U.S. needed a response to those capabilities in order to preserve the credibility of its deterrent. A few U.S. analysts and officials probably overemphasized the USSR's acceptance of mutual deterrence, but they were careful to point out the Soviet attachment both to damage limitation and to counterforce capabilities.

---

<sup>71</sup> Interview with Viktor Surikov, September 11, 1993, *Vol. II*, pp. 134-135. Mr. Surikov was Deputy Director of the Central Scientific Research Institute for General Machine Building (TsNIIMash), 1976-1992. SSBN tied to the pier but not under repair could be integrated into the system without difficulty.

<sup>72</sup> Danilevich, December 14, 1992, *Vol. II*, pp. 62-63.

<sup>73</sup> Emergency Release Communications System.

<sup>74</sup> Bruce Blair, "Doomsday Machine."