

**SOVIET STRATEGIC INTENTIONS 1965-1985;
AN ANALYTICAL COMPARISON OF U.S.
COLD-WAR INTERPRETATIONS WITH
SOVIET POST-COLD-WAR TESTIMONIAL
EVIDENCE**

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ABSTRACT

Soviet Strategic Intentions 1965-1985; An Analytical Comparison of U.S. Cold-War Interpretations with Soviet Post-Cold-War Testimonial Evidence

The end of the Cold War created an opportunity to examine, through interviews with former Soviet officials, the perceptions, motives and decision-making dynamics that lay behind Soviet Cold-War strategy and behavior. At the same time, the U.S. declassified key U.S. National Intelligence Estimates (NIE) on Soviet strategic forces, and high-level U.S. national security officials from that period shared in interviews with the author their perceptions of Soviet strategic intentions and the rationale behind U.S. counter-strategies. Such post-Cold-War information from U.S. sources has helped to refine understanding of American Cold-War assessments of Soviet intentions and to permit comparison of the latter with results from the Soviet interviews.

This research has revealed instances both of great insight and serious mutual misunderstanding on the part U.S. and Soviet political leaders and military strategists; as well as areas, such as Soviet force sizing, where the quality of understanding essentially did not matter because the primary determinants were internal and systemic, not international. Areas where the author's findings may be most unexpected for Western scholars include: the Soviets' deeply held, very simple concept of deterrence; the duality of Soviet thinking on nuclear first use characterized by a purely military preference for first-strike accompanied by profound pessimism that same might be achieved, which led, in turn, to extensive preparations for launch-on-tactical-warning and pure retaliation; the relatively subordinate position of the Soviet General Staff vis-à-vis the military industrialists, and even the armed services, in actually determining the nature, and especially quantity, of weapons produced to support Soviet military strategy.

This study contributes in a unique way to our understanding of the evolution of the Cold War both in the nature and quality of its supporting evidence, and in the specific experience the author brings to the effort. The study draws heavily on interview responses of highly placed Soviet political, military and industrial officials who were actually involved in the taking of key Cold-War decisions. Given its central importance, the interview record is included as Part II of the thesis. Because of the advanced age and poor health of many of the interview subjects, the research represented, perhaps, a last opportunity to acquire such insights and information (Four actual or prospective interviewees died or committed suicide during the period of the research). Finally, the author himself brought to this project many years of experience in the U.S. government analytical community, which informed both his interview questions and his judgments in the course of completing this thesis.

DECLARATION

RULE 3.4.7

I confirm that this thesis was composed by myself and that it is my own original work.

John G. Hines

EPIGRAPH

“From 1963 until 1987,deterrence was accepted as a crucial element of Soviet State and military policy....”

Raymond L. Gartoff, *Deterrence and the Revolution in Soviet Military Doctrine*

“.... Deterrence [for the Soviets] is primarily the province of the diplomat, disinformers, and the propagandist while warfighting now and always has been the primary pursuit, preoccupation, and passion of the Soviet military strategists.”

In. John J. Dziak, *Soviet Perceptions of Military Power: The Interaction of Theory and Practice*

“As in few other ways, the Kremlin is in this regard [on the question of deterrence] more *seriozny* than we. It is perhaps because the Soviets are so interested in the distinction between deterrence and war-fighting that they have kept silent about it.

The war not being yet begun, this is the hour of deterrence by prospect of maximum initial strike, of preemption, and of the none-or-all character of nuclear war. Once the war is on, the Authorities may adopt that “controlled” conduct about which the West (in a possible Soviet estimate) is now so prematurely chattering.

Nathan Leites, *Soviet Style in War*

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PREFACE

This study represents the culmination of both a personal and professional journey for the author. As a young company commander in the U.S. Army's NATO forces in Germany in the 1960s and 1970s he looked to the East with resolve and trepidation as he prepared his soldiers to defend against the Soviet juggernaut. He believed at the time, albeit with little real understanding, that the Soviets were prepared, indeed eager, to attack and seize Europe using whatever means necessary, to include nuclear and chemical weapons. The outcome of the Cuban Missile Crisis had taught him that the Soviet leadership was not entirely insane but were nonetheless capable of being reckless with the security and survival of his family, his country and the world.

Years of education and training at university and various Defense Department institutes in the 1970s to achieve qualification as a Sovietologist-Foreign Area Officer led the author to develop a far more complex view of "the Soviet threat". At the very least, knowledge of the Russian language, culture, history and study of Soviet military thought and strategy caused him to be far less certain that he understood the behavior of Soviet leaders or that he could forecast their responses under conditions of crisis or war.

Because his certainty of understanding Soviet behavior and intentions declined as he became more informed about the Soviet Union, he was surprised to find in his subsequent assignments in the 1980s within the U.S. government analytical and defense policy communities in Washington, D.C. few who suffered from such doubts concerning Soviet intentions and motivation. With few notable, very important exceptions, analysts and policy makers shared a clear vision of Soviet intentions and motives and searched in "the evidence" to determine how those objectives might be manifest in any particular instance. The dominant view attributed to Soviet leaders the most malevolent, even irrational, intentions with respect to the initiation of war and the ready use of weapons of mass destruction on a massive scale. The opposing, minority, view tended to explain aggressive Soviet force building and force deployments as defensive responses to NATO arms development and activity, responses that could be moderated by less aggressive NATO behavior.

Such different views led to prolonged, sometimes bitter, debates within the U.S. analytical community. Most disturbing, the quality of the debate did not reflect the high quality of credible evidence supporting each side, a circumstance that might have suggested that both sides were right - or wrong. In fact, protagonists on both sides were extremely reluctant to acknowledge that much of the evidence, even the most sensitive, was profoundly ambiguous and proponents of both extremes tended to attack those who pointed out the ambiguities in the evidence even more vigorously than they attacked each other. Uncertainty, evidently, was more threatening than certainty, even in an opposing view. Such intolerance for ambiguity tended to distort analytical products prepared for decision makers by so polarizing the debate that advocates of balanced analysis either were not heard or were themselves drawn into the polemics of the exchange which in turn corrupted the tone of their contributions.

For example, in the early eighties the author found himself overstating, at least implicitly, Soviet readiness to attack NATO with conventional forces. He was attempting to counter credibly the prevailing view in the U.S. defense community that the Soviet Armed Forces regarded nuclear weapons as tools to be used almost casually and always preemptively to accomplish objectives such as restarting a stalled Warsaw Pact offensive in Europe. Ironically, marked improvements in Soviet concepts for conducting conventional operations, *should there be a war in Europe*, were directed principally at the achievement of success *without* provoking a nuclear exchange. The tone and sense of the message taken from the author's argument by some U.S. decision makers, was that the Soviets were preparing to initiate a conventional war in Europe, something he himself did not believe. Nor did he understand that these misperceptions had emerged as an unintended consequence of the debate until he saw his arguments invoked by those portraying Soviet military leaders as reckless warmongers.

Such poor use of sources, lack of analytical rigor and contamination of findings by what must be seen as ideological and institutional bias would be no less reprehensible but at least less harmful had it occurred in an academic or extra-governmental institutional setting. In fact, such shortcomings characterized the production of U.S. national strategic intelligence at the highest levels, often providing to U.S. decision makers and military operational planners - not the balanced, dispassionate assessments needed for sound decision making - but rather ideologically colored polemics presented as ground truth derived from extremely sensitive, unambiguous sources. (Declassified U.S. National Intelligence Estimates

[NIE] were used in preparation of the study). In the late 1960s and the 1970s the U.S. security policy decision process was largely spared the worst consequences of such abuse by extremely competent, well-informed defense secretaries and national security advisors who applied generous doses of common sense to the data they were provided by the national analytical community and who typically *ignored* the analytical package in which basic data were delivered. (See the author's interviews with former Defense Secretaries Harold Brown and James Schlesinger and former National Security Advisor Zbigniew Brzezinski in Part II). The author's experience suggests that most senior and mid-level managers in the analytical community as well as most mid-level security policy support staffers were unaware of the basic, very fortunate, rejection of the community's analytical findings by the very highest levels of the national security establishment. As a result, unfortunately, there appears to have been relatively little corrective action in the research, analysis and production of national security information. Consequently, other less knowledgeable, less skeptical senior national security officials who held office in the 1980s and who were unable or unwilling to distinguish highly classified opinion from real analysis were not well served by the U.S. analytical community.

The author is not so naive as to believe that his experience is unique nor to believe that the U.S. national security analytical community is the only such establishment in history or in the world community to have its work contaminated by bureaucratic and partisan politics and ill-disciplined scholarship. As an alien visitor to that world for approximately nine years, the author, initially an *ingenu* eagerly expecting to participate in a transparent process of searching for and accurately communicating the truth to national decision makers, was both profoundly disappointed by the reality and at the same time greatly stimulated by the quality of information available for review and analysis. He left the experience with a discomfiting sense of unfinished business and a very low tolerance for strongly held views based on beliefs rather than on evidence.

It was in this context that the author saw in the end of the Cold War the opportunity to resolve, finally, the ambiguities in the evidence that had haunted him and others for many years and that had been for so long explained away or largely ignored by the U.S. analytical community. He set out to find and question directly those in the Soviet Union, and later Russia, who possessed not only specific knowledge but also real understanding of the relevant facts and supporting context bearing on ambiguities never convincingly explained in the West during the Cold War. While he did not succeed in resolving completely all outstanding issues, he

hopes that he has at least advanced somewhat his and others' understanding of the origins of many of the more puzzling phenomena that characterized Soviet behavior in the Cold War. In the process he would hope to have made some contribution to advancing the state of the art of such analysis among those who share his objective of bringing common sense and sobriety to the national security decision process.

The author is indebted to a number of colleagues, both Russian and American, who in some way supported his work in development and preparation of this study. Dr. Vitalii Kataev and Dr. Viktor Surikov of the Institute for Defense Analysis (INOBS) helped directly in the interviews and insights they provided. Each in his area of experience also helped the author to develop a "road map" of the Soviet Cold-War decision structure - assistance critical to appropriate weighting and evaluation of the various interviews. Finally, they helped to arrange several key interviews with well-known former Soviet decision makers as well as with lesser known officials who participated in key policy discussions and decisions of the Cold-War era.

The author is grateful to, among others, the late Donald Mahoney, and Ellis Mishulovich who reviewed and discussed at length with the author earlier versions of the study. Finally, Fritz Ermarth, Stephen Meyer, Richard Pipes and Leon Sloss all provided helpful comments on earlier drafts. The author, of course, bears sole responsibility for any shortcomings in this study.

The author reserves a very special acknowledgment to an exceptionally capable Soviet General Staff officer who contributed immeasurably to whatever value this undertaking might represent. Of all the former Soviet "Cold Warriors" who participated in the effort, he stands out for his breadth of knowledge, patience and openness. General-Colonel Andrian A. Danilevich, acknowledged by his Soviet general-officer peers to be perhaps the single most credible authority in the evolution of Soviet Cold-War strategy and operational thinking from the perspective of the General Staff, devoted countless hours to helping the author to document, from his own voluminous and unusually precise memory, the ideas, perceptions and debates that generated General-Staff decisions during the Cold War. He shared the author's objective of trying to establish for the record *what happened* during the Cold War *and why* key decisions and events unfolded as they did. He was, in that sense, a very important collaborator in the generation of this study. General Danilevich died on June 6th, 1995. The author deeply regrets that his long

conversation with the general in his home in Moscow in December of last year was, indeed, their last.

Finally, the author owes a heartfelt expression of gratitude to Professor John Erickson and to the Social Sciences Faculty for their extraordinary forbearance in granting the author the time required to gather and analyze the evidence that he believes makes this study unique. He can only hope that the product of this effort is worthy of their enormous patience.

NOTE ON TRANSLITERATION

The transliteration system of the U.S. Library of Congress is used throughout this study. The only exceptions are in those instances when the author of a secondary source cited in the study makes use of a different system, in which case the study follows the usage in the secondary source.

**PART I. SOVIET STRATEGIC INTENTIONS 1965-1985; AN
ANALYTICAL COMPARISON OF US INTERPRETATIONS WITH
SOVIET POST-COLD-WAR TESTIMONIAL EVIDENCE**

I. INTRODUCTION

A. Scope and Organization of Study

Interviews with former senior Soviet officials who participated in Cold War policy making have created the opportunity to begin to review the quality and accuracy of U.S. assessments of Soviet nuclear strategy and force planning. A comparison of these assessments with the information provided by Soviet interview subjects suggests that most U.S. observers understood the basic tenets of Soviet nuclear doctrine but in some instances seriously misjudged Soviet military intentions. The inaccuracies in U.S. assessments seem in retrospect to have had little impact on the course of the arms race, because Soviet nuclear force building was relatively unresponsive to U.S. actions and policy pronouncements, mostly for reasons U.S. analysts did not fully understand. Nevertheless, these inaccurate estimates had the potential to mislead, to some extent, U.S. decision makers in the event of an extreme crisis in which misjudgment could have had very serious consequences.

Through a series of private discussions with retired Soviet officers, analysts, and Communist Party Central Committee and government officials, the author gathered information related to long-standing disputes among U.S. specialists over interpretation of Soviet national security aims. The interview material helped the author to judge in several cases which U.S. interpretations of Soviet behavior were more accurate. Many of the weaknesses in the U.S. assessments may be attributed to a serious misunderstanding of the Soviet decision-making process, and specifically to an underestimation of the decisive influence exercised by the defense industry.

The author does not attempt to provide a comprehensive record of all Western analysis nor even of all U.S. assessments of Soviet strategic intentions. Of the great volume of policy statements and analytical work produced in the West during the Cold War, the author chose to concentrate on reviewing a representative sample of U.S. beliefs and assessments, both to limit the scope of the work and to focus on those views that, based upon the author's experience in various U.S. national security organizations, were known to enjoy significant support in some parts of the U.S. policy and operational communities at various times during this period. This work does not pretend to be a history of actual Soviet military planning, nor does the author represent this work as a comprehensive history of the Cold War,

even from a Soviet perspective. The purpose of the work is to reveal what was learned directly from Soviet Cold War leaders and analysts concerning Soviet strategic intentions and the relationship of those intentions to Soviet strategic force development, and to relate these findings to other sources and contemporary U.S. assessments. Finally, I compare the Soviet findings to official U.S. assessments in order to draw some lessons from analytical errors made by both sides that might help to improve the accuracy and utility of future research and analysis of international confrontational relationships.

The analytical body of the study (Part I) is divided into three sections. The first examines the Soviet view of the superpower strategic relationship, the second the evolution of Soviet strategy, and the third the factors that influenced Soviet force-building policy and strategy. The sections are divided into topical chapters, each of which begins with a sampling of interpretations of Soviet intentions by some of the most astute and influential U.S. analysts of that period. The views of senior U.S. government officials are then presented, indicating which assessments most represented views informing U.S. national security policy. Discussion of U.S. assessments is followed by an analysis of the Soviet interview material. Each chapter concludes with a summary of the similarities and differences between U.S. assessments of Soviet military intentions and the characterization by the Soviet officials themselves of the forces and motives affecting Soviet behavior. The information gained through the interviews supports several generalizations about how and why the Soviets behaved as they did during the Cold War. These generalizations are presented in the chapter entitled "Major Trends in Soviet Strategy 1965 - 1985," which is intended to serve as an overview as well as a "road map" of the analysis for the reader. The structure of this chapter recapitulates that of the work as a whole. Appendix A, "A Chronology of Soviet Strategy", is designed to further assist the reader in discerning the changes in Soviet thinking over time as deduced from the interview material.

The core of interview research material is included in Part II. The interviews are annotated where necessary to clarify acronyms and special terminology and Appendix B contains a list identifying key Soviet personalities cited or referred to in the interview record. To further assist the reader in understanding the general structure of the interviews, the questions presented to former Soviet and to U.S. respondents, are to be found in Appendices C and D, respectively.

B. The Research Process

Three kinds of primary sources are available to scholars seeking information about Soviet intentions during the period of the Cold War: open Soviet and post-Soviet literature, materials from secret archives, such as those of the Ministry of Defense, KGB and the Communist Party, and, for a relatively short period of time, interviews with Cold War participants themselves. This report is based largely on the latter set of sources. Beginning in 1990, the author held numerous private discussions in Moscow with former Soviet officials, including senior officials of the defense industry and Defense Industrial Department of the Central Committee, military analysts and planners, as well as with high-ranking military officers who served on the General Staff or with the Strategic Rocket Forces (SRF) at critical times since 1965. Given the access they enjoyed to the process of formulating and implementing Soviet defense policy, these officials often provide insightful and credible explanations for the USSR's strategy and force posture. The citations of Soviet materials refer mostly to the author's interviews.

The author's repeated attempts, all of which proved unsuccessful, to gain access to useful material from the Central Committee and the Ministry of Defense archives for the post-1960 Cold War period indicate the continuing difficulty of obtaining Soviet documents related to the USSR's strategic intentions during the middle and latter parts of the Cold War. Although some documents dating from the 1940s and 1950s have been made available to scholars¹ those dated later than 1963 remain virtually inaccessible. In addition, the size of the Russian archives is vast, and the documents are poorly indexed. Most important, documents typically do not provide the context necessary to accurately judge their relative importance. To sift effectively through such a collection of documents and identify those that might help to elucidate some aspect of strategy or identify important policy decisions would require that a closely supervised team of researchers be given months of unimpeded access to the appropriate archives—an arrangement that would be difficult and quite costly to achieve under current conditions. For the time being, oral testimony on Soviet decision making during the later Cold War period remains far more accessible than written records.

The author is aware that reliance exclusively or primarily on interviews has its disadvantages. The passage of time tends to distort the memory of facts and events.

The human mind's recall of the past is often subconsciously selective, defensive or self-promoting. An individual's institutional loyalties also may color his recollection of the roles of different personalities or organizations in decision making. Finally, an interview subject's experience may be limited or irrelevant, and his access to information incomplete, depending on his place and position in the system. To counter the effects of such tendencies, the author sought to minimize expected and group responses and to facilitate validation within the interview sample. To the extent possible, he used identical questions for all interview subjects and attempted to interview representatives from a variety of organizations within the Soviet national security apparatus. He sought to avoid contamination of interview responses with suggestions from other sources both by isolating, whenever possible, each interview subject and by minimizing the use of information in each interview from other subjects (except when necessary for follow-up or to provoke a response from a singularly difficult subject and then without attribution).

Given the general distrust and even hostility evident in many of the Soviet subjects, enforcing such controls was often difficult, especially early in the research process (1990-1991). Fearful of isolation with foreigners, many Soviet officials sought security in large groups which the author would engage politely, then use the opportunity to make individual appointments for another time. In some cases, the author was required to cultivate a valued subject through several meetings over three to four years to build the level of trust required to elicit responses of any research value. Because the research environment was so complex, one of the most important "validators" of the information provided in the interviews often was the accumulated knowledge and experience of the author based upon years of working in or with the U.S. analytical community. As time passed and trust developed, the content, detail and interpretative explanations of the information provided by some of the interview subjects surprised the author, something he views as its own form of validation as well as testimony to the independent value of the research effort.

While interview research has special limitations, it also represents a special contribution to the historical and analytical record. Cold War participants are unique, and in this instance highly perishable, primary sources that are in many respects superior to open source and classified written records. The archives still will be waiting long after the Cold Warriors themselves have died. Moreover,

¹ Scholars participating in the Cold War History Project sponsored by the Woodrow Wilson Center and the Ford Foundation, have begun to publish the results of their work. Most work to date has focused on the

collections of documents can help us understand what happened but rarely can tell us why. Finally, unlike archives, living participants in the Cold War can answer specific questions and suggest from first-hand experience which factors in the written record are more or less important thereby indicating to archival researchers where in the many miles of folders the most relevant information might be found. In that spirit, the author hopes that the interviews obtained in this effort will help to guide subsequent archival research as such material becomes more accessible.

Of the former Soviet officials and analysts interviewed for this study some of the more noteworthy include:

Military analysts:

Dmitrii S. Chereskin, Head of a Department in the All-Union Scientific-Research Institute for Systems Studies (VNIISI). Dr. Chereskin specialized in cybernetics and automated communications networks.

Gen.-Maj. Vladimir Z. Dvorkin, Director of TsNII-4, the Central Scientific-Research Institute of the Strategic Rocket Forces. Gen. Dvorkin worked for over two decades within the SRF carrying out or directing analysis in support of Soviet nuclear strategy and strategic missile developments and deployments.

Col. Petr M. Lapunov, Department Chief in TsOSI, the Center for Operational and Strategic Research, Russian General Staff. Col. Lapunov is a serving General Staff officer with over two decades of experience in the Soviet Army analyzing force structure.

Col. Vitalii N. Tsygichko, Head of the Theater Forces Modeling Department of the Scientific Research Institute NII-6 of the Main Intelligence Directorate (GRU) of the General Staff (1967-1977), and Senior Analyst at VNIISI (1977 to present). NII-6 carried out the primary analytical and modeling work for the GRU and, through the GRU, supported the General Staff Main Operations Directorate (GOU) in the preparation of strategic and operational force comparisons (nuclear and conventional) with a focus on the U.S., NATO and other "probable enemies."

A military-technical specialist:

events surrounding the Korean War.

Aleksei S. Kalashnikov. Kalashnikov worked for more than 25 years in the area of missile and nuclear weapons testing. For five years he headed the Strategic Rocket Forces (SRF) Committee on Science and Technology and for 10 years served as Chairman of the State Commission on Nuclear Testing at Semipalatinsk, a major Soviet nuclear testing facility.

Civilian industrial managers:

Konstantin Cherevko, Deputy Director, Scientific Industrial Conglomerate (NPO) for Space Instrumentation.

Evgenii Fedosov, Director of the Scientific Industrial Conglomerate (NPO) for Aviation Systems (Air and Anti-Air missiles).

Iurii A. Mozhgorin, Director for 30 years of the Central Scientific-Research Institute of Machine Building (TsNIIMash), the USSR's leading institute for evaluating and developing missile technology.

Vladimir Rubanov, a former official in the Soviet Ministry of Aviation.

Viktor Surikov, former First Deputy Director, Central Research Institute of General Machine Building (TsNIIMash) and assistant to Anatolii Zaikov, head of the Central Committee's Defense Department, the Party body responsible for force-building, procurement and arms control.

General Staff officers:

Marshal of the Soviet Union Sergei F. Akhromeev, Chief of the General Staff's Main Operations Directorate (1977-1980); Representative of the Supreme High Command in Afghanistan (1980-1982); Deputy Chief of the General Staff (1982-1984); Chief of the General Staff (1984-1988); and advisor to the President of the USSR (1988-91).

Gen.-Lt. Geli V. Batenin. Gen. Batenin began his career as an artillery officer, transferring in the 1960s to the Strategic Rocket Forces. In the late 1970s and through the mid-1980s, Gen. Batenin worked for Marshal of the Soviet Union Sergei F. Akhromeev in various roles when the latter was chief of the General Staff Main Operations Directorate and then as First Deputy Chief of the General Staff under Marshal Nikolai Ogarkov.

Gen.-Col. Andriian A. Danilevich. Gen. Danilevich served in sensitive, special-access positions in the Soviet General Staff for 26 years beginning in 1964. His assignments included: Assistant (*Pomoshchnik*) to Director of the General Staff's Main Operations Directorate (The Planning and Operational

Center of the General Staff) until 1977 and Special Advisor for military doctrine to the Chief of the General Staff (1977-1988). He was a close associate of Marshal Ogarkov. General Danilevich is credited by other Soviet Generals who worked closely with both him and Marshal Ogarkov with being the author of much, if not most, of the writings credited to Ogarkov in the 1970s and 1980s. In the mid-1970s, Danilevich headed a collective that produced the only comprehensive articulation of Soviet military doctrine and strategy since Sokolovskii's seminal *Voennaia Strategiiia*, (Military Strategy) published in 1962. Danilevich's three-volume work carried the force of a directive (*nastavlenie*) and has been described by Soviet general officers as the best such work ever to come out of the General Staff.

Gen. of the Army Makhmut A. Gareev, Chief of the Tactical Training Directorate of the General Staff (1974-1977); Deputy Chief of the Main Operations Directorate of the General Staff for Training and Readiness (1977-1984); Deputy Chief of the General Staff for Scientific Work and Operational Readiness (1984-1989); and Special Representative of the Soviet Ministry of Defense in Afghanistan (1989-1990).

Gen.-Maj. Iurii A. Kirshin, Chief of the Strategy Department of the Military Science Directorate, General Staff (1977-1989); and Deputy Director, Institute of Military History, Ministry of Defense (1985-1992). Gen. Kirshin worked for Gen.-Col. Makhmut A. Gareev for much of his career as a senior officer, including his time in the Military Science Directorate of the General Staff. He is especially knowledgeable about Gen. Gareev's career and the special relationship he had with Marshal Ogarkov.

Operational military staff:

Gen.-Col. Varfolomei V. Korobushin, First Deputy Chief of Staff of the SRF (10 years); and Director of the General Staff's Center for Operational and Strategic Research (*TsOSI*).

Gen.-Lt. Nikolai V. Kravets, an SRF officer with over 30 years experience in force design, systems acquisition, and testing and evaluation.

Political staff:

Gen.-Col. Igor V. Illarionov, an aide (*pomoshchnik*) to Ustinov in the Central Committee Secretariat (1965-1976); and assistant to Ustinov for special assignments (1976-1984).

Vitalii L. Kataev, Senior Advisor to the Chairman of the Defense Industrial Department of the Communist Party Central Committee (1967-1985).

Boris A. Strogonov, an expert on missile technology in the Central Committee Defense Industry Department (1955-1987).

The interviews have generated unique research material, the sources of which will continue to remain available for only a short time. During the course of this research project Marshal Akhromeev committed suicide after having granted two interviews, the last six months before he died; and three retired Soviet officials (including Marshal Ogarkov) who had agreed to be interviewed passed away. While they and many of their former colleagues may leave diaries or other private papers behind, they will no longer be able to answer specific questions posed by Western researchers.

Almost all of the former Soviet officials who contributed to the research gave follow-on interviews over a period of months and years. Two of the best informed sources spoke to the author on several occasions over the course of the last three years. Follow-on interviews were used to revisit responses given in previous interviews.

As in most interview efforts, there is an unevenness in the quality and quantity of materials provided by various interview subjects. Some, such as Gen.-Col. Danilevich, provided a great volume of information of considerable quality given his many years in very sensitive, influential positions within the General Staff. Others, such as Gen. Kirshin, were of greatest assistance in helping the author to understand the knowledgeability and possible prejudices of various sources as well as relationships among the sources themselves. Others listed in the bibliography, but not cited in the text, did not add substantively to the work even though they contributed immeasurably by helping the author to understand structure and relationships or to make judgments about testimony of other interviews by independently corroborating or qualifying the statements of other contributors to the project.

The subsections presenting the opinions of U.S. decision makers are based entirely on interviews conducted by the author in the Washington, D.C. area during the last three months of 1991. These top-level U.S. government officials, including former Secretaries of Defense, explained their personal understandings of Soviet motives and pointed out areas of contention that arose during their tenures. The interviews

with U.S. policy makers are designed to offer a representative sample of internal U.S. government interpretations of contemporary Soviet military intentions. This was further supported by an examination by the author of declassified Top Secret executive summaries of the U.S. National Intelligence Estimates (NIE) from 1976 and 1983, as well as the 1976 "B"-Team estimate.

C. Credibility of Sources

Interview subjects at times contradict each other on details, such as the number of minutes required to launch Soviet land-based ballistic missiles, but tend to agree on the larger issues of Soviet strategic intentions. The author attempts to make judgments on the more significant differences and establish the relative credibility of sources on a given issue when differences do occur. Many of the interviews with former Soviet officials corroborate each other's description of events. Moreover, the interview material is largely consistent with the Voroshilov General Staff Academy lectures, which present the established Soviet military doctrine from 1973 to 1975,² as well as with the information and data that was available to the U.S. analytical community and that which the author himself spent many years examining. Other sources of corroboration can be found in the premier Soviet General Staff Academy journal, *Voennaia Mysl'* (Military Thought) most issues of which were classified at least "Confidential," by the Soviet (and U.S.) government until the dissolution of the USSR. A selection of relevant, now declassified, issues is provided in a separate section of the bibliography.³

² The Voroshilov lectures were in large part copied verbatim by an Afghan Colonel who attended the Voroshilov General Staff Academy in the period 1973-1975. He provided the lectures to the U.S. government in 1981 in the aftermath of the events surrounding the 1979 Soviet invasion of Afghanistan. The information presented in the lectures, declassified by the U.S. government in the mid-1980s, was made available for publication in an effort to share highly credible information on Soviet military thought and strategy with a larger audience. The basic doctrine laid out in the Voroshilov lectures remained relevant into the mid-1980s, according to Raymond L. Garthoff, in "Introduction: U.S. Considerations of Soviet Military Thinking," to Graham Hall Turbiville, Jr. (ed.), *The Voroshilov Lectures: Materials from the Soviet General Staff Academy*, Vol. 1. *Issues of Soviet Military Strategy*, National Defense University Press, Washington, D.C., 1989, pp. 8-9. From the same series see also, Vol. II. *Issues of Soviet Military Strategy*. Washington, D.C., 1990 and Vol. III *Issues of Operational Art*, Washington, D.C., 1992. The author is likewise confident in the basic authenticity of the *Lectures* and their faithfulness to Soviet military doctrine at the level of the General Staff.

³ As it became evident that the Cold War was passing into history, the editors of the journal, *Military Thought*, began to share the journal with selected Western analysts and, ultimately, with a general readership through a U.S. distributor. Raymond Garthoff of the Brookings Institution in Washington, D.C. was among the first Western analysts to attain with the help of Soviet colleagues, an almost complete collection of the journal *Military Thought*, from 1950s through 1990. He made responsible use of his early access to the journal as well as to the *Voroshilov General Staff Academy Lectures* in his research and examination of many of the issues

II. MAJOR TRENDS IN SOVIET STRATEGY 1965 - 1985

Interviews with former Soviet civilian and military participants in military and force-building policy debates during the period in question suggest several trends in the evolution of Soviet views on the strategic relationship with the U.S., Soviet nuclear and conventional military strategy, and on the factors shaping Soviet force development. The following represents the highlights of this research:

A. The Strategic Relationship

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.⁴ 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.⁵

The Soviets felt that the only truly stable nuclear situation was one in which one side had clear superiority over the other. To be both secure and stable, the

reviewed in this study. In all those areas where his findings depended for corroboration on *Military Thought*, and the *Voroshilov Lectures*, they are supported by the findings of the study. In the most important area of disagreement, Soviet acceptance or rejection of vulnerability as embodied in the concept of mutually assured destruction (MAD), Garthoff relied primarily on open-source material and his conversations with Soviet diplomats in the course of his participation in the negotiations leading up to the SALT I and Anti-ballistic Missile (ABM) Treaties in the late 1960s and early 1970s. Mr. Garthoff's findings were published in Raymond L. Garthoff, *Deterrence and the Revolution in Soviet Military Affairs* (Washington, D.C.: The Brookings Institution, 1990), pp.24-93. For a more extensive discussion of his view on Soviet acceptance of vulnerability, see Raymond L. Garthoff, "BMD and East-West Relations," in Ashton B. Carter and David N. Schwartz, eds., *Ballistic Missile Defense* (Washington, D.C.: The Brookings Institution, 1984), pp. 275-329.

⁴ Interview with Dr. Vitalii Kataev, June 23, 1993, *Part II: Soviet Post-Cold-War Testimonial Evidence* (hereafter cited as *Part II*), p. 238. Mr. Kataev served as Senior Advisor to the Chairman of the Central Committee Defense Industrial Department from 1967 to 1985.

⁵ 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.

imbalance had to be in the Soviets' favor. Therefore, throughout this period the Soviets attempted to gain strategic superiority over the U.S., with the primary goal not of ensuring victory in a nuclear war (which the informed military leadership considered unattainable in any meaningful sense), but of enhancing their general security, to include the security of Soviet influence in Europe and around the globe. Despite achieving rough nuclear parity with the U.S. in the mid-1970s and some degree of superiority by the early 1980s, the Soviet leadership did not feel that their security had been enhanced, because they perceived U.S. intentions to be aggressive and did not believe the superpower nuclear balance to be stable. Despite the fact that the U.S. had repeatedly and publicly declared its nuclear strategy to be based on deterrence, virtually all interview subjects stressed that they perceived the U.S. to be preparing for a first strike. The indicators of this posture most frequently cited by the interviewees included: the development in the mid-1960s of the highly accurate, multiple-warhead MX missile⁶ followed in the late 1960s by the very accurate MIRVed⁷ warheads for existing and new delivery systems which put Soviet land-based ICBMs and control nodes at great risk; the relative vulnerability, by Soviet criteria, of U.S. missile silos and control centers to ground bursts; the large and varied arsenal of tactical nuclear weapons fielded by NATO forces in Europe; the consistent rejection by the U.S. of the doctrine of no first use of nuclear weapons; deployment in the early 1980s of Pershing II theater ballistic missiles, ground-launched cruise missiles (GLCMs) and sea-launched cruise missiles (SLCMs) capable of destroying command and control targets deep inside Soviet territory while providing very little warning time to the Soviet leadership. In addition, in PD-59 the Soviets saw a deliberate policy for launching a surprise decapitating first strike against the Soviet leadership. The Soviets found this policy, backed up in the early 1980s by the technical capability to execute it, extremely threatening, especially in light of the pervasive memory of the June 1941 surprise attack, an experience which colored all Soviet strategic planning throughout the Cold War period.

⁶ Dr. Vitalii Kataev served as Senior Advisor to the Chairman of the Central Committee Defense Industrial Department from 1967 to 1985. Dr. Kataev, when challenged that the U.S. MX program did not get under way until much later, in the 1970s, replied that the author was wrong. He argued that Soviet intelligence reporting indicated the use of the expression "MX" in U.S. research and development circles possibly as early as 1963. The acronym, according to Kataev, was associated with the U.S. decision to invest in accuracy and counterforce capability. This early association is clearly established in his mind.

⁷ MIRV—Multiple Independently Targeted Reentry Vehicles

B. Strategy

The Soviet nuclear strategy relied heavily on deterrence. The Soviet concept of deterrence was based on the premise that an aggressor would receive crushing punishment in case of an actual or imminent nuclear attack in the form of strikes against strategic targets. These strikes would be preemptive, "retaliatory-meeting" (equivalent to the U.S. launch-under-attack posture) or purely retaliatory, and targeting both military and civilian installations. Unlike their U.S. counterparts, the Soviets did not develop an elaborate doctrine of deterrence enhanced by various strategies of nuclear use, selective targeting, planned and deliberate escalation, etc. However, the logic of deterrence exerted a profound influence over Soviet leaders, who intuitively acted to avoid nuclear war and to prevent the U.S. from using any nuclear weapons against Soviet forces and territory.

From the Soviet perspective, the concepts of deterrence and warfighting were not mutually exclusive, as the authors of the Team B report observed.⁸ However, the Soviets did not subscribe to the concept of nuclear warfighting, as conceived by U.S. strategists. They neither embraced nor ever really accepted the possibility of fighting a limited nuclear war (confined to Europe, for example), or of managing a nuclear war by climbing a ladder of escalation, so they did not build weapons specifically for these purposes. Nor did the Soviets build weapons principally with the aim of maintaining a stable strategic balance, because they considered the strategic competition to be inherently unstable and dynamic. They did, however, build weapons that credibly could and would be used in the event nuclear war actually were to occur. In this sense, the ability to fight a war was an integral part of the Soviet deterrence strategy, despite the fact that the leadership was not sanguine about the possibility of a meaningful victory, nor even of the survival of a Soviet state. In a sense, the Soviets relied even more heavily on the logic of pure deterrence than did the U.S., because they did not seriously explore options for intermediate levels of nuclear warfare outside of the theater of strategic military operations (*Teatr Voennykh Deistvii* - TVD) and instead relied purely on the *threat* of massive retaliation. As several of the Soviet interview subjects confided, in

⁸ Central Intelligence Agency, *Intelligence Community Experiment in Competitive Analysis: Soviet Strategic Objectives. An Alternative View: Report of Team "B,"* December 1976 (hereafter *Report of Team "B"*), p. 2. Team "B" was formed by the U.S. Director of Central Intelligence specifically to evaluate the charge that National Intelligence Estimates of military intentions and capabilities of the Soviet Union were too lax or generous in their judgments of Soviet forces and objectives. As acknowledged in the introduction of the report, the team, headed by Professor Richard Pipes of Harvard University, was comprised of members chosen specifically for their reputations of taking "a more somber view" of the Soviet strategic threat than did key members of the U.S. intelligence community.

practice, the decision to retaliate would not have been made automatically. Their responses made it clear, for example, that if the U.S. launched a limited intercontinental strike against one or several marginal installations on Soviet territory, the Soviet response would have been determined *ad hoc* by the top leadership.

While the Soviets rejected limited nuclear use and escalation strategies and relied instead on the threat of massive nuclear use, their operational military were still faced with the task of finding a concrete operational solution to the problem of winning a general war in Europe. Throughout the period in question, the Soviet military's confidence in the utility of nuclear weapons for securing this objective declined steadily. By the late 1970s, this gradual change in mindset found doctrinal reflection in the "New Periodization of War," a shift in military doctrine which emphasized a prolonged conventional phase in a European conflict. At the same time, the Soviets assumed that the war in Europe could not be kept conventional for long and expected NATO to initiate nuclear use on the battlefield after initial losses. This set of circumstances drove the most creative of the General Staff military strategists to develop the conceptual framework that would enable the Soviets to win in Europe. One element of the emerging strategy was the development of new operational concepts, such as the Operational Maneuver Group (OMG) and a preemptive conventional air operation in the context of a significantly enhanced theater-level strategic operation. Another essential element consisted of using the Soviet threat of launching the SS-20s based in the European Soviet Union as a nuclear shield behind which the Warsaw Pact forces could hope to achieve a quick victory using only conventional forces. By giving the Soviets, in effect, escalation dominance in Europe, this nuclear umbrella was expected to serve as a highly effective deterrent against NATO's initiation of nuclear use.⁹ Relying on this strategy, by the mid-1980s, the Soviet General Staff considered it possible

⁹ As explained by various Soviet sources but especially by Gen.-Lt. Geli V. Batenin, August 6, 1993, *Part II*, p. 121), the SS-20 was seen by the General Staff as the factor that could neutralize the NATO TVD nuclear threat in Europe thereby allowing the Soviets to exercise their advantages in conventional forces, *should there be a war*. The existence of the SS-20, he implied, did increase the appetite of some officers for warfare. Some Soviet planners believed that Soviet advances vis-à-vis NATO in conventional forces peaked in 1987 when, ironically, the SS-20 was given up in the INF agreement. Gen.-Lt. Batenin worked for the Marshal of the Soviet Union Sergei F. Akhromeev in various roles when the latter was chief of the General Staff Main Operations Directorate and then as First Deputy Chief of the General Staff under Marshal Nikolai Ogarkov.

that Warsaw Pact forces could reach the English Channel quickly, while avoiding a massive theater nuclear war.¹⁰

C. Factors in Force-Building and Strategic Decision Making

The interviews strongly confirm recent research indicating that military acquisition was dominated by the producers, rather than by the Ministry of Defense (MoD) customers. While it has been commonly assumed by Western observers that the military, as the consumer of defense-industrial products, was the senior partner in the relationship with industry, the opposite was true. The uniformed military had never been a traditional part of the Soviet ruling elite. While the professional military enjoyed almost mythic popular prestige as a legacy of its victory in the Great Patriotic War, it was an instrument of the Communist Party leadership, which, according to Leninist principles and Soviet practice, was made up of professional party cadres. These professionals often attempted to exploit the mystique of the uniform to enhance their own prestige. Both Brezhnev and Ustinov, for example, held the rank of Marshal of the Soviet Union, despite the fact that both were essentially administrators throughout their careers.

During the course of the period under study, relative power and influence within the state military and force-building policy apparatus shifted away from the uniformed military further in favor of the civilian defense-industrial establishment, which mushroomed under Brezhnev. The following factors may in part explain this trend:

- The power of industrial institutions within the state apparatus was greatly strengthened by the restructuring of the defense-industrial bureaucracy beginning in 1965. Specialized ministries involved in defense production proliferated. These 8 to 10 (depending on the time) industrial ministries came to monopolize information and expertise. Each technically coequal to the MoD, these numerous, large ministries increased the representation of the industrialists in the Defense Council. Also as a result of the restructuring, the main design bureaus lost some of the flexibility, autonomy and control over funding that they enjoyed during World War II

¹⁰ Appendix A: A Chronology of Soviet Strategy, reconstructs, based on the literature and on the interviews conducted during this research, the general evolution of Soviet strategy from the end of World War II to the end of 1991.

and into the 1950s and became less responsive to the demands of the military consumers.

- Brezhnev himself came from the ranks of the defense industrialists and therefore tended to promote his industrialist cronies to important state positions. Among his high ranking protégés were: Minister of Defense Dmitrii Ustinov; Minister of General Machine Building S. A. Afanas'ev; and L. V. Smirnov, the director of the Iuzhnoe missile plant in Dnepropetrovsk, whom Brezhnev promoted to head the VPK and to serve as deputy head of the Council of Ministers.
- In 1976 Dmitrii Ustinov, the single most influential military industrialist in Soviet post-war history, was appointed to head the Ministry of Defense. According to one very senior General Staff officer, with this appointment, the military realized they “had been taken over by the enemy.”¹¹
- In contrast to his predecessor, Brezhnev was indecisive and given to appeasement. Khrushchev would often cancel systems in early development stages and would sometimes eliminate or reduce entire classes of weapons, as he did with artillery and surface ships in 1959 and 1960. Brezhnev, on the other hand, led by consensus and tended to avoid decisions and policy changes that would alienate one group and advance the interests of another. This led to situations where the USSR was developing 12 ICBM programs simultaneously¹² or continuing to produce obsolete or low quality versions of a tank at the same time that more modern, effective variants were coming on line. Production lines were kept open to satisfy the producers without consideration either of the economic consequences or of the true needs of the military customer.
- Military technology, particularly missile and strategic weapons technology, was rapidly evolving and becoming increasingly complex, requiring greater specialization, technical knowledge and new ways of thinking about strategic and operational use. The uniformed military was often slow to grasp the significance of new technological developments. For example, debates in Soviet theoretical books and journals indicate that as late as the

¹¹ Interview with Gen.. Makhmut A. Gareev, June 20, 1993, *Part II*, p. 210. Gen. Gareev served as Chief of the Tactical Training Directorate of the General Staff, 1974-77; Deputy Chief of the Main Operations Directorate of the General Staff for Training and Readiness, 1977-84; and Deputy Chief of the General Staff for Scientific Work and Operational Readiness, 1984-89.

¹² Interview with Gen.-Lt. Nikolai V. Kravets, June 22, 1993, *Part II*, p. 251. Gen.-Lt. Kravets served for 30 years in the Strategic Rocket Forces, where he worked on force design, systems acquisition, testing and evaluation.

early 1970s, some Soviet military commanders continued to think of nuclear weapons as a kind of super-artillery whose role was to support the infantry and tanks. Especially during Grechko's tenure as Minister of Defense (1967-1976), the findings of competent specialists within the MoD often were ignored or suppressed by the generals, who not infrequently lacked the education and intellectual faculties to understand the analysis and appreciate fully the implications of the military-technical revolution of the 1950s and 1960s. In contrast, industrialists and designers who produced the new weaponry often monopolized information and expertise. Many of these military-industrial experts and specialists were concentrated in the design bureaus and NPOs within the Ministry of General Machine Building.

These new findings concerning the role of the industrial sector in Soviet defense procurements have important implications for revising our understanding of Soviet strategic intentions during the Cold War. Much of the U.S. assessment of Soviet "grand strategy" and plans for general war was drawn from observation of military hardware development and deployments. This method of analysis assumes implicitly that the uniformed military played the lead role in determining force requirements, while the Soviet industrial sector, like its American counterpart, played a secondary role in the process and acted primarily as an obliging supplier. This often unexamined assumption led U.S. analysts to attribute greater significance to the great variety and absolute number of weapons systems in the Soviet arsenal and to exaggerate the aggressive intentions of the Soviets.

The interviews suggest that the arms buildup on the Soviet side was stimulated by both external and internal factors. Qualitative technological advances and R&D efforts were largely conditioned by competition with the U.S. and, in the eyes of the Soviets, were reactive and imitative in most instances. The Soviets responded to U.S. development of MIRVs with rapid development of their own MIRV systems in the early 1970s. Against the objections of the MoD, they developed the Buran shuttle as a response to the U.S. Space Shuttle on the false assumption that it was a military system. By contrast, the quantitative arms buildup was driven primarily by the internal dynamics and needs of the vast, civilian-dominated defense-industrial establishment, where stability and continuity of production were imperative. In many cases technological advances were achieved *despite* the tendency of the defense-industrial establishment to resist any changes which threatened to disrupt this continuity. The bureaucracies of the defense industrial ministries were generally reluctant to introduce innovations into industrial

production and thereby disrupt established manufacturing processes and risk political fallout from failure.

Personalities were as important, if not more important, than institutional or bureaucratic competition in determining Soviet military and force-building policy and clearly played a more immediate and decisive role than did expert analysis. The character of the relationship between the uniformed military and the defense industrialists was often determined by the personal relationships between the leading representatives of the two camps. For instance, when Ustinov became the MoD, his relationship with Chief of the General Staff Marshal Ogarkov drove the relationship between the military and industry, degenerating from one of mutual respect in 1977 to outright confrontation by 1984. Individuals such as MoD Andrei Grechko, described by many interview subjects as a saber-waving horse soldier of limited intellect, had great discretion to accept or suppress the analysis and recommendations of technically competent researchers, analysts and advisors. In the case of Grechko, he seemed to have overruled much of the considered advice he received between 1967 and 1975 with respect to the nuclear force posture and the strategy it implied. He chose reliance on large numbers and first-strike over survivability and investment in accuracy despite strong private counsel and public pronouncements to the contrary.

THE SOVIET FORCE-BUILDING POLICY APPARATUS: HIERARCHIES, RELATIONSHIPS AND INFLUENCE

Figure A is a simplified organizational chart showing the principal members of the Soviet force-building policy apparatus as it existed in the early 1980s. It illustrates the formal relationships among the various State and Communist Party bodies responsible for defense and defense-industrial policy preparation, as well as the relative magnitude and direction of their informal channels of influence. This chart helps to place the individuals who contributed information for this research effort within the overall Soviet policy structure, and may help in evaluating their credibility. The chart shows that the industrialist camp (on the left-hand side of the chart) was deeply imbedded in the Party's Central Committee and constituted a powerful lobby within the Defense Council on all questions pertaining to weapons design and production. It should be noted, however, that in matters of military strategy and doctrine—how these weapons would be used in time of war—the

General Staff, and specifically the Main Operations Directorate within the General Staff, remained the highest authority.

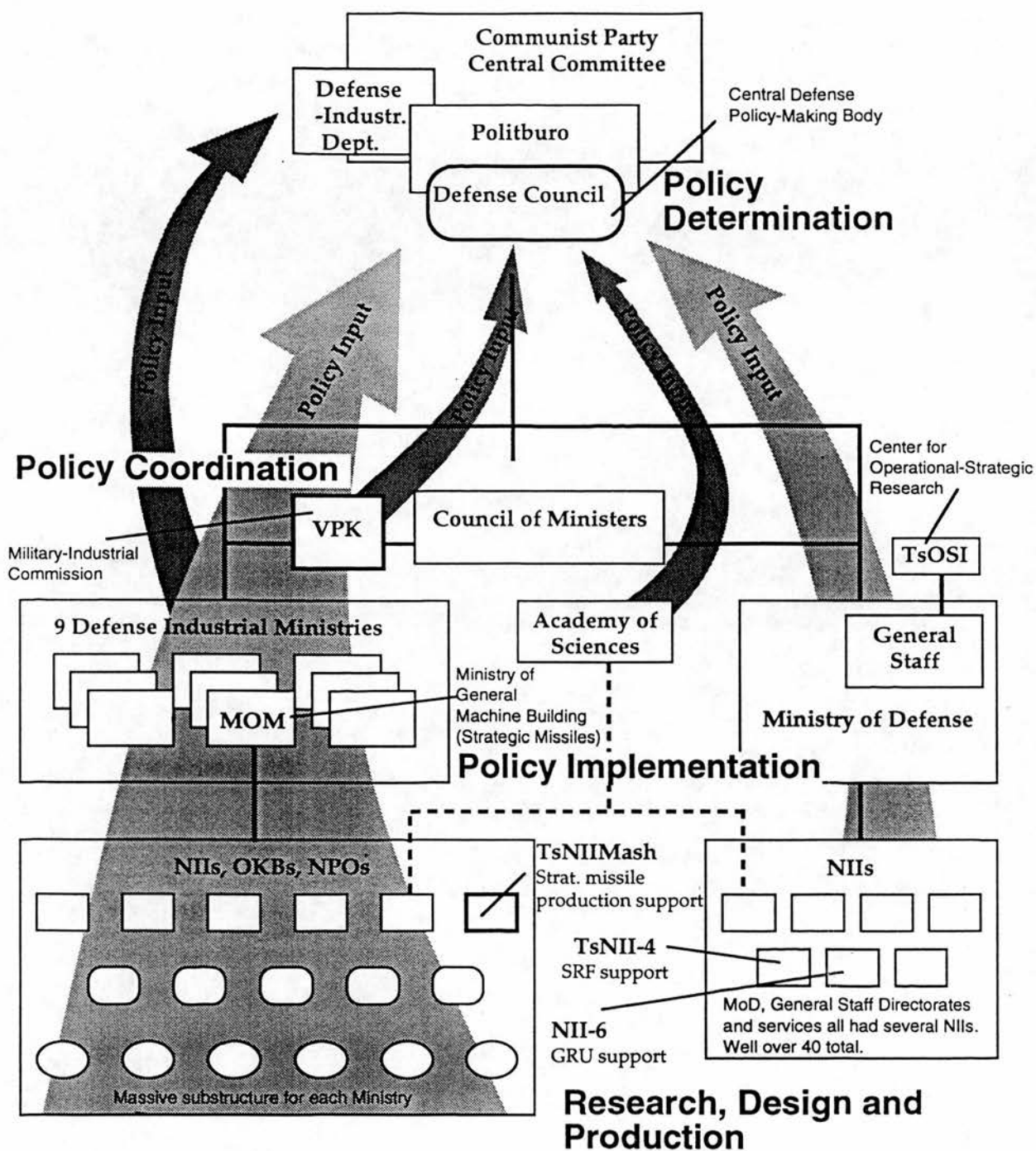
Of necessity, this diagram greatly oversimplifies the relationships, both hierarchical and lateral, that existed among the various components of the military-industrial structure of the Soviet Union. NIIs, for example, normally were subordinated either to an industrial ministry or an NPO within the ministry, to an element of the Defense Ministry or the General Staff (the staff directorates were not identical), to one of the five services or, in some cases, to the Academy of Sciences. Some NIIs, such as the Kurchatov Institute, were dual-subordinated, usually to the Academy of Sciences as well as to an industrial ministry. Because Kurchatov was responsible for nuclear weapons research, the Institute's director reported to the Ministry of Medium Machine Building (responsible for nuclear weapons production) and to the President of the Academy.

As suggested by the line connecting the various NPOs, OKBs and NIIs to one of the industrial ministries (in this case General Machine Building, responsible for strategic missile development and production), each ministry stood at the pinnacle of a massive collection of NPOs, NIIs and OKBs, and prototype and serial production factories that normally were subordinated to various NPOs. OKBs enjoyed a certain degree of special prestige and practical autonomy from their governing ministry even in budget matters, which often were separated from those of their parent ministry. The OKB's special status, even in the 1980s, was derived from the dominant role played by the chief designers during World War II and during the Post-War period until they were subordinated by a system of ministries in the early 1960s. (Source: Separate discussions on March 30, 1992 with two senior Soviet-era military industrialists. Dr. Konstanin V. Cherevko was the First Deputy to the General Director of the NPO, "Space Devices," (*Kosmicheskoe priborostroenie*), formerly an NPO in the Ministry of General Machine Building that was responsible for the development of large missiles and related guidance and communications systems as well as for the Soviet space program, to include most satellites. Dr. Evgenii A. Fedosov was director of the State Research Institute for Aviation Systems, (*Gos NII Avs*), an NII in the Ministry of Aviation.)

As will be evident in the body of the thesis, considerable tension existed between the industrial and operational "camps" of the military sector, a division that deeply affected the kinds and quantities of arms produced by the Soviet Union. This competitive tension even extended to the NIIs that supported elements of the MoD

on the one hand and those that supported the industrial ministries on the other. Competitive analysis, if you will, of the same issue having bearing on a given weapons program might be developed and presented in various fora, the most important of which were the VPK and Defense Council. The operators very often were on the losing side, according to both the military and the industrialists. The relative quality of the analyses did not seem to have much bearing on the outcome.

Fig. A: Soviet Force-Building Policy



Key: NII - Scientific Research Institute (large basic R&D and analytical organization)
 NPO - Scientific Production Conglomerate (very large enterprises - 10,000 - 45,000 pers.)
 OKB - Experimental Design Bureau (generator of specific line of weapons associated with specific Chief Designer)

CHRONOLOGY OF SOVIET NUCLEAR STRATEGY

| | MILITARY POLICY | ANALYSIS | FORCE DEVELOPMENT | PERSONALITIES/INSTITUTIONS |
|------|--|---|--|--|
| 1965 | <ul style="list-style-type: none"> • SRF created (1959); reliance on nuclear weapons • maximum strategic use of ground burst to contaminate/irradiate enemy • ground burst planned to maximum contamination of U.S.—80% of targets • strategic superiority objective • preemption of enemy nuclear initiation preferred strategy / <i>not</i> initiation of war with first strike • forced retaliation (failed preemption) (massive retaliation for <i>any</i> nuclear use anywhere—maintained until late 80s) | <ul style="list-style-type: none"> • tested ground/air bursts, blast effects • Politburo + GS intent on massive retaliation for <i>any</i> use—deter U.S. NATO limited use. Real response <i>ad hoc</i>. • hardening discussed • ground burst found much superior to airburst against point targets • TsNIIMash: no victors in nuclear war, conclusions—suppressed | <ul style="list-style-type: none"> • developed Dead Hand • began developing mobile ICBMs (Iangel') • Grechko cancels mobile ICBMs, postpones hardening | <ul style="list-style-type: none"> • Khrushchev ousted (Oct. 64) • Ustinov Central Committee Secretary for Defense Industries • MOM created • Brezhnev General Secretary (Apr. 66) • Grechko made MOD—strong personal preference for large numbers, preemption against LNO theoretical approaches, diversion of funds from investments in survivability (mobiles, hardening). |
| 1970 | <ul style="list-style-type: none"> • Yalta meeting accepts second strike as planning <i>objective</i> • • prepared retaliation/LUA—accepted in theory* • • preemption retained as option/preference • reduced reliance on ground bursts • Politburo nuclear exercise • reliance on theater nuclear war • LUA confirmed as desirable/achievable objective | <ul style="list-style-type: none"> • creation of survivable second strike through hardening/mobiles accepted in principle/implementation delayed by Grechko • Academy of Sciences and GS modeling of nuclear war: nuke use counterproductive—suppressed • GS modeling of theater nuclear war: nuke use operationally counterproductive—suppressed. | <ul style="list-style-type: none"> • replaced "all or nothing" C2 system • launch times reduced to minutes • modernization of theater nuclear forces • Dead Hand missile component probably operational | <ul style="list-style-type: none"> • Brezhnev loses mental competence • Grechko dies—industrialist civilian • Ustinov becomes MOD • Ogarkov Chief GS—distrusts: LNO; emphasis on strategic nuclear force; defense industrialists including Ustinov. |
| 1975 | <ul style="list-style-type: none"> • new periodization of war—conventional, limited nuclear (theater), unlimited nuclear, conclusion • conventional phase accepted/extended • stopped using ground bursts | <ul style="list-style-type: none"> • GS modeling: nuke use at front level—unacceptably high losses, operational stalemate with use of 2% of tactical nuclear inventory—suppressed. • GS discusses limited strikes—Phase II in new periodization of war. Other scenarios considered. | <ul style="list-style-type: none"> • MIRVs • C3 improvements improve central control • SS-20 deployments • buildup of theater nuclear forces • space-based early warning begins deployment • LUA becomes technically feasible. | <ul style="list-style-type: none"> • Brezhnev loses mental competence • Grechko dies—industrialist civilian • Ustinov becomes MOD • Ogarkov Chief GS—distrusts: LNO; emphasis on strategic nuclear force; defense industrialists including Ustinov. |
| 1980 | <ul style="list-style-type: none"> • renounced preemption • retain retaliation and adopt LUA • LNO dominant strategy (Theater only) • GS: nuclear ops counterproductive in Europe (reflects 1973 analysis**) • conventional war only now, possible/probable | <ul style="list-style-type: none"> • Ustinov orders NII-4 (SRF) to model depressed trajectory strike against US silos—found ineffective | <ul style="list-style-type: none"> • nuclear artillery deployed in Warsaw Pact/Europe | <ul style="list-style-type: none"> • differences over strategy vs. hardware, etc. drive Ustinov & Ogarkov to cease talking/Akhromeev shadow chief of GS (83/84) • Brezhnev dies |
| 1985 | <ul style="list-style-type: none"> • parity doctrine | | | <ul style="list-style-type: none"> • Ogarkov dismissed & reassigned/Akhromeev Chief GS (Sept. 84) • Ustinov dies |

*LUA -- Launch under attack--(in Russian *otvetno-vstrechnyi udar*) accepted as concept but not implemented until at least the late 1970s because of Grechko's opposition and lack of requisite early warning systems and responsive control.

**GS -- General Staff

III. SOVIET VIEW OF THE STRATEGIC RELATIONSHIP

A. 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.¹³ By Raymond L. Garthoff's assessment, the Soviet political leadership had disavowed the objective of military superiority.¹⁴ Some observers agreed but added that the Soviet Union still made preparations to fight a nuclear war.¹⁵ 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.¹⁶ 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.¹⁷ Several U.S. analysts stated bluntly that the USSR was striving for strategic nuclear superiority,¹⁸ indeed for the maximum attainable measure of strategic superiority,¹⁹ and had made great strides toward achieving general military superiority.²⁰

Disagreements also arose in identifying the stimulus for Soviet force modernization. Some experts emphasized external causes, depicting the USSR's weapons programs as responses to perceived threats, particularly to the development of U.S. weapons

¹³ Central Intelligence Agency, *Soviet Forces for Intercontinental Conflict Through the Mid-1980s, Volume I, Key Judgments and Summary, National Intelligence Estimate 11-3/8-76*, December 1976 (hereafter, *National Intelligence Estimate 11-3/8-76*), p. 4.

¹⁴ Raymond L. Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," *Strategic Review*, Vol. 10, No. 4, Fall 1982 p. 47.

¹⁵ 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.

¹⁶ 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.

¹⁷ *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.

¹⁸ 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. Hoeber, *Soviet Strategy for Nuclear War*, (Stanford, CA: Hoover Institution Press, 1979) p. 55.

¹⁹ *Report of Team "B"*, p. 46.

²⁰ Comment by Air Force Intelligence in *National Intelligence Estimate 11-3/8-76*, p. 5.

technology.²¹ Others stressed the internal stimulus of nuclear doctrine,²² specifically the Soviet view that deterrence required formidable military capabilities.²³

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.²⁴ 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.²⁵ 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.²⁶

Soviet decisions on arms procurement, according to the consensus in Washington, were influenced by U.S. weapon programs,²⁷ 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 Administration was split between optimists, who expected American restraint to encourage moderation on the part of the Soviet Union, and pessimists who thought

²¹ 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 McCwire, "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.

²² *Report of Team "B"*, p. 15.

²³ Stanley Sienkiewicz, "SALT and Soviet Nuclear Doctrine," *International Security*, Vol. 2, No. 4, Spring 1978, pp. 93, 98.

²⁴ Interview with Harold Brown, November 8, 1991, *Part II*, p. 129. Mr. Brown was Secretary of Defense throughout the Carter Administration.

²⁵ Interview with Zbigniew Brzezinski, November 20, 1991, *Part II*, p. 131. Mr. Brzezinski was the Assistant to the President for National Security Affairs throughout the Carter Administration.

²⁶ Interview with Rod McDaniel, November 19, 1991, *Part II*, p. 265. Mr. McDaniel served on the NSC staff from 1985 to 1987 after working on a strategic planning project for the U.S. Navy.

²⁷ Brzezinski, November 20, 1991, *Part II*, p. 130; and McDaniel, November 19, 1991, *Part II*, p. 265.

that the Soviet arms buildup would persist even if U.S. modernization stopped.²⁸ 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.²⁹ 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.³⁰ President Reagan reportedly believed that the Soviet leadership wanted a first-strike potential, not to use militarily but instead to surpass American capabilities.³¹

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.³² 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 proposed to professionalize the armed services, to reduce spending on infantry, civil defense, strategic air defenses located far from the USSR's periphery and aircraft carriers and to close some military academies, shortly before he was replaced on order of Marshal Ustinov.³³ The resulting savings would be allocated to 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

²⁸ Interview with Andrew W. Marshall, October 22, 1991, *Part II*, p. 264. Mr. Marshall has been the Director of Net Assessment, Office of the Secretary of Defense, since 1972.

²⁹ Interview with Robert W. Komer, October 22, 1991, *Part II*, p. 245. 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.

³⁰ Interview with Dr. Fred C. Iklé, December 11, 1991, *Part II*, p. 211. Dr. Iklé was Under Secretary of Defense for Policy, 1981-88.

³¹ McDaniel, November 19, 1991, *Part II*, p. 265.

³² Interview with Gen.-Col. (ret.) Andriian A. Danilevich, December 18, 1990, *Part II*, pp. 138. Gen.-Col. Danilevich served as Special Assistant to the General Staff's Main Operations Director until 1977 and then as Special Advisor for military doctrine to the Chief of the General Staff until 1988.

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.³⁴

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 1985.³⁵ 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.³⁶ 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.³⁷

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 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

³³ Interviews with Gareev, April 30, 1993, *Part II*, p. 207; and Gen.-Maj. (ret.) Iurii A. Kirshin, January 9, 1990, *Part II*, p. 241. Gen.-Maj. Kirshin served as Chief of the Strategy Department of the Military Science Directorate of the Soviet General Staff.

³⁴ Interview with Gareev, April 30, 1993, *Part II*, p. 207.

³⁵ Tsygichko, *Kommentarii k Interv'iu V.N. Tsygichko v 1990-1991 godu*, unpublished comments, December 10, 1991, see Vol. II. Item III.B. Tsygichko was a former head of Theater Forces Modeling at the General Staff's Center for Operational and Strategic Research (*TsOSI*).

³⁶ Danilevich, September 21, 1992, *Part II*, p. 154.

³⁷ Interview with Aleksei S. Kalashnikov, April 1993, *Part II*, p. 229. 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).

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 justified 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.

B. 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.³⁸ Team B, in contrast, argued that Soviet

³⁸ 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 Soviet Nuclear Doctrine," *International Security*, p. 95; and Wolfe, *Worldwide Soviet Military Strategy and Policy*, pp. 6, 16.

leaders regarded nuclear weapons as a means of coercion, which would be employed or not employed as the situation dictated.³⁹

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.⁴⁰ Others countered that the USSR considered the nuclear balance to be unstable⁴¹ and rejected the concept of MAD as neither realistic nor desirable.⁴² 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.⁴³

The consensus among U.S. officials of successive administrations held that the Soviet leadership accepted nuclear deterrence.⁴⁴ The Soviets, Brzezinski explained, practiced deterrence from the late 1950s to offset what they perceived to be significant U.S. advantages in strategic forces.⁴⁵ They believed that the U.S. would not attack without provocation, Schlesinger pointed out.⁴⁶ 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 disagreed. He argued that the USSR did not accept the logic of mutual deterrence as a substitute for developing credible warfighting capabilities.⁴⁷

³⁹*Report of Team "B"*, p. 14.

⁴⁰ Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," p. 37.

⁴¹*National Intelligence Estimate 11-3/8-76*, p. 18, and *Report of Team "B"*, p. 14.

⁴² Scott and Scott, *Armed Forces of the USSR*, p. 89.

⁴³ Sienkiewicz, "SALT and Soviet Nuclear Doctrine," p. 90.

⁴⁴ Interviews with Brown, November 8, 1991, *Part II*, p. 127; Iklé, December 11, 1991, *Part II*, p. 211; McDaniel, November 12, 1991, *Part II*, p. 265; and James Schlesinger, October 29, 1991, *Part II*, p. 275. Mr. Schlesinger was CIA Director in 1973 and later served as Secretary of Defense, 1973-1975.

⁴⁵ Interview with Zbigniew Brzezinski, November 20, 1991, *Part II*, p. 130.

⁴⁶ Interview with James R. Schlesinger, October 29, 1991, *Part II*, p. 275.

⁴⁷ Interview with Zbigniew Brzezinski, November 20, 1991, *Part II*, p. 130. Fred Iklé, in his interview with the author, observed that the Soviet Union did not share the U.S. view of mutual assured destruction, December 11, 1991, *Part II*, p. 211.

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.⁴⁸ 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)⁴⁹ were selectively targeted by U.S. missiles (although Politburo members themselves were far down on the target list).⁵⁰ 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.⁵¹ It had accumulated enough ICBMs, Mozhhorin 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, Mozhhorin stated, at a July 1969 meeting of the Defense Council,⁵² which decided to manufacture survivable missiles rather than produce vulnerable missiles in large quantities.⁵³

⁴⁸ Interview with Rod McDaniel, November 19, 1991, *Part II*, p. 265.

⁴⁹ 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.

⁵⁰ Interview with Marshall, October 22, 1991, *Part II*, p. 263. The reasoning behind PD-59 was explained in the authors' interview with Harold Brown, November 8, 1991, *Part II*, p. 127.

⁵¹ Interview with Marshal Sergei F. Akhromeev, the late Chief of the General Staff and Advisor to President Gorbachev, February 8, 1991, *Part II*, p. 118.

⁵² The July 1969 Defense Council meeting is described in greater detail in Section V. B. "Struggle Among the Princes."

⁵³ Interview with Iurii A. Mozhhorin, April 14, 1993, *Part II*, p. 272. Mozhhorin served for 30 years as Director of the Central Scientific-Research Institute of Machine Building (*TsNIIMash*), The premier analytical arm of the Soviet missile industry.

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 military experts did not use the word “deterrence” (*sderzhivanie*) to describe Soviet doctrine⁵⁴. 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.⁵⁵ Gen.-Maj. Dvorkin recited these objectives so matter-of-factly and with such almost weary familiarity that the author sensed very strongly that he was hearing repeated 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 strike⁵⁶ and of inflicting unacceptable damage on the other.⁵⁷ They, nevertheless, considered their nuclear power the only guarantee of security from war, and they never examined the question of mutually assured destruction as a condition they should accept, much less pursue (officially, the USSR did not threaten anyone, Tsygichko explained).⁵⁸ Danilevich asserted that the Soviet Union never embraced vulnerability as desirable.⁵⁹

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.

⁵⁴ Soviet diplomats did use the term, *sderzhivanie*, to describe the Soviet concept of deterrence and *ustrashenie* to refer to the U.S. concept. See discussion in “Findings and Conclusions.”

⁵⁵ Interview with Gen.-Maj. Vladimir Z. Dvorkin, June 24, 1993, *Part II*, p. 204. Gen.-Maj. Dvorkin is Director of TsNII-4, the Central Scientific-Research Institute of the Strategic Rocket Forces.

⁵⁶ Tsygichko, December 20, 1990, *Part II*, p. 296.

⁵⁷ Danilevich, September 21, 1992, *Part II*, p. 147.

⁵⁸ Tsygichko, *Kommentarii k Interv'iu*.

⁵⁹ Danilevich, March 5, 1990, *Part II*, p. 134.

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.⁶⁰ 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.⁶¹

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.⁶²

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.⁶³ A preemptive Soviet strike would target the enemy's retaliatory forces, including ICBM silos, airfields, command centers and naval bases.⁶⁴ A retaliatory strike, Tsygichko explained, would be aimed at soft military targets (such as airfields and C³ facilities) and at U.S. infrastructure, including transportation grids and fuel supply lines.⁶⁵ 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."

⁶⁰ Interview with Dr. Vitalii Kataev, June 23, 1993, *Part II*, p. 238.

⁶¹ Soviet interview subjects acknowledged that U.S. upgrades were largely qualitative while Soviet improvements were related to quantitative increases, some improvements in quality and, by the late 1970s and early 1980s, considerable improvements in protection of strategic systems.

⁶² Danilevich, September 21, 1992, *Part II*, p. 149. This comment seems to reflect the Soviet preoccupation with the effect of technological and operational surprise and command competence.

⁶³ *Ibid.*, 150.

⁶⁴ Danilevich, September 24, 1992, *Part II*, p. 161. The same targets are listed in Turbiville, *The Voroshilov Lectures, Vol. I*, Vol. I, p. 71.

⁶⁵ Tsygichko, December 21 and 23, 1991, *Part II*, p. 311.

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 C³ 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 two percent of its missiles. TsNIIMash had reported a figure of 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 C³ systems and generated some movement toward C³ modernization.⁶⁶ 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.⁶⁷ Danilevich reported that after strengthening the command and control system's capacity to prevent unauthorized employment of nuclear weapons, the USSR turned its attention 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

⁶⁶ Kalashnikov, April 1993, *Part II*, p. 226.

⁶⁷ Akhromeev, February 8, 1991, *Part II*, p. 117.

outside of, clusters of silos. The command missiles were well concealed, housed in specially hardened silos capable of withstanding overpressures of up to 240kg/cm² (3412 psi), well beyond the hardening of weapons launch platforms, and were especially well protected against damage from electromagnetic pulse (EMP).⁶⁸ 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.⁶⁹

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*).⁷⁰ 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 by a deliberate release decision, presumably 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.⁷¹

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, but 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 (*razblokirovat'*) the central no-fire mechanism and, thereby, would release launch control to local automatic

⁶⁸ 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.

⁶⁹ Vitalii L. Kataev, June 23, 1993, *Part II*, pp. 238. Kataev assured the author that the development cycle for similar weapons systems was between 10 and 15 years.

⁷⁰ Ibid. See also Bruce G. Blair, "Russia's Doomsday Machine," *The New York Times*, October 8, 1993, p. A35.

⁷¹ Interview with Gen.-Col. Varfolomei V. Korobushin, December 10, 1992, *Part II*, p. 248. 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).

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.⁷² 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 Marshall Akhromeev on advice of Gen.-Col. Korobushin, who had been the first interviewee to "reveal" to the author, 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 system "was never realized."⁷³ 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.⁷⁴

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,

⁷² Kataev, June 23, 1993, *Part II*, p. 239. This scenario assumes that the ICBMs would be retargeted from counterforce to countervalue targets before they are launched.

⁷³ Interview with Viktor Surikov, September 11, 1993, *Part II*, pp. 284. 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.

⁷⁴ Interview with Gen.-Col. (Ret.) Andriian A. Danilevich, December 14, 1992, *Part II*, pp. 194.

similar in many characteristics to the U.S. ERCS,⁷⁵ very probably was deployed by the mid-to-late 1970s and subsequently upgraded. Second, TSNIMash, 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 fully deployed and activated.⁷⁶

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.

⁷⁵ Emergency Release Communications System.

⁷⁶ Bruce Blair, "Doomsday Machine."

IV. EVOLUTION OF SOVIET STRATEGY

A. Utility of Nuclear Weapons

Almost all U.S. experts believed that the USSR had no desire to precipitate a nuclear war, but if deterrence failed, then the USSR planned to fight in the hope of emerging victorious.⁷⁷ In contrast, a small number of analysts observed a certain Soviet confidence in victory and, by implication, a greater Soviet willingness to initiate nuclear war. These analysts argued that the USSR approached nuclear war with the aims of fighting and winning, of defeating capitalism. According to their reading, Soviet writings set out specific conditions that would constitute victory, and Soviet military strategy rested on the belief that under favorable circumstances the USSR could indeed win.⁷⁸ Team "B", the outside experts assembled to examine highly classified Central Intelligence Agency information on Soviet strategic forces and to prepare a threat assessment in competition with the official National Intelligence Estimates, concluded that the Soviet leadership believed that "nuclear war could be fought and won."⁷⁹ Prominent Team "B" members, including Paul Nitze, Richard Pipes, and Paul Wolfowitz, later joined the Reagan Administration.

The majority opinion among Soviet specialists was shared by senior U.S. government officials. The prevailing view in the Carter administration held that the Soviets were not anxious for nuclear war, but if war broke out, they would be serious about fighting. In fact, they had made provision for actual nuclear warfighting, for example building extensive facilities to protect the Soviet leadership from intercontinental U.S. nuclear strikes.⁸⁰ The Soviets, former National Security Advisor Zbigniew Brzezinski explained, were not preparing to start a war, but they were planning to win if war broke out.⁸¹ In the early 1980s, the Joint Chiefs of Staff reportedly concluded that the Soviet High Command was risk averse and was not eager to fight. Despite mischief making in the Third

⁷⁷ Ermarth, "Contrasts in American and Soviet Strategic Thought," pp. 143-144; Field Manual 100-2-1, *The Soviet Army: Operations and Tactics* (Washington: Headquarters, Department of the Army, July 1984), p. 2-1; Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," *Strategic Review*, Fall 1982, p. 44; Laird and Herspring, *The Soviet Union and Strategic*, p. 66; Lambeth, *How to Think About Soviet Military Doctrine*, pp. 8-9; MccGwire, "Commentary: Soviet Intentions," p. 142; and Wolfe, *Worldwide Soviet Military Strategy and Policy*, p. 6.

⁷⁸ Douglass, Jr. and Hoerber, *Soviet Strategy for Nuclear War*, pp. 10, 14-15.

⁷⁹ Central Intelligence Agency, *Competitive Analysis, Report of Team "B"*, p. 6.

⁸⁰ Marshall, October 22, 1991, *Part II*, p. 263.

⁸¹ Brzezinski, November 20, 1991, *Part II*, p. 131. The view expressed by Fred C. Iklé on December 11, 1991, *Part II*, p. 211, was almost identical.

World, it was not seriously contemplating any unprovoked use of force against the United States or against NATO. However, the High Command was determined, if there was a war, not to lose.⁸²

From the interviews with Soviet General Staff officers, a picture emerges of a military command that understood the devastating consequences of nuclear war and was genuinely intent on preventing war. Inside the General Staff, beginning in the early 1970s, the idea matured that while nuclear weapons might serve as a political tool, they had very limited military utility.⁸³ By 1981, the General Staff had reached the conclusion that nuclear use would be catastrophic as well as counterproductive to combat operations in the European theater.⁸⁴

The employment of nuclear weapons had to be avoided if at all possible, asserted the late Chief of the General Staff Sergei Akhromeev.⁸⁵ Vitalii Tsygichko, former head of conventional and nuclear theater forces modeling at the Scientific Research Institute NII-6 of the Main Intelligence Directorate (GRU) of the General Staff, expressed the belief that the Soviet political leadership, with backing from the military leadership, would probably have entered negotiations in order to avert an outbreak of nuclear war.⁸⁶ Gen.-Col. Andriian Danilevich, a special advisor on military doctrine to the Chief of the General Staff, explained that even though some theoretical writings, plans, and exercises included a first strike against the United States, the Soviet political leadership never discussed the possibility of launching a first strike. When Politburo members did examine contingencies for nuclear use, they shied away from authorizing nuclear use.⁸⁷

Danilevich witnessed a military exercise in 1972 at which Soviet General Secretary Brezhnev, Prime Minister Kosygin, and Defense Minister Grechko were presented with the results of a simulated U.S. first strike that killed 80 million Soviet citizens, destroyed 85 percent of the USSR's industrial capacity,⁸⁸ and decimated Soviet ground forces and non-strategic aviation.⁸⁹ Brezhnev was given an actual button and asked to push it to authorize a retaliatory strike. Gen. Danilevich reported that the General Secretary was pale and perspiring and that his hand trembled visibly. He asked Grechko several times for assurances that the button would not set in

⁸² McDaniel, November 12, 1991, *Part II*, p. 265.

⁸³ Akhromeev, February 8, 1991, *Part II*, p. 118.

⁸⁴ Danilevich, December 18, 1990, *Part II*, p. 141.

⁸⁵ Akhromeev, February 8, 1991, *Part II*, p. 118.

⁸⁶ Tsygichko, December 20, 1990, *Part II*, p. 296.

⁸⁷ Danilevich, December 14, 1992, *Part II*, p. 193.

⁸⁸ *Ibid.*, September 21, 1992, *Part II*, p. 145.

motion real missile launches. "Andrei Antonovich," he repeatedly asked Grechko, "this is definitely an exercise?"⁹⁰ According to Danilevich, from the time of these events in 1972 through 1990, the political leadership did not participate in a single military exercise involving nuclear weapons, nor ever again inquire seriously into the development of nuclear strategy by the General Staff. The military was left entirely on its own to develop scenarios for nuclear war.⁹¹

Another example, described by Danilevich, of Soviet aversion to nuclear war occurred in the early 1980s. Cuban leader Fidel Castro pressed the USSR to take a tougher line against the United States, including possible nuclear strikes. The Soviet Union, in response, sent experts to spell out for Castro the ecological consequences for Cuba of nuclear strikes on the United States. Castro, according to the general, recovered from his nuclear fever rather quickly.⁹²

The Voroshilov lectures reflect the lack of Soviet confidence in winning a nuclear war.⁹³ Nevertheless, they make clear that if deterrence failed, Soviet forces were trained to fight.⁹⁴ The Soviet Union was prepared for nuclear war. The country had established special stocks of food and other provisions and had built shelters and infrastructure in the hope of allowing a new life to begin after nuclear exchanges. Even though scientists pointed out that nuclear fall-out would destroy whatever life remained following a nuclear conflict, Brezhnev's High Command still invested enormous amounts of resources in an attempt to ensure its survival. This indicated to Tsygichko that under certain circumstances, the political leadership was prepared to enter a nuclear war.⁹⁵

The majority of U.S. officials and experts were correct in noting both the Soviet intention to avoid nuclear war and Soviet plans to fight if deterrence failed. Neither the military nor the political leadership of the USSR had any desire to precipitate a nuclear war. Soviet provisions made for nuclear war, such as the network of well-hardened shelters, suggest much less an eagerness for armed conflict than pessimism about successful preemption of the U.S. and an expectation of the need for readiness to ride out a nuclear attack, as well as the vain hope of Politburo members to preserve their own lives and power. Among U.S. analysts,

⁸⁹ Ibid., December 13, 1992, *Part II*, p. 186.

⁹⁰ Ibid., September 21, 1992, *Part II*, p. 146.

⁹¹ Ibid., December 9, 1994, *Part II*, p. 203. Danilevich left the General Staff in 1990.

⁹² Ibid., September 21, 1993, *Part II*, p. 146.

⁹³ Turbiville, *The Voroshilov Lectures, Vol. I*, p. 72.

⁹⁴ Ibid., pp. 82-83.

⁹⁵ Vitalii N. Tsygichko, *Kommentarii k Interv'iu*.

only a small, though vocal and sometimes influential, group mistakenly believed that the Soviet Union was willing to initiate a nuclear war and expected victory in such a war in a form that was in any sense meaningful.

B. Outcome of Nuclear War

Many U.S. analysts expected the Soviet Union to try to emerge from a nuclear war less devastated than the United States.⁹⁶ Other observers held that the USSR really did consider a meaningful victory possible.⁹⁷ The National Intelligence Estimate of Soviet strategic forces issued in December 1976 argued that there was a consensus among Soviet leaders on the need to assure the USSR's survival in a nuclear war and that Soviet military doctrine maintained that a nuclear war could be won.⁹⁸ The Defense Intelligence Agency and the intelligence branches of the Army, the Navy, and the Air Force went further. They affirmed the belief that the Soviet Union saw as attainable its objective of achieving the capability to wage nuclear war and to survive with sufficient resources to dominate the postwar period.⁹⁹ The State Department's Bureau of Intelligence and Research (INR), however, refused to characterize Soviet objectives as a "war-winning" or "war-survival" posture.¹⁰⁰

James Schlesinger, U.S. Defense Secretary from 1973 to 1975, was unsure whether Soviet leaders believed their own "pep talk" of winning a nuclear war. He, nevertheless, saw a need to communicate to them the danger of a nuclear conflict.¹⁰¹ President Carter's Secretary of Defense, Harold Brown, concluded that the Soviet civilian leadership did not believe that the USSR could fight and win a nuclear war. Top Soviet military officials, Brown argued, did not really expect the USSR to survive a nuclear war, but they still tried to improve Soviet chances for survival.¹⁰² President Reagan reportedly believed that the USSR accepted his view, enunciated in 1985, that nuclear war cannot be won and should not be fought.¹⁰³

⁹⁶ Ermarth, "Contrasts in American and Soviet Strategic Thought," pp. 144-145; Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," p. 44; Laird and Herspring, *The Soviet Union and Strategic Arms*, p. 66; Lambeth, *How to Think About Soviet Military Doctrine*, pp. 8-9, and Nathan Leites, *Soviet Style in War* (Santa Monica, CA: RAND Corporation, R-2615-NA, April 1982), p. 379.

⁹⁷ Douglass and Hoerber, *Soviet Strategy for Nuclear War*, pp. 10, 14-15.

⁹⁸ *National Intelligence Estimate 11-3/8-76*, December 1976, p. 18.

⁹⁹ *National Intelligence Estimate 11-3/8-76*, p. 4.

¹⁰⁰ *Ibid.*, p. 4.

¹⁰¹ Schlesinger, October 29, 1991, *Part II*, p. 276.

¹⁰² Brown, November 8, 1991, *Part II*, p. 127.

¹⁰³ McDaniel, November 19, 1991, *Part II*, p. 265.

Akhromeev expressed the conviction that in practical terms, neither side would win a nuclear war.¹⁰⁴ According to Tsygichko, the General Staff understood the scale of devastation that would result from a nuclear war and therefore did not develop a working definition of victory. Military planners instead focused on the amount of destruction that they could inflict on the enemy. They hoped that if there were a nuclear exchange, some “pockets” of civilization inside the Soviet Union would survive. At a June 1968 meeting of the Defense Ministry’s Scientific-Technological Council, which Defense Minister Grechko attended, Iurii Mozzhorin, Director of TsNIIMash, the USSR’s leading research institute of missile technology, presented results of TsNIIMash’s modeling that showed that the Soviet Union, whether it launched a first strike or a retaliatory strike, could not win a nuclear war.¹⁰⁵

The Soviet political leadership, Danilevich observed, did comprehend the catastrophic consequences of nuclear war, though studies of those consequences were suppressed or modified in order to maintain morale. The results of the 1972 study of the likely consequences of a U.S. nuclear attack on the Soviet Union were never circulated, and subsequent models used coefficients that artificially reduced the level of predicted destruction—for instance, a certain percentage of warheads would fail to explode or would miss their targets—and thereby presented a more acceptable picture of nuclear use. The possibility of survival, Danilevich admitted, was accepted until the early 1980s.¹⁰⁶ Tsygichko explained that, for ideological reasons, the USSR needed to maintain the official belief that it was possible to win a nuclear war.¹⁰⁷ This was, Tsygichko explained, a “theoretical” concept.

Many U.S. observers appreciated the deep Soviet pessimism regarding the possibility of surviving a nuclear war in any meaningful sense. Relatively few analysts took at face value the ideological pronouncements on socialism emerging victorious from a nuclear exchange or interpreted the Soviet strategic buildup as an effort to gain the capacity to survive and win a nuclear war. Nevertheless, U.S. policy makers of successive administrations had sufficient doubts about Soviet rationality to continue to bolster the U.S. deterrent by placing Soviet political and military assets at greater risk. American concerns were ill founded. Soviet political leaders appeared to grasp the danger posed by nuclear use, and they showed little real confidence in the USSR’s ability to survive a nuclear war.

¹⁰⁴ Akhromeev, February 8, 1991, *Part II*, p. 118.

¹⁰⁵ Mozzhorin, April 1993, *Part II*, p. 270.

¹⁰⁶ Danilevich, September 21, 1992, *Part II*, p. 147.

¹⁰⁷ Tsygichko, *Kommentarii k Interv'iu*, Vol. II, Item III, B.

C. Preemption

The Soviet Union considered surprise attack to be potentially decisive and was thus inclined to preempt against a U.S. nuclear strike according to the common perception in the analytical community. An attack that achieved surprise, Soviet military planners believed, could determine the outcome of a nuclear war.¹⁰⁸ They, therefore, were determined to prevent a surprise attack by the United States.¹⁰⁹ Some U.S. experts believed that in the event of war, the USSR hoped to preempt U.S. strategic forces.¹¹⁰ According to Ermarth, the Soviet planner's sensitivity to operational uncertainties and aim of achieving a favorable outcome in war appeared to generate a strong Soviet tendency to preempt.¹¹¹ Nathan Leites, in contrast, concluded that Soviet authorities doubted their capacity to preempt effectively and were inclined to launch under attack.¹¹²

U.S. decision makers were quite evenly divided in interpreting Soviet intentions. Schlesinger saw Soviet preemption as a remote possibility. He could envisage the Soviets striking preemptively only if they undertook a conventional probe that met unanticipated NATO resistance and if they believed that NATO was about to go nuclear. Brown reached a similar conclusion. According to Soviet military doctrine, he argued, the Soviets would preempt only if they were convinced, based on their reading of American intentions, that the U.S. was going to launch a nuclear strike. Even then, the political leadership may have decided not to follow military doctrine and instead may have refrained from preempting.¹¹³

Other U.S. officials perceived a greater likelihood of Soviet preemption. Brzezinski expected the Soviet Union, in the context of on-going hostilities, to respond to U.S. tactical nuclear use with tactical preemption. Iklé believed that the USSR was geared to preempt under certain extreme contingencies, such as a NATO decision to employ nuclear weapons first during a war in Europe. The Joint Chiefs, in the 1980s, did not expect the Soviet Union to absorb a large U.S. nuclear strike without

¹⁰⁸ Laird and Herspring, *The Soviet Union and Strategic Arms*, p. 69; Sienkiewicz, "SALT and Soviet Nuclear Doctrine," pp. 88-89; and Douglass and Hoerber, *Soviet Strategy for Nuclear War*, pp. 35, 38, and *Report of Team "B"*, p. 14.

¹⁰⁹ Scott and Scott, *The Armed Forces of the USSR*, pp. 44 and 77.

¹¹⁰ Laird and Herspring, *The Soviet Union and Strategic Arms*, p. 71; and Lambeth, *How to Think About Soviet Military Doctrine*, pp. 10-11.

¹¹¹ Ermarth, "Contrasts in American and Soviet Strategic Thought," p. 152.

¹¹² Leites, *Soviet Style in War*, p. 376.

¹¹³ Brown, November 8, 1991, *Part II*, p. 128.

responding. Instead, they thought, Soviet forces would probably launch on tactical warning and might preempt strategically.¹¹⁴

Interviews with former Soviet officers and missile designers suggest a deep duality in Soviet thinking about their strategic strike posture, a duality fostered by doubt and uncertainty about what was technically and institutionally possible in a crisis situation. Soviet military leaders relied on preemption throughout the 1960s because they had concluded that Soviet silo vulnerability and the prolonged time required to prepare and launch ICBMs would render impossible an effective Soviet retaliatory strike. These concerns, compounded by serious pessimism regarding the survivability of their command and control system, also gave Soviet military leaders strong incentives to preempt strategically. By the early 1970s, however, the Soviet political leadership, sobered by a growing awareness of the consequences of nuclear war, began to move away from preemption in favor of a launch-under-attack posture and for the first time considered retaliation. Convinced that the U.S. would strike first, the military leadership prepared for all three possibilities—preemption, launch-on-warning, and retaliation — but clearly disliked retaliation and doubted that the Soviet strategic arsenal had sufficient technical “reliability” (*ustoichivost’*) to ensure an effective counterstrike. The military also seriously doubted that the political leadership could react in a timely and decisive manner to a detected U.S. launch. However, the military acceded to pressure from the political leadership and prepared for the possibility of launching a retaliatory strike by hardening ICBM silos, resuming the mobile ICBM programs, reducing missile launch times, decreasing its reliance on ground bursts and developing redundant command and control systems such as the Dead Hand.¹¹⁵ By the mid-1970s, the USSR had acquired the missiles and command and control capabilities necessary to execute a launch-on-warning. Despite these measures, however, and even though the Soviet political leadership officially renounced preemption around 1981 and adopted a retaliation posture by the mid-1980s, the military apparently never completely abandoned preemption as an option.

The USSR, in the view of former Soviet officers, relied on a doctrine of strategic nuclear preemption in the 1960s to prevent a successful attack from being launched against Soviet territory. Military commanders who were World War II veterans tended to view retaliation as a passive anticipation of attack, analogous to the Soviet Union’s exposure to surprise attack in 1941. They were determined never to cede

¹¹⁴ McDaniel, November 19, 1991, *Part II*, p. 266.

¹¹⁵ See discussion under previous section (III, B) on deterrence.

the initiative to the enemy and thereby to risk a disaster similar to Hitler's invasion. Grechko reportedly said that he wanted to avoid repeating the mistakes of 1941 by waiting to be struck on the head, as the proponents of retaliation suggested.¹¹⁶

Gen.-Col. Igor Illarionov, an aide to Ustinov for almost 20 years, reported that he and others had concluded that Grechko did not really believe in retaliation. Grechko had no interest in ICBM survivability. He prevented the hardening of silos beyond 2 kg/cm² (28 psi) and canceled the mobile ICBM program in 1968. He seemed to favor a first strike strategy, even though it violated the USSR's official military policy (*voennaia politika*) of not initiating nuclear use.¹¹⁷ Soviet modeling and testing, Dvorkin states, was based on the assumption that the United States would strike first. On one occasion, in the early 1980s, however, Defense Minister Ustinov asked Dvorkin's institute, TsNII-4, to model a depressed trajectory launch of Soviet ICBMs against U.S. silo fields to determine the probable destructive effect. TsNII-4 found that a Soviet depressed trajectory strike over the pole would prove ineffective, because the angle of attack would so reduce accuracy and reliability as to make the uncertainties of an effective strike unacceptably high. The institute recommended against planning for such a strike.¹¹⁸

Danilevich explained that Soviet nuclear doctrine throughout the 1960s prescribed strategic preemption, because the long time required to prepare missiles for launch left only a small possibility of retaliating effectively. Five to six hours were needed to fuel Soviet missiles, and another 2-3 hours to mate their warheads. By the time they were ready to be launched, the Soviet Union would have sustained an incoming U.S. strike. Soviet military planners expected a U.S. nuclear attack to cause extensive damage to Soviet missile silos and command and control systems, and therefore, they believed that a Soviet retaliatory strike was unlikely to prove effective.¹¹⁹

Soviet missiles inside the earliest silos were particularly vulnerable to attack. In September 1958, Kalashnikov was instructed to draft a report on alternative silo designs. He presented three options: (1) single launch dispersed silos; (2) clusters of 4 silos; and (3) single silos containing a missile drum with a refire capability. The

¹¹⁶ Mozzhorin, April 1993, *Part II*, p. 269.

¹¹⁷ Interview with Gen.-Col. Igor V. Illarionov, June 23, 1993, *Part II*, p. 220. Illarionov was an aide to Ustinov in the Central Committee Secretariat (1965-1976), and later an assistant to Ustinov for special assignments (1976-1984).

¹¹⁸ Dvorkin, June 24, 1993, *Part II*, p.205.

¹¹⁹ Danilevich, September 24, 1992, *Part II*, p. 162.

first option was selected for prototype testing using an R-12 (SS-4) missile. A test launch took place in the spring of 1959.¹²⁰

Under the code name "*SHEKSNA*," [acronym-expansion unknown] a draft project for a missile complex was completed in May 1960, representing the first-generation silo, according to Irukhim Smotkin, who worked on silo design from 1960 to 1975 and served as head of the mechanical design department of the Design Bureau of Mechanization Devices (KBSM), located in Leningrad, of the Ministry of General Machine Building.¹²¹ In 1962, Smotkin reported, KBSM began to develop the second-generation silo for a new missile complex named Individual Launch (*Odinochnii Start*).¹²² Whereas the first generation of silo-based missiles could only be fueled for a period of two days, after which it had to be drained and refurbished before it could be operational again, the second-generation missile could be kept fueled for six months.¹²³

Beginning in 1965, Tsygichko was personally involved in a series of tests carried out by the General Staff at Semipalatinsk on an annual basis between 1964 and 1966 to measure the vulnerability of silo-based intercontinental ballistic missiles (ICBMs) to ground-burst attack. Missiles identical to those in operation were put in silos built to actual operational specifications. High-explosive conventional charges were placed in the ground at various distances (from 20 meters to over one kilometer) from the silos to simulate and measure the effects of nuclear ground bursts. The charges did not exceed the blast energy effect of a 500 kiloton (KT) nuclear warhead. The tests took geological conditions into account and tried to approximate the impact of an actual U.S. nuclear attack on Soviet ICBM silos.¹²⁴

The measure of effectiveness for a missile kill was the ability of the missile, after an enemy attack, to be launched in the prescribed time (a matter of hours) and to destroy its target. A jammed silo door, ruptured fuel system, disoriented missile guidance system or disrupted launch control system would constitute a missile kill. The actual damage from ground-burst simulations was normally far more extensive and required days, weeks or even months to repair. The test data showed that ground bursts were very effective in destroying silo-based ICBM systems. Silo doors often jammed, even from distant strikes. Under certain geological conditions, a ground wave from a strike as far away as 1 km was powerful enough

¹²⁰ Kalashnikov, April 1993, *Part II*, p. 228.

¹²¹ Irukhim Smotkin, *Hardening Soviet ICBM Silos* (Falls Church, VA: Delphic Associates, 1991), p. 74.

¹²² *Ibid.*, p. 78.

¹²³ Peter Shugart, Memorandum on "Silo Vulnerability," May 14, 1993.

to drive the entire silo 3 meters out of the ground, causing extensive damage to the missile system inside. A ground burst closer than 1 km was highly likely to destroy (achieve a “mission kill” of) a silo-based ICBM. If two silos were less than 2 km apart, typically the missile systems in both would be disabled by a single incoming strike.¹²⁵

Tsygichko was given the task of creating models to compare the effects of ground bursts and air bursts. He used data collected before the 1963 signing of the Limited Nuclear Test Ban Treaty from tests at Semipalatinsk on the impact of nuclear explosions on structures and silos. The models indicated that an air burst (80 or more meters above ground) was 15 to 25 percent as effective as a ground burst of the same yield going off at an equal distance from the target. In 1966, Tsygichko took part in briefing the General Staff on the tests and modeling of silo vulnerability.¹²⁶

The Soviet military leadership assumed that U.S. scientists had conducted similar experiments and discovered the effectiveness of ground bursts relative to air bursts. When Soviet satellite photography showed U.S. missile silos relatively poorly protected by overhead cover and grouped rather close to each other and to the cluster’s launch control center, the General Staff became convinced that U.S. ICBM fields were not designed to ride out an attack and that U.S. land-based systems were first-strike weapons (*oruzhie pervogo udara*).¹²⁷ U.S. ICBMs were routinely referred to as such in internal Soviet military and political discussions and written communications for the following two decades.¹²⁸ According to Dr. Viktor Surikov, this assessment of the U.S. strike posture was informed not only by indirect evidence obtained through satellite intelligence but also by direct intelligence about the U.S. SIOP. According to this intelligence information, the U.S. planned to launch on strategic warning against Soviet strategic forces.¹²⁹ In response, the Soviet Union examined the problem of silo vulnerability, developed solid- and liquid-fueled missile systems that could be launched within minutes of a launch order, and moved toward adoption of a launch-under-attack doctrine.

¹²⁴ Tsygichko, December 21 and 23, 1991, *Part II*, p 303.

¹²⁵ *Ibid.*, p. 303.

¹²⁶ *Ibid.*

¹²⁷ The United States continued to rely on air bursts because it set a higher measure of effectiveness (MOE) for a missile kill than the Soviet Union did. Whereas the Soviet MOE could be achieved by temporarily disabling an enemy missile system, the U.S. MOE required permanent damage, observable from satellites, of silo-based ICBMs. The United States wanted visible evidence that Soviet missiles could not be launched. U.S. forces therefore were expected to demolish the doors of Soviet silos, which was best accomplished through air bursts.

Concern about silo vulnerability led some Soviet experts in the mid-1960s to seek improvements in silo protection. Iurii Mozzhorin, then Director of TsNIIMash, argued strongly in favor of hardening ICBM silos. His argument was opposed by the Defense Ministry and the Ministry of General Machine Building, which wanted to avoid the expense of hardening silos and to spend those resources instead to build more missiles. In 1966, Ustinov, who at that time was still a Central Committee Secretary, held a meeting of senior officials from the Ministries of Defense and of General Machine Building to discuss silo protection. The Deputy Defense Minister for Construction asserted that for the cost of enhanced silo protection, the USSR could produce an additional 72 missile launchers. Why stop there, Mozzhorin retorted, when you can use wood to build even more? After heated debate, a decision was made to develop reinforced missile launchers. Enhancement of silo protection went forward only because of support from Ustinov, Brezhnev and Smirnov, the Chairman of the Military-Industrial Commission (VPK). Soviet silos eventually were improved and, in Mozzhorin's opinion, made superior to U.S. silos.¹³⁰

Hardening of ICBM silos, along with the growing size of the Soviet nuclear arsenal, improvements in command and control systems that enabled a decision from Moscow to reach all launch sites on Soviet territory in just 13 seconds,¹³¹ development of the capability to retarget missiles within minutes,¹³² and a sharp decrease in launch times allowed the Soviet Union to begin to move away from preemption in the early 1970s. Improvements in the fueling capacity and in the instrumentation of Soviet missiles reduced the launch time (between receipt of a launch command and the actual missile launch) from 20-30 minutes, for first-generation missiles, to around one minute by the mid-1970s.¹³³ Retaliation thus became a credible alternative to preemption for the Soviet leadership.¹³⁴

¹²⁸ Ibid., p. 304.

¹²⁹ Surikov, September 11, 1993, *Part II*, p. 283.

¹³⁰ Mozzhorin, April 1993, *Part II*, p. 268. Boris A. Strogonov, an expert on missile technology who worked from 1955 to 1987 in the Defense Industry Department of the Central Committee, confirmed that Ustinov was a proponent of survivable missiles. Most of the Defense Ministry, and Grechko personally, was opposed to silo protection, according to interview with Strogonov, March 1993, *Part II*, p. 282. Several sources, including Dvorkin, June 24, 1993, p. 204; Illarionov, June 23, 1993, p. 220; and Gen.-Lt. Nikolai V. Kravets of the Strategic Rocket Forces, June 22, 1993, p. 251, confirmed that in the 1960s, Soviet ICBM silos could withstand only 2 kg/cm² overpressure. Strogonov asserted that hardening increased silo protection to 50 kg/cm². In the 1970s, Dvorkin claimed, some Soviet ICBM facilities could withstand 400 kg/cm².

¹³¹ Korobushin, December 10, 1992, *Part II*, p. 249.

¹³² Danilevich, September 21, 1992, *Part II*, p. 151.

¹³³ According to interview with Korobushin, December 10, 1992, *Part II*, p. 249, the earliest Soviet missiles required 20 minutes preparation time. Smotkin, as cited in Pete Shugart, Memorandum on "Silo Vulnerability," May 14, 1993, stated that the launch time of 30 minutes for first-generation missiles was

A July 1969 Defense Council meeting,¹³⁵ which both Mozzhorin and Illarionov attended, gave impetus to the shift toward a strategy of retaliation. The participants discussed a 15-year plan for weapons production and tried to decide which of two recently developed ICBMs—the SS-17 or the SS-19—to put into production. Professor Mstislav V. Keldysh, President of the USSR Academy of Sciences, argued that the choice between the SS-17 and the SS-19 was, in essence, a doctrinal question and that the Soviet Union should acquire an effective second-strike capability in order to deter U.S. first use. The Defense Council participants failed to choose between the two ICBMs, opting instead to manufacture both, but resolved the doctrinal debate in favor of a second strike, which led to the adoption of a launch-under-attack doctrine.¹³⁶

The Voroshilov lectures, which present the established Soviet military doctrine from 1973 to 1975, leave open the possibility of nuclear preemption at the tactical level and the theater level¹³⁷ but rule out strategic preemption. They indicate that the Soviet Union intended to prevent a surprise intercontinental U.S. attack not by preempting but rather by releasing a retaliatory strike before U.S. forces hit their targets. The Voroshilov lectures appear to prescribe a launch-under-attack doctrine instead of strategic preemption. They state that in the event of an enemy nuclear attack, the warning system should inform the Soviet High Command “within three to four minutes” in order to leave time for a decision regarding retaliation.¹³⁸

By the middle 1970s, the Soviet Union acquired the capacity to execute a launch-on-warning, termed a retaliatory-meeting strike (*otvetno-vstrechnyi udar*), whereby Soviet missiles would be released upon detection of a U.S. missile launch and would pass U.S. missiles in mid-air on the way to targets on U.S. territory.¹³⁹ A retaliatory-meeting strike became possible after the creation of an automated control system and the deployment of over-the-horizon (*zagorizontnye*) radars and

reduced, in second- and third-generation silos, to 8-10 seconds after the silo cover opened. The reduction occurred partly because on-board instruments of later generations of missiles could begin to operate before receiving the launch command. Danilevich (September 24, 1992, p. 163) asserted that pre-fueled (*ampulizirovannye*) ICBMs were ready for launching within minutes. By the mid-1970s, Korobushin (December 10, 1992, p. 249) explained, the USSR had deployed missiles with launch times of 60 seconds.

¹³⁴ Danilevich, September 24, 1992, *Part II*, p. 166.

¹³⁵ For a detailed description of the July 1969 Defense Council meeting, see Section IV on Struggle Among the Princes.

¹³⁶ Illarionov, June 23, 1993, *Part II*, p. 220. The July 1969 Defense Council meeting in Yalta was the first occasion on which a launch-under-attack strategy was seriously discussed.

¹³⁷ Turbiville, *The Voroshilov Lectures, Vol. I*, pp. 248, 312.

¹³⁸ *Ibid.*, p. 246.

¹³⁹ Tsygichko, December 21 and 23, 1991, *Part II*, p. 304. Illarionov, reported in his interview that development of the retaliatory-meeting strike doctrine began in the late 1960s, although the Defense Ministry and chief

space-based systems for early warning. The USSR adopted a strategy of flexible use of nuclear weapons based on three options—preemption, retaliatory-meeting strike and retaliation—¹⁴⁰ but preferred, in the event of a conflict, to launch a retaliatory-meeting strike.¹⁴¹

The increased size of nuclear arsenals and growing Soviet awareness of the consequences of nuclear use led the USSR to renounce preemption by 1980, according to Danilevich. The USSR was then left with the two options of retaliation and retaliatory-meeting strikes.¹⁴² Surikov asserts, however, that the General Staff never really accepted the possibility of a purely retaliatory strike because of continued pessimism regarding the survivability of the command and control system, and continued to plan to launch either on strategic or tactical warning.¹⁴³

The Soviet Union, during the 1970s, also reduced its reliance on ground bursts. Kalashnikov was in charge of missile testing on the commission that organized tests in 1972 at Semipalatinsk to determine the vulnerability of existing silo and command center designs to nuclear strikes. In addition to underground nuclear tests, above-ground tests using conventional explosives equivalent to 10 kilotons were carried out against mobile missile platforms, planes, tanks and other targets. The tests showed that ground bursts were generally, but not always, effective at disabling silos, while air bursts proved very effective against planes and tanks.¹⁴⁴

Danilevich confirmed that Soviet forces intended to employ air bursts against unprotected targets. Moreover, he explained, the proportion of ground bursts declined as the USSR planned to launch increasingly massive nuclear strikes and the consequences of those strikes became less predictable. The Soviet military made computer calculations of fallout zones to forecast the spread of radiation following a nuclear exchange and then tested the calculations during several exercises. The tests showed that when massive explosives were detonated, the actual shock wave often deviated from the predicted one. The proportion of ground bursts, which

designers had reached the conclusion that the USSR was unable at that time to launch a retaliatory strike before an incoming U.S. strike had already detonated on Soviet territory.

¹⁴⁰ Danilevich, September 24, 1992, *Part II*, p. 163.

¹⁴¹ Korobushin, December 10, 1992, *Part II*, p. 1249; Illarionov, April, 1993, *Part II*, p. 214; and Tsygichko, December 21 and 23, 1991, *Part II*, p. 304.

¹⁴² Danilevich, September 24, 1992, *Part II*, p. 163.

¹⁴³ Surikov, September 18, 1993, *Part II*, p. 283. See "Deterrence" (Section III, B) above for a more extended discussion of perceived vulnerability of Soviet command and control systems.

¹⁴⁴ Kalashnikov, April 1993, *Part II*, p. 228.

was about 80 percent in the 1960s, declined until the late 1970s, when the USSR stopped employing ground bursts.¹⁴⁵

The Soviet watchers in the United States emphasized that the USSR was determined to keep any U.S. nuclear attack from achieving surprise. U.S. officials, on the other hand, saw little probability of Soviet preemption, or else they expected Soviet forces to preempt in the European theater rather than at the strategic level. The actual Soviet strategic posture was ambiguous. By the late 1970s and early 1980s, when the cited U.S. studies came out, the Soviet Union had adopted a clear preference, at least at the policy level, for retaliatory-meeting strikes and then renounced preemption altogether. Doubts persisted, however, especially among the technically sophisticated members of the military, regarding the possibility of carrying out a successful retaliatory or retaliatory-meeting strike. In a crisis, especially without the guidance of strong political leadership, preemption would not have been ruled out.

D. Limited Nuclear Options

In the judgment of numerous U.S. analysts, the Soviet Union eschewed limited nuclear options. Intra-war bargaining ran counter to Soviet doctrine,¹⁴⁶ because once the nuclear threshold was crossed, half-measures would weaken the USSR's initiative and prospects for victory.¹⁴⁷ U.S. observers were nevertheless suspicious of public Soviet denunciations of the limited nuclear war concept.¹⁴⁸ The Soviet argument on the inevitability of escalation was intended to strengthen deterrence by persuading the United States that nothing could be gained from limited nuclear strategies.¹⁴⁹

Some experts in Washington pointed out that Soviet force modernization provided a broader array of employment options and thereby increased the USSR's potential to set conflict limitations. The Soviet Union, in Fritz Ermarth's view, probably conducted some contingency planning for limited nuclear options at the theater and, perhaps, at the strategic level.¹⁵⁰ Notra Trulock concluded that Soviet political and military leaders had strong incentives to develop means to control the course of

¹⁴⁵ Danilevich, December 14, 1992, *Part II*, p. 191.

¹⁴⁶ Ermarth, "Contrasts in American and Soviet Strategic Thought," p. 149.

¹⁴⁷ Lambeth, *How to Think About Soviet Military Doctrine*, p. 12.

¹⁴⁸ Leites, *Soviet Style in War*, pp. 377-379.

¹⁴⁹ Sienkiewicz, "SALT and Soviet Nuclear Doctrine," p. 88.

a nuclear conflict¹⁵¹ and almost certainly envisioned the conduct of limited nuclear operations in the event that a theater conflict escalated to the nuclear level.¹⁵² The risks inherent in all-out nuclear war, Trulock continued, probably were highly unpalatable to the Soviet leadership,¹⁵³ and selective strikes offered an alternative to either all-out nuclear war or termination of the conflict short of Soviet victory,¹⁵⁴ so the USSR developed both operational concepts and capabilities to fight a limited nuclear war.¹⁵⁵ Soviet strikes could be limited in terms of the number or types of weapons, geographic area, or targets.¹⁵⁶ Robbin Laird and Dale Herspring argued that through its buildup of the 1970s, the Soviet Union developed a capacity to wage nuclear war in Europe.¹⁵⁷ In the event of conflict, they suggested, the USSR might pursue a limited nuclear warfighting strategy, deterring U.S. escalation to the strategic level while negotiating a favorable end to hostilities in Europe.¹⁵⁸

U.S. officials tended to agree that the Soviet Union probably did not develop an array of limited nuclear options.¹⁵⁹ It had no need to, because it had conventional predominance, as Harold Brown pointed out. Furthermore, Soviet leaders seemed genuinely skeptical about the possibility of limiting a nuclear war.¹⁶⁰ Though American limited nuclear options were based on the expectation that the USSR would act rationally and respond in kind, there was little evidence one way or the other indicating how the Soviet leadership would respond to a limited U.S. strike.¹⁶¹ Schlesinger hoped that the USSR would refrain from escalating after selective U.S. nuclear strikes but, he added, even if the Soviets refused to believe in the possibility of limiting a nuclear war, they would still be deterred by the belief that selective U.S. strikes would lead to an all-out nuclear war.

Soviet officials, as they now confirm, wanted the U.S. to believe that they would respond on a massive scale to any U.S. employment of nuclear arms. Exchanges of

¹⁵⁰ Ermarth, "Contrasts in American and Soviet Strategic Thought," p. 149.

¹⁵¹ Notra Trulock III, "Soviet Perspectives on Limited Nuclear Warfare" in Fred S. Hoffman, Albert Wohlstetter, and David S. Yost (eds.), *Swords and Shields: NATO, the USSR, and New Choices for Long-Range Offense and Defense* (Lexington, MA: Lexington Books, 1987), p. 55.

¹⁵² *Ibid.*, p. 76.

¹⁵³ *Ibid.*, p. 54.

¹⁵⁴ *Ibid.*, p. 55.

¹⁵⁵ *Ibid.*, p. 76.

¹⁵⁶ *Ibid.*, p. 76.

¹⁵⁷ Laird and Herspring, *The Soviet Union and Strategic Arms*, p. 21.

¹⁵⁸ *Ibid.*, p. 75.

¹⁵⁹ McDaniel, November 12, 1991, *Part II*, p. 266. The exception was Fred Iklé, who argued that the Soviet Union, due to its growing strength, was moving toward acceptance of limitations on nuclear war.

¹⁶⁰ Schlesinger, October 29, 1991, *Part II*, p. 277.

¹⁶¹ Marshall, October 22, 1991, *Part II*, p. 263.

even tactical nuclear weapons, they feared, might hit Soviet territory.¹⁶² To strengthen deterrence, they threatened to respond with full force to the employment of even one U.S. nuclear weapon, but if the U.S. had in fact launched a selective strike, the Soviet political leadership simply would have gathered together to decide how to respond.¹⁶³

Interviews with Soviet military planners revealed that the General Staff, by the late 1970s, did contemplate limited nuclear options and evaluate the possibility of intra-war bargaining.¹⁶⁴ It introduced gradually, beginning in 1976, a new periodization (*periodizatsiia*) of war. Until that time the dominant, although not the only, scenario envisaged by the General Staff was that of a major war divided into two periods—a massive nuclear exchange followed by land operations that would exploit the results of nuclear strikes. The new periodization added a phase of limited nuclear operations. War was expected to consist of four periods: (1) conventional operations; (2) limited nuclear strikes; (3) full-scale nuclear exchanges; and (4) concluding period.¹⁶⁵

From 1978, the General Staff discussed available responses to selective U.S. nuclear strikes in Europe, debating the relative merits of precise reciprocity versus escalation.¹⁶⁶ It examined the possibility of dosage use (*dozirovannyye starty*), which might be confined to Europe or to targets in the United States¹⁶⁷ or might be limited to military targets.¹⁶⁸ Soviet military planners developed scenarios for responses to U.S. selective strikes. Some scenarios envisioned proportional retaliation; others involved Soviet escalation or de-escalation. If the U.S. launched 20 strikes, for example, Soviet forces might have retaliated with 15 or, alternatively, with 30 strikes. The best response, in the Soviet view, would be an equal number of strikes against analogous targets, mainly against military targets such as troop formations, airfields, control centers and missile fields. General Danilevich

¹⁶² Danilevich, March 5, 1990, *Part II*, p. 134.

¹⁶³ Interview with Kataev, June 23, 1993, *Part II*, p. 240. Kataev confirmed that the Soviet declaratory policy of retaliating on a massive scale to any employment of nuclear weapons was intended primarily to enhance deterrence. If deterrence had failed, and NATO had launched 7 to 20 tactical nuclear strikes, the Politburo would have faced a very difficult decision. Kataev, who worked very closely with Communist Party national security decision makers at the highest level for the 18 years in the defense department of the Central Committee (essentially inside the "black box" we so longed to uncover and understand) admitted that he simply did not know how the Politburo would have responded.

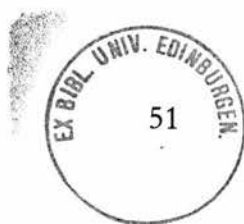
¹⁶⁴ Danilevich, December 18, 1990, *Part II*, p. 142.

¹⁶⁵ Ibid., September 24, 1992, *Part II*, p. 165.

¹⁶⁶ Danilevich, March 5, 1990, *Part II*, p. 135.

¹⁶⁷ Ibid., September 24, 1992, *Part II*, p. 164. According to Gareev (June 20, 1993, *Part II*, p. 209), the USSR might have considered launching selective strikes at the global level, but the context in which dosage use was given serious thought was the TVD (Theater of Military Operations).

¹⁶⁸ Danilevich, December 14, 1992, *Part II*, p. 189.



described one strike package that included six missiles for Europe and two for the continental United States, to ensure that any selective nuclear use would not exclude the U.S. He admitted that those General Staff officers most closely associated with the planning had no idea whether we could really do it or how it would turn out.¹⁶⁹

Discussion of limited nuclear options, by all accounts, was restricted to the General Staff. Dvorkin stated that to his knowledge, the Strategic Rocket Forces institute TsNII-4 never examined scenarios involving selective nuclear strikes.¹⁷⁰ Former First Deputy Chief of Staff of the SRF Korobushin denied that the SRF either planned selective strikes or conducted exercises employing selective strikes.¹⁷¹ Although the General Staff analyzed the possibility of limited nuclear use, Kataev insisted, no decision was made to change Soviet military doctrine. Kataev attended several meetings at the highest level where force structures and employment options were discussed, including those that considered selective use options. The Party and military leadership at these meetings, according to Kataev, never accepted selective use, even at a tactical level.¹⁷²

The Soviet Union was technically capable of launching selective strikes. In the early 1970s, it replaced its "all or nothing" command and control system, which was designed to release only massive strikes, with a system that could carry out launches from individual sites, according to Gen. Makhmut Gareev, who was in charge of training and doctrine in various positions in the General Staff from 1974 to 1988.¹⁷³ Available documents from the Potsdam archives show that certain Warsaw Pact exercises included selective nuclear strikes,¹⁷⁴ though exercises

¹⁶⁹ Ibid., p. 190.

¹⁷⁰ Dvorkin, June 24, 1993, *Part II*, p. 20470.

¹⁷¹ Korobushin, December 10, 1992, *Part II*, p. 247.

¹⁷² Kataev, June 23, 1993, *Part II*, p. 239. At this particular interview, Dr. Kataev, somewhat exasperated, invoked the Party prescript that even a single nuclear warhead against the USSR would have elicited a "full response." The U.S. could not have presumed to make a limited strike without catastrophic consequences. By this time the author had known Kataev for two years. I interrupted his speech with a question. "Vitalii Leonidovich, you worked closely with the Politburo security decision group for many years including the old group of five [*piaterka*: Brezhnev, Gromyko, Andropov, Smirnov, Ustinov]. I understand the Party's official position on responses to U.S. limited use. My question is more specific. If as General Korobushin commented, the U.S. actually had struck the Soviet Far East and Siberia with three nuclear missile strikes against discrete military targets with limited collateral damage, as he claimed the U.S. practiced in the mid-1980s, how would "the five" react? Would they just have pushed the button to launch the whole Soviet nuclear arsenal as they had promised? Think about that group and how they behaved under stress. What would they *really* have done?" Kataev stopped, stood up, struggling with his answer. After a still longer, clearly painful pause he answered. "I just don't know."

¹⁷³ Gareev, April 30, 1993, *Part II*, p. 206; and June 20, 1993, *Part II*, p. 210.

¹⁷⁴ Beatrice Heuser, "Warsaw Pact Nuclear and Conventional Strategy in the 1970s and 80s: Findings in the East German Archives," *Comparative Strategy*, Vol. 12, No. 4, November 1993, pp. 437-457.

involving the East German military usually went only as far as the launch of the second salvo of the first strike at a tactical or operational-tactical level.¹⁷⁵

Although the USSR developed limited nuclear options, it neither discussed nor conducted exercises in which it initiated selective use.¹⁷⁶ Soviet military leaders remained very skeptical about escalation control.¹⁷⁷ The period of limited nuclear exchanges was expected to last several days at most.¹⁷⁸

Some U.S. officials mistakenly discounted Soviet development of limited nuclear options, and a couple of analysts overemphasized Soviet interest in pursuing a limited nuclear warfighting strategy. Otherwise, most policy makers and experts in Washington were largely correct in their interpretations of the Soviet position on limited nuclear options. The General Staff did in fact examine the possibility of selective strikes. It was inclined to make a proportionate response to an initial U.S. limited strike. There is no evidence to suggest, however, that the General Staff planned to trade a series of selective nuclear strikes with U.S. forces. Soviet military strategists seriously doubted that a nuclear war could remain limited for long, and they were loath to let U.S. generals think that the USSR would follow U.S. scenarios of extended exchanges of selective strikes and would allow the U.S. to achieve escalation dominance.¹⁷⁹

E. Escalation

Some Western analysts expected the Soviet Union, in a conventional conflict, to resort to nuclear weapons. They argued that, in a major war, the USSR would conduct conventional operations with the transition to nuclear use as the dominant concern. The nuclear phase would be considered decisive.¹⁸⁰ Soviet forces would employ nuclear weapons, even if NATO did not, at an early stage of an offensive campaign in Europe.¹⁸¹ Other observers, in contrast, stressed the Soviet Union's

¹⁷⁵ Ibid.

¹⁷⁶ Danilevich, December 14, 1992, *Part II*, p. 188; and Gareev, April 30, 1993, *Part II*, p. 206.

¹⁷⁷ Danilevich, December 18, 1990, *Part II*, p. 142; and Gareev, April 30, 1993, *Part II*, p. 206. The Voroshilov lectures warn that the limited employment of nuclear weapons will not last long. Turbiville, *The Voroshilov Lectures, Vol. I*, p. 248.

¹⁷⁸ Danilevich, December 13, 1992, *Part II*, p. 187.

¹⁷⁹ Gareev, April 30, 1993, *Part II*, p. 206. General Gareev specifically rejected the Soviets' willingness to participate in the tit-for-tat theater-level exchanges he believed were envisioned by NATO commands.

¹⁸⁰ Joseph D. Douglass, Jr. and Amoretta M. Hoeber, *Conventional War and Escalation: The Soviet View* (New York: Crane Russak, 1981), p. 7.

¹⁸¹ Lothar Ruhl, "Offensive Defense in the Warsaw Pact," *Survival*, Vol. 33, No. 5, September/October 1991, p. 446.

reluctance to initiate nuclear use¹⁸² and to expand the scope of a nuclear conflict. Laird and Herspring believed that the USSR wanted to control the process of escalation and to minimize collateral damage.¹⁸³

By the assessment of U.S. officials from successive administrations, the Soviet Union preferred to wage a war in Europe employing only conventional forces.¹⁸⁴ After the 1961 Berlin Crisis, Schlesinger explained, the Soviets began to think that a conventional phase in a major war was possible. They later came to hope that in practice NATO would not resort to nuclear weapons, but U.S. limited nuclear options diminished Soviet confidence in the possibility of averting U.S. first use.¹⁸⁵ Brzezinski had a gut feeling that the Soviets would not employ nuclear arms first. The USSR sought superiority at different rungs of the escalation ladder in order to inhibit the U.S. from escalating and thereby to gain a strategic advantage.¹⁸⁶ The Soviets, Brown pointed out, would probably not escalate in Europe because, even though they might not win a conventional war, they would never lose. Iklé concluded that the Soviet Union could win a war with limited objectives using only conventional forces backed up by unused nuclear strength to coerce a settlement.

Soviet escalation of theater nuclear exchanges was considered unlikely by most Washington policy makers. The USSR would probably not escalate in response to a small-scale U.S. employment of tactical nuclear weapons along the flanks.¹⁸⁷ The Soviet military might recommend escalation in the European theater if convinced that the U.S. would escalate, but the political leadership might turn down the military's recommendation.¹⁸⁸ If the United States launched nuclear strikes, the Soviet Union probably would match the U.S. action and might jump to a higher level of nuclear use.¹⁸⁹ Only members of the first Reagan Administration judged Soviet escalation to be likely. In their opinion, the USSR would probably retaliate against NATO's first use with hundreds of nuclear weapons.¹⁹⁰

Over the years, the U.S. government was divided on whether the Soviet Union would expand a theater nuclear war into a global nuclear war. Brown, Brzezinski

¹⁸² Field Manual 100-2-1, *The Soviet Army*, p. 2-9.

¹⁸³ Laird and Herspring, *The Soviet Union and Strategic Arms*, pp. 71-73.

¹⁸⁴ Brzezinski, November 20, 1991, *Part II*, p. 131; Komer, October 22, 1991, *Part II*, 245; Marshall, October 22, 1991, *Part II*, p. 264; McDaniel, November 12, 1991, *Part II*, p. 266; and Schlesinger, October 29, 1991, *Part II*, p. 276.

¹⁸⁵ Schlesinger, October 29, 1991, *Part II*, p. 275.

¹⁸⁶ Brzezinski, November 20, 1991, *Part II*, p. 131.

¹⁸⁷ Schlesinger, October 29, 1991, *Part II*, p. 275.

¹⁸⁸ Brown, November 8, 1991, *Part II*, p. 128.

¹⁸⁹ Brzezinski, November 20, 1991, *Part II*, p. 131.

¹⁹⁰ McDaniel, November 19, 1991, *Part II*, p. 265.

and Iklé doubted that during nuclear exchanges in Europe, the USSR would strike preemptively at American strategic forces in the continental United States. Schlesinger expressed the opposing view that the Soviet Union might expand a total theater war into a global nuclear conflict. Top U.S. military commanders in the early 1980s expected the USSR, in a theater nuclear war, to make quick recourse to global nuclear strikes.¹⁹¹

Soviet officers asserted that the Soviet Union never intended to initiate the employment of nuclear weapons.¹⁹² The Soviet rejection of first use was serious and was based on research.¹⁹³ Since 1975, the Soviet military has been “guided by instructions” of the political leadership not to employ nuclear weapons first.¹⁹⁴

Materials from the East German archives have been used to suggest that Warsaw Pact forces were inclined to employ nuclear arms to advance across Europe. The official report by the German Defense Ministry on the records from the East German National People’s Army asserts that use of tactical nuclear weapons formed an integral part of Warsaw Pact personnel training. Those weapons, the report claims, would serve primarily as a means of breaking through enemy defenses. Furthermore, nuclear weapons were employed, according to the report, either in a surprise first strike or in a counterstrike, in numerous Warsaw Pact exercises, which were led by Soviet commanders, during the late 1970s and early 1980s.¹⁹⁵ The report apparently fails, however, to distinguish a Soviet first strike (initiating the use of nuclear weapons in the absence of indications of nuclear initiation by the enemy) from preemption (attempting to strike an enemy *that is preparing to launch a nuclear strike* before he is able to launch in order to eliminate his capability to execute nuclear strikes) and therefore has created the misleading impression that the USSR intended to initiate nuclear use. In fact, as an independent scholar concluded after examining the same material as did the German Defense Ministry, these exercise descriptions in the Potsdam archives *invariably* assumed that NATO would be the first to prepare for nuclear use, and

¹⁹¹ Ibid., p. 266.

¹⁹² Akhromeev, February 8, 1991, *Part II*, p. 118

¹⁹³ Danilevich, March 5, 1990, *Part II*, p. 134.

¹⁹⁴ *Voennaia mysl'*, January 1975, p. 66, quoted in Garthoff, "Introduction: U.S. Considerations of Soviet Military Thinking," p. 13. This might be more credible, in practice, in that Marshal Grechko, reputed by Soviet political and military leaders to be a convinced "first-striker," died in the spring of 1976.

¹⁹⁵ German Defense Ministry, *Military Planning of the Warsaw Pact in Central Europe: A Study, Based On Records from the East German National People's Army (NVA)*, translated by Mark Kramer, *International History Project Bulletin*, Issue 2, Fall 1992.

Soviet preemption would then occur in response to observations of NATO preparations for a nuclear launch.¹⁹⁶

The East German archives provide largely tactical training and planning data that do not necessarily explain how the Soviet Politburo would have chosen to wage war in Europe. Gareev, who was in charge of training in the General Staff from 1974 to 1988 and therefore was responsible for all exercises from a tactical to operational-strategic level, insisted that the Soviet Armed Forces did not plan to resort to the use of nuclear weapons first and were forbidden to exercise initiation of nuclear use. The USSR conducted exercises, he added, not only to prepare forces for execution of war plans but also to test new operational concepts and to train commanders, staff and troops for a range of contingencies. Training often included nuclear strikes, because the General Staff assumed that NATO would resort to nuclear weapons and wanted to be prepared to respond and to continue operations under conditions of nuclear use.¹⁹⁷ Decisions concerning employment of nuclear weapons were, without exception, reserved for the highest political leadership in Moscow.

The General Staff expected the battlefield employment of nuclear weapons to have a devastating impact. Tsygichko was aware of tests conducted in the late 1950s and early 1960s on the effects on animals of conventional and nuclear explosives. According to the tests, as well as to pre-1946 German data, a dog's response to overpressure most closely resembled that of humans, and 7 pounds per square inch (psi) overpressure was sufficient to kill people.¹⁹⁸ In contrast, U.S. scientists calculated the average lethality threshold at 40 psi.¹⁹⁹ Therefore, Soviet military

¹⁹⁶ Heuser, "Warsaw Pact Nuclear and Conventional Strategy in the 70s and 80s: Findings in the East German Archives," pp. 438, 439, 443, 444. Ms. Heuser summarized her findings thus: "Drawing on recently opened East German military archives, this article traces the evolution of Soviet military doctrine through Warsaw Pact training and maneuver documentation. Paradoxically, while the USSR was deploying more usable and survivable nuclear weapons (the SS-20), it was developing a strategy which attempted to win a limited war in Europe with conventional weapons only. Pact records do show planning for preemptive nuclear strikes in response to observation of NATO preparations for nuclear launches. Great care was taken not to proceed to a nuclearization of the conflict unless the enemy was about to do so." p. 437.

The experience of the author, as a military officer for several years in NATO in the 1960s and 1970s, confirms two aspects of the Soviet declarations. NATO routinely assumed in its exercises that superior Warsaw Pact conventional forces would push NATO armies to the Rhine River within days after the inception of hostilities, forcing NATO to resort first to nuclear weapons in order to avoid total catastrophe. Second, NATO forces routinely practiced use of and defense against nuclear weapons in its exercises in order to maintain proficiency in a critical area of warfare for which officers and troops must be trained on a continuous basis. Failure to have done so would have been irresponsible and misguided.

¹⁹⁷ Gareev, June 20, 1993, *Part II*, p. 209.

¹⁹⁸ Tsygichko, December 21 and 23, 1991, *Part II*, p. 305.

¹⁹⁹ Samuel Glasstone and Philip J. Dolan (eds.), *The Effects of Nuclear Weapons* (Washington: U.S. Department of Defense and U.S. Department of Energy, Third Edition, 1977), p. 552. Terry A. Purnell, *Comparative Study and Analysis of U.S. and Soviet Air Blast Injury and Incapacitation Criteria* (Army Research Laboratory, ARL-

planners predicted much higher rates of attrition on the battlefield resulting from nuclear and conventional bombardment than did their U.S. counterparts.

The USSR, the Soviet sources contend, also had no intention of climbing up the rungs of the escalation ladder in a nuclear conflict. Soviet modeling predicted that the use of 20 to 25 percent of the nuclear weapons in Europe would completely destroy operational groupings and would throw millions of tons of toxic material into the atmosphere, causing an ecological disaster.²⁰⁰ Before the 1970s, the General Staff expected the rate of advance to increase from 20-30 km per day with only conventional forces to 40-50 km with the introduction of nuclear weapons. Tsygichko reported modeling simulations at front level conducted in the early 1970s in which analysts conducted sensitivity analysis to determine at what percentage of use of the nuclear arsenal the front and opposing Army Group would theater operations be seriously effected. Soviet military analysts found that *even with use 2% of available weapons, all operations ceased* for two days while surviving commander assessed the potential regrouping and resuming operations. The modeling effort conducted in the early 1970s concluded that if nuclear weapons were used, all significant movement would cease for several days.²⁰¹ Nuclear strikes on all of NATO's airfields would contaminate Eastern Europe and parts of the Soviet Union.²⁰² The findings from the modeling effort, which undermined the rationale for modernization of theater nuclear forces, were reported to the head of the General Staff's Main Operations Directorate, Gen. Kozlov, and summarized in a five-page document for Marshal Viktor Kulikov, who was then serving as Chief of the General Staff. They were accepted by the General Staff and then sent to the Central Committee, which rejected them. The Central Committee ordered modernization of theater nuclear forces to proceed. The political leadership instructed the General Staff to plan for war with tactical nuclear weapons even though the General Staff understood that those weapons had little military utility in combat operations.²⁰³

TR-6, November 1992), suggests that Soviet lethality overpressures might be much lower than lethality overpressures under U.S. direct blast criteria (p. 28) and that injury from direct blast occurs at much lower overpressures under Soviet criteria than under U.S. criteria (p. 1).

²⁰⁰ Tsygichko, December 17, 1990, *Part II*, p. 293.

²⁰¹ Gareev, June 20, 1993, *Part II*, p. 208.

²⁰² Tsygichko, December 17, 1990, p. 293.

²⁰³ Tsygichko, *Soviet Use of Mathematical Methods To Support Strategic Decision Making: A Model of Strategic Operations in Continental Theaters of Military Action*, translated and edited by Matthew Partan, unpublished manuscript, January 1993.

The Soviet Union never prepared in any detail for extended combat on a nuclear battlefield, Tsygichko stated.²⁰⁴ The General Staff did not conduct any actual planning beyond an initial exchange of nuclear strikes on a tactical/operational scale. Nor did the General Staff have a plan for a massive response to a limited strike by NATO tactical nuclear weapons against a Warsaw Pact member country.²⁰⁵ Tsygichko explained that the Soviet buildup of theater nuclear forces in Europe during the late 1970s and early 1980s was intended, in large part, to reduce the probability of NATO's first use and thereby to keep the war conventional, so that outcomes would be relatively more predictable and the USSR might enjoy an advantage.²⁰⁶

The Voroshilov lectures and testimony of Soviet officers corroborate Tsygichko's assertion that the Soviet Union did not intend to initiate escalation to nuclear use nor to strategic nuclear use from theater use. The lectures make clear that if NATO turned to limited use of nuclear weapons in the European theater, Soviet forces would respond in kind. The USSR would not initiate escalation beyond the theater.²⁰⁷ If NATO launched a conventional attack that put Soviet silos or tactical nuclear weapons in danger of being overrun, the USSR would, as standard operating procedure, destroy them rather than use them.²⁰⁸

The General Staff's deep pessimism regarding the utility of nuclear weapons in theater-strategic operations encouraged strategists inside the Main Operations Directorate to refine existing operational concepts and develop new concepts of structuring conventional forces that would allow them to be used to maximum effect. By the late 1970s, the General Staff saw a possibility for war in Europe to begin with a long conventional phase, and in the early 1980s, for an entire war to remain conventional, without escalation to nuclear use.²⁰⁹ This change in strategy, characterized on the "new periodization of war," also was encouraged by changes during the 1960s and early 1970s in the balance of forces, both conventional and nuclear, in favor of the Warsaw Pact. As a result of Soviet tactical nuclear weapons deployments, the deployment of the intermediate-range SS-20, and the Soviet achievement of strategic parity, NATO lost escalation dominance in Europe and seemed to grow more cautious about nuclear weapons, in the General Staff's

²⁰⁴ Tsygichko, December 21 and 23, 1991, *Part II*, p. 311.

²⁰⁵ *Ibid.*, December 20, 1990, *Part II*, p. 296.

²⁰⁶ *Ibid.*, December 21 and 23, 1991, *Part II*, p. 311.

²⁰⁷ Garthoff, "Introduction: U.S. Considerations of Soviet Military Thinking," *The Voroshilov Lectures, Vol. I*, p. 14.

²⁰⁸ Korobushin, December 10, 1992, *Part II*, p. 248.

²⁰⁹ Danilevich, December 18, 1990, *Part II*, p. 142.

view.²¹⁰ Also during this period, the Soviet bloc increased its superiority in numbers, lethality and mobility of its conventional weapons systems. The military leadership believed that conventional superiority provided the Warsaw Pact with the means to approximate the effects of nuclear weapons and achieve victory in Europe without resort to those weapons,²¹¹ and therefore, that the burden of initiating nuclear use would lie with NATO.²¹²

The Soviet strategy for keeping a strategic offensive in Europe at the conventional level and winning it, known as the Strategy of Deep Operations (*Strategiia Glubokikh Operatsii*), was encapsulated in a three-volume work, which carried the power of a directive (*nastavlenie*), produced inside the Main Operations Directorate of the General Staff, under the direction of Danilevich.²¹³ This strategy, developed in the late 1970s and refined in the early 1980s, foresaw an offensive all the way to the Rhine using only conventional forces.²¹⁴ Quick success was critical to the Soviet plan. Warsaw Pact forces had to achieve decisive breakthroughs against NATO forces and come into possession of the bulk of NATO's tactical nuclear weapons in the first few days of the offensive, before NATO could overcome initial confusion and expected political rifts and come to an agreement on nuclear release. The Soviets needed to deliver a knockout blow to NATO before reinforcements could arrive in sufficient numbers from the U.S. Decisive success was also necessary because the Soviets expected to lose up to half their tanks, outrun their logistics support, and exhaust their forces in the initial push. Some optimistic assessments expected this initial operation to take five to seven days and carry the Soviets some 500 km.²¹⁵

The interviewees' views regarding escalation and the role of nuclear weapons support the picture of Soviet strategy that emerged in Soviet military journals in the mid-to late 1970s and early 1980s. The Soviets expected to be able to achieve the initial breakthrough and to maintain high rates of advance by employing several independent but coordinated strategic operations. A conventional strategic air operation would serve as a substitute for a mass nuclear strike against NATO air defenses, airfields, nuclear storage facilities and key command and control points. It would be carried out using a combination of conventionally armed missiles, aircraft

²¹⁰ Ibid., p. 143.

²¹¹ Kalashnikov, April 1993, *Part II*, p. 227; and Danilevich, December 18, 1990, *Part II*, p. 141.

²¹² Korobushin, December 10, 1992, *Part II*, p. 246; and Turbiville, *The Voroshilov Lectures, Vol. I*, pp. 245-247, 258.

²¹³ Batenin, August 6, 1993, *Part II*, p. 120.

²¹⁴ Danilevich, December 13, 1992, *Part II*, p. 186.

²¹⁵ Batenin, August 6, 1993, *Part II*, p. 120.

and air assault troops. Using air and air defense formations, the Soviets would then conduct a strategic anti-air operation in the attempt to suppress surviving NATO air assets and gain freedom of movement for the troops on the ground. The main forces then would use mobility, high concentration and precise coordination of conventional fire strikes to approximate the effect of battlefield nuclear weapons along localized regions of the Forward Edge of the Battle Area (FEBA). High-speed, combined armored and airborne groupings (*operativnyye manevrennyye gruppy* - OMGs) would then exploit the gaps in NATO's forward defenses and advance quickly into the rear areas to disrupt C³I, destroy critical targets and defending units, and facilitate the advance of the main second echelon forces. The precise coordination of all combat activities could be achieved, because Soviet forces integrated ground, air and fire support units under a single command structure for specific tasks.²¹⁶

The Warsaw Pact's conventional strategy against NATO was facilitated greatly by the deployment in the late 1970s of the SS-20 intermediate-range missiles in the Western USSR. According to Batenin, the SS-20's very low vulnerability, high accuracy and great range created an umbrella under the cover of which it was possible to contemplate deep conventional operations into Western Europe.²¹⁷ The intermediate-range missiles gave the Soviets escalation dominance in the European Theater of Operations, which they hoped would deter NATO from escalating to nuclear use during the first chaotic days of the war. According to Batenin, by spring of 1987 all of the various elements of the strategy of deep operations, including the operational concepts, training and exercises, and the conventional and nuclear force structures, were in place.²¹⁸ In December of that year, however, Gorbachev signed the INF treaty, eliminating the SS-20—the key element in the General Staff's strategy.²¹⁹

Top U.S. government officials and analysts were correct to observe that the Soviet Union had no intention of employing nuclear weapons first. In fact, the USSR wanted to prolong as much as possible the conventional phase of a major conflict. A few analysts misjudged Soviet intentions, claiming that Soviet forces were poised and may even have preferred to initiate nuclear use.

²¹⁶ Gen.-Col. Makhmut A. Gareev, *The Cold War and the Arms Race.*, unpublished manuscript, April 1993.

²¹⁷ Batenin, August 6, 1993, *Part II*, p. 122.

²¹⁸ *Ibid.*, p. 122.

²¹⁹ *Ibid.*, p. 122.

U.S. assessments of the Soviet attitude toward initiation of escalation were, for the most part, accurate. They generally discounted the probability of Soviet escalation of theater nuclear exchanges, and in fact, the General Staff did not plan to escalate, because it understood the use of relatively few nuclear weapons would cause sufficient damage to bring combat operations to a halt. The General Staff did, however, anticipate NATO escalation forced by impending conventional defeat, escalation that they would attempt to detect and preempt in order to reduce losses and limit damage. They hoped that deployment of the SS-20 would inhibit NATO escalation but were very pessimistic about control of escalation once nuclear use had been initiated.

V. FACTORS IN SOVIET FORCE BUILDING AND STRATEGIC DECISION MAKING

The literature review by Stephen Meyer presented a wide range of explanations for Soviet force building.²²⁰ Most Soviet specialists either argued that Soviet weapons acquisitions were designed to fulfill specific military missions or attributed the USSR's procurement processes to interest group politics. Among the proponents of interest group models, some emphasized the consensus among the political leadership, the Armed Forces, and the defense industry.²²¹ According to this interpretation, the predisposition of the Brezhnev Politburo converged with military doctrine, and a mutual accommodation was struck between the Party and the military whereby the military was granted most of its strategic program requests.²²² Other experts on Soviet institutions explained the USSR's arms buildup as the result of risk aversion, particularly of the Soviet tendencies to introduce technological innovations in small increments and to produce several different types of weapons, such as ICBM models, in the same generation in order to keep competing design bureaus in business.²²³

In trying to understand Soviet strategy and force structure, U.S. leaders and analysts have tended to focus, with little success, on the personalities of the top leadership of the Soviet system and to have given even less attention to officials at the ministry level and below.²²⁴ This was, in great part, a function of Soviet secrecy, whereby the details of the lives, roles and relative influence of various actors in the areas of military policy and state security have been closely held.²²⁵ Differences that had been observed among leaders and organizations often were discounted based on the overriding assumption that the governing Soviet system was essentially monolithic and that all apparent personal and institutional differences represented Western misunderstanding based on misguided mirror imaging of the democratic political

²²⁰ Meyer, "Soviet National Security Decisionmaking," pp. 261-268.

²²¹ Meyer, "Soviet National Security Decisionmaking," pp. 262-263.

²²² Lambeth, *How to Think About Soviet Military Doctrine*, p. 18.

²²³ Meyer, "Soviet National Security Decisionmaking," pp. 263-264.

²²⁴ See, for example, Jerry Hough, "Soviet Succession: Issues and Personalities," *Problems of Communism*, Vol. 31, No. 5 (September-October, 1982), pp. 20-40; and Victor Wolfenstein, *The Revolutionary Personality: Lenin, Trotsky, Ghandi* (Princeton, N.J.: Princeton University Press, 1967).

²²⁵ Dale Herspring attempted to understand, based primarily on writings, the influence of senior military leaders on Soviet strategy and security policy. See Dale R. Herspring, *The Soviet High Command, 1967-1989*. (Princeton, N.J.: Princeton University Press, 1990).

process or deception on the part of the Communist Party.²²⁶ Such views were held, both inside and outside the U.S. government, by those who believed that ideology was the defining, if not exclusive, factor explaining individual and institutional behavior in the USSR.

Excessive concern by some Western analysts with Communist ideological declarations, most of them widely ignored, shop-worn platitudes generated by the Soviet propaganda machine for internal consumption, tended to obscure the underlying reality. In authoritarian, hierarchical systems (Communist or otherwise) characterized by long periods of unchallenged incumbency in key leadership positions, organizations tend to develop and defend deeply entrenched positions. At the same time, the *de facto* directors-for-life of these highly structured bureaucracies comprising the governing Soviet *apparatus* were able to exert tremendous influence downward through their subordinate substructures and laterally on their peers, depending upon the power they could derive from their respective organizations. Constraints on their authority had to be imposed by their common leader, should he be able and willing to exert authority, and by their peers, should they have the collective will and stature to do so.

Soviet sources indicate that, under Brezhnev, the top layer of Soviet leadership, and especially Brezhnev himself, was largely incompetent, indecisive, self-indulgent and lazy. Such weakness and virtual indifference to the business of governing at the top helped to create conditions in which the massive Soviet state, with its stagnating economy and compliant society, drifted heavily and dangerously for decades, plodding with slow, powerful momentum in whatever direction compromises among powerful organizational and bureaucratic interests might take it. Under these conditions, willful officers, officials and technocrats with large captive organizational and institutional constituencies, working largely out of sight of

²²⁶ For example, William and Harriet Scott long insisted that there never were any serious differences between the military and the Party and that the Party *nomenklatura* system, which included top military leaders, commanded a loyalty that always transcended that to any other institutional affiliation. It is instructive that the Scotts identified three traditional power groups within the Soviet leadership: the Communist Party apparatus, the security-intelligence community (KGB, MVD), and "the military." The military industrialists, unquestionably the most powerful (and definitely non-military) group within the Soviet ruling class under Brezhnev, were not identified as a group separate from "the military." As we discussed earlier, the industrialists, in fact, had serious and persistent differences with the "operational," uniformed military, especially the General Staff. The military wanted a mix and quantity of weapons that supported the General Staff's operational strategy, weapons that embodied the most advanced technologies with which to counter a technologically advanced Western enemy. The industrialists wanted, above all, to produce and deliver as many weapons as possible, embodying "safe" (if obsolescent) technologies, the application of which would cause as few as possible interruptions in production. See Harriet Fast Scott and William F. Scott, *Soviet Military Doctrine: Continuity, Formulation, and Dissemination* (Boulder, Colorado: Westview Press, 1988), pp. 166-168.

Western observers, were able to exert tremendous influence on Soviet foreign and domestic policy and behavior. In the areas of military strategy and force development, the absence of firm direction from above led to the emergence and persistence of contradictory strategic postures and policies. For example, stated policy (even for internal consumption) often co-existed with contradictory planning and preparation in several areas, the most noteworthy being a policy of no-first-use of nuclear weapons (a deterrence posture) and preparation for preemption (primarily a “warfighting” posture). Not surprisingly, there also developed serious inconsistencies between strategy and the force structure created to implement it, leading to a severely overburdened Soviet economy and confusion among Western leaders trying to interpret and respond to Soviet actions.

It is probable that Brezhnev gained and held his position at the top of the post-Stalinist governing oligarchy *because* of his indecisiveness and almost obsessive concern with consensus—traits that made him accommodating and acceptable to the ruling collective of Stalinist-era aging technocrats whose objective was to satisfy their need for security, influence and, above all, stability.²²⁷ The collective never really gave up control to him nor to anyone else. The business of the state was dragged along in the wake of deals and favors traded among the ruling oligarchs whose ultimately destructive behavior was unquestioned by a Soviet citizenry trained under Stalin and the Tsars to follow blindly.

A. Ineffectual Political Leadership

The clearest picture to emerge of Brezhnev’s inattention and ineffectiveness and the impact of his incompetence on the governance of the Soviet state is to be found in a surprisingly revealing book by two highly placed officials from Brezhnev’s own state security apparatus. In the book, *Through the Eyes of a Marshal and a Diplomat*, Marshal of the Soviet Union Sergei Akhromeev, former Chief of the Soviet General Staff, and Gregorii Kornienko, former First Deputy Minister of Foreign Affairs,

²²⁷ Georgi Arbatov, Director of the U.S.A and Canada Institute, and a Kremlin “insider”, at least in the area of foreign affairs, supports this interpretation of the collective nature of post - Khrushchev Soviet leadership, built around the weak, central character of Brezhnev. Arbatov observed that, “Brezhnev was regarded by the majority of people in the Central Committee apparat and among the leadership as a weak figure and, by many, a temporary one. The possibility cannot be excluded that this was what united the members of the coup [against Khrushchev] in support of Brezhnev as first secretary of the Central Committee. There were several precedents for this in the past when there was no universally accepted heir to the throne and the leadership was strongly contested. In such cases, there always was a temptation to find someone whom others thought was weak.” Georgi A. Arbatov, *The System, An Insider’s Life in Soviet Politics*, (New York: Times Book, English Translation, 1992), p. 118.

describe, in some detail, the ineptitude and mental incapacitation of Brezhnev beginning in the early to mid-1970s and the non-performance of his Politburo in the 1970s and early 1980s.²²⁸

Kornienko reported that Brezhnev's health deteriorated badly in the early 1970s and that the last time he was able to represent the USSR as head of delegation "in more or less working form" was at the summit with President Gerald Ford in Vladivostok in 1974. Brezhnev subsequently degenerated into such a state of mental incompetence that "he could no longer carry on a substantive conversation," and was able to make public presentations only by reading from a text prepared by his staff. To the great embarrassment of his own ministers and staff he would, oblivious to his surroundings, comment loudly and rudely on "inappropriate subjects," including the presentation and responses of foreign heads of delegation in the presence of the foreign officials themselves, most of whom understood Russian.²²⁹ By 1975, the General Secretary was no longer mentally competent.

Marshal Akhromeev stated unequivocally, several times, that Brezhnev *totally ceased to work* and function beginning in 1976, the year in which the General Secretary experienced a massive heart attack. The Marshal complained emphatically that "for six years," until his death in 1982, Brezhnev chaired the Politburo but did not in any way lead it. He had fallen into a state of total "inactivity," creating a situation in which, "the General Secretary of the Central Committee of the CPSU in fact did nothing to unify or coordinate the work" of the Politburo, the governing body of the Communist Party and the Soviet state.²³⁰

Both Akhromeev and Kornienko expressed considerable, apparently deeply felt, anger that the USSR was so badly led for such a long and critical period of its history. Their anger, perhaps misguided, was directed, to some extent, at Brezhnev himself. The most searing condemnation, especially on the part of Akhromeev, was reserved for the Communist Party, for failing to rectify such a harmful and dangerous situation when it first became apparent. Having pledged his loyalty to the Party, Akhromeev acknowledged that he was not blind to its shortcomings. "It was shameful," he declared, "both for the sake of the individual [Brezhnev] and for

²²⁸ Sergei F. Akhromeev and Gregarii M. Kornienko, *Through the eyes of a Marshal and a Diplomat (Glazami marshala i diplomata)*, (Moscow, in Russian: *Mezhdunarodnye Otnosheniia*, 1992, hereinafter *Marshal and Diplomat*). Kornienko oversaw publication of the manuscript after his co-author committed suicide in August, 1991. The fact of Brezhnev's seriously failing health dating from 1974 is explicitly confirmed by George Arbatov in a book he published in 1991. See Georgi A. Arbatov, *The System, An Insider's Life in Soviet Politics*. New York, Times Books, English Translation 1992), pp. 191-195.

²²⁹ *Ibid.*, pp. 39, 40.

his comrades, that they [the Party leaders] tolerated a General Secretary such as Brezhnev, who did nothing and who permitted such deception and corruption.”²³¹

The comments of Kornienko and Akhromeev raise several questions about leadership of the Soviet state in the 1970s and early 1980s. Among the most relevant to this study: How did the leadership function at all without direction from the General Secretary? Why did the Politburo or Central Committee not rectify the situation by replacing Brezhnev? Most important, given that the Party leadership did not act, what were the consequences for national decision making, strategy and military force structure?

The most direct answer to the question concerning how the leadership could function without a General Secretary is that, essentially, it did not. The Politburo was unable to serve as an effective governing organ for the CPSU and the Soviet state. In separate descriptions, Kornienko and Akhromeev characterized the Politburo as a collective of doting, ineffectual sycophants. Akhromeev observed that when Brezhnev stopped working in 1976, so did the Politburo. Stating that he frequently attended Politburo meetings during the last two years of Brezhnev's tenure, he observed that, “It was a bitter and insulting experience to watch as the [Politburo] members, for the most part senile people who had lost their capacity to work, devoted an hour and a half not to adopting but rather to rubber-stamping solutions to some of the most important issues in the lives of the people completely without substantive analysis or consideration.”²³² Kornienko commented independently that it was “always personally torturous” to observe the Brezhnev Politburo in session, as was often his misfortune especially beginning in 1977. He complained that, “The longer the meetings, the more painful it was to watch in that so many economic and other issues were decided incompetently and often just not seriously, while a great deal of time was devoted to compliments to the chairman and, in general, to idle gossip.”²³³

²³⁰ Ibid., pp. 15, 23, 31, 32.

²³¹ Ibid., pp. 31.

²³² Ibid., p. 32.

²³³ Ibid., p. 39.

B. Struggles Among the Princes

1. *Personalities*

Because the Politburo, in the absence of a functioning General Secretary, was unable to govern the Party or the state, real power, by default, devolved downward to various Party secretaries and state officials, each working independently or in issue-specific alliances with other functionaries to produce decisions for “rubber-stamping” by the senile old men at the top. After Brezhnev’s 1976 heart attack, there emerged a group of leaders, each member of which was responsible to the Politburo for a specific area of work. A. A. Gromyko, D. F. Ustinov and Iu. V. Andropov were responsible for foreign policy, defense readiness and law and order; A. N. Kosygin and K. T. Mazurov for the economy; and M. A. Suslov, B. N. Ponomarev and M. V. Zimianin for the party and ideology.²³⁴ In this division of labor, not all groups enjoyed the same level of delegated (or surrendered) authority. For example, Kosygin, according to Akhromeev, was constantly subjected to interference from the bumbling and manipulated Brezhnev in the area of economic reform—to the great detriment of the Soviet state.²³⁵ The state security and defense group (Andropov, Gromyko, Ustinov) in contrast, rarely faced opposition and their recommendations, with very few exceptions, were accepted by the full Politburo without amendment.

Various Soviet sources, some slightly contradictory, most mutually supportive, provided other useful insights into how defense-related issues were resolved in the absence of competent guidance from the General Secretary. First, the group that exercised dominant influence in the area of defense and security varied slightly in size and composition depending upon the nature of the questions under consideration. More important, in all manifestations of the core defense issues group, certain personalities such as Grechko and, above all, Ustinov, emerge as giants who overshadowed other personalities and largely drove the decision-making process. Second, on issues of military doctrine, strategy and force posture, Brezhnev himself was very dependent and, as his health declined, perhaps totally dependent upon an academician, President of the Academy of Sciences, Mstislav V. Keldysh, whose name had been rarely, if ever, mentioned in Western discussions of Soviet defense decision making. The professor’s role as the deteriorating General Secretary’s surrogate brain in the area of defense strategy was, apparently, well understood within the inner circles of the Soviet leadership, whose members

²³⁴ Ibid., p. 15.

accorded him respect commensurate with his influence as well as an important place at the table during key security deliberations.²³⁶

2. *De Facto and DeJure Decision Makers*

While groups of leaders emerged to fill the vacuum left by Brezhnev's incapacitation, certain individuals were more prepared and more effective in exploiting the resultant lack of formal structure at the top, as well as the profound need of most Soviet *apparatchiki* to be led. Certain individuals stand out in this process for different reasons. Marshal Grechko (Minister of Defense, 1967-1976), essentially a field soldier and in every sense a holdover from a simpler time, embodied the most conservative attitudes of the aging uniformed military leadership. For him, nuclear missiles were, above all, military weapons, and he resisted, with considerable effect, attempts by those who thought otherwise to change Soviet strategy and force structure to fit some other, more complex paradigm. Arrayed against Grechko were two capable, very powerful people who ultimately prevailed, in part at least, because they outlived him. (Even though overruled, many of Grechko's ideas lived on in the minds and hearts of the operational military well into the 1980s.) Professor Mstislav Keldysh, mathematician, mechanical engineer, and president of the Soviet Academy of Sciences, worked for survivability and against nuclear arms racing, because he thought the latter to be wasteful, self-destructive, and unrealistic. His opinion mattered because of the tremendous influence he exerted over the apparently dim-witted and ailing Brezhnev and the clever and powerful Ustinov. Ustinov, in turn, formed alliances with everyone, including his enemies such as Grechko with whom he shared a desire to build a large arsenal of weapons for reasons that had little to do with the military defense of the Soviet state. As will be discussed, Ustinov's

²³⁵ Ibid., pp. 15-16.

²³⁶ Former Deputy Foreign Minister Gregorii M. Kornienko credited Keldysh, through his influence on Brezhnev and Ustinov, with virtually single-handedly putting a stop to Soviet plans to go into competition with the United States to deploy a large-scale ABM system. Kornienko went so far as to assert that, even in the 1970-1972 period, before Brezhnev's health began to seriously deteriorate, the General Secretary, "accepted as truth whatever Keldysh said, to the extent that, until the end, [Brezhnev] had not broken through to any understanding of the substance of such issues. This was for him by that time material too difficult to grasp." *Marshal and Diplomat*, pp. 40, 41. In a separate discussion, Gen.-Col. Illarionov, a special assistant for 24 years to Marshall Ustinov, stated that, "Keldysh played the most important part," at the July 1969 extraordinary meeting of the Defense Council where Keldysh and Ustinov composed what was "practically a military doctrine for the country." The new doctrine endorsed survivability as an objective to be pursued in the interest of creating a secure retaliatory capability in order to deter the United States from initiating a first strike. See interview with Gen.-Col. Illarionov, April 1993 summary. A further indication of Professor Keldysh's stature in national security decision making was his membership on the "Politburo Commission" formed in the 1970s to discuss and resolve U.S.-Soviet arms control issues at the highest levels. The other members of the Commission included Ustinov, Grechko, Smirnov, Gromyko and Andropov—all

preoccupation with production over strategy ultimately led him to oppose and then remove in 1984 his aggressive, intelligent Chief of the General Staff, Marshal Nikolai Ogarkov. How these personalities interacted to help formulate the strategy and force structure of the USSR deserves closer examination.

Marshal Andrei Antonovich Grechko, Minister of Defense from 1967 to 1976, emerges from the research in stark, bold colors. Very much a combat commander, a cavalry officer, of the era of the Great Patriotic War, Grechko's thinking about strategy and weapons was simple and forceful. More weapons are better than fewer; excessive dependence on any given type of weapon is very dangerous; and any strategy that relies on any factor other than overwhelming power used massively and preemptively is misguided. By strength of his ministerial positions, his personality (especially his simplistic single-mindedness) and his bureaucratic allies, Marshal Grechko was able to stalemate, postpone or ignore numerous decisions proposed or taken in the 1960s and 1970s by the Ustinov-dominated defense policy group described above.

Grechko's very simple approach to strategy and preparation for war led him to advocate consistently the need to be prepared to destroy preemptively the enemy's nuclear arsenal and control systems to minimize the latter's ability to inflict damage on the USSR.²³⁷ Any strategy that assumed the Soviets would ride out and retaliate or launch under nuclear attack was to be strongly opposed: first, because it was inconsistent with the basic objective of preserving the Soviet state; and second, because such a strategy imposed difficult if not impossible requirements on Soviet missile forces and associated control systems in terms of survivability and control responsiveness. Consistent with this view, Grechko strongly opposed investment in survivability measures such as silo hardening and mobile missile launch platforms,²³⁸ apparently because such measures took resources from the building of still greater *numbers* of missiles and warheads to cover *all* important enemy targets (the only force building posture that makes sense in an essentially pure, first-strike strategy).

Most important, perhaps, investment in survivability promoted the kind of cautious, non-provocative mindset that led to the horrible events following Hitler's

of the key Politburo members on national security issues except for Brezhnev himself. Keldysh in effect, sat in for the General Secretary on such questions. See *Marshal and Diplomat*, p. 37.

²³⁷ Mozzhorin, April 1993, *Part II*, p. 268.

²³⁸ Illarionov, June 23, 1994, *Part II*, p. 220.

attack on the Soviet Union in June of 1941.²³⁹ Predictably, Grechko generally opposed arms control measures, probably because they never would produce the asymmetrical Soviet advantages that would satisfy his sense of security against U.S. technological superiority. More important, perhaps, successful arms reduction agreements would tend to strengthen the position of advocates for limiting production and deployment of armaments—something to be opposed at all costs.

Finally, in both external and, more significantly, internal audiences, Grechko was the most outspoken opponent of any compromise of the Soviet declaratory position that *any* nuclear use against the USSR, its forces or allies would result in a massive nuclear response from the USSR. As Gen. Danilevich explained Grechko's position, "He rejected all variants for limited use of nuclear weapons, and asserted that we would respond to any use, in any geographic region, even if only tactical nuclear weapons, with a full-scale use of our nuclear potential, both strategic and tactical."²⁴⁰

It is not surprising that an officer of Grechko's background and wartime experience held such extreme views. It is important to note, however, that he was able, for several years, both to dilute decisions and to reverse or postpone implementation of weapons and infrastructure programs that contradicted his position, even though such initiatives were supported by the Politburo.

A number of Soviet sources reported that defense and security issues typically were decided by a Politburo group slightly larger than the "troika" of Gromyko, Ustinov and Andropov identified above. The composition of the core group varied slightly depending upon whether the issues under consideration related to specific weapons programs or to broader questions of strategy and policy. Sources from the Central Committee Defense-Industrial Department commented that a formal "structure" for political-military decision making *did not exist* but that real power in this area belonged to the "*piaterka*," (the five), comprising for most of the 1970s and early 1980s: Marshal Dimitri Ustinov (the informal chairman and dominant force) in his capacity as Secretary of the Central Committee for Defense Industry and, beginning in 1977, also as Minister of Defense; Andrei Gromyko, Minister of Foreign Affairs; L. V. Smirnov, Chairman of the State Military Industrial Commission (VPK); Iurii Andropov, Chairman of the State Security Committee (KGB); and Leonid Brezhnev, the General Secretary. While Brezhnev tended *not* to

²³⁹ Mozhhorin, April 1993, *Part II*, p. 267.

²⁴⁰ Danilevich, September 24, 1992, *Part II*, p. 164.

contribute in a substantive or constructive fashion, the General Secretary's position often was represented by his strategist-surrogate, Keldysh, regardless of whether Brezhnev was physically present.²⁴¹ The membership of "the five" is virtually identical to that of a special group, called the "Politburo Commission," formed in the early 1970s to support Soviet-U.S. arms control negotiations.²⁴² The few differences are instructive. "The Politburo Commission" included: Ustinov, the commission chairman; Grechko, then Minister of Defense; Andropov, Smirnov, Gromyko, and Professor Keldysh. "The five" was then six, because Ustinov, Central Committee Secretary for Defense Industry, had not yet added control of the Defense Ministry to his portfolio, something which occurred in 1976 upon Grechko's death. Second, it is noteworthy that even though two ministers, Grechko and Gromyko, and the chairmen of the powerful VPK and KGB were on the commission, Dmitri Ustinov, neither minister nor state committee chairman, was at the helm of the core defense-policy decision-making group for resolution of arms control and related issues. Finally, Brezhnev himself was not even on the commission, his place, in effect, entrusted to Professor Keldysh.

A second group with a similar name but responsible for oversight of missile technology development and production shared members with "the five" and the arms-control "Politburo Commission." The collective, literally "the commission subordinated to the Politburo" (*Kommissiia pri Politburo*), formed in the late 1960s, was officially chaired by Brezhnev. His deputy chairman on the commission was Dmitri Ustinov. The members included Minister of Defense Grechko; Vasilii M. Riabikov, Deputy Director of Gosplan for Defense; all of the ministers of defense-related industries (at least nine); and general designers and members of the Academy of Sciences from the various institutes involved in work for the defense industries.²⁴³ This commission served as a *de facto* political-military-industrial review committee, led by the most senior members of the Soviet Defense Council and composed of leaders of the industries and institutes over which they were to exercise oversight. As a Central Committee insider reported on the process, the decisions of the commission "were passed on for *pro forma* approval by the Defense Council, but were never amended by it. Issues were always debated in the commission and decisions made by a few individuals."²⁴⁴ In Western parlance, the

²⁴¹ Illarionov, April 1993, *Part II*, p. 217.

²⁴² Kataev, June 23, 1993, *Part II*, p. 237; and Summary of Narrative from Boris A. Strogonov, formerly of the Central Committee Defense Industrial Department, March 1993, *Part II*, p. 281.

²⁴³ Strogonov, March 1993, *Part II*, p. 282.

²⁴⁴ *Ibid.*, p. 282.

commission constituted a missile industry lobby in which the petitioners and government decision makers were on the same team.

Soviet testimony on political-military and military-industrial decision making reinforces the earlier observation *that no formal defense decision-making mechanism was operating in the Brezhnev era*. Soviet interview respondents, nevertheless, referred regularly to the “Defense Council” (*Sovet Oborny*), a state organization with formal authority to evaluate and make judgments on defense issues.²⁴⁵ The Council met approximately three times a year.²⁴⁶ Its membership included at its core “The Five”: General Secretary Brezhnev, Minister of Defense and Central Committee Secretary for Defense Ustinov, KGB Chief Andropov, Foreign Minister Gromyko, Military-Industrial Commission (VPK) Chairman Smirnov, (and until his death in 1976, then Defense Minister Grechko). The basic membership of the Council, “8 to 10 people,” also included the Minister of Internal Affairs and the Chief of the General Staff, the Chairman of the Council of Ministers (Kosygin for much of Brezhnev’s tenure) and “several major military industrialists.”²⁴⁷ It is worth noting that the Defense Council was the *only* defense decision-making group where the operational military was routinely represented by an operational uniformed officer, the Chief of the General Staff. (After Grechko’s death, Ustinov, a life-long civilian military industrialist, was the only member of “the five” to represent the military, even though, as Gen. Gareev commented, he was far from being an Army person.²⁴⁸ Akhromeev matter-of-factly observed that, in 1976, “a civilian became defense minister.”)²⁴⁹ The Defense Council, in other words, was *not* a *military* decision-making body. Until 1976, only two of its approximately 10 members were truly military; after 1976, only one. The chiefs of the five services, for example, did *not* normally sit on the Council. Even when the Defense Council’s membership was expanded to support evaluation of special questions as occurred in June of 1969 when “50-60 people” participated, “top ranking military men” were invited, but they were far outnumbered by ministers of the branches of defense industry (at least nine), “. . . general and chief designers (no fewer than six), heads of the Central Committee and Council of Ministers

²⁴⁵ Danilevich, September 24, 1992, *Part II*, p. 181.

²⁴⁶ Kravets, June 22, 1993, *Part II*, p. 250.

²⁴⁷ Tsygichko, December 21 and 23, 1991, *Part II*, p. 306.

²⁴⁸ Gareev, *The Cold War and the Arms Race.*, unpublished manuscript, April 1993

²⁴⁹ Akhromeev, *Marshal and Diplomat*.

apparatuses (possibly 20), and academicians from the Academies of Science of the USSR and the Ukrainian SSR.”²⁵⁰

The General Staff then had a seat at the table in military policy making and force development only in the Defense Council, which, if some Soviet sources are to be believed, was simply a “rubber-stamping” military-political manifestation of the “rubber stamping” Party Politburo. The issues were worked out and the real decisions taken long before they reached the Council itself.²⁵¹ In the June of 1969 meeting of the expanded Defense Council, Brezhnev was very disturbed that Grechko and Ustinov brought an issue to the Defense Council session (survivable missiles versus larger numbers of missiles) that had *not* been resolved in advance.²⁵²

The real function of the Defense Council was essentially to advance and protect the interests of the military industrialists at the highest levels of the state and party leadership. A former director from the Aviation Ministry (and hence himself a military industrialist) expressed his conviction that the Defense Council was, in fact, “an instrument of the VPK [the Military-Industrial Commission of which Smirnov was Chairman].”²⁵³ A senior analyst and department head in the principal analytical institute for the General Staff Main Intelligence Directorate (GRU) observed that American analysts generally underestimated the military-industrial department of the Communist Party Central Committee, which, in his experience, “functioned as the *de facto* sitting Defense Council, setting military policy (*voennaia politika*)—which governed military doctrine and force development—and supported the formal Defense Council....” Conversely, he believes that U.S. analysts generally overestimated the influence of the General Staff in military planning and force development.²⁵⁴

C. Rule of the Industrialists

Soviet sources emphasized the power of the defense industry, particularly in the late 1970s and early 1980s, in determining weapons acquisitions. They affirmed the view that the Ministry of Defense (MoD), and in particular the General Staff,

²⁵⁰ Illarionov, April, 1993, *Part II*, p. 215.

²⁵¹ Strogonov, March 1993, *Part II*, p. 282.

²⁵² Illarionov, April 1993, *Part II*, p. 216

²⁵³ Interview with Vladimir Rubanov, May 6, 1991, *Part II*, p. 273. Rubanov was an official in the Aviation Ministry.

²⁵⁴ Tsygichko, December 21 and 23, 1991, *Part II*, p. 307.

exerted relatively little control over the R&D and production processes.²⁵⁵ The Military-Industrial Commission (VPK), in contrast, dominated the Defense Council²⁵⁶ and virtually dictated the types and numbers of weapons that the MoD and the armed services would receive.²⁵⁷ The Central Committee relied heavily on the VPK for technical expertise. The VPK conducted preliminary studies on weapon systems and coordinated military production.²⁵⁸ It prepared for decisions on weapons development and procurement by the Council of Ministers, playing a substantial role in directing new R&D efforts,²⁵⁹ and defined what weapon systems and quantities of equipment were required and which production facilities would manufacture them.²⁶⁰

Promotion of the VPK's interests, in a series of cases, became an end in itself, Gareev remarked.²⁶¹ Other former Soviet officials complained that as a result of VPK influence, obsolete weapons systems, including many obsolete missile systems, were kept in production and development of advanced systems was retarded.²⁶² Soviet force building promoted production stability instead of innovation or fulfillment of the General Staff's operational requirements.²⁶³

Industrialists shaped decisions on weapons procurement primarily through the Defense Industry Department of the Central Committee. The Department comprised, according to Tsygichko, mainly defense industrialists, both chief designers and ministers responsible for arms production, and also political officers who served the Communist Party's interests inside the Armed Forces. A former senior official in the Central Committee Defense Industry Department, Vitalii Kataev, explained that the Department worked on the development of new weapon systems and organization of their series production. It had the largest say over decisions related to weapons procurement, and inside the Department, the interests of the defense industry carried more weight than those of the General Staff or the Ministry of Defense.²⁶⁴ The Defense Industry Department constantly aimed to

²⁵⁵ Interview with Col. Petr M. Lapunov, May 5, 1991, *Part II*, p. 261. Col. Lapunov was a Department Chief in the General Staff's Center for Operational and Strategic Research (TsOSI).

²⁵⁶ Rubanov, May 6, 1991, *Part II*, p. 273.

²⁵⁷ Batenin, August 6, 1993, *Part II*, p. 123; and Illarionov, June 23, 1993, *Part II*, p. 218.

²⁵⁸ Strogonov, April, 1993, *Part II*, p. 282.

²⁵⁹ Illarionov, April 1993, *Part II*, p. 214.

²⁶⁰ *Ibid.*, June 23, 1993, *Part II*, p. 218.

²⁶¹ Gareev, June 20, 1993, *Part II*, p. 210.

²⁶² Strogonov, March, 1993, *Part II*, p. 282.

²⁶³ Interview with General Staff Col. Petr Lapunov, May 5, 1991, *Part II*, p. 261. Col. Lapunov is director of a department for force analysis, Center for Operational-Strategic Research (TsOSI) of the Russian General Staff.

²⁶⁴ Interview with Vitalii L. Kataev, May 1993, *Part II*, p. 245.

increase the output of weapons factories. When Kataev brought evidence of waste to the attention of the Department's leadership, he was told not to concern himself with those matters.²⁶⁵

Soviet arms production became even more supply-driven after Ustinov was promoted to the position of Defense Minister. Prior to 1976, the General Staff Directorate for Armaments Orders (*Upravlenie zakazov*) played a central role in shaping weapon programs. It made recommendations on the basis of which the General Staff allocated funding to the services and placed orders for weapons. In 1976, with Ustinov's approval, the directorate was taken out of the General Staff and reconstituted as an independent directorate of the Ministry of Defense. The VPK was allocated funds directly, and the services thereafter appealed to the MoD or directly to the VPK for funding.²⁶⁶ Disagreements between the VPK and the General Staff were constant, but the VPK almost always won the decision.²⁶⁷

Senior General Staff officers complained bitterly of Ustinov's tendency as Defense Minister to side with the military-industrial complex against the Armed Forces.²⁶⁸ Danilevich recounted that Grechko resisted pressure from the defense-industrial sector to procure certain weapon systems before they were fully developed, or if they failed to meet specifications. Ustinov, in contrast, would scold industrialists but in the end would give in to them. During Ustinov's tenure as Defense Minister, Danilevich asserted, strategic objectives often were subordinated to, and built around, weapon systems.²⁶⁹

The defense-industrial sector used its political clout to deliver more weapons than the armed services asked for and even to build new weapon systems that the operational military did not want. Efim Liuboshits, an analyst with over 30 years experience in the Strategic Rocket Forces' main institute [NII-4], wrote in *Krasnaia Zvezda* that studies conducted in 1979 showed that the large number of missiles in storage exceeded by ten-fold the number required for alert duty. Stocks of missiles reached surplus levels, he continued, because additional missiles were delivered at the initiative of industry even though the Ministry of Defense had not placed orders for them.²⁷⁰

²⁶⁵ Ibid., p. 235.

²⁶⁶ Tsygichko, *Soviet Use of Mathematical Methods*.

²⁶⁷ Tsygichko, *Kommentarii k Interv'iu*.

²⁶⁸ Danilevich, September 21, 1992, *Part II*, p. 158; and Gareev, June 20, 1993, *Part II*, p. 210.

²⁶⁹ Danilevich, September 21, 1992, *Part II*, p. 159.

²⁷⁰ *Krasnaia zvezda*, July 9, 1991, translated in JPRS-UMA-91-022, August 21, 1991, p. 35.

In some instances, Kataev recounted, directors of production facilities approached Defense Minister Ustinov directly in an effort to sell their weapons. The Director of IuzhnoMash, Aleksandr Maksimovich Makarov, once visited Ustinov to ask him to take a few dozen more missiles. Ustinov replied, "What will we do with them, Aleksandr Maksimovich?" to which Makarov answered, "But if you don't, how will we feed the workers?" In the end, Ustinov took the missiles, even though the army did not really need them.²⁷¹ Kataev asserted that the ongoing efforts of defense plants to expand production generated large stockpiles of military equipment. There were at different times, for instance, up to 4, 5 and, in the case of particular systems, 8 nuclear basic loads (*boekomplekty*) of naval strategic missiles. Submarines carried approximately 0.7 nuclear basic loads, and 1.5 nuclear basic loads per submarine would have sufficed.²⁷²

The defense complex developed several new weapon systems for which there was little demand, as illustrated by two examples. First, construction of aircraft carriers was opposed by many General Staff officers.²⁷³ Second, the Defense Ministry under Grechko resisted the development of mobile ICBMs, which Ustinov was pressing for.²⁷⁴ The Iangel' design bureau in the early 1960s proposed development of mobile missiles as a response to the increasing accuracy of U.S. weapons. When the science committee of the Strategic Rocket Forces endorsed that proposal, Grechko disbanded the committee and stopped development of a rail-mobile missile complex.²⁷⁵

Retired Gen.-Lt. Nikolai Kravets, who worked for over 30 years on force design, systems acquisition, and testing and evaluation in the Strategic Rocket Forces, said that the Chelomei design bureau began to develop operational-tactical mobile missiles in 1964. Iangel' designed a longer range mobile missile that combined a liquid-fueled first stage with a solid-fueled second stage.²⁷⁶ He tested it in 1968 with terrible results—there was a massive explosion—and the program was canceled.²⁷⁷

²⁷¹ Kataev, May 1993, *Part II*, p. 234.

²⁷² *Ibid.*, p. 235.

²⁷³ Gareev, June 20, 1993, p. 209.

²⁷⁴ Strogonov, March 1993, *Part II*, p. 281; and Gareev, June 20, 1993, *Part II*, p. 209.

²⁷⁵ Kataev, May 1993, *Part II*, p. 236.

²⁷⁶ NATO never had a designation for either the Chelomei or the Iangel' mobile missiles because these programs were very closely guarded and were successfully concealed from NATO, claimed Gen.-Lt. Nikolai V. Kravets in his interview with the author on June 22, 1993, *Part II*, p. 251.

²⁷⁷ Illarionov, June 23, 1993, confirmed that the mobile ICBM program was canceled in 1968. See *Part II*, p. 219.

Another mobile ICBM program was initiated in 1968 as Soviet scientists improved their competence with solid fuel.²⁷⁸

The military tried unsuccessfully to reduce the number of different types of missiles. The Soviet Union had a much greater variety of missiles than it needed. Kravets complained that in the internal competition among various chief designers and industrialists, each designer and industrialist ultimately had his own way. After development and testing, all competing missile systems, usually two but sometimes more, were put into production and then deployed. As a consequence, the USSR fielded up to 12 types of ICBMs simultaneously.²⁷⁹

In order to avoid slighting design bureaus, Kataev explained, missiles of the same class that were developed by different design bureaus were put into series production simultaneously. The SRF at one time had 10 different missiles serving the same mission. Kataev characterized this process as a kind of *internal arms race* carried out inside the defense sector.²⁸⁰ Kalashnikov repeatedly proposed a reduction in the number of different types of missiles to two or three, but his proposal was rejected by Ustinov, who was concerned about the unemployment such a measure would generate.²⁸¹

When the Soviet leadership gathered in 1969 to choose whether to put the SS-17 into production or to build SS-19s, it ultimately produced both. Gen.-Col. Igor Illarionov, a personal assistant to Ustinov from 1965 to 1984, recalled that the task of developing a second-generation MIRVed ICBM to counter Minuteman II was assigned to two design bureaus—Chelomei and Iangel'. Both designs were completed and ready for production by mid-1969.²⁸²

Soviet leaders, Illarionov continued, were interested in reducing the time required to launch Soviet ICBMs. Defense Minister Grechko and chief designers in the late 1960s reached the conclusion that the USSR lacked the capability to release a retaliatory strike before incoming U.S. weapons had already detonated. At the same time, Brezhnev was intent on increasing the time available for discussion and

²⁷⁸ Kravets, June 22, 1993, *Part II*, p. 251.

²⁷⁹ *Ibid.*, p. 251.

²⁸⁰ Kataev, May 1993, *Part II*, p. 235.

²⁸¹ Kalashnikov, April, 1993, *Part II*, p. 230.

²⁸² Illarionov, June 23, 1993, *Part II*, p. 219.

decision making by the Politburo during a crisis, because he wanted to avoid taking personal responsibility for issuing a launch order.²⁸³

A special meeting of the extended Defense Council, described by both Mozzhorin and Illarionov, was convened near Yalta in July 1969 to draw up a 15-year plan, or at least guidelines, for weapons procurement and, thereby, to establish central direction over a force building process that had become unguided (*neupravliaemyi*).²⁸⁴ The meeting, chaired by Brezhnev, involved 50 to 60 participants, including general officers, Defense Ministry officials, ministers responsible for industry, chief designers, officials of the Central Committee apparatus and academicians.²⁸⁵

Both Chelomei and Iangel' made presentations. The R-37 [almost certainly the SS-19] missile developed by Chelomei received support from Grechko, the Defense Ministry, the operational military and Minister of General Machine Building Afanas'ev.²⁸⁶ Iangel' emphasized the innovations, particularly the survivability, of the MR-100 [presumably the SS-17] ICBM that he had designed. Chelomei apparently did not consider the protection of ICBM launchers to be worth the cost.²⁸⁷ The military officers paid little attention to the presentations and instead focused on the quantitative characteristics of the two missiles. Chelomei's missile had six warheads; Iangel's carried four.²⁸⁸

The R-37 designed by Chelomei had a low survivability (*zashchitnost'*) rating and a low stability (*ustoichivost'*) rating, Kataev explained. Its overall reliability (*obshchaia nadezhnost'*) was rated at 90 percent. (The U.S. Minuteman missile, by comparison, was rated between 70 percent and 80 percent.) The overall system reliability rating in the Soviet rating scheme was the product of several factors—the missile's inherent stability, the hardness of onboard control and launch systems, silo design, the local and central control systems, and its vulnerability to nuclear attack (including to electromagnetic pulse - EMP)—that would affect a missile system's ability to launch and to strike its target in the aftermath of a nuclear attack. Kataev made clear that, by Soviet criteria, the Minuteman was systemically less reliable

²⁸³ Illarionov, April 1993, *Part II*, p. 215.

²⁸⁴ Kravets, June 22, 1993, *Part II*, p. 250. Kravets did not attend the July 1969 meeting but had staff responsibility for implementing its decisions in the SRF.

²⁸⁵ Illarionov, April, 1993, *Part II*, p. 215.

²⁸⁶ Ibid.

²⁸⁷ Ibid.

²⁸⁸ Ibid., April 1993, *Part II*, p. 216.

than the R-37 (even though, in the late 1960s, Minuteman was hardened to 20 kg/cm² (284 psi) versus the 2 kg/cm² (28 psi) of Soviet silos).²⁸⁹

The MR-100 missile by Iangel' was favored mainly by proponents of ICBM survivability²⁹⁰—Ustinov; most of the chief designers; Mozhorin, Director of TsNIIMash; Ivan Serbin, Head of the Central Committee's Defense Industry Department; Professor Keldysh, President of the USSR Academy of Sciences; and other academicians.²⁹¹ Keldysh argued that the choice between the two ICBMs stemmed from the doctrinal question of first- versus second-strike and that the USSR should acquire an effective second-strike capability in order to deter U.S. first use of nuclear weapons. Brezhnev instructed Ustinov and Keldysh to prepare a draft decision (*proekt resheniia*), and they worked out a compromise whereby both the SS-17 and the SS-19 entered production. The compromise reflected Brezhnev's indecisiveness²⁹² but, in the view of Soviet experts, was costly and militarily unnecessary.²⁹³ The Defense Council agreed to manufacture both ICBMs but adopted Keldysh's proposal, which in practice amounted to a military doctrine,²⁹⁴ outlining the requirements for strategic missile systems. When the signatures were collected, Grechko tried to delay the decision by hiding from Serbin when Serbin arrived at Grechko's dacha. Grechko left his dacha through the back door and did not return for several hours.²⁹⁵

D. Strategic Consequences

The volume of arms production in the USSR was conditioned by the internal dynamics and logic of the vast, civilian-dominated defense-industrial establishment. By contrast, qualitative advancements in technology and weapons systems seem to have been more directly products of confrontation and competition with the U.S. During the 1950s and early 1960s, the Soviets invested heavily in research and

²⁸⁹ Kataev, June 23, 1993, *Part II*, p. 238. Tsygichko's comments about Soviet military intelligence estimates of the overall vulnerability of U.S. land-based missile systems in the late 1960s suggest that silo, EMP, and control vulnerability were the primary factors contributing to the Minuteman's low rating. The Soviets seemed to have had great deal of respect for the Minuteman's accuracy and reliability, once launched. See Tsygichko, December 21 and 23, 1991, *Part II*, p. 304.

²⁹⁰ Illarionov, June 23, 1993, *Part II*, p. 219.

²⁹¹ *Ibid.*, April 1993, *Part II*, p. 219; and June 23, 1993, *Part II*, p. 221

²⁹² *Ibid.*, April, 1993, p. 217. General Danilevich observed, with a certain frustration and black humor, Brezhnev's indecisiveness and timidity when required to launch a scripted nuclear strike in the course of a major exercise in 1972. See Danilevich interview, September 21, 1992, p. 145.

²⁹³ *Ibid.*, p. 218; and A. S. Kalashnikov, April 1993, *Part II*, p. 230.

²⁹⁴ Illarionov, April 1993, p. 216.

²⁹⁵ *Ibid.*, p. 217.

development of new technologies, including ballistic missile submarines and SLCMs. However, many of these programs were curtailed in the early 1960s when heavy emphasis was placed on the production of land-based ICBMs.²⁹⁶ Beginning in the early 1960s, emphasis began to shift away from design and development of systems to production. There is evidence that the VPK and the Central Committee's Defense Department began to stress copying of foreign technologies and systems, rather than supporting domestic R&D.²⁹⁷ Almost all sources stated that during the period in question, new systems were developed primarily in reaction to developments in the U.S. The Soviets followed the U.S. lead in many technological areas, including MIRVs, missile accuracy, SLCMs and other types of cruise missiles, intelligence systems, early warning systems and command and control, neutron weapons, low frequency, enhanced EMP, and other exotic weapons.²⁹⁸ SDI was often cited by sources as a prime example of the Soviets being forced to play technological catch-up. An important exception to this pattern was the development during the late 1970s of the SS-20 IRBM, a mobile, solid-fuel, multiple warhead missile that was a strategic and technological breakthrough for the Soviets which gave them a significant advantage in Europe. Another exception was the eventual development and deployment of the SS-25 mobile ICBM, which gave the Soviets a survivable land-based nuclear force.

The industrialists' domination of the force-building process seems often to have worked against innovation and qualitative improvement of weapons. Because stability and continuity of production were the governing imperative, the defense-industrial establishment resisted changes which threatened to disrupt this continuity. The bureaucracies of the defense industrial ministries were generally reluctant to introduce innovations into industrial production, thereby disrupting established manufacturing processes leading to production downtime and risking political fallout from failure in the attempt. Kalashnikov recalled many "titanic battles" between the military and the VPK and industrial ministries over the quality of weapons and related systems. For example, the Ministry of Radio Industry strongly resisted the introduction of signal scrambling (*shumoobraznyye signaly*) devices for Soviet naval communications. Kalashnikov became convinced of the need to introduce these devices in the early 1980s after talking with Admiral Lobov, then commander of the Northern Fleet. Lobov described shadowing a U.S. fleet on maneuvers and not being able to pick up any radio traffic. A tremendous

²⁹⁶ Danilevich, December 18, 1990, *Part II*, p. 138.

²⁹⁷ Almquist, Peter. *Red Forge: Soviet Military Industry Since 1965* (New York: Columbia University Press, 1990), p. 79.

battle ensued between Mozhorin and the MoD on the one hand, and the Minister for Radio Industry, Kolmykov, on the other. The dispute was resolved in favor of creating the new technology only after proponents won support from the Soviet chief arms negotiator, who argued that introduction of such a capability would strengthen the Soviet negotiating position.²⁹⁹

The Soviet interviews portray the VPK pursuing its own interests rather than servicing the military's needs, and thus, they contradict the "military missions" interpretation of Soviet weapons acquisitions. The interviews do support the interest group models. One interest group model overemphasizes agreement between the Armed Forces and the defense industry but accurately notes the general convergence in the aims of the Politburo and the military-industrial complex. Another interest group model corresponds most closely to the new information coming out of the Soviet interviews. The efforts of the VPK, particularly the designers, to ensure stable weapons development and production processes appear to have been the primary cause of the USSR's arms buildup.

²⁹⁸ Danilevich, September 21, 1992, *Part II*, p. 154.

²⁹⁹ Interview with A. S. Kalashnikov, April, 1993, *Part II*, p. 225.

VI. FINDINGS AND CONCLUSIONS

This section is intended to serve three objectives. The first is to provide a summary of findings from earlier discussions of how Soviet Cold-War strategic intentions were manifest across a range of key strategic issues and the author's judgments as to the relative accuracy with which U.S. analysts and strategists assessed those intentions.

The second is an attempt to explain, based in large part on the author's experience in the U.S. analytical and defense policy communities, the probable sources of major U.S. misjudgments and, where appropriate, of systemically erroneous analytical explanations of Soviet strategic intentions. When necessary for purposes of clarification, the author provides a brief reprise of the underlying Soviet reality, as disclosed in the interview process, for comparison with US analytical misconceptions. The author then attempts to establish whether any of the identified systemic errors that underlay US Cold-War misjudgments, seriously affected the quality of analysis available to US decision makers. Finally, and most important, the author reviews the extent to which the quality of those analytical judgments that were related to US decision-makers, made any significant difference in U.S. strategy and force building.

A. Summary of Findings

The accounts by former Soviet General Staff officers and government officials of their experiences in helping to formulate and implement defense policy during the Cold War, when compared to U.S. assessments of that time, suggest that U.S. analytical efforts correctly identified basic Soviet military aims but in some cases seriously misjudged Soviet intentions. The analytical errors arose partly from a misunderstanding of the bureaucratic forces at work in the decision making process in Moscow or from differences between the U.S. and the Soviet uses of quantitative analysis. Inaccuracies in U.S. assessments tended to exaggerate Soviet aggressiveness, but they probably exerted little influence in stimulating the arms race, because the Soviet strategic weapons buildup most likely would have proceeded apace regardless of whether the United States increased its nuclear forces. The U.S. probably exercised greater influence over the qualitative aspect of the

arms race than was generally believed by U.S. analysts and decision makers. The Soviet economic capacity to sustain the competition was greatly strained by attempts to compensate for U.S. weapons modernization and weaponizing of advanced technologies through increases in the volume of Soviet weapons production.

Most policy makers and analysts in Washington correctly identified the fundamental tenets of Soviet nuclear doctrine. They recognized the Soviet leadership's doubts about surviving nuclear exchanges and its interest in avoiding nuclear war. They understood that in the event of an East-West conflict, the USSR would try to keep hostilities at the conventional level for as long as possible. The primary military purpose of Soviet nuclear forces was to deter a U.S. attack. The Soviet High Command developed capabilities to wage nuclear war in preparation to fight if deterrence failed. Many U.S. officials and experts also noted correctly that the Soviet Union was striving for strategic superiority.

In some cases, U.S. observers seriously misjudged Soviet intentions. A few U.S. assessments underrated the assertiveness of Soviet behavior. In particular, they argued that the USSR accepted strategic parity and mutually assured destruction.

More often, U.S. assessments erred on the side of overestimating Soviet aggressiveness. A number of officials mistakenly believed that, in the event of a theater nuclear war, the Soviet High Command, with virtually no provision for reconsideration or hesitation, planned to escalate to the global level. Analysts tended more than officials to exaggerate the Soviet military threat. For example, a small but vocal and, for some time (approximately from 1975 to 1985), influential group of analysts expressed the conviction that the Soviet Union was prepared to initiate nuclear use and to fight a nuclear war with the expectation of winning. They justified their views largely based on the activities and pronouncements of an influential element in the Soviet leadership (to include the Minister of Defense Grechko) that ultimately did not dominate the Soviet decision process. These and other methodological shortcomings are discussed at greater length below.

Virtually every U.S. observer underestimated the influence of the Soviet defense industry, particularly the Military-Industrial Commission (VPK) and the Defense-Industrial Department of the Central Committee. As a result, U.S. analysts perceived greater military planning and design behind the USSR's arms buildup than probably was justified. Missile deployments in the 1970s, for instance, gave

the impression to some of the most astute U.S. experts that the Soviet Union was developing the ability to initiate limited nuclear strikes when, in fact, missiles continued to roll off Soviet production lines largely to satisfy the interests of the defense industry producing them. The military-industrial sector typically manufactured a larger number and wider variety of weapons than requested by the General Staff and Ministry of Defense. Although Soviet attempts to outpace U.S. strategic deployments naturally preoccupied U.S. observers, most officials and analysts failed to consider seriously the possibility that the USSR might be significantly more aggressive in its force building than in its nuclear strategy.

Underestimation of the power of the defense industry contributed in some measure to inaccuracies in U.S. assessments of Soviet strategy. Analysts who overlooked the VPK's influence, for example, were more likely to conclude that the USSR sought strategic superiority largely for military reasons, including to enhance its capability to wage nuclear war.³⁰⁰ Similarly, the Soviet buildup of theater nuclear forces, particularly of tactical nuclear missiles, was considered by a significant part of the U.S. analytical community to be an indication of Soviet development of limited nuclear options, when in fact, the General Staff had generally opposed deploying tactical nuclear missiles, had very little interest in *initiating* limited nuclear strikes and was less than enthusiastic about the prospect of LNO at any level of warfare.

Misunderstanding of Soviet military intentions was also the result, to a certain extent, of differences between the U.S. and Soviet conclusions drawn from quantitative analysis regarding the effects of nuclear weapons. U.S. scientists, for instance, calculated less lethal effects from blast overpressure than did their Soviet counterparts, and therefore failed to recognize the Soviet expectation of high fatalities and slow rates of advance in a Soviet offensive in Europe. Different U.S. and Soviet views on the use of ground bursts against missile silos also helped to skew U.S. assessments of Soviet strategy. While the U.S. chose a measure of effectiveness that favored air bursts, the USSR preferred to rely on ground bursts to destroy silo-based ICBMs, and each side seemed to have assumed that the other adopted the same measure of effectiveness. As a consequence, most U.S. observers failed to appreciate the depth of Soviet concern about silo vulnerability (the bulk of Soviet strategic missiles were silo-based), and they mistakenly thought that launch times of Soviet missiles were reduced in order to carry out preemption rather than

³⁰⁰ The *Report of Team "B"*, pp. 2-3, seems to associate the USSR's efforts to acquire nuclear superiority with a Soviet aim to develop the capability to fight and win a nuclear war. This, of course, left the *fact* of the massive Soviet capability, regardless of its origins, as the main threat, a capability which, in the hands of a malevolent or irrational leadership, could, in any case, destroy the Western world.

to enhance the credibility of Soviet retaliation (or launch-under-attack). At the same time, Soviet analysts, applying their measures of destructive effects, concluded that U.S. silo-based missile systems were so vulnerable to Soviet ground bursts that U.S. strategists, understanding this vulnerability, planned to use primarily land-based missiles in any first strike against the Soviet Union.

Senior Pentagon and White House officials achieved, on balance, a more accurate reading of Soviet strategic intentions than did the experts. On one hand, some incorrectly concluded that the USSR was prepared readily to expand a theater nuclear war into a global nuclear war. On the other hand, U.S. officials accurately noted the Soviet leadership's aim to achieve strategic superiority and also understood that the Soviet Union had moved away from preemption. A few vocal analysts, not policy makers, were primarily responsible for propagating the alarmist (and false) view that the USSR was ready, if not eager, to initiate, and expected to win, a nuclear war.

Policy makers proved more successful than the analytical community in correctly identifying Soviet aims, apparently because they made selective use of the analyses available to them. Most officials considered the quality of the analysis they received to be mixed. To support their decisions, they took the time to examine data on their own, and they listened to the few Soviet area specialists who, they believed, provided the most sensible interpretations of Soviet strategic policy.³⁰¹ Expertise in Soviet affairs was not allowed to supplant common sense and sound judgment in deciphering Soviet motivations for the purpose of making policy decisions.

B. Sources of U.S. Analytical Errors

While it is somewhat challenging to summarize the findings of such a study, it is a far more difficult, but equally important, undertaking to attempt to understand why U.S. analysts and strategists made important errors in judgment. Without some effort to explain the origins of at least the major U.S. misconceptions of Soviet intentions, the value of this study in helping to improve the state of the analytic art would not be adequately served. At the same time, it must be acknowledged that the interview research itself does not reveal directly the origins

³⁰¹ Brown, November 8, 1991, *Part II*, p. 129; Brzezinski, November 21, 1991, *Part II*, p. 132; Iklé, December 11, 1991, *Part II*, p. 211; McDaniel, November 12, 1991, *Part II*, p. 265; and Schlesinger, October 29, 1991, *Part II*, p. 275.

of U.S. misjudgments but rather provides to the author reference data somewhat more closely approximating ground truth than information previously openly available. The author's explanations draw upon the material brought to light in the study but also upon his own experience within the U.S. analytical and defense policy communities in the 1980s. He regards this particular undertaking to be a unique opportunity to bring together insights from that experience and lessons learned from subsequent years of work with former Soviet leaders and analysts in the aftermath of the Cold War.

At the outset it is necessary to clarify two features of this examination. First, it is important in this discussion to distinguish between analysts on the one hand and policy makers and strategists on the other. Most observations and explanations in this segment relate to community analysts who exercised varying degrees of responsibility and authority in providing analytic products and advice to national security decision makers. As noted above, some policy makers actually saved the national security decision process from inaccurate analytic products and threat characterizations by using common sense and their own national security experience to override absurd or questionable analytic judgments from the community. In the 1980s, in the author's experience, policy makers nevertheless unknowingly played a role in affecting the content of analytic judgments as the result of a tendency identified by some political scientists as "transmission distortion." Subordinates or supporting analysts tended to adapt their judgments, normally unconsciously, to fit the *perceived* expectations of their superiors. The attribution to the Soviets of complex motives to include concerns about the accuracy and proximity of U.S. missiles and the need to *avoid* nuclear use in Europe were expected *not* to be welcome in the first Reagan administration. Consequently, although such assessments were produced, few made it to the White House, especially from the Department of Defense. Responsibility for such shortcomings would, of course, remain with the analytic community, not with the policy makers who may or may not have accepted the possibly unwelcome analytic findings.

The second area requiring clarification is the relationship between information and analysis. It would be unfair to hold analysts responsible for misjudgments attributable in large part to the unavailability of important facts. For example, the increasingly dominant role of the defense industrialists over the General Staff in the weapons procurement process beginning in the mid-1960s was simply not known nor even reasonably knowable at the time. Nor did U.S. analysts have

sufficient data in the mid-1970s on which to conclude that Leonid Brezhnev was no longer capable of leadership of the Party and the state (although some analysts suspected this to be true by the early eighties). Analysts may have been aware that the Soviet Union conducted a major strategic exercise in 1972 but they could not have known that Brezhnev, in the presence of the most senior political and military leadership of the USSR, perspired, trembled visibly and delayed “pushing the button” until reassured several times that the missile launching was, in fact, an exercise. Nor could they know that, in the wake of that exercise, the Soviet political leadership *never again* made a serious inquiry into the development of General Staff strategic nuclear planning.

In the review that follows, the author refers in his evaluation to instances of systemic analytical bias where the completeness or accuracy of the information was unlikely to have been the governing factor in the accuracy of the conclusions. In most cases, the quality of the data available to those inside the community was sufficient to support at least uncertainty if not findings opposite from those actually presented. Moreover, intelligence analysts had access to other, less sensitive, but more extensive sources of information and qualitatively different assessments from the broader analytic community. For example, “insiders” in making their arguments, often drew support from outside scholars and specialists who bolstered the positions of their community colleagues using openly published Soviet discussions of strategy and doctrine. The Team-“B” experiment in 1976 carried this practice the farthest, on a one-time basis, when the Director of Central Intelligence invited several “outsiders” inside, gave them access to a broad selection of sensitive data and asked them to prepare an alternative strategic intelligence estimate.³⁰² In this, as in other instances, the information required for a responsible assessment was known, knowable or otherwise available.

The author noted in the early eighties that some of the more flawed interpretations of Soviet intentions appeared to be systemic, driven, perhaps, by considerations that lay outside the realm of analysis and the basic rules of evidence that support such analysis. Most arguments were internally consistent, based upon a perverse set of rules to be followed by government and non-government members comprising virtual schools of military Sovietology that held uncompromising, generally inaccurate, beliefs about Soviet strategic intentions. Proponents of such beliefs tended to share a number of characteristics in their analysis. One was the inability

³⁰² The Report of Team “B.”

to accept the coexistence of contradictory, decisively influential, views within the senior Soviet leadership and the corollary inability to classify accurately the relative influence and credibility of various Soviet sources expressing conflicting views. Second was the inability to accept the possibility of significant change in Soviet strategic doctrine over time in response to changes in technology, capabilities and threat perceptions and the consequent selection by the analyst, from various periods in the evolution of Soviet strategy, those indicators and statements that supported a strategy composed, in effect, by the U.S. analyst rather than by the Soviet leadership. Finally, some appeared to suffer from a tendency, at some level of consciousness, to make use of assessments of Soviet strategic doctrine and intentions as a surrogate forum in which to debate U.S. strategy and force structure - especially evident in endless disputes over the Soviets' relative interest in deterrence versus "war-fighting". These various distortions will be discussed briefly, in order.

First, let us consider the rejection of diversity within the Soviet leadership. Evidence supporting a range of arguments, including the most extreme positions, could be found in some form in a number of Soviet sources of varying degrees of sensitivity from open publication to highly restricted material. Analysts who believed in the unanimity of the Soviet leadership tended to find in the evidence and accept those pronouncements and indications closest to their expectations or sense of logic and to dismiss indicators of opposing Soviet views as deceptive propaganda or unsanctioned speculation allowed or promoted by some central guiding apparatus to create the illusion of diversity. (That such orchestrated debates were indeed one of the instruments of Soviet propagandists bolstered the position of such analysts.) Most inhibiting of truly rational assessments was the acceptance by many U.S. analysts of the Soviets own propaganda that there was, on any given issue of significance, only *one* received Soviet truth *that had the power to affect important Party and State decisions*. As an exception to the experience of centuries of human political and social history, the Soviet leaders were believed by some to have followed in lock-step, without exception, a fully unified decision process from which dissenters were excluded or denied influence over *decision implementation*.

In fact, the author found in the course of his research for this study that contradictions in written evidence reflected the fact that there were important proponents of a range of strategies and postures within the Soviet national security establishment. As discussed earlier, in the late 1960s, and the 1970s, for example, two starkly contradictory positions on the questions of survivability and deterrence

coexisted at the highest levels of the Soviet national security leadership. In a position agreed upon, reduced to writing and signed at an extraordinary session of the Soviet Defense Council in 1969, acceptance of the principles of survivability and deterrence were, in the opinion of senior Soviet participants, accepted as the strategic doctrine of the Soviet state. This new doctrine, defended by its proponents on practical, operational and economic (avert arms-racing) grounds, created the basis for increased investment in hardening of strategic control centers and fixed launch systems as well as accelerated development of mobile strategic missiles. Proponents of the new doctrine included, among others, Party Secretary Ustinov, the very influential president of the Academy of Sciences, Mstislav Keldysh, and Brezhnev himself.

Strongly opposing the decision (which he signed) was the powerful, obstinate Minister of Defense, Marshal Grechko, who tended to regard investment in survivability as defeatism and who much preferred to use available resources for procurement of greater numbers of strategic launchers and warheads to cover all possible enemy targets in a preemptive first strike, the only scenario that would make sense from the perspective of wartime survival of the Soviet state. Grechko used his position to postpone or draw out for years hardening and mobile missile programs while stimulating accumulation of large numbers of relatively vulnerable missiles and warheads. The Marshal's predilection for preemption did not die with him in 1976, because many in the military operational establishment continued to find it difficult to accept the wartime implications of investing in a secure retaliatory capability.

As we came to learn, the Grechko view influenced Soviet military programs and pronouncements at various levels for several years but did *not* reverse Soviet military-political doctrine, which ultimately led to the increased survivability and responsiveness of the Soviet arsenal by the early-to-mid 1980s. Nevertheless, the resultant contradictions, among messages and between messages and capabilities, stimulated confusion and disagreement among U.S. analysts and policy makers on the question of Soviet intentions.

Ironically, the Grechko-delayed but ultimately massive investments in survivability that were carried out in large part to support stabilization of the Soviets' ability to retaliate or launch under attack, when combined with the very large arsenal of weapons produced as a result of Grechko's first-strike ambitions and the defense industrialists' "internal arms race", presented a threat picture that many in the U.S.

regarded as indicative of a deliberate “war-fighting” strategy developed over many years by visionary Soviet planners. Other factors, to be discussed later, further aggravated the virtual obsession by some U.S. analysts with the theme of Soviet war-fighting preparations.

The second problem area mentioned refers to the practice by some U.S. analysts of shopping the timeline of thirty years of evolution in Soviet doctrine and strategy to pick and choose those elements most supportive of the analyst’s view of Soviet planning and intentions. Some analysts would shamelessly cite, in the early 1980s, Soviet statements made in the 1950s and 1960s to support points of doctrine declared to be in force at the time of writing, without any sense of the need to establish the continued relevance of the data.

One might defend the practice in the citation of older data to falsify assertions that something was never true, for example, that the Soviets *never* accepted the deterrent role of nuclear weapons. Indefensible, in the author’s view, was the development of an argument based upon the unexamined assumption that various postures or preferences possibly manifest twenty or more years earlier continued to be true even though significant changes in the environment in a number of areas, to include: military technology, size of arsenals, civil and military leaders, and improvements in analytical sophistication, would suggest a very high probability that Soviet military strategy or doctrine *had changed* in some way in the intervening decades.

As illustrated in the figure, the “Chronology of Soviet Nuclear Strategy” at the end of Section II and documented in General Danilevich’s lengthy disclosures, Soviet strategy evolved fairly significantly over the course of three decades. Moreover, as demonstrated in the chronology, changes in Soviet strategy, the analytic findings that supported those changes and the technology that permitted their implementation evolved at different rates.

For example, even in the 1960s, a number of members of the Soviet military-technical establishment, for various reasons, were attempting to define and design capabilities to execute a strategic strike against the U.S. and NATO, the timing of which lay between the extremes of a preemptive first strike and a retaliatory strike launched in the aftermath of a first strike from the U.S. The concept, called *otvetno-vstrechnyi udar*, literally a retaliatory-meeting strike (equivalent to the Western concept of launch-under-attack - LUA), was adopted in principle as early as 1969 at

an extraordinary meeting of the Soviet Defense Council. The responsiveness of Soviet strategic command, control and communications systems, to include launch technology, did not, however, permit execution of LUA until 1979. Moreover, LUA appears not to have been incorporated formally into Soviet launch options until at least 1981.

The issue of selected use of nuclear weapons in theater and intercontinental strategic warfare (identified in the chronology as LNO - limited nuclear options) evolved through a similar multilayered history - but with a somewhat different outcome. The Soviets experimented and ultimately adopted a variant of LNO for theater war but appeared not to have gone much beyond theorizing in the deepest recesses of the General Staff in the area of intercontinental LNO. The General Staff, seemingly against its own instincts, began to look into LNO in the early 1970s in response to U.S. persistence (especially on the part of Secretary of Defense Schlesinger) in discussing the strategy openly. The concept was exercised at theater level and apparently accepted for theater war by 1982. The command and control capability to launch selected strategic strike packages existed at least by the mid-1970s whereas truly small-scale nuclear systems such as nuclear artillery, were not deployed by the Soviets to the European Theater until 1982.

The question of Soviet thinking about LNO is an excellent example of the complex evolution of theory, practice and capabilities further complicated by a deeply held resolve on the part of the Soviets *not* to reveal to the West that they were seriously considering less than massive use. This concern evidently was driven by Soviet commitment to deny U.S. analysts any indication Soviet leaders would play the LNO "game" in Europe with the U.S. (which would have enjoyed a significant geographical advantage in a limited nuclear war in Europe) and thereby possibly lower the threshold of theater nuclear war and, therefore, of war in general. This secrecy was, of course, symptomatic of Soviet deterrence thinking which many U.S. analysts declared to be completely alien to Soviet military thought.

The complexity of the evolution of Soviet nuclear analysis, capabilities and doctrine is generally consistent with Western experience in the evolution of military thinking about warfare, nuclear or otherwise. Western military thinkers and planners have found that strategy is often the product of the interplay, *over time*, of several factors to include technology, deployed capabilities, economic and operational thinking as well as domestic and alliance politics. So much more indefensible, therefore, were the assertions of some U.S. analysts in the late 1970s

and early 1980s concerning a Soviet predilection for nuclear offensive operations on the strength of published Soviet statements, ambiguous even at the time of their writing, made in the 1960s. We were asked to believe, implicitly, that Soviet military thought was frozen forever in time, a unique exception to human experience in social, political, institutional and technological evolution.

The final systemic problem in U.S. analysis that is to be discussed may have been the most pervasive and most powerful source of distortion in its affect on the findings of the U.S. analytical and defense policy communities. The phenomenon in question was the tendency of many U.S. analysts and strategists to superimpose on the debate about Soviet strategic thinking and intentions a dispute about the extent to which the United States should go beyond a pure deterrence posture to invest more in the capability actually to wage strategic nuclear war.

Although long disturbed by elaborate U.S. descriptions of a Soviet military doctrine of nuclear "war-fighting" and "war-survival," peculiar characterizations which the author did not find credibly represented in Soviet military and political writings and pronouncements of any level of sensitivity, he did not, for some reason, realize until recently that the origins of this particular characterization were to be found principally in Washington, not in Moscow.³⁰³ He shared this appreciation with a senior U.S. strategist who had participated for decades in the formulation of U.S. strategy as well as in the general characterization of the Soviets as "war-fighters" in various Cold-War era National Intelligence Estimates. He acknowledged that frustration with the deterrence-only mindset of U.S. policy-makers influenced, perhaps significantly, the enthusiasm with which he and other senior strategists and analysts used the image of the Soviets as no-nonsense proponents of readiness to fight and survive a nuclear war to embarrass and exert pressure on the U.S. "dreamers" who "simply refused to think about it [the possibility of having actually to fight a strategic nuclear war]". Because this largely unexamined practice of projection so profoundly influenced both the process and the products of U.S. analysis of Soviet strategic doctrine and intentions, it merits a more complete discussion.

³⁰³ The author did conclude, in the heat of the U.S. debates about Soviet intentions in Europe in the early eighties, that the obsession of a number of analysts both in the U.S. and NATO with Soviet eagerness to use nuclear weapons in Europe was "more a projected reflection of NATO's defense posture than it was [a reflection] of Soviet thinking". NATO analysts angrily rejected the notion that the burden of nuclear initiation would have been on NATO (which would have had little choice in the event of a Warsaw Pact attack) insisting that the Soviets would *initiate* nuclear use very early because they embraced a nuclear "war-fighting" doctrine. See Phillip A. Petersen and John G. Hines, "The Conventional Offensive in Soviet Theater Strategy," *Orbis*, Vol. 27, No. 3, Fall 1983, pp. 699-700.

The long-standing Cold-War dispute among U.S. strategists about the character of U.S. strategy might be summarized as follows. Several strategists and analysts engaged in formulating or criticizing U.S. nuclear strategy held strongly opposing views about whether the U.S. should invest in the ability actually to wage and somehow survive a nuclear war should deterrence of Soviet aggression fail. Many were essentially unwilling or unable to think, as one critique observed, that the “probability of failure of deterrence was greater than zero” and believed, at some level of consciousness, that a strategic nuclear war would be such a world-ending experience, that investment in serious preparation for waging such a war would have been pointless and wasteful. Others believed that such an ostrich-like refusal to think the unthinkable was misguided and dangerous and, if understood by the Soviets, would undermine deterrence, holding out the possibility of decisive, preemptive destruction of all significant U.S. strategic capabilities.

In the author’s experience few U.S. strategists, policy makers and analysts seeking a more survivable strategic posture, were comfortable arguing explicitly that the U.S. should make major investments in preparing to wage a strategic nuclear war. Domestic audiences might have been disturbed, possibly stimulating a popular backlash that could have undermined support for defense expenditures. International, especially Soviet, audiences could exploit such open advocacy of a war-fighting posture, especially by U.S. officials, to support arguments that U.S. commitment to deterrence was a deception exposed by U.S. pursuit of increasing investment in the capability to fight and survive a nuclear war.

This dilemma appears to have forced the debate into a safer forum - the intelligence estimates process and the many open and closed debates that surrounded the generation of those estimates. Predictably, those analysts supporting a more or less pure deterrence posture for the United States, found the Soviets to be primarily interested in deterrence, not war, and believed the Soviets’ massive investments in force building to be responsive to U.S. qualitative superiority and almost certainly not to be indicative of Soviet ambitions to achieve strategic superiority. The Bureau of Intelligence and Research (INR) of the U.S. State Department was the most persistent official proponent of this view. The “Key Judgments” section of the 1976 National Estimate clearly illustrates this and the prevailing opposing assessment.³⁰⁴

Those who were most disturbed by the perceived vulnerability of U.S. strategic strike systems and associated command and control and the dangerous commitment

³⁰⁴ *National Intelligence Estimate* 11-3/8-76, pp.1-15.

to a fragile policy of deterrence found the Soviets to be committed, not to deterrence, but to a doctrine of “war-fighting,” “war-survival” and to the achievement of strategic nuclear superiority. They supported their arguments by documenting the proliferation of Soviet models of strategic missiles and the absolute growth of the Soviet nuclear arsenal. They offered as further proof growing Soviet investment in hardening of their strategic nuclear strike and control systems, the development of mobile medium-range and intercontinental ballistic missiles and improvements in ballistic missile defense. Soviet production of more missiles than they had silos to put them in was believed to be a “refire” reserve force suggesting a Soviet preparation for a prolonged nuclear war involving multiple exchanges of nuclear missiles. The 1983 National Intelligence Estimate made specific projections concerning the size and purpose of these strategic “spares.”³⁰⁵

Finally, to remove any question that all of this weaponry and concrete was being accumulated in service of clear Soviet intentions to wage strategic nuclear war and, at theater level, readily to integrate nuclear weapons into offensive operations, proponents of this position would invoke their collective discovery that Soviet “military doctrine...stresses war-fighting.” This position found its strongest supporters in the Department of Defense to include the Defense Intelligence Agency and the various Armed Forces intelligence directorates. This view persisted well into the 1980s despite the growing moderation of the national intelligence consensus evident in the 1983 National Intelligence Estimate.³⁰⁶

Several factors helped to perpetuate the stark, overdrawn image juxtaposing a defensive United States committed to deterrence and a Soviet “war-fighting” brute uncomprehending of such niceties as deterrence and awaiting, impatiently, the proper conditions to initiate nuclear war. For example, the United States and the Soviet Union had very different traditions governing participation in public discourse on the subject of warfare and defense. In the Soviet Union, the system published what the generals wrote about war because war was seen to be within the competence of generals. In the United States the greatest public attention was reserved for political scientists and lawyers in and out of government who wrote about “national security policy”, typically debating the various qualities of the “strategy” of deterrence. Real U.S. strategic nuclear war planning carried out in the

³⁰⁵ Central Intelligence Agency, *Soviet Capabilities for Strategic Nuclear Conflict, 1982-92; Volume I - Key Judgements and Summary, National Intelligence Estimate*, 11-3/8-82, February 15, 1983. (hereafter, *National Intelligence Estimate* 11-3/8-82), p. 21.

³⁰⁶ *Ibid*, especially pp. 5-14.

Joint Chiefs of Staff and the Strategic Air Command on the one hand and expressions of the Soviet Party and military leaderships' *very* serious but poorly articulated commitment to deterrence on the other, were generally *not* available for consideration by the opposing side. Hence, Soviet soldiers' discussions of the business of warfare were typically compared to American political scientists' discussions of the prevention or avoidance of war thereby sharpening the image of a confrontation between the U.S. committed to deterrence fending off the Soviet Union committed to war-fighting.

Further inhibiting restoration of analytic balance were various linguistic abuses in which coloration was added to basic words, skewing their meaning to suit the argument. The expressions, "war-fighting" and "war-survival" provide excellent examples of this practice. These terms, as used in U.S. analytical writings to include intelligence estimates, *did not exist* in Soviet Russian usage, although many American non-linguist analysts and strategists were surprised to learn that they were not direct translations of Soviet concepts. Some analysts who *were* linguists, in an excess of enthusiasm, translated the Russian word, *voina* [war] as "war-fighting" further reinforcing the collective delusion for non-linguists that *their* world view was indeed a Soviet world view.

One might ask as has the author, *Why war-fighting?* What else does one do with war? This apparently frivolous question suggested to the author serious answers. One might attempt to *prevent* war or to *avoid* war, in other words to *deter* war - sentiments we are led to understand were never seriously indulged by single-minded Soviet war-fighters. War's American surname, assigned without permission through literal or paraphrased translations to Russian statements of Soviet military doctrine, helped contribute to the creation of a blunt red, rhetorical instrument with which would-be *American* war-fighters could attack *American* proponents of a posture of pure deterrence.

In all fairness, it must be pointed out that the Soviets extracted their linguistic revenge by converting even the passive defensive word "deterrence" into an aggressive, threatening concept. Soviet "political" translators always translated the word "deterrence," *when applied to the U.S. concept,* as *ustrashenie*, which means "frightening" or "inducing fear", connoting coercion and compellence. Conversely, when the English word "deterrence" referred to the Soviet posture it was invariably translated with the word *sderzhivanie*, meaning "restraint" or "constraint" against an enemy attack. Thus, standard Soviet translations of Western speeches and

discussions of doctrine that were designed to reassure Soviet leaders of America's defensive reliance on deterrence instead provoked and angered the intended audience largely because of the strong negative bias in the Russian word used to translate a key U.S. strategic concept.

Many ironies come to mind upon consideration of the "Soviet-surrogate strategy debate" that so distorted U.S. analysis of Soviet intentions for almost two decades. The greatest irony, perhaps, emerges from the endlessly repeated accusations by the American "analyst-war-fighters" that all those who opposed them were "mirror-imaging" their own romantic vision of U.S. values and doctrine onto an essentially alien, unearthly Soviet society, a society whose leaders were clearly unconstrained by normal human aspirations and whose structure was immune to natural patterns of political and institutional interaction and evolution. The 1976 Team-"B" report concluded, in fact, that "this conceptual flaw [mirror-imaging] is perhaps the single gravest cause of misunderstanding of Soviet strategic objectives found in past and current NIEs [National Intelligence Estimates]."³⁰⁷

While some serious community analysts in their expectation of rationality in Soviet behavior (an expectation, as we have seen, that was not always justified) occasionally indulged in wishful thinking with respect to Soviet objectives ("The Soviets are not seeking strategic superiority," comes to mind), those guilty of the most egregious "mirror-imaging" were the "war-fighter" analysts themselves. Consciously or unconsciously, they built into the Soviet threat description virtually every element of what they believed to be lacking in U.S. strategy, "mirror-imaging," in effect, in an intelligence estimate what they believed would be the perfect strategic posture for the United States.

One could detect a tone of respect bordering on admiration in the oral and even written assessments of such analysts concerning Soviet adherence to the principles of war-preparation, war-waging, and war-survival over the illusory goal of deterrence. The author participated in high-level intelligence meetings at which the question of Soviet strategic intentions was discussed and where very senior U.S. intelligence officers who subscribed to the "war-fighter" school of analysis, explained that when it came to nuclear war, the Soviets "had more hair on their chests" than U.S. leaders, that "they had the guts [or other parts of the human anatomy] to push the button." A reading of the summary of the Team "B" report suggests that the authors were indeed enamored of their own creation, a Soviet

³⁰⁷ *Report of Team "B,"* p. 1.

threat picture that was, in fact, a model to which the U.S. could aspire. It is probably fair to observe that virtually every shopworn commandment of the familiar, Soviet, "war-fighting" doctrine described in the Team "B" summary, could be read as a barely disguised prescription for U.S. strategic planning.

Other ironies emerge from a review of the interview record which reveals the sometimes dangerously paranoid, increasingly internally conflicted, ultimately self-destructive Soviet reality. The image of the steely-eyed Soviet "war-fighter" gives way to that of the ashen-faced Brezhnev trembling in 1972 as his hand hovered above "the button" while he looked out over the brink in a practice nuclear war. The reputed Soviet willingness to stare nuclear war in the face, to think beyond deterrence, is belied by the Politburo's trepidation at learning in detail from its own military analysts the horrible consequences of a global nuclear war. The irony deepens as we observe their subsequent decision to bury the General Staff analysis under top secret covers and to avoid for the following two decades, for most participating Politburo members, until the end of their lives, any further exposure to discussions of nuclear war or strategies for such war.

It is likewise ironic that partial realization of the objectives of Dmitry Ustinov and Mstislav Keldysh to stabilize the nuclear confrontation by investing in survivability for Soviet strategic missiles and associated control (i.e. a secure *second strike*) was interpreted by many in the U.S. to be a key indicator of Soviet investment in war preparation rather than deterrence. Contributing to this misunderstanding was the Soviet failure, for reasons already discussed, to achieve Keldysh's other objective of avoiding the economically and militarily dangerous consequences of accumulating massive weapons inventories in a first-strike driven arms race with the American economic giant.

The Soviet design and possible partial deployment of the "Dead Hand" automatic strategic arsenal launch system offers other insights into the complexity of the Soviet military leadership's thinking about the issue of deterrence versus preparation for nuclear war. Investment in development of the system suggests that the Soviet military thought seriously about the need to be able to retaliate under the most stressful of conditions, when nuclear detonations would be occurring on and around their own launch and command and control facilities as well as against their strategic leadership. The use of the system would imply that the Soviet leadership had failed to strike preemptively against U.S. preparation to attack and even had failed to launch on deliberate command under attack, that is *before* impact

of U.S. missiles. This system may have been an instrument of pure revenge, designed to inflict some punishment upon the enemy in the aftermath of a successful U.S. first strike. At some level of consciousness, it might have been seen as a *wartime* instrument for controlling U.S. behavior as is suggested by the analytical logic on Nathan Leites.³⁰⁸

Given the scenario in which it would be employed, the development of the “Dead-Hand” system suggests serious pessimism on the part of the military at at least two levels of control over launch of the Soviet arsenal. The first is technical. The General Staff may have feared that Soviet launch detection systems would not provide reliable information soon enough (14 minutes according to General Korobushin) to allow the entire control system to successfully launch the arsenal. The second is political. The interviews indicate that the General Staff was less than certain that the General Secretary or the Politburo would be able to decide, under stress, to launch the arsenal in the time available in a true crisis decision situation. The “Dead-Hand” system would allow the military to present to the Politburo an essentially passive decision in which the act of “pushing the button” would not launch the Soviet arsenal but rather transfer responsibility for launch of the arsenal to the U.S. leadership through the instrumentality of the detonation of its missiles in the Soviet Union. Thus “Dead-Hand” may have represented an attempt by the military to obtain *some* decision from the Political leadership in the event of a severe crisis and would indicate that the General Staff was not assuming that it would take such a decision into its own hands in the event of decision-paralysis in the Politburo.

These interview responses indicate that the deterrence value of the “Dead-Hand” mechanism, in the event of a crisis, was not a specific consideration in its development any more or less than the arsenal itself was developed to deter or destroy the United States. In other words, the Soviet strategic nuclear arsenal and all of its associated detection, control and launch mechanisms, to include “Dead Hand”, were developed and maintained principally to prevent war, especially nuclear war, with the U.S. and, failing that, to destroy the U.S. capability to damage the Soviet Union. “Dead Hand” was simply the launch mechanism of last resort.

The author considered for some time why the Soviet military or political leadership did not attempt to extract deterrence value, as U.S. strategists would think of it,

³⁰⁸ Nathan Leites. *Soviet Style in War*, p. 379.

from the “Dead Hand” mechanism, whatever might have been its level of development and deployment, simply by announcing its existence to the world. At one level, the General Staff may have been concerned that a technologically advanced enemy such as the United States, might have begun to develop countermeasures. There is another explanation, however, that is much more consistent with the Soviet approach to protecting the credibility of its deterrence posture; deny to the side to be deterred any indication that any nuclear attack would be met with anything other than an *immediate* and *massive* response. Just as revelation to the U.S. that Soviet planners considered selected nuclear strikes in response to limited strikes by Western armies would have compromised the credibility of Soviet assertions of a *massive* response, so would disclosure of the existence of “Dead Hand” have compromised the credibility of Soviet commitment to an *immediate* response. As the author discovered in his final confrontation with Dr. Vitaly Kataev, the need to deny the possibility of any, but an immediate, overwhelming Soviet strategic nuclear response to any enemy nuclear use was such an integral part of the rhetorical legend with which the Soviets supported the credibility of their deterrence posture, that Soviet strategists seemed almost *unable* to recognize the compromising relationship between such statements and the complicated, underlying reality of Soviet operational planning.³⁰⁹

This observation raises for consideration one of the least expected incongruities to come out of this study. That Soviet rhetorical defense of its deterrence posture was extremely rigid in no small part reflected of the relative inflexibility of the underlying Soviet force posture. In the course of more than three decades, the Soviets built a massive arsenal of very large-yield warheads mated to enormous, inaccurate missiles controlled by a relatively sluggish command and communications system served by a very limited land- and space-based attack warning system. At the theater level the Soviets deployed “tactical” and “operational” missiles armed with 400 kiloton warheads, 20 times the yield of the

³⁰⁹ The author argued in the mid-1980s that the Soviet military were deliberate in maintaining a public image of a readiness for nuclear use when they were, in fact, far more flexible. He discovered a secret (now declassified) version of a Soviet textbook on tactics that was devoted entirely to warfare with conventional weapons, “under threat of nuclear use by the enemy.” The open version with the same title, (*Tactics*) edited by the same general officer, published in the same year, 1966, dealt predominantly with the tactics of nuclear war. Not until 1982 did the Soviet military publish openly the conventional-preference verbal formulations used in the secret 1966 textbook. See John G. Hines, “Soviet Front Operations in Europe - Planning for Encirclement,” *Spotlight on the Soviet Union, A Report from a Conference at Sundvollen, Norway*, April 25-27, 1985. (Oslo: Forsvarets Hogskoleforening, 1985), pp. 76, 77. See also Gen.-Maj. V. G. Reznichenko, ed., *Obshchaia taktika: uchebnik* (General Tactics: A Textbook) (Moscow: Voenizdat, 1966), declassified secret study, and Gen.-Maj. V. G. Reznichenko, ed., *Taktika* (Tactics), Officer’s Library Series (Moscow: Voenizdat, 1966).

weapon that destroyed Hiroshima, and did not *begin* to deploy nuclear-capable artillery until 1982. The survivability of their overall strategic communications system, highly respected in the West for its redundancy and hardening, was held in such low regard by the Soviets themselves that three reputable Soviet strategic-analytical institutes feared that surviving strategic control capability would have been able to launch only a *very* small fraction of those Soviet missiles that might have survived a U.S. first strike. The Soviet strategic nuclear submarine fleet, although sizable, was largely unable to respond to crisis launch requirements, was very vulnerable to greatly superior U.S. anti-submarine warfare systems (ASW), and was believed to be almost totally dependent in its role as a strategic nuclear second-strike force on the fragile control system described above.

Offensively, the poor accuracy of Soviet missiles forced targeteers to plan to attack small, hardened point targets with massive-yield multiple strikes to ensure their destruction causing, thereby, incalculable collateral damage. In sum, for most of the Cold-War, the Soviet nuclear arsenal, both theater and intercontinental, was an extremely blunt instrument essentially incapable of supporting anything approximating the graceful failure of deterrence. Soviet attempts to design limited nuclear options were superficially planned and largely unrehearsed, even in simulations. If strategic nuclear deterrence had failed, knowledgeable Soviet strategists probably understood that they would have faced, within minutes, an all-or-nothing decision. The Soviets, apparently, were not prepared *to fight* a nuclear war but only to choose between capitulation and destruction of much of the northern hemisphere and themselves.

The U.S., in contrast, was far more agile, even from the early days of the nuclear competition. The U.S. Army deployed nuclear artillery to Europe in the 1950s and the Defense Department chose to develop a relatively small, very accurate strategic nuclear force in the early 1960s. The U.S. shifted first to an advanced-technology solution to increase the inventory of strategic nuclear warheads while limiting delivery systems by developing accurate multiple, independently targeted reentry vehicles (MIRV). In the 1960s U.S. strategic missile submarines, armed with enough warheads to destroy all major Soviet cities, could move with impunity around the globe and in close proximity to Soviet waters, protected by quieting and anti-submarine warfare (ASW) technology far superior to that of the Soviet Union. Such submarines, conceivably, could *operate* even in a nuclear war and, as the accuracy of submarine-based missiles improved, posed a first-strike threat against Soviet missiles and command centers.

Supported by technologically advanced, responsive control and communications systems and highly accurate weapons, U.S. planners were able to develop, over time, very credible capabilities to exercise and refine limited nuclear options both for theater and intercontinental war. The high accuracy of U.S. warheads permitted adoption of much smaller yields which enabled targeteers to design "tailored" strategic strike packages that would destroy military point and small area targets with relatively little collateral damage to surrounding civilian populations and infrastructure. It is probably fair to conclude that, in terms of the design and capabilities of its nuclear forces, the responsiveness of command and control, the survivability of a sizable deployed operational nuclear force (the nuclear submarine fleet), and the level of planning for limited use of nuclear weapons against specific military targets in various strategic and theater war scenarios, the U.S. was prepared to carry on what one might call nuclear operations. The United States, in an operational sense, at least, was fairly well prepared to fight a nuclear war.

These conclusions, though heretical in terms of the weight of countervailing U.S. analysis not to mention self-image, are important to consider seriously if we are to claim to give a fair hearing to the evidence and to the insights provided by Soviet Cold-War strategists in the course of this study. In the author's view, neither side wanted war and both sides were deeply committed to deterrence. Should deterrence have failed, however, the U.S. had available several intermediate levels of nuclear warfare to which it could resort short of initiation of an all-out exchange of arsenals with the Soviet Union. The Soviets, in contrast, were far more limited in their choices and may have faced very quickly the alternatives of catastrophe or surrender.

In light of these very different postures, Soviet motivation to be profoundly committed to avoidance of nuclear war and to deterrence is clear. (Also more understandable is Grechko's losing argument that the Soviet Union must attack *massively* in a *first* strike that would cover *all* military targets if at all possible. If there must be catastrophe, let it be the enemy's.) At the same time, Soviet concern that U.S. planners might have been less than fully committed to deterrence deserves thoughtful consideration. One might, at least, not dismiss out of hand Soviet misgivings that the U.S. may have been preparing, with its precision nuclear strike forces and flexible operational planning, to fight a nuclear war of limited objectives which might have been carried out away from the U.S. homeland. We might ask ourselves to ponder, then, the possibility of a reversed image, a negative variant of the "war-fighting" picture where, figuratively speaking, black was white and white

was black - a Soviet Union committed, almost by the very limitations of its capabilities, to a very rigid posture of deterrence confronting a United States that was prepared for nuclear "war-fighting." Even conditional acceptance that this reversed image might have been credible from the perspective of Soviet strategists could have opened up for U.S. analysts a framework for gathering evidence and gauging intentions that would have been far more productive of useful answers than the various unexamined projections that actually framed the U.S. intelligence debate.

C. The Affect of Systemic Analytical Errors on the Quality of Assessments Supporting the National Security Decision Process

If one had to identify the overarching cause of inaccuracies in the U.S. Cold-War analytical process, the direct and indirect influence of policy on intelligence analysis and production is probably the single most important source of systemic distortion. Projection or "mirror-imaging," if you will, of U.S. policy preferences onto Soviet threat assessments was the direct result of such unacknowledged influence. Abuses such as selective use of sources and selective use of dated evidence to prove current prejudice were simply the tools of poor scholarship bought to bear in service of long-established, largely policy-driven preconceptions.

The pervasive influence of policy expectations on the intelligence process thoroughly corrupted analytic products and effectively denied to decision makers the best judgments based on the best evidence available within the community. The very nature of debates within the community were seriously contaminated by policy prejudices. The issues discussed were rarely those that emerged from the evidence but rather those that might have been used to prove the correctness of a force posture decision or policy position. Analysts and intelligence bureaucrats, often unwittingly, thought about the object of analysis in a framework imposed by debates (such as war-fighting versus deterrence) essentially external to the intelligence process.

Such diversions of analytic attention undermined effective research at the most basic level. Rather than asking, with some attempt at openness, *what* the Soviet Union was doing in a given situation and then searching for explanations that accounted for most if not all of the evidence, analysts tended to search the evidence attempting to prove causality based upon a framework that was externally imposed.

Such explanatory frameworks tended to bound the questions and inhibit potentially fruitful excursions suggested by the analyst's own intuition. Moreover, artificial analytical frameworks tended to generate the wrong questions. For example, the community devoted countless man-years to divining how the Soviets might choose to implement their nuclear "war-fighting" doctrine rather than to why the Soviets were making major intellectual and material investments in non-nuclear operational capabilities - a question that had far more relevant implications for U.S. operational and force-structure planning.

Even in those isolated oases of relatively independent thinking that could be found within the community, analysts were forced to devote far more energy to establishing the validity of their research and the thrust of their analysis against the received wisdom of the moment, than to the development of evidence-based constructs that had real explanatory value. Ultimately, the products of this entire process were forced toward a broad consensus where most of the more original analytical findings were lopped off the final product for being outside the range of what was considered responsible analysis, "responsible" being defined by the conventional wisdom as perceived by those, inside and outside the community, who ordered the assessment.

To help illustrate the effect of such systemic distortions on the availability of balanced analysis to key decision makers in an area bearing directly on the issues reviewed in this study, the author will summarize from his personal experience the events surrounding one instance of such distortion and miscommunication. In the early 1980s, the United States and its allies were confronted by a number of changes in the force structure and, possibly the general military posture of the Soviet Union. In the strategic arena the Soviets were continuing to improve hardening of missile silos and control points as well as to modernize their inventory of intermediate-range and strategic nuclear missiles. In this last category, Soviet development of mobile missiles was most noteworthy, especially the development of the truck-mobile, MIRVed, intermediate range ballistic missile (IRBM), SS-20, capable of striking all of Europe and the Middle East within minutes of launch.

At the same time, the Soviet General Staff had begun to take the air, air defense and ground forces through a number of major reorganizations the principal result of which was a marked increase in the conventional fires that could be concentrated against NATO forces. A second, equally important, effect was the improvement of the operational and strategic mobility of selected air, air mobile and ground forces

in defensive, but principally, offensive operations. Finally, the Soviet General Staff was redesigning operational aspects of their approach to theater war by reviving and greatly modernizing older, war-tested, concepts for the conduct of large-scale operations. Changes included the formation of a peace-time command structure for theater-scale operations and the formation of operational maneuver groups designed to penetrate, almost preemptively, into NATO's rear to destroy quickly command and control capabilities, logistics support and battlefield nuclear weapons.

The policy and operational leadership in the Pentagon turned to the intelligence community for an explanation of these disturbing changes. Defense planners were attempting to understand what measures, in terms of force structure, operational planning and policy might be required from the U.S. and NATO to counter effectively whatever Soviet plans or intentions might be implicit in these various improvements in the military posture of the USSR and its allies.

The sheer scope of the military activity underway in the Soviet Union and the Warsaw Pact posed a special problem for the intelligence community which was extremely fragmented in its approach to analysis. Most significant was the fact that the changes under way involved strategic nuclear, theater nuclear and conventional forces. In the community, there lay a great divide between the strategic nuclear and theater conventional warfare areas of responsibility while theater nuclear forces tended to be divided between the two camps, tactical nuclear weapons falling into the theater area of responsibility and IRBMs into the strategic. Insistence by decision makers on more comprehensive explanations ultimately drew in intelligence management at higher and higher levels in the community until, finally, strategic and theater conventional analysts were forced into an uncomfortable dialogue in an attempt to try to relate the disparate pieces of evidence to each other and to a possibly larger picture of what the Soviets might be attempting to accomplish.

Unfortunately, it was at this point in the analytical process, that is to say, at the moment when the issue had begun to enjoy considerable visibility inside and outside the community, that there was suddenly generated an overabundance of answers from quarters where there was little understanding of the basic underlying evidence. In this instance, the explanations seemed to come from a list of ready-made answers bearing little relationship to the problem under consideration and which added little credible explanatory value. The origins, it became clear, of these ready but unhelpful explanations could be found in the "war-fighter" school of

analysis, powerfully represented in the upper echelons of the defense intelligence establishment. Soviet hardening of strategic control centers and the deployment of mobile IRBMs were together interpreted as yet another manifestation of a nuclear “war-surviving”, “war-winning” strategy and were not seen to be related to changes in theater conventional warfare capabilities. The latter events were explained, almost dismissively, as one of a number of general indications of an overall increase in Soviet aggressiveness.

When pressed to explain the Soviets’ investments and operational efforts to accomplish deep theater objectives, apparently without nuclear use, the “war-fighters” would respond, with amazing logic, that the Soviet objective was to destroy, with conventional weapons, as much of NATO’s nuclear inventory as possible to enable the Warsaw Pact, at reduced risk of reprisal, to make use of their own theater nuclear weapons to further accelerate their success in subsequent theater operations. Proponents of this assertion persisted in their beliefs even when challenged with the argument that Soviet use of nuclear weapons in the wake of their own conventional success against NATO would, for no conceivable, logical reason, put at risk their forces and their homeland to strikes from U.S. strategic nuclear weapons. The available evidence, in fact, strongly suggested to the author and his colleagues that, should there have been a conflict in Europe, the Soviets would have sought to avoid nuclear war by relying on the SS-20 to deter NATO’s nuclear use while Warsaw Pact armies overwhelmed NATO forces at the conventional level of warfare where the Soviets enjoyed a credible advantage.

The “war-fighters” school, once involved, introduced tremendous distortion and disruption into the preparation of relevant analytical products. To appreciate the role of adherents to this view one must understand that they were both in charge and often only marginally qualified. They tended to share, for example, a number of common characteristics: they had little knowledge of Russian culture, history or language; they had little or no military operational experience; generally did not understand the nature and relative credibility of various very sensitive intelligence and openly published sources; and were almost totally intolerant of discussions where *real evidence* supporting alternative views was reviewed.

The author observed that proponents of the “war-fighting” school shared an analytical framework based on assumptions that simply *could not* accommodate complex, *evidence-based*, explanations of Soviet behavior in the early 1980s. Not only the logic but even the facts underlying Soviet actions were simply *not accessible*

to them analytically. Among their most limiting assumptions, often bordering on articles of faith were that: the Soviets were prepared at any moment to initiate a war against the U.S. and Europe if not threatened constantly with annihilation; the Soviets themselves did not accept deterrence nor were they motivated by deterrence logic in any of their actions or weapons programs (An unexamined subtext of this belief was the conviction that the Soviets *knew* the West would never attack and, therefore, the General Staff could not even think seriously of deterring us), and finally; nuclear weapons, in Soviet thinking and planning, differed from conventional weapons only in their explosive force and that any special taboo against nuclear use was a U.S. concern projected onto Soviet thinking.

Such beliefs were incompatible with conclusions that the Soviet General Staff was striving to maintain and reinforce conventional superiority over NATO forces endowed with increasingly sophisticated conventional weaponry. The energy, resources and operational creativity the Soviets were devoting to achievement of the potential for operational success *without nuclear use* likewise could not be explained credibly by “war-fighters” who believed the Soviets would use nuclear weapons as readily as conventional artillery. Despite supporting evidence, the war-fighting paradigm also could not accommodate the relationship between Soviet mobile IRBMs and Soviet improvements in capabilities for conventional theater operations. Specifically, they could not accept the concept that the Soviets would rely on the SS-20 for use as a virtual in-theater nuclear (deterrent) shield against NATO’s theater nuclear systems while the Warsaw Pact exercised its growing conventional advantage to achieve objectives in Europe at reduced risk of a theater or global nuclear exchange. They likewise could not integrate into their world view the possibility that Soviet improvements in the survivability of their intercontinental strategic forces would reinforce Soviet hopes to neutralize the coercive role of the U.S. strategic arsenal in affecting the course of a war in Europe - a Soviet variant, as General Dvorkin’s comments indicate, of extended deterrence.

The implications of the different interpretations for U.S. and NATO policy were significant. The author and his colleagues argued that NATO needed simultaneously to remove any Soviet hope of conventional success through conventional force building and accelerated modernization while expediting deployment to Europe of the Pershing II IRBM as a credible nuclear counter to the Soviet SS-20. The war-fighter analysts supported deployment of the Pershing II in part to extend U.S. strategic strike capability to Europe, but did not really understand nor recognize the significance of Soviet conventional improvements.

Their focus on nuclear forces, and specifically on the strategic nuclear competition diverted attention away from the level of warfare where the U.S. and NATO faced the most threatening changes. Their findings were not only wrong, they were largely irrelevant.

Defense intelligence management tried always to be vigilant to ensure that intelligence analysis that violated the war-fighting credo was *not* presented to defense and other national security decision makers. In a major breakdown in the vetting process, the guardians of “responsible” intelligence analysis failed, in the early stages of the intelligence production cycle, fully to comprehend the “radical” nature of the author’s findings, apparently regarding the whole question as a theater operational problem of little consequence to core strategic issues. They consequently allowed the author and key colleagues to brief, over a period of four months, virtually all senior NATO commanders to include the Supreme Allied Commander Europe (SACEUR) in numerous sessions each lasting several hours. The SACEUR had already been extremely concerned about the credibility of the threat of NATO nuclear retaliation against a successful Warsaw Pact conventional attack and used the analysis we provided to bolster his argument to NATO’s sixteen member nations that increased investment was required to strengthen the credibility of NATO’s conventional defense. As an operational, but also an international political commander in Europe, the SACEUR understood immediately the implications of an accelerated Soviet conventional offensive in Europe under cover of a nuclear shield provided by the SS-20. He acknowledged a deep concern that, in the event of war, he would have been forced to seek what he understood to be self-destructive nuclear release within as few as three days after the outbreak of hostilities.

Once forewarned of the unorthodox nature of the author’s message, opposing intelligence managers, chagrined by their failure to “scrub” properly analytical findings presented outside the community, redoubled their efforts to ensure that national security decision makers in Washington would be protected from exposure to his analysis. The author is convinced to this day that his opponents never understood the essential elements of his basically simple argument because they could never get beyond the anti-war-fighting prerequisites underlying his conclusions; that is, that the Soviets wanted very much to avoid nuclear use and that they understood and applied against NATO the logic of deterrence.

Despite such opposition, the Chairman of the U.S. Joint Chiefs of Staff, upon the direct recommendation of his friend, the SACEUR, asked the defense intelligence leadership for a presentation of the author's findings. He indicated that he wanted to hear what the SACEUR had heard. In defense of the truth as they saw it, the intelligence managers ordered a series of scripted pre-briefings which they used to neutralize totally the essence of the author's message. As a final line of defense against circumvention, they directed the author to answer all questions from the Chairman and the assembled Joint Chiefs with very brief responses, preferably, "yes," or "no." As a consequence, an explanation that required hours to outline, develop and document in a free-flowing "desk-top" presentation to the SACEUR in his headquarters in Belgium, was presented in completely emasculated form, in twelve minutes, in the infamous JCS briefing "tank" in the Pentagon to the most senior leaders of the Armed Forces of the United States. The briefing was so bland and devoid of meaning that the Chairman remarked to the Joint Chiefs at its conclusion, "I don't understand what Bernie [General Bernard Rogers, the SACEUR] is so excited about." It is very likely that the then Chairman and Joint Chiefs do not understand the SACEUR's concerns to this day unless, at some time in their retirement, the generals have had the opportunity to review the events of that period.

The "war-fighters" had succeeded, much to their relief, in preventing ideologically unacceptable, but arguably very important, analytical findings from being communicated to the most senior operational leaders and planners of the United States Armed Forces. They conscientiously followed up within the intelligence bureaucracy to try to ensure that classified written products containing the same message were *not* published nor communicated to these or any other "customers" in the Pentagon.

D. The Consequences of Misjudgment for National Security Decision Making

The mistakes made in assessing Soviet nuclear forces and strategy apparently had little impact on U.S. decisions in a way that may have affected stability in the Soviet-U.S. nuclear confrontation. Nor did analytical mistakes appear to have influenced significantly the course of the arms race. Moreover, errors in the way the U.S. analytical community evaluated data and communicated their findings to senior decision makers essentially did not matter for at least three important

reasons. First, for much of the Cold War, U.S. national security decision makers were sufficiently well endowed with intelligence and common sense to reject bad analysis and act on their own best judgments. Second, the Soviets were so self-deterred, especially after the Cuban-Missile Crisis, that U.S. decision makers, even with sometimes badly flawed analytical support, enjoyed a far broader margin for error than almost anyone in the U.S. appreciated during the Cold War. Finally, the strength of the unrelenting social and bureaucratic forces that were overdriving the Soviet system of armaments production was such that U.S. behavior exerted relatively little influence on the size of the Soviet nuclear arsenal. Consequently, the significance of any given U.S. decision concerning its strategic relationship with the Soviet Union probably carried far less weight than we understood at the time.

Decision makers in the U.S. government understood the main tenets of Soviet nuclear doctrine, and partly as a result, averted both nuclear war and direct armed conflict with the USSR. At the same time, U.S. observers underestimated the extent to which the Soviet leadership was deterred from using nuclear weapons, as evidenced by the serious doubts of Soviet specialists about the ability of the C³ system to release more than a fraction of surviving forces after a U.S. nuclear attack, or by the trembling hand of Brezhnev at the 1972 exercise which simulated strategic nuclear war. In fact, the findings of this study suggest that the formulation and implementation of United States strategic nuclear policy was, for several decades, developing in a far more forgiving decision environment than was suspected in the U.S. by either decision makers or analysts. Refinements in U.S. deterrence strategy represented by promotion of limited nuclear options (LNO) and PD-59 may, in retrospect, have been unnecessary. We may have been attempting to intimidate a bear that was already caged, by its own fears and structural limitations and its inability to make its own defense industries respond appropriately to its increasingly technologically demanding strategic requirements.

One might conclude, in fact, that, in the aftermath of the Cuban Missile Crisis, both sides were genuinely deterred not only from initiating nuclear use or *any* large-scale war in which the other side might become involved, but were deterred even from allowing any confrontational situation to degenerate into a crisis where nuclear use might be remotely considered. Explained differently, both sides were *deterred from even entering a serious crisis* and thereby never again really tested direct deterrence of the other side's nuclear use.

In a final, special, twist, U.S. proponents of the view that the Soviet Union was single-mindedly committed to nuclear war-fighting and coldly rejected the logic of deterrence may have reinforced significantly this double-layered deterrence *for the Soviets*. The American “war-fighter” analytical community helped to promulgate and make credible, through incessant, amplified repetition, the Soviet strategists’ own deterrence message - that any central war and certainly, any U.S. nuclear strikes, however “surgical”, in any region, would lead *inevitably* to massive Soviet nuclear strikes and, in turn, to total nuclear catastrophe. In embracing and repeating this slogan, these respected, well-placed, presumably well-informed U.S. analysts must have increased uncertainties for most U.S. leaders, at some level of consciousness, about the basic rationality of the Soviet leadership. In so doing, they helped the Soviets to achieve precisely the effect they sought with their otherwise transparently simplistic, incredible message. As unwitting participants in this Soviet ruse, the “war-fighters” were betrayed by one of the most insidious forms of subterfuge - self-deception.

U.S. official and unofficial assessments tended on balance to exaggerate the aggressiveness of Soviet intentions, which helped to spur U.S. nuclear weapons procurement. In the final analysis, however, even if U.S. assessments had been far more accurate, the net outcome probably would have been much the same. Regardless of the military objectives that lay behind the USSR’s nuclear arms buildup, the *fact of the existence* of such a large arsenal in the hands of a secretive and openly hostile state was sufficient cause for the U.S. to take basic countermeasures in the interest of its own security and that of its allies. Furthermore, the growth of Soviet strategic capabilities seemed to embolden the Soviet Union’s expansionist policies, so the United States had good reason to counter not only the USSR’s expansionist moves around the world but also to respond to Soviet nuclear force deployments.

Inaccurate U.S. assessments probably did little to stimulate the arms race mainly because Soviet behavior was fairly unresponsive to U.S. actions and policy statements from the mid-1960s to the early 1980s. The Brezhnev Politburo was striving for strategic superiority, and Soviet nuclear weapons procurement was directed largely by a defense industrial class interested in keeping design bureaus and arms manufacturers occupied in an extremely unbalanced and, ultimately, fatal pattern of expansion that broke the back of the Soviet economy. A slowdown in U.S. deployments or a change in the U.S. nuclear force structure, therefore, was very unlikely to have altered significantly Soviet decisions. This study suggests,

secondarily, that the West did not defeat the Soviet Union in the Cold War. Rather, the U.S. and its allies essentially held the line against the more extreme and threatening manifestations of Soviet self-destructive behavior while the leaders and followers of the Soviet system, without any real understanding of the consequences of their actions, destroyed their own creation.

**PART II. SOVIET STRATEGIC INTENTIONS 1965-1985;
THE POST-COLD-WAR TESTIMONIAL EVIDENCE**

I. INTRODUCTION - INTERVIEWS AND DISCUSSIONS WITH COLD-WAR ERA PLANNERS AND ANALYSTS

This section contains much of the raw material on which this study is based. All items in this collection represent the testimony, in some form, of Soviet and American strategic planners and analysts whose professional careers were largely dominated by the need to understand and respond effectively to the military threat from their Cold-War opponents.

Most of the items are structured as records or summaries of interviews conducted on the basis of a specific list of questions. In follow-up interviews or interviews with difficult subjects, the questions served only as a general guide to research. Long, narrative responses also often did not address questions in the same format and sequence in which the questions were presented.

For many reasons, items do not follow precisely the sequence and contents of the interview questions. Soviet interview subjects often were uncomfortable with the interview situation, the questions or the implications of the research (the Cold War was over and the West had won). As a result, the nature of the record of interview or discussion varies from interview to interview. Transcripts of taped interviews are the record of choice, of course, followed by records based on notes and, finally, summaries based on the memory of the interviewer prepared shortly after the interview.

Many Soviet interview subjects were uncomfortable with tape recorders, especially early in the project (1989-1990) when several were far from convinced that the Cold War was, indeed, over. Likewise, several of the questions caused discomfort which forced rephrasing and special prompting (provocative statements or allusions to other information) on the part of the interviewer. Some interview subjects responded with almost a stream-of-consciousness flow of information that moved from association to association through an entire series of related issues. Stopping such a response to adhere precisely to prepared questions could result in the loss of valuable insights and information not anticipated by the questioner, forcing the interviewer to revisit other questions in follow-up sessions.

The record that follows, therefore, is inconsistent in level of detail and comprehensiveness despite the planning and good intentions of the researcher.

Imperfect as they are, they nevertheless represent a unique record of information and beliefs of Cold War participants who were able to trust their former enemies sufficiently to share their thoughts and beliefs in some detail before they themselves passed into history.

For the convenience of the reader, a list of acronyms and abbreviations appears in the appendices, as well as a selective list of decision makers and analysts cited or referred to in the interview record.

II. INTERVIEWS

SUMMARY OF INTERVIEW

Subject: Marshal Sergei F. Akhromeev

Position: Personal National Security Advisor to President Gorbachev
Chief of the General Staff, 1984-1989
First Deputy Chief of the Soviet General Staff, 1979-1984
Chief of the Main Operations Directorate of the General Staff, 1974-1979

Location: Akhromeev's Office in the Kremlin (Room 409)

Interviewer: John G. Hines

Date/Time: March 5, 1990, 2:30-3:30 p.m.

Language: Russian

Prepared: Based on notes

Marshal Akhromeev promised by telephone in the morning to meet me at 2:30 p.m. during a recess of the Congress of People's Deputies which was in session. (He was a deputy representing Moldavia). The Congress had an unscheduled meeting in the afternoon but the Marshal broke away and kept his appointment as promised.

Comment: This exchange was taken up largely with getting acquainted and with recent events such as his resignation in late 1989 from his position as Chief of the Soviet General Staff.

Akhromeev opened the discussion with a question about where I had studied the Russian language. I explained my education and long-standing interest in Soviet affairs, my training and service as a U.S. Army Signal Officer in Germany and Vietnam and subsequent mid-career intensive education in Russian language and Soviet affairs. I explained that I had studied advanced Russian at the U.S. Army Russian Institute in Garmisch-Partenkirchen, Germany. He smiled knowingly. I volunteered that I understood that the Soviet military considered Garmisch a "spy school." He smiled more broadly and corrected me, "No, not a spy school, a military intelligence school. There is a difference."

I accepted his correction, assured him that I was not an intelligence branch officer but had studied the Soviet Union for many years. I explained that I now wanted to understand better the extent to which U.S. and Soviet leaders and analysts had understood or misunderstood each other during the Cold War to help avoid repetition of such a prolonged and dangerous confrontation. He accepted the objective as worthy but clearly was still struggling with the process of ending the Cold War.

Given his disposition, I asked him about the Fall 1989 Soviet announcement of unilateral reductions of half a million men and rumors that he had resigned as Chief of the General Staff³¹⁰ in protest. He responded deliberately and clearly. First, he said, the analytical work on which the cuts were based had been under way in the General Staff for months before the decision was taken and the findings were consistent with his sense of what was necessary. Second, he retired because he was physically no longer up to the work and long hours. He said he had submitted his resignation on September 6, but stayed on for several more weeks at Gorbachev's request. Hence, his resignation occurred within a few days of the announcement of the unilateral force reductions.

Because time was running out, I asked him to what extent, in his two decades of experience on the General Staff, did operational and strategic planning as well as force planning rely on analysis and modeling for determining requirements. He responded that many groups did modeling and analysis which did contribute in some way to such decisions. This was more true in the mid-1970s and later. Many other factors, however, went into such decisions.

I asked if we could meet again, to which he readily agreed and I asked him if he could recommend an officer or officers with whom I should speak to better understand the analysis underlying Soviet strategic decisions. He thought about the question for some time and then responded that General-Colonel Korobushin had been very much involved in the process and could be very helpful.

I thanked him and said I had a small gift for him. He smiled but said that, as a government official, he couldn't accept gifts. I explained that it was a box of chocolates for his wife. He graciously accepted the gift and repeated that he would happily meet again but had to hurry to return to the congressional session.

³¹⁰ General Staff will be either spelled out or abbreviated as GS throughout the interviews.

SUMMARY OF INTERVIEW

Subject: Marshal Sergei F. Akhromeev

Position: Personal National Security Advisor to President Gorbachev
Chief of the Soviet General Staff, 1984-1989
First Deputy Chief of the Soviet General Staff, 1979-1984
Chief of the Main Operations Directorate of the General Staff, 1974-1979

Location: Akhromeev's Office in the Kremlin (Room 409)

Interviewer: John G. Hines

Date/Time: February 8, 1991, 4:00-5:30 p.m.

Prepared: Based on notes

By the mid-1970s, both the U.S. and USSR had established the technically advanced command and control systems needed to give them confidence in central control over nuclear weapons. From the early 1970s to 1986-87, the General Staff focused on ensuring absolute control over nuclear weapons to prevent any unauthorized use by having the missile arsenal "in hand" [*v rukakh* - he gestured as if holding the reins of a horse] through strong C³ systems. These efforts, by the mid-1970s, led to stability, which greatly reduced the likelihood of nuclear use. He said he believed the U.S. also had the necessary technical control over nuclear weapons only in the mid-1970s. Until then, there was a higher risk of an error on both sides.

In the European TVD³¹¹ from 1972-87, the balance was good. The Soviets had a high level of readiness but were non-threatening. Akhromeev was very distrustful of U.S. intentions until he had the opportunity actually to meet his American counterparts on the U.S. Joint Chiefs of Staff in 1988. The first and several subsequent meetings reassured him that the joint chiefs were thoughtful and responsible people. The mutual understanding that came from face-to-face discussions helped to create a fairly stable situation in Europe. The intentions ascribed for many years by each side to the other were incorrect.

What caused much tension in the General Staff were the many U.S. air and naval bases encircling the USSR, and the listening posts surrounding the USSR, as well as the constant use of air reconnaissance along the Soviet borders. This is how the Korean airliner got shot down.

³¹¹ TVD — *Teatr voennykh deistvii* — Theater of (Strategic) Military Action, for example, Central Europe from Ukraine to the western shore of Ireland.

The increased readiness of both sides usually was prompted by distrust. Each side made a tremendous misreading of the other side's intentions, which led to a greater possibility of accidental strikes. Nonetheless, there was not a very great danger of war during the period 1970-87.

At no time did the USSR ever intend to make first use of nuclear weapons. In a military sense, the side that attacked preemptively would win, but in practical terms neither side would win. Even to the General Staff it was clear that nuclear weapons were not really military weapons but were political tools.

In 1962, the USSR could not respond massively to a U.S. attack. Only in the late 1960s did the USSR acquire the capability to respond, which provided some stability. Neither side could consider selective nuclear use until the 1970s because technology and control systems before that could not support limited nuclear options (LNO).

In the early 1970s, within the military leadership, even the more conservative generals' understanding of nuclear weapons had matured to the point that they believed that nuclear weapons had no real military utility. Once a nuclear balance was established then deterrence [*sderzhivanie putem ustrasheniia*] was true of both sides. Solution of the question of control at the strategic level left unresolved the problem of positive control of nuclear weapons at the tactical level. By the late 1970s, both sides essentially had solved the question of control of tactical nuclear weapons.

Nuclear use had to be avoided if at all possible. Preemption was technically not even possible until very recently. In any case, the decision would take so long to make that the USSR would be stuck with a responsive strike.

[KGB defector] Oleg Gordievsky's revelations about the RIA-N [*Raketno-Iadernoe Napadenie*]³¹² crisis of 1983 were self-serving falsifications. I'll explain why. There is the KGB over here [he placed an imaginary box on the table to his right] and the General Staff over there [he gestured far to his left]. The CIA is here [he gestured to my left] and the Joint Chiefs of Staff-The Pentagon-over here [on my right]. The KGB and CIA have more in common and more exchanges than do the General Staff and KGB. We in the General Staff probably would not brief a KGB officer on such secrets, especially if he was being posted to a Western embassy. Gordievsky

did not know what the General Staff was doing. He told such stories to improve his standing in the West. War was not considered imminent.

SDI really can affect the future of warfare and greatly destabilize strategic relations. The side that achieves invulnerability will press this advantage. If the U.S. pursues SDI, the USSR can find cheap ways of countering the defenses, but this would undermine stability. If SDI is not included in START, then the USSR will announce unilaterally that Soviet agreement on START II will be conditional on the U.S. renouncing development of BMD.

Though the U.S. has precision weapons, technological countermeasures will be developed, e.g., to make tanks invisible. In the Persian Gulf, Iraq had no electronic countermeasures but after 5,000 U.S. sorties it still had 1,000s of tanks intact. The U.S. may be overestimating the effectiveness of precision weapons because they are being used in the Gulf War without opposition. A technologically sophisticated opponent will develop ways to counter this U.S. capability.

³¹² RIaN was an acronym that the Soviets used to describe a special period of tension between 1980 and 1984 when they reported greatly heightened expectations of a nuclear attack from the U.S. See Christopher Andrew and Oleg Gordievsky, *KGB: The Inside Story* (London: Hodder and Stoughton, 1990), pp. 501-507.

RECORD OF INTERVIEW

Subject: Gen.-Lt. Geliu Viktorovich Batenin

Position: Gen. Batenin began his career as an artillery officer and transferred in the 1960s to the Strategic Rocket Forces. In the late 1970s and through the mid-1980s, General Batenin worked for Marshal of the Soviet Union Sergei F. Akhromeev in various roles when the latter was chief of the General Staff Main Operations Directorate and then as First Deputy Chief of the General Staff under Marshal Nikolai Ogarkov.

Date: Friday, August 6, 1993

Place: McLean, VA

Interviewer: John G. Hines

Language: Russian

Prepared: Based on notes

Q: Over the past 3 years or so, I have interviewed several senior military people as well as from military industry and the Central Committee.³¹³ I was able to interview your former chief, Marshal Akhromeev twice and met several times with General Danilevich.

A: Danilevich? You know, he wrote the three-volume work for the General Staff on the Strategy of Deep-Operations, or at least he was responsible for the work. He directed the effort, very actively. The book covered everything, the entire picture of possible future war. It began with the anti-space operation [*protivo-kosmicheskaiia operatsiia*] against incoming missiles, the anti-air operation [*protivo-vozdushnaia operatsiia*] against your bombers and then the deep operations against NATO to the full depth of the theater. "Operational-strategic depth" referred to the entire 1,200 km depth of the European theater, to the beaches at the western edge of the continent. The theory of deep operations in Danilevich's work envisioned great depths of military action [*voennye deistviia*] because of the range of weapons, weapons platforms and the speed of movement of the forces. The initial operation was expected to take 5 to 7 days and to carry the counter-offensive 500 km. At that point we expected that we would have lost half of our tanks and that half of the remaining force would have outrun its logistics support. Because so

³¹³Central Committee will be either spelled out or abbreviated as CC throughout the interviews.

much of the force would be exhausted, early, decisive success over the enemy was very important.

Q: What scenarios for the beginning of war were assumed in the book on strategic operations?

A: Missile strikes from the U.S. and the initiation of an offensive by NATO. The main objective of initial operations by Soviet Forces and the Warsaw Pact were to break up [*sorvat*] the NATO offensive throughout the depth of NATO's forces and NATO's rear. Included in the concept of breaking up and stopping NATO's offensive was the preemptive destruction of as many launch systems and aircraft as possible as well as associated control systems.

Q: Was the preemption to be with the use of conventional or nuclear weapons?

A: That would depend. We expected NATO to launch nuclear strikes at some point. If we did not detect preparation on the part of NATO to launch nuclear weapons immediately, we would attack launch platforms and storage using conventional weapons. If we detected preparation by NATO to launch nuclear strikes, and we believed we would know when this was happening, we would want to strike NATO's launch and control systems with nuclear strikes of our own. We had confidence in our knowledge of when NATO was preparing for nuclear launch. We would detect mating of warheads to missiles and uploading of nuclear bombs and artillery. We listened to the hourly circuit verification signal on your nuclear release communications systems and believed we would recognize a release order. Under these conditions when we detected NATO actually preparing to launch, we would want to preempt your launch with our own nuclear strikes.

Q: Did the General Staff consider selective use of nuclear weapons [*vyborochnye udary*] under these conditions, especially if it was clear that NATO would be attacking with only a few, say ten, nuclear weapons?

A: This would be very difficult to execute. It would be difficult just to launch on time against NATO preparation even with a strike against all or most of your nuclear capable systems and it is doubtful that we would attempt to restrict the strike under those conditions. More important, Ogarkov was very much opposed to the idea of limited nuclear war [*ogranichennaia iadernaia voina*] in any form because he believed it would benefit NATO.

Q: How?

A: By making nuclear strikes more likely, by making NATO believe that the Soviet Union might fight a limited nuclear war. A limited nuclear war was more likely to occur than an unlimited nuclear war. And Ogarkov believed that, once begun, limited nuclear use would almost certainly escalate to massive use. He tried to maintain, therefore, the posture that in the event of war massive use of nuclear weapons was both undesirable but unavoidable once any nuclear weapons were used. Akhromeev, by the way, was more open to at least considering situations where selected strikes might be made.

Q: Where did this grand concept of the strategy of deep operations come from?

A: I believe the SS-20 made it possible, that the SS-20 created the environment in which strategists could think about war on such a large scale. The SS-20 had a very low vulnerability, high accuracy and a great range, not only over all of Europe but over the Middle and Near East and much of the Mediterranean. Under the roof of the SS-20 it was possible to think about deep operations. There was a certain irony in that by 1987, many in the General Staff thought that all of the components necessary for conducting deep operations were in place at last, that we were ready that spring. We conducted games and exercises. At the same time, in December of that year we signed the INF Treaty. Gorbachev had his agenda and the General Staff its agenda. Gorbachev had seen General Danilevich's three-volume book on strategy. He even had a copy but he never read it. He was moving in another direction, eliminating the weapons that were the basis for executing such a strategy.

Q: When did these various elements come together; that is, the capabilities of the SS-20 and the development of the strategy of deep operations?

A: The late 1970s, it began to take shape in the late 1970s. The SS-20 was being deployed and Danilevich and others in his collective were developing concepts.

Q: Ogarkov took over in 1977?

A: Yes, this was important. Ogarkov fostered this kind of thinking, very actively.

Q: Relations between Ogarkov and Ustinov. Marshal Akhromeev wrote in his book, *Through The Eyes of a Marshal and a Diplomat*, that by 1982 relations were so bad that it was difficult for the General Staff to function effectively.

A: Yes, relations by 1982 were extremely strained. A major issue was PVO [*protivo-vozdushnaia oborona*—Air-Defense]. Ogarkov wanted to eliminate the PVO as a service, put the air element in the Air Forces and subordinate ground elements to the Ground Forces. He believed Ground Forces PVO [*PVO sukhoputnykh voisk*] was an effective arrangement that provided reliable air defense of forces under an integrated command. He wanted to broaden that principle. He also believed he could thereby eliminate an entire service headquarters apparatus. Ustinov wanted to retain that old structure.

Q: Was this the only disagreement?

A: No. There were broader differences. Ogarkov believed that the types and numbers of weapons produced should be determined by the military customers [*zakazchiki*] and Ustinov believed that such decisions were the business of the Communist Party,³¹⁴ Defense Council and the Military Industrial Commission (VPK), that is, the industrialists.

Q: Was the General Staff-MoD deadlock as bad as was described by Akhromeev?

A: Absolutely. Things got done, in fact, because Ustinov treated Akhromeev as the *de facto* Chief of Staff. After 1982 he acted, in effect, as the Second Chief of the General Staff rather than as the First Deputy. Ustinov would communicate with Akhromeev rather than with Ogarkov. Akhromeev tried to keep Ogarkov informed, at first, and then told him less and less because it caused more problems than it solved. I was with Akhromeev in his office once when Ogarkov called to ask about some decision he had heard about from another source. It related to a change in organization in the GSFG (Group of Soviet Forces Germany) as I recall. Akhromeev, who was involved in the decision by Ustinov, was very uncomfortable. I heard him confirming the decision and explaining why he had not informed Ogarkov, that he had intended to brief him but other events had intervened, etc. This was a very difficult situation.

Q: There have been various reports, the most well known from former KGB agent Oleg Gordievsky and published openly in England, that there was a period of great tension in the Soviet Government in the early 1980s. Specifically, between about 1981 and 1984, the MoD, KGB and others, believed that there was a high

³¹⁴ Communist Party of the Soviet Union will be either spelled out or abbreviated as CPSU throughout the interviews.

probability that the U.S. and NATO were preparing to attack the Warsaw Pact and the USSR, including with nuclear weapons. The whole problem of increased threat was identified under the acronym RIA_N [*Raketno-Iadernoe Napadenie*].³¹⁵

A: Yes. I am very familiar with RIA_N. There was a great deal of tension in the General Staff at that time and we worked long hours, longer than usual. I don't recall a period more tense since the Caribbean Crisis in 1962.

³¹⁵ RIA_N was an acronym that the Soviets used to describe a special period of tension between 1980 and 1984 when they reported greatly heightened expectations of a nuclear attack from the U.S. See Christopher Andrew and Oleg Gordievsky, *KGB: The Inside Story* (London: Hodder and Stoughton, 1990), pp. 501-507.

SUMMARY OF INTERVIEW

Subject: Sergei Blagovolin
Position: Head of Department for Military-Economic and Military-Political Research, Institute of the World Economy and International Relations (Russian acronym, IMEMO).
Date/Time: May 7, 1991, 10:30 a.m.
Location: Office at IMEMO
Interviewer: John G. Hines
Language: Russian
Prepared: Based on notes

“Industrial Mobilization”

Right after university (around 1971), Blagovolin worked on a project that analyzed the industrial mobilization potential of the United States and estimated that the U.S. could produce 50 nuclear submarines and 50,000 tanks per year within a few months of starting mobilization.

He believes the USSR is living with the results of that estimate. In the 1970s and 1980s this threat assessment was used to justify Soviet force building programs. After Iakovlev returned from Canada in 1982, and Blagovolin, as chairman of the Institute's Party Committee [*Partkom*], worked closely with him as Director of the Regional Party Committee [*Obkom*] to reevaluate U.S. mobilization capacity and the effect of the arms race on the USSR. The conclusion was that the Soviet Union had created its own set of enemies by building such a monstrous production machine in all sectors (including submarines) and had thereby helped to drive the Soviet economy to ruin. Blagovolin is publishing a book on this subject in English (expected out in Summer 1991).³¹⁶ The Russian version for a Russian audience is more important than the English.

The Agreement of April 23 states that the Treaty of the Union (TOU) will be signed soon, probably after the special 12 June Presidential elections in the RSFSR (Russian Soviet Federated Socialist Republic). Not less than 6 months after the signing of the TOU, a new constitution will be issued, and not less than 6 weeks after the new constitution, there would be new, direct elections at all levels.

³¹⁶ Book not published in either language.

At the Party Central Committee Plenum of April 20, Gorbachev threatened to resign after many of the delegates criticized his weakness and ineffectiveness regarding the Union and the economy. During the break, Volskii circulated a petition with the support of Bakatin and Nazarbaev (72 signed, 35-40 more promised to sign). After the break, Volskii got up and said that if Gorbachev's resignation were accepted, then the signatories of the petition would leave the Communist Party not as individuals but as a political movement. As a result, the vast majority voted to reject Gorbachev's resignation. Blagovolin said it was clear that Volskii and the others were ready to break the Party apart over the issue of Gorbachev's leadership. The Party was already reaching a complete breakup, and Volskii intended to start a new party. He emerged in June as part of the new movement behind Shevardnadze that broke from the Party.³¹⁷

³¹⁷ Eduard A. Shevardnadze, Minister of Foreign Affairs under Soviet President Mikhail Gorbachev.

SUMMARY OF INTERVIEW

Subject: Harold Brown
Position: Secretary of Defense (1977-1980)
Location: Johns Hopkins Foreign Policy Institute, 1619 Massachusetts Avenue, NW, Washington, D.C.
Interviewer: John G. Hines
Date/Time: November 8, 1991, 1:30 p.m.
Duration: 45 minutes
Prepared: Based on notes

In Dr. Brown's view, Soviet civilian leaders did not believe that the USSR could fight and win a nuclear war. For Soviet military leaders, it was inadmissible to say that they could not win, so they said that if nuclear war broke out, they would try to come out better than the other side. They claimed to have the edge and to have a bigger edge if the USSR struck first. Though they did not really believe that the USSR would survive a nuclear war, top military officials tried to improve Soviet chances for survival.

Soviet leaders believed in deterrence, according to Dr. Brown. They built up their nuclear arsenal in order to deter the U.S. Their deterrent rested on a capacity to inflict unacceptable damage, and by the 1960s, though a disparity remained, they thought they had enough nuclear weapons to meet that criterion. Soviet leaders accepted the concept of mutual deterrence but they did not embrace Mutual Assured Deterrence (MAD) to the extent that they rejected attempts to limit damage and they did not believe that a capability only to kill civilians was sufficient to deter the U.S.

According to Dr. Brown, these assessments were close to the positions and interpretations proffered by Fritz Ermarth, the National Intelligence Officer for Strategic Forces at the time. The former Defense Secretary seemed to hold Ermarth and his views in high regard.

The Soviet Union was likely to use chemical weapons. Dr. Brown expected the USSR to employ CW even if NATO did not and even in the absence of nuclear exchanges.

Soviet leaders aimed, in order of priority, (1) to ensure their personal survival and power, (2) to preserve the social and economic structures of the Soviet state, and (3) to hold on to the empire (including Eastern Europe). PD-59³¹⁸ made clear to Soviet leaders that all three priorities would be at risk if Soviet actions led to global war. Selective U.S. targeting held at risk the things that Soviet leaders valued most. The Soviet leadership itself was targeted but was far down on the target list to maintain the possibility for intra-war negotiating. Cities were not on the target list partly because Dr. Brown was unsure where the Soviet population fit into the Soviet leadership's priorities.

The Soviets would preempt only if they were convinced, based on their reading of American intentions, that the U.S. was going to launch a nuclear strike. This was Soviet military doctrine, which the political leadership may or may not have decided to follow. Similarly, the Soviet military may have recommended escalation in the European theater if convinced that the U.S. would escalate, but Dr. Brown was unsure whether the political leadership would accept this recommendation.

Dr. Brown never thought that the USSR would expand a theater nuclear war into a global war, and he doubted that the USSR would even escalate within the European theater. The Soviets might not win a conventional war but they would never lose. Even if a Soviet conventional attack were pinned down for 4 weeks and the Warsaw Pact allies began to pull out, nuclear use would not improve the situation for the Soviet side.

In Dr. Brown's view, the USSR probably did not develop limited nuclear options because it had conventional predominance. In practice, Soviet forces never used nuclear weapons first or selectively. The big question for the Soviet side was whether the U.S. would try to stop a Soviet conventional attack by resorting to nuclear arms. Dr. Brown did not know what the Soviets believed, but if they listened closely to Western leaders, they would probably conclude that the U.S. would resort to nuclear weapons but the West Europeans would not.

The Soviet Union did accept strategic parity. Despite its interest in strategic defense, the USSR's signing of the ABM Treaty reflected its acceptance of parity. The Soviets did not think it feasible to gain a significant edge. They understood that acquiring a greater number of weapons was not necessarily important and that

³¹⁸ Presidential Directive 59, a key White House statement on U.S. nuclear strategy that was discussed by knowledgeable U.S. government officials in the U.S. press. Published accounts reinforced the concept of

one side's advantages in particular weapons categories were offset by advantages on the other side.

When asked why the Soviets continued to build strategic forces even after they had achieved parity, Dr. Brown seemed to attribute this pattern of force building to a sense that they could never have enough to offset growing qualitative advantages in the West.

By the 1970s, the number of weapons on both sides was so large that capabilities could only be affected by deep cuts (deeper than the START Treaty envisions). Therefore, the U.S. tried to influence Soviet decisions through U.S. strategy. The U.S. wanted to limit SS-18s and SS-19s, which were counterforce systems, in order to make U.S. retaliatory (particularly land-based) forces more survivable.

Dr. Brown never saw the arms race as an economic competition. Since the defense industry was the most efficient part of the Soviet economy, the U.S. in an arms race was competing in the area of the smallest U.S. comparative advantage. Harold Brown used American technological advantages to compensate for the smaller number of U.S. weapons. It was precisely the U.S. technological lead that convinced the Soviets that they could not win an arms race.

Dr. Brown gained some impressions of the Soviets from his time on the SALT delegation 1969-71 (including from contact with Ogarkov) and from the 1979 Vienna summit (where he saw Brezhnev, Ustinov and Ogarkov). He based his understanding of Soviet intentions on Soviet military exercises, force structures, and policy statements. Soviet statements on military forces and strategy were subject to broad variations in interpretation because any given statement or body of statements could represent any of three levels of authority: agreed policy statements, arguments put forth in the course of institutional infighting, or the personal views of an individual. Sovietologists, such as Fritz Ermarth, were helpful in interpreting and discriminating among these three sources of Soviet statements.

selective use of nuclear strikes under various scenarios and suggested early targeting of Soviet leadership and command and control in the event of Soviet aggression.

SUMMARY OF INTERVIEW

Subject: Zbigniew Brzezinski
Position: Assistant to the President for National Security Affairs, 1977-1980
Date/Time: November 20, 1991, 2:00 p.m.
Duration: 45 minutes
Location: Center for Strategic and International Studies, 1800 K Street, NW, Washington, D.C.
Interviewer: John G. Hines
Prepared: Based on notes

In Brzezinski's personal opinion, the Soviets were not preparing to initiate war but they were planning to win if war broke out. They wanted to acquire a demonstrable war-winning capability that they could exploit politically. Serious Soviet strategists realized that a clear-cut first strike capability was unattainable, but if the USSR acquired a theoretical first strike capability, this would have political consequences.

The Soviets believed in nuclear deterrence and practiced it from the late 1950s to offset what they perceived to be significant U.S. advantages in strategic forces. The Soviets did not believe in MAD in the sense of accepting the logic of mutual deterrence based on fear as a substitute for developing a credible warfighting capability for their strategic forces. In the 1970s, while they developed their own warfighting capabilities, they pretended to accept MAD in order to put a cap on or not stimulate U.S. efforts to gain a warfighting capability. The Soviets considered their warfighting capability to be a projection of deterrence, which would work better if the United States continued to abide by MAD (that is to say, if the U.S. continued to rely heavily on MAD logic to avoid developing a truly credible warfighting ability that could be brought to bear if deterrence should fail). Brzezinski saw absolutely no contradiction between the Soviet commitment to a warfighting capability and the Soviet belief in nuclear deterrence.

Dr. Brzezinski noted that some in the U.S. National Security community interpreted the Soviet preference for warfighting to mean that the Soviets preferred and were eager to fight wars rather than to deter them. Most, including himself, saw Soviet seriousness about warfighting as a different approach to planning against

the event of the failure of deterrence, not as an alternative to deterrence. A benefit implicit in this approach was that a credible warfighting capability could enhance deterrence to the advantage of the Soviet side.

Parity was incompatible with Soviet warfighting capabilities. 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. Soviet weapons development was influenced by U.S. weapons programs.

Brzezinski asserted that PD-59 was designed to give the U.S. a warfighting capability. PD-59, combined with the Pershing II, MX missile and SDI programs, showed that the U.S. government professed adherence to MAD but was in fact moving toward a warfighting capability and was more likely to prevail over the competition.

The Soviets saw nuclear weaponry as having military utility. They concentrated more systematically than the American side on the military utility of nuclear arms, particularly for theater use.

The Soviets were not risk takers, so they sought to win through intimidation rather than warfighting. They sought superiority at different rungs of the escalation ladder in order to inhibit the U.S. from escalating and thereby to gain a strategic advantage. The Soviets preferred to fight only with conventional forces. If they were winning, they would not employ nuclear weapons. Brzezinski believed that the United States should be willing to go nuclear against a successful conventional attack by the Warsaw Pact. His view was not widely shared but gained greater acceptance during the course of the Carter Administration.

In his gut, Brzezinski felt that the Soviets would not use nuclear weapons first and might be restrained even if they had superiority in nuclear weapons. If we employed nuclear arms, the Soviets probably would match us or maybe escalate. They would respond to U.S. tactical nuclear use with tactical preemption, in the context of on-going hostilities. Brzezinski doubted that during a theater war, the USSR would strike preemptively at U.S. strategic forces in the continental U.S.

The Soviets probably did not believe in limited nuclear options (LNO) but they may have wanted a capacity to employ LNO, especially if it enhanced the credibility of their threat to the West.

The Soviets had significant chemical weapons (CW) capabilities and they used CW in exercises. In a serious war, they would probably resort to CW, and they might even employ CW in the absence of nuclear use.

Brzezinski received much helpful data (e.g., on the USSR's strategic buildup) but little helpful interpretation. The data were ambiguous and the same data were cited to support contradictory positions and interpretations. For instance, there was no systematic assessment of Soviet warfighting capabilities. Analysts argued more about interpretation than evidence, though the data concerning Soviet ABM systems and possible breakthroughs in Soviet military technology were in fact ambiguous. Brzezinski considered it important to consult good Soviet analysts and he solicited the views of CIA, INR,³¹⁹ DoD, and outside experts.

³¹⁹ Refers to the Intelligence and Research Division of the U.S. State Department.

INTERVIEW NOTES

Subject: Professor Dmitrii S. Chereshkin

Position: Chief, Department of Cybernetics, VNIISI [*Vse-Soyuznii Nauchno-Issledovatel'nii Institut Sistemnogo Issledovaniia*—All-Union Scientific-Technical Institute For Systems Studies, Academy of Sciences, USSR].

Date: April 24, 1991

Location: Chereshkin's office at VNIISI

Interviewer: John G. Hines

Language: Russian

Prepared: Based on notes

The Institute of Main Designers [*Institut Glavnykh Konstruktorov*], was founded in 1976, apparently by Ustinov, to run force development. This greatly increased influence of designers.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: Moscow

Interviewer: John G. Hines

Date/Time: March 5, 1990

Language: Russian

Prepared: Based on notes

From the mid-1950s, Soviet thinking about nuclear use evolved gradually and interactively with the U.S. (e.g., flexible response made a conventional phase more likely). By the mid-1970s, the Soviets viewed nuclear use as futile, because of the number of weapons and accuracy, and expected a nuclear exchange to result in catastrophe. By 1981, the Soviets realized that employment of tactical nuclear weapons would escalate to theater-strategic and then to global strategic nuclear war, which would cause unacceptable destruction.

Rejection of first use was serious and was based on research.

The Soviets assumed that the U.S. would use nuclear weapons first.

The Soviets wanted the U.S. to believe that they would respond massively to U.S. use of tactical nuclear weapons (TNW) because exchanges of even TNW would strike Soviet territory.

Concerns about vulnerability were evident in Soviet actions, e.g., development of mobile ICBMs. The Soviets never embraced vulnerability as desirable.

The General Staff discussed (the purely military effects of) possible responses to selective U.S. nuclear strikes in Europe, debating precise reciprocity vs. escalatory responses.

Soviet war games did not cover the starting of war and dealt with purely military themes.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume Strategy of Deep Operations (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: Office of Gen.-Maj. Iurii Kirshin, the Deputy Director of the Soviet Institute of Military History

Interviewer: John G. Hines

Date/Time: December 18, 1990, 12:00 p.m.

Duration: 1.5 hours

Language: Russian

Prepared: Based on notes

Purpose of Interview

To review with General Danilevich his views on the product and process of Soviet military assessments in the 1970s and 1980s. Of special interest was the Soviets' thinking about military competition, assessments of Western capabilities and intentions relative to their own, and expectations of the nature of war should it occur. The role and expected effects of strategic and theater weapons of mass destruction were of central concern as was the Soviet perception of the effect of qualitative improvements on the nature of conventional war.

General

I first met General Danilevich in Moscow in February 1990 through an introduction by General-Major Iurii Kirshin. I knew from Colonel (ret.) Vitalii Tsygichko that General Danilevich worked as Special Assistant to the Director of the Main Operations Directorate of the General Staff from the early 1970s until at least 1977 and, in that capacity, had a close working relationship with Ogarkov.

General Kirshin informed me in January 1990, at a gathering in Cambridge, England, that General Danilevich had been working as special advisor for military doctrine for the Chiefs of the General Staff, Marshals Ogarkov and Akhromeev, from 1977 to 1988 and continued to work in the command group of the General Staff until December 1989. He added that Danilevich had actually written much of the material published over Ogarkov's name in the late 1970s and early 1980s. Col. Tsygichko, chief of the Department for Theater of Strategic Operations Analysis (conventional and nuclear) in Research Institute Number 6 (NII-6), in the main research institute of the General Staff's Main Intelligence Directorate (GRU), ran an assessment effort for Ogarkov in the first half of the 1970s when Tsygichko himself did a great deal of analytical work for Ogarkov under Danilevich's guidance. Tsygichko, whose honesty, intelligence and analytical competence I have come to respect, has a very high opinion of Danilevich.

We met for this, our second, interview in General Kirshin's office. Also present were General Kirshin, James Brusstar of National Defense University, and Don Mahoney of RAND Corporation. I began the interview with a general description of the areas that were of interest after which General Danilevich made a rather lengthy presentation that was essentially chronological. The following is a paraphrased summary of the General's major points:

Soviet Military Assessments and Decisions Leading up to the 1970s

Danilevich asserted that Khrushchev was thoroughly involved in military matters on a personal level. His approach had both positive and negative consequences for military development.

On the negative side:

Khrushchev was not realistic and reasonable when it came to military affairs (presumably a reference to his severe reductions of ground, air and naval forces in the early 1960s). Danilevich cited specifically the fact that Khrushchev "liquidated" the military infrastructure in the Far East.

On the positive side:

Khrushchev's interest in military technology led to major breakthroughs in military force development, especially in the nuclear area leading to the development and deployment of qualitatively advanced land-and sea-based missile

systems. (He mentioned that one such advance, the sea-based cruise missile was canceled under Khrushchev because of Soviet estimates of the effectiveness of Polaris.)

He explained that McNamara's analytical concepts were important for Soviet analysis because they represented a strategy for force development and employment. General Danilevich said that McNamara's ideas were "concrete" and implied that Soviet thinking was less specific and not as systematically developed. It was clear that he believed that Soviet strategists had borrowed from McNamara in developing their thinking about nuclear forces in the 1960s.

"Soviet Military Assessments and Decisions in the 1970s"

"Strategic Nuclear"

General Danilevich opened the discussion by stating that there was no crisis in the 1970s of sufficient magnitude to cause the General Staff even to contemplate nuclear use.

He characterized the 1970s as the period of struggle for strategic superiority (he sometimes used the word "parity"). He clearly believed that the U.S. had strategic superiority going into the 1970s, and the Soviets were striving, at the very least, to take away the U.S. advantage. He said the Soviet General Staff believed there were a great number of areas where the Soviets were not only behind, but where the U.S. advantage was continuing to grow.

These included:

Missile systems quality, specifically—accuracy and survivability.

Overall command and control of strategic nuclear forces.

Naval strategic systems.

MIRV technology - U.S. deployment of multiple, independently targetable reentry vehicles (MIRV's) in the early 1970s was extremely unsettling to the General Staff because MIRV represented a significant offensive advantage.

General Danilevich stated that this perception that the Soviets were falling behind stimulated military planners to set out on a period of rapid development of ICBMs. The SS-11 was one of the products of this process. At the same time, the Soviet

military were indulging in deception to lead U.S. planners to believe that they were more advanced than was the case. As he put it, in the areas of nuclear and other advanced technologies, the Soviet military were not doing all that they claimed to be doing.

“Correlation of Forces Assessment Work”

In the early 1970s a great deal of substantial [*krupnyi*] analytical, “scientific,” work was being done in the area of strategic correlation of forces assessments. He stressed that the work was difficult but extremely important.

He criticized the work in that Soviet analysts “never did understand very well” how quality influenced the correlation of forces. Under quality he included the characteristics of control, accuracy, and reliability. To expand on this point he explained that analysis of quantity alone provides only half of the analytical picture. Because of qualitative deficiencies, one side could have a ten-fold quantitative advantage and still be behind.

He added that analysis of the strategic correlation of forces involved assessments of more than strategic nuclear systems alone. The overall correlation depended on other factors as well, especially upon U.S. naval forces such as aircraft carriers.

“Political Factors Influencing Broader Correlation of Forces Assessments in the 1970s and Early 1980s”

“External”

Relations with China: The Soviet MoD was forced to create groupings of forces in the Far East. In the late 1960s and early 1970s the only area that demanded significant force buildup was along the Chinese border. China represented a major diversion of resources and attention:

For every one General Staff exercise carried out in the West, three were done in the Far East.

Warming of U.S.-Chinese relations was a major source of concern.

Vietnam: The Soviet military were extremely pleased to see the U.S. tied up in Vietnam because the war represented such a large diversion of military and

economic resources away from areas that were more directly threatening to the USSR.

“Internal”

Brezhnev showed very little interest in the military area and was “very weak” in the area of military decision making. In exercises he would become very nervous and agitated even thinking about nuclear weapons and would physically tremble when required to make an exercise decision with respect to their use.

Because of his aversion to thinking about military questions, he ceded control over military decisions to the Minister of Defense. He also gave *carte blanche* to the MoD in terms of defining force requirements. Marshal Grechko, MoD until 1976, focused on planning strategic force deployments. Marshal Ustinov, MoD until his death in late 1984, concentrated on strategic force employment.

Given this political environment, according to Danilevich, forces were developed and deployed in the context of the arms race, not necessarily on the basis of any compelling analysis or intention to achieve a force advantage that would enable the Soviets to launch a surprise preemptive attack.

He explained that:

By 1972 there was already in existence a plan for employment of strategic nuclear weapons but that the plan did not envision a nuclear offensive—not an “OVN” [the expansion of the acronym may be *Operatsiia Vnezapnogo Napadeniia*—Surprise Attack Operation].

SALT I in 1972 led the Soviets to freeze all strategic force programs.

Serious resumption of force building in 1975-76 was stimulated above all by the desire to get ahead of the U.S. competition. It was *not* based on careful analysis that would support arguments for the utility of large numbers of nuclear weapons. Specifically, in force building decisions, no consideration was given to the consequences [*posledstviia*] of actually using any or all of the weapons being built on both sides. (The author learned from Tsygichko that major studies had been done in the General Staff in 1968 and 1972 on the various effects, including atmospheric, of strategic and theater nuclear use. Danilevich’s statement confirms Tsygichko’s view that this analysis did not penetrate the decision process until the early 1980s).

“Neither side,” according to Danilevich, appreciated the complex implications of the arms race for actual war planning.

“Theater Conventional and Nuclear”

General Danilevich acknowledged that in the early 1970s the Soviet Union enjoyed a significant quantitative advantage in conventional forces over NATO. There was, however, no Soviet plan to take Germany nor to take all of Europe. In this connection, he pointed out that the General Staff attributed to NATO a significant advantage in theater strategic aviation and in tactical nuclear weapons. The General Staff did have a counter-offensive plan which called for the Soviets to use their conventional superiority to launch a powerful strike in the event that NATO “unleashed” a war.

“Changing Expectations About Nuclear Use”

Early 1970s - Under Kulikov, there was genuine concern in the General Staff that NATO might launch a preemptive nuclear strike against the Warsaw Pact in a time of crisis. Barring NATO preemption, the General Staff expected that the conventional period of a war would last hours or days depending upon the Warsaw Pact’s success conventionally. The General Staff expectation was that the U.S. probably would use nuclear weapons at the first main defensive line in Germany and would “always” use nuclear weapons to prevent a Rhine crossing by the Warsaw Pact.

1977 - When Ogarkov became Chief of the General Staff the expected duration of the conventional phase extended out to 5 or 6 days.

1979 - The General Staff came to believe that the entire initial strategic operation “into France” could remain conventional.

1980-81 - The General Staff came seriously to expect that the entire war might remain conventional.

“Rationale Behind Changing Assessments”

The General Staff, by 1981, had come to a very firm, “scientifically derived,” conclusion that nuclear use would be catastrophic in general and operationally counter-productive. Key in the General Staff expectation that nuclear use could be avoided indefinitely was an observable change in NATO’s [exercise] behavior.

NATO had become much more cautious in its treatment of nuclear weapons and clearly contemplated a very prolonged period of conventional war. In the opinion of the General Staff, NATO probably was responding to Soviet development and deployment of tactical nuclear weapons and Soviet achievement of strategic nuclear parity.

“Limited Nuclear Use and Intra-War Termination of Nuclear Use”

For most of the 1970s the Soviets rejected all Western theories about escalation control as either Western deception or the work of academic theorists whose work was not rooted in reality. To maintain strategic-to-theater linkage, the Soviets maintained the policy that any nuclear use would result automatically in a full strategic nuclear response against the homeland of the initiating states.

1979-80 - By 1979, the General Staff began to contemplate the possibility of limited nuclear use or of limited nuclear war. This represented a new variant in addition to the two main existing variants: nuclear war or purely conventional war. The limited nuclear use variant did not enjoy much support because of Soviet pessimism about escalation control.

1979 - Intra-War Termination of Nuclear Use: The General Staff began to explore new scenarios for terminating nuclear use. Specifically, they began to evaluate the possibility of negotiations after the initial nuclear exchange in theater.

“Theater Warfare Assessment Work”

A great deal of work was done throughout the 1970s in the areas of assessments and comparisons of the combat potential of opposing sides. This work was helpful but mathematical analysis suffers from important limitations. At the operational and tactical levels, or for analysis of an operation or series of operations of limited duration, mathematical analysis generally is unable to predict outcomes reliably. The primary reason is that mathematical approaches do not capture effectively the art (or luck) of the commander who might make or fail to make the “critical” decision that will tend to dominate all other factors in determining the outcome of a given operation. Every operation usually has one such “critical decision point” that simply cannot be reflected in such analysis. He cited as examples that mathematical analysis would have predicted other outcomes for the Russian-German conflict in World War I and for the Pakistan-Bangladesh conflict.

He added that, on a large scale over a long time period, numbers do matter. He cited Soviet success in World War II as an example. He said that the Soviets did not win the Great Patriotic War because Soviet generalship and fighting skills were superior to those of the Germans. The Soviet Armed Forces simply overwhelmed the Germans with superior numbers of airplanes, men, tanks, and artillery.

“Assessments and Decisions in the 1980s”

1980-85 - The General Staff had the general expectation that war was becoming more likely during this period but that it was also increasingly more likely that, should war occur, it would remain conventional. This assessment led the General Staff to do a great deal of work to develop a more complete theory of conventional war.

Overall, the 1980s were a period of tremendous change for the General Staff because of changes in the general strategic situation, the rapid development and deployment of new technologies and dramatic changes in the domestic and international political scene.

At least two factors emerged which greatly complicated General Staff assessments. One was concern about the need to calculate the effects of chemical use and the second was the introduction for the first time (after the 1986 Chernobyl disaster) of the consequences of the destruction of nuclear and chemical facilities in the event of war.

All of these factors—political, strategic, technological, and operational—greatly increased requirements for the General Staff to devise ways to meet “tremendous” increases in anticipated wartime demands for control capabilities, logistics and infrastructure.

“The 1982-1983 War Scare in the Soviet Union”

I informed General Danilevich of the publication in the U.K. of KGB defector Oleg Gordievsky’s book in which was described a period of extreme crisis between 1981 and 1984. The general acknowledged that there was a “period of great tension” of which he had vivid personal memories, especially in 1983, but that there was never a “war scare” in the General Staff. No one believed there was a real likelihood (immediate threat) of a nuclear strike from the U.S. or NATO. He felt that the

KGB may have overstated the level of tension because they are generally incompetent in military affairs and exaggerate what they do not understand.

RECORD OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: Center for Global Security, Russian Academy of Sciences, Gagarin Square, Moscow

Interviewer: John G. Hines

Date/Time: September 21, 1992, 12 noon

Language: Russian

Prepared: Based on audio cassette tape

Q: What consequences did Brezhnev, Ustinov, and other Politburo members expect from nuclear war? Did they think that they could survive a nuclear war?

A: In the early 1970s we conducted three exercises in which we considered the consequences of a strategic nuclear exchange assuming a U.S. first strike. In 1972, the GS conducted the final exercise in the series and Brezhnev, Kosygin, Grechko and several members of the government took part. We presented to them the results of our computer models, as we then saw them, of the consequences of a nuclear first strike against the Soviet Union. Brezhnev and Kosygin were visibly terrified by what they heard. We explained our conclusions that after the strike the Armed Forces would be reduced to 1/1,000 of their previous strength; 80 million citizens would be dead; 85% of the industrial capability of the Soviet Union would be destroyed; the European part of the USSR would be contaminated by radiation at extremely lethal levels of 3,000 Roentgens. Given all of this, the consequences of a retaliatory strike against the U.S. would be even more lethal to that country. During the exercise three launches of ICBMs with dummy warheads were scheduled. Brezhnev was actually provided a button in the exercise and was to "push the button" at the appropriate time. Marshal Grechko was standing next to him and I next to Marshal Grechko. When the time came to push the button,

Brezhnev was visibly shaken and pale and his hand trembled and he asked Grechko several times for assurances that the action would not have any real-world consequences. "Andrei Antonovich, are you sure this is just an exercise?"

This study was prepared by various authors and organizations, including GS officers, members of GS Institutes, Intelligence, others. I personally prepared the summary section. However, this summary section was never published, because its message was judged too psychologically detrimental to morale and resolve. All of the results from this study were "buried."

After this study, attempts were made to ameliorate its devastating impact on decision makers. For subsequent studies, coefficients were introduced into the models which artificially reduced the level of destruction predicted by the results: a certain percentage of warheads would fail to explode, not hit their targets, the percentage of ecologically "dirty" ground bursts was reduced, etc. As a result the picture of nuclear use was artificially made more palatable and made somewhat more possible a willingness to fight a nuclear war in the classical sense. This attitude continued until the early to mid-1980s.

One example of our appreciation of the consequences of nuclear use: In the early 1980s Fidel Castro pressed hard for a tougher Soviet line against the U.S. up to and including possible nuclear strikes. The GS had to actively disabuse him of this view by spelling out the ecological consequences for Cuba of a Soviet strike against the U.S. This changed Castro's positions considerably.

The 1972 model was based on a U.S. first strike, in which 70% of the U.S. strategic arsenal was used, with a Soviet retaliatory strike. This model presented a terrible picture. From then on the percentage of weapons used in a first strike was maximized and a first strike was planned because the first to strike would be the one to win. However, technology changed this policy. In 1972 most of the targets were counter-value targets, since it was assumed that all of the enemy's weapons will already have been used in a strike, or would be used before they could be hit. After 1975 MIRVs appeared, which allowed a single missile to attack several targets at once.

Brezhnev was not a military-technical man and did not have an understanding of the impact of military technology. Kosygin had the best such understanding, and played an important role in moving military thought forward. Ustinov had the best technological understanding, but he did not have a very good military

understanding. The conclusion from all of this is that there was an understanding at both the military and political levels of the catastrophic consequences of a nuclear war. The Castro incident confirms this.

Q: What about SSBNs?³²⁰ How did they effect the calculus?

A: The main fear was to be late for a first strike. Survivability was not important. Later, in the early 1980s, the emphasis shifted to avoidance of a war by finding alternatives to a massive first strike/retaliatory strike, and creating options on the ladder of escalation. This concept led to a series of technical difficulties. How to protect forces: SSBNs, hardened silos, etc.? Later still, the first strike was rejected outright and the launch-under-attack [*otvetno-ustrechnyi udar*] became doctrine.

In all of these processes, both objective (scientific) and subjective (political/power) factors played important roles.

Q: In the Soviet view, could the USSR increase its chances for survival by gaining an edge in nuclear capabilities?

A: We considered that we held advantages in certain areas, such as throw-weight, land-based systems, in control systems, in silo protection, in number of weapons, so we thought that we could win a nuclear war by striking at the Americans and then using our general superiority to bring the nuclear war to victory. Regarding the possibility of survival, it was accepted up until the beginning of the 1980s. After the rise of Gorbachev this assumption was put under question. But it was not just a matter of Gorbachev, because by this time we had 12,000 strategic nuclear warheads, it became clear that a preemptive strike could not guarantee protection from a retaliatory strike, that a retaliatory strike is absolutely inevitable, under any conditions. A first strike could take out 50, 60, 80%, but the remaining 10% would be enough to completely put out of commission all elements of the viability of a state, and put that state to death. Under any scenario of actions, the damage was unacceptable. This was not really related to Gorbachev, but rather to the evolution and development of systems. MIRVs appeared, other new systems, the triad was more fully developed, and besides the strategic weapons, huge tactical arsenals were created, which were superimposed on the situation, so the situation changed. Also all of our estimates regarding the secondary use of nuclear weapons

³²⁰ SSBN — Submarine, Ballistic Missile equipped, Nuclear powered — a submarine designed to launch strategic nuclear ballistic missiles (SLBMs).

also had their impact. What would follow the first nuclear strike, the irreversible changes in the world's ecology, came to be perceived as the death of civilization and the death of the Soviet Union. So at this stage we came to the opposite conclusions from before. This, in turn had its influence on strategy, then on policy and on the coming together which occurred between you and us. All of the decisions which were made at the strategic negotiations—at SV-1, SV-2, SV-3 [SALT I, SALT-II, START]³²¹—were strongly opposed by the military because the concessions that we made outweighed the benefits by two, three, four times, but we were forced into these concessions because we saw that not to concede would not solve the main problem. The picture at these negotiations was very complicated and very dramatic. If it were described factually and in detail, showing what effect it had on our hearts and minds, it would be a tragedy, in the spirit of Shakespeare. We were forced to sign something that our hearts were against.

Q: How did the Politburo and the General Staff come to the realization that nuclear weapons had no military utility?

A: Neither the Politburo nor the GS came to this conclusion. The question was about the *rational* use of nuclear weapons. Large-scale use of nuclear weapons really does become senseless since it leads to mutual destruction. After this was realized, we started looking for alternatives—to what levels were reductions acceptable, etc. Gorbachev talked about total reductions, but we in the GS did not think that this would really happen. We supposed that this could be some far-off prospect, but did not believe it. We came from the premise that an acceptable level compatible with mutual deterrence should be found. We still maintain that nuclear weapons should be preserved as an element of deterrence, given the real possibility of the appearance of nuclear arsenals among third countries. And the second questions of finding ways to use nuclear weapons so as to give them a role in deterrence, but also the role of a strategic military factor, a factor in armed conflict. So that those methods of using nuclear weapons that were envisioned in the 1950s, 1960s and 1970s are unacceptable and we need other methods. So now we are seeing the return of the selective strike [*vyborochnyi iadernyi udar*], limited strike [*ogranichennyi iadernyi udar*], warning strike [*predupreditel'nyi iadernyi udar*], disarming strike [*razoruzhaiushchii iadernyi udar*], decapitating strike [*obezglavlivaiushchii iadernyi udar*] . . . —a whole series of concepts allowing for the limited, flexible use of nuclear weapons which, on the one hand would not cause

³²¹ Russian SV is shorthand for the last two words of the expression *dogovor po sokrasheniuiu strategicheskogo vooruzheniia* [agreement on the reduction of strategic arms].

global ecological changes, and on the other hand gained the given military-strategic objectives. As to the claim that they held no military utility, this was not concluded. The conclusion was only that in that form, and on that scale, which existed before, nuclear weapons could not be used.

Q: Did the Soviet Union accept the concept of mutually assured destruction? Was the strategic balance considered stable? How did the USSR gauge its vulnerability to U.S. nuclear forces?

A: In the late 1970s we talked about reaching a strategic balance. In reality, there was not and could not be a real military balance, because you had advantages in certain systems; we had advantages in others. You were ahead in SSBNs, in control systems, in protection means. In weapon yield, in the land groupings of nuclear weapons we held the advantage, in early warning systems there was rough parity. But with the massive potential we both had, all these distinctions tended to lose their meaning. So one could talk about a strategic balance, meaning that under any set of conditions, each side could cause unacceptable damage to the other. So in this context one could draw conclusions about strategic parity—equal capabilities for mutual-destruction. But the fact is that these were all theoretical conclusions. In practice it often happens differently, especially in military affairs. If the military art could be reduced to arithmetic, we would not need any wars. You could simply look at the correlation of forces, make some calculations, and tell your opponent, “we outnumber you 2:1, victory is ours, please surrender.” But in reality you could outnumber your opponent 3:1 and still suffer a crushing defeat, like Hannibal defeated the Romans, or like the German victories over us in 1941. So the correlation of forces is significant, but there is also a sea of specific, subjective factors, or even random events, which reduce these objective factors to nil. Therefore, in theory we may have the possibility to totally destroy the U.S. and vice versa. But in practice this may not happen. In practice the result could be completely unexpected. Because perhaps not all of these forces you have would be used. Because in the end you might not find the man who will press that button. That depends on many, many things. In the military art it is impossible to make predictions because things may go otherwise than you had planned. Although with nuclear weapons everything is subject to analysis, calculations, you can say exactly what damage there will be, etc. But in practice, things may go otherwise. And it is the fear of that “otherwise” that forces us to modernize nuclear weapons, the control systems, to develop various options for their use, etc. We and you both

have tens of options programmed on board our rockets, depending on the situation. And to go from one option to another it takes just seconds now.

Recently El'tsin gave an order to remove the targeting programs from our weapons systems. But the U.S. reaction to this was very cool, even though the order removed the targeting of cities. You probably did not believe us and preferred to maintain the status quo.

Q: These theoretical and practical approaches, to what time period are they relevant?

A: They apply to the latest [Gorbachev] period.

Q: In your opinion, was nuclear war best prevented by mutual deterrence or by developing Soviet nuclear warfighting capabilities? Were the Soviet Armed Forces prepared to fight if nuclear deterrence failed?

A: [beginning missing]. . . On the other hand it played a deterrent role. It is an unprecedented historical situation which has not yet been fully understood. If deterrence failed, was the Soviet Union ready to fully use its nuclear weapons? I think that we would not have refrained from using them. If we reached a certain threshold we would have pushed the button, especially under Khrushchev. Under Brezhnev there was already a fear and an understanding of this thing, but under Khrushchev it was absolutely well within the realm of the possible, both ideologically and practically. For instance, I remember being in the Northern Group of Forces during the Cuban Missile Crisis. We were ordered to stop all exercises, return to our command posts and be ready for action. We were completely sure that the war would begin within 24 hours. So the situation was really on the edge of the precipice, and if there were a careless move on either side, it could have led to a nuclear war.

Q: Did the Soviet Union adopt a launch-under-attack [*otvetno-vstrechnyi udar*] doctrine?

A: As I said before, it was considered, and it was the basis for our thinking until recently, when we moved to new principles for war-planning.

Q: Was the Soviet retaliatory strike aimed at U.S. missile silos or only at soft military targets and economic infrastructure?

A: Yes [Does not specify targets of strike].

Q: You have said that cities were the most probable targets. Did this strategy change after 1972 or not until 1985?

A: In the 1960s and 1970s the main targets were cities. After that the correlation of forces change, but cities, and economic targets and military targets were always considered as targets in a certain mix. The proportion of cities was determined by particular scenarios or variants of strikes. For instance, if a first strike was planned, then military targets would be targeted. In a retaliatory strike, when the enemy's weapons had already been used, cities were targeted. But both kinds of targets were always considered.

Q: Was it technically difficult to change the targeting?

A: No, it wasn't. It was difficult at first, but later different targeting orders were programmed into the systems and it took minutes to change from one to another.

Q: How did the USSR intend to respond to a selective U.S. nuclear strike at the strategic level?

A: At first, the theory of selective strikes was completely rejected. It was considered that we would react to any use of nuclear weapons, even a single nuclear explosion, by a massive retaliatory strike with our full arsenal of weapons. Later this thinking began to change. Later we also considered the possibility of limited nuclear strikes, including different scenarios of limited strikes. For example, only tactical strikes in certain zones, only certain categories of targets. So we began to accept the American point of view in this, which caused changes in our political situation and also changes in our forces. In short, as we began to understand the catastrophic consequences of the unlimited use of nuclear weapons, we concluded that it was inevitable to have some intermediate or transitional period from conventional to partial or warning use of nuclear weapons, designed to stop further escalation, but it was always understood that any use of nuclear weapons threatened its full-scale use. So it was a very slippery situation.

Q: Did you believe that the Soviet Union was capable of winning a war in Europe with only conventional arms?

A: Yes, based on the fact that our forces greatly outnumbered the forces of NATO. There were different assessments of our chances. We had some plans which called for an advance to the English Channel. Later we limited our appetites, our goals, but we thought it was realistic to achieve victory in Europe using our strategic advantages.

Q: How would Soviet forces respond to a small-scale U.S. strike using tactical nuclear weapons?

A: We always understood that the U.S. held certain advantages in this area and that the situation was unequal. With a tactical nuclear strike, you can hit targets on the territory of our allies: Poland, Czechoslovakia; and moreover, with tactical strikes you can reach only targets on European territory. A clearly unequal situation. To balance it, we considered limited use of nuclear weapons, but limited not by the size of the charge—tactical or operational, but, by the kind and size of the target. So we considered a limited balancing strike against certain targets in the United States, not with tactical, but with strategic weapons. Of course, this was all tentative and subject to political direction, but there was this “dosage” strategy.

Q: What would have been the response to a limited strategic strike from the territory of the U.S. on the Soviet Union, limited in terms of the number of weapons?

A: As I say, and this has been published in the open press, the answer would have been full-scale. We took this position because we thought it would play a deterrent role vis-à-vis the Americans. It would make them afraid to make a limited strike.

Q: But U.S. strategists in the late 1970s called for initial attacks on the radar locations north of the Arctic Circle to demonstrate

A: We don't really understand this position of the Americans. They even said that jamming of the early warning system would be considered as a nuclear attack and lead immediately to the use of nuclear weapons. This was not a serious statement, given that there were numerous occasions when the warning systems gave signals that could have been interpreted as a nuclear attack. Therefore, these kinds of statements and actions like early warning jamming, could not have led to nuclear war, although they led to an aggravation of relations, and malfunctions did happen. But an actual nuclear strike against specific targets, even on a limited scale, would quickly have led to nuclear escalation on a global scale. But, as I say, all of

this was subject to change and development, and these views were always changing with time, and with the understanding of what would be the global consequences of the global use of nuclear weapons from just one side, not to mention both sides.

Q: Did the USSR have plans to escalate from theater to global nuclear use?

A: It is less a matter of plans than of the fact that the on-board scenarios allowed for the possibility of any actions—against specific regions, like America, Europe, Asia, but to predict all of these scenarios was impossible. You would have planned 2,000 scenarios on paper, but the real situation would certainly have been the 2,001st. Therefore, at the base lay a concrete decision based on a concrete situation. Then, the time needed for such decisions was counted in minutes, and it had to be taken at the highest political level. So between the planning and the scenarios of military actions there is a large divide.

Q: Why did the USSR build up its SS-20 and other theater nuclear forces in the late 1970s and early 1980s?

A: We had R-12 [SS-4] and R-14 [SS-5] missiles, of which there were stationary and mobile variants. These missiles were not fully modern. The SS-20 was a mobile, solid-fuel missile, which made possible the solution of problems at a totally different level. Also, we had a competition—you were developing the Minuteman, Midgetman, and the Typhoon-Trident missile. And we were also developing various new strategic weapons. And the SS-20 was a breakthrough, unlike anything the Americans had. We were immediately able to hold all of Europe hostage. Therefore, in the strategic sense, this decision was justified. And in the technological sense it was a breakthrough. But we did not anticipate some of the consequences of their deployment. The Pershing II only appeared about 10 years later, and that made us rethink the original decision. It was of enormous advantage to us. By the way, in many kinds of strategic weapons, perhaps with the exception of MIRVs, the Soviet Union had the advantage. For instance, we began developing submarine-based ballistic missiles at a time when the U.S. never for a minute thought about developing them. But Khrushchev unilaterally shut them off. So the scientific and technological ideas were there as a product of the confrontation between our countries. Our design bureaus were working in this direction, and so were yours. We both knew that if there were a breakthrough, it would take a certain amount of time to develop means to counteract it, and that every such time lag gave a temporary technological superiority, and that technological superiority allowed political pressure to be brought to bear, and all of this was linked into a

single chain. So there were technological, strategic and political reasons for further development of systems. But we never thought that we would some day have to destroy these missiles. It made sense, of course, when, I don't remember which president proposed the Zero Option, of not introducing intermediate-range forces to Europe, because we did not believe that it was possible, but in the end we were forced to accept this plan on terms not favorable to us.

Q: Was the Soviet Union striving for strategic nuclear superiority?

A: Of course we strove to achieve superiority, just like you did. We chose different paths; we emphasized land-based systems; you emphasized sea-based systems; we tried to catch up in this field, and actually overtook you at one point. So it was a natural process caused by political factors in the world.

Q: Was it a competition in quality as well as quantity?

A: Our primary tendency was to overtake you in quantity. Later the question became one of quality also. We were behind in the control systems, in the protection of silos, and we tried to catch up. In such areas as MIRVs you put us in a difficult position. And this very highly complex technological problem was solved by us in a very short period of time.

Q: Were particular nuclear weapons developed and deployed in order to fulfill specific military missions?

A: Yes, precisely for military missions. It was later that the term "deterrence" appeared, which was first invented by politicians, but in time we ourselves came to rely on it. But they were *weapons*, not means of deterrence, but weapons. Later, they came to be looked upon as a means of deterrence.

Q: Did the General Staff have more influence over force structures than the Military Department of the Central Committee [*Voennyi Otdel*]?

A: Well, there was no such thing as the Military Department of the Central Committee. There was the Defense Council [*Sovet Oborony*], which solved military problems, a government-Party organ, the military took part in it. Of course, the General Staff developed proposals, developed assessments and forecasts, and greatly influenced military decisions. But the final say belonged to the political-military leadership.

Q: Under what circumstances was the Soviet Union prepared to employ chemical weapons? What kinds of chemical agents were contemplated for use?

A: Chemical weapons were considered to be a secondary means of armed conflict, since with the advent of nuclear weapons chemical weapons had lost their significance. We planned for its use only in the sense that if events did not reach the nuclear stage, we could adequately respond to the U.S. without resorting to the nuclear potential. Although chemical weapons are a means of mass destruction, it is incomparable in its consequences with nuclear weapons. It does not lead to the death of humanity, but it does carry enormously tragic consequences. But they are limited and localized in nature. They were developed primarily as a secondary means in the conduct of armed conflict. But it was assumed that if we reached the nuclear stage, then we would not spare anything and we would use chemical weapons on a scale that would be possible, but we did not attach any great hopes to it. Despite the relative unimportance of chemical weapons, the Soviet Union could not concede to the U.S. superiority in this field and matched all U.S. means, including delivery and agents used. We could deliver it by means of aircraft bombs, and rockets, in sufficient amounts. The arsenals were on the order of 1,000s of tons. So we were ready for chemical warfare, but only as a retaliatory means.

Q: In your view, did Pershing II and cruise missiles give U.S. forces the capability to launch a surprise attack on Soviet territory?

A: Yes, both types of weapons were perceived as a very serious threat, since their time of flight was only 6 minutes to vitally important regions. The flight times to U.S. targets were 32 - 35 minutes. Also, our air defense systems were not designed to detect such missiles. And pushed us to such a quick response. You had hardly deployed 1/3 of these missiles and we were already compromising. They were considered to be a great threat to our administrative-political centers, and the possibility of a surprise attack was very threatening, although we did possess a huge arsenal of medium-range SS-20 missiles which could completely destroy Europe in response to such a strike.

Regarding cruise missiles, these appeared later. Actually, we began work on them in the 1950s. There was Chelomei,³²² who was the ideologue of cruise missiles, and there was a great competition between the two directions: ballistic missiles and cruise missiles. Khrushchev was a good friend of Chelomei and he supported him in the development of cruise missiles. In short, we began to develop cruise missiles

at about the same time as you, and we won some measure of technological superiority, but later, during the 1960s and early 1970s, there was sharply more emphasis on ballistic missiles, and work on cruise missiles was abandoned. By the late 1970s, we again returned to cruise missiles, but we had lost time and the U.S. had a new generation of cruise missiles which we again had to catch up. There were no warning systems for cruise missiles. There were no and are no means to intercept ballistic missiles and whether or not SDI is possible is . . . we still think that this problem is not resolvable for now. But at least there were means of detection. We could detect both the launch and the flight and predict where the missile would hit, and thereby activate our own forces. Regarding the cruise missiles, we did not even have the means to detect them. Therefore, there was this double jeopardy. Especially threatening were the land-based and sea-based classes of cruise missiles, which put us in a very serious position. They caused serious worries in the GS and in the political-military leadership in general. And so we began intensive research and development programs. But to this day we do not have parity, and this is aggravated by the fact that the Americans are constantly trying to take these weapons out of the negotiations. Even this latest agreement does not involve cruise missiles. And this threatens to upset the strategic balance by 1,000s of weapons. This is a cause of serious concern, although in the technological arena the situation is more equal and in response to your missiles, we can now use our own. But the geophysical conditions are such that they give the U.S. an advantage in the use of cruise missiles. I mean the naval and air bases which still surround the Soviet Union, our distance from you, all give great advantages to the Americans. Second, cruise missiles can be used to carry both nuclear and conventional warheads. Their use in the Persian Gulf showed them to be highly effective, in combination with good targeting systems. This creates a second problem. I think that if what happened to the Soviet Union had not happened, this would have reached a balance. But now our state does not have the means to develop cruise missiles, and all of these considerations become secondary.

Q: Were decisions on force development and deployment based on expert analysis, particularly on quantitative analysis?

A: Of course there were various studies made for all kinds of weapons systems; different variants and solutions were suggested; different weapons systems were suggested. Right now, because of the development of weapons based on new physical principles—neutron weapons, low-frequency weapons, and others—these

¹²² One of the original Soviet chief designers of strategic nuclear missiles.

began first in the U.S., and we also, as a measure of adequate response, began R&D work in laser weapons, and these other areas, and reached certain successes. I don't know how these studies will be conducted now, as now there are not the means nor the scientific cadres, not, most important, the full-fledged financial support to do it. The work is being conducted in the U.S., and is continuing here to some degree, but the solutions are very complex, the temporal parameters are very problematic in the near term, so it is very difficult to say when and if these new weapons will appear, and if we will be able to create them. I think that the Americans will be able to create them. Regarding ourselves, my personal opinion is that right now we do not have the social and economic resources to bring these R&D programs to fruition. But the American advantage in these fields will not be of great significance, given the current political-military situation because that situation is such that, to be frank, the Americans can reach their political goals relative to the Soviet Union freely without any war, and they are doing just that.

Q: The essence of the questions is what roles did research and analysis play?

A: Well, I have already said, the recommendations of the research organizations and design bureaus were taken into consideration, but the decisive word was that of the political and military leaders. Whatever they decided, that was the system that was developed; that system had the priority; all efforts and financial resources were focused on it, etc.

Q: Did the Politburo inner circle of Brezhnev, Ustinov, Gromyko and Suslov listen to the advice of the General Staff?

A: Suslov participated in the Defense Council, but he had very weak influence on military matters because that is not what he did. He worked mainly ideological issues. Gromyko had some influence, and he had his own opinions, although he had a weak understanding of military affairs. Ustinov, of course, had great influence, he knew his stuff. Brezhnev also had a great influence, although he was not current on the issues, but he did do a lot of work on missiles and cosmonautics, i.e., he was familiar with these issues. There were two kinds of questions: military-technical and political-military. Of course, the majority of military-technical programs were developed in the General Staff and were put up for discussion in the Politburo and the Defense Council by the General Staff and the General Staff had a decisive significance for the adoption of decisions. The decisions were not always supportive of the General Staff for various reasons, but the opinion of the General Staff was very significant. But not all of the proposals of the General Staff were

adopted, especially when they contradicted political considerations and when they conflicted with the policies of disarmament in the latest period, when Shevardnadze came into power, when Gromyko also followed this line regarding reaching arms control agreements, etc. The General Staff always expressed strictly professional views, based on the real correlation of forces, on the advantages that one or the other side would receive, based on our strategic military plans, on our operational-technical plans. We attempted to defend these positions in order to minimize the damage to our side. The politicians based their decisions on different considerations: the relaxation of international tensions, the improvement of relations. More often than not, they won out. In this case, the considerations of the General Staff were rejected and the decision did not reflect them.

Q: Did Ustinov and the chief designers consider there to be a need for rapid technological improvement in Soviet weaponry and command and control?

A: Yes, Ustinov understood this and ordered many R&D programs in this regard. They were conducted with some lag behind the required deadlines, because there were many difficulties. Of course Ustinov understood this need and facilitated these efforts to a considerable degree, although he played a dual role. On the other hand, he exercised considerable influence in the military-industrial complex and knew all the subtleties. Even during the war, when he was the minister for armaments, he never entered a plant through the front door, but always from the back, so that he really knew the full story of the military industry. It was very difficult to fool him. He was feared, and the industrialists and OKBs³²³ acknowledged his absolute authority. But at the same time, he allowed certain weaknesses in relation to them. Grechko, for example, when performance did not meet specifications, or when it was suggested to procure certain weapons systems even though they were not fully developed, he categorically rejected these suggestions and objected very strongly to the industrialists, and put them up against the wall. But Ustinov, even though he also scolded them, in the end he would give up and concede to them, because the industrialists were closer to him than the strategists. So he was full of internal contradictions. He acted as the client, the contractor and the customer. In practice his position was such that he was often forced to compromise with himself. It seems that he should have played a tremendous role in military-technical progress—in a quick leap forward in our

³²³ OKB — *Opytno-konstruktorskoe buro* — [Experimental] Design Bureaus. These were R&D facilities in the military-industrial sector that originated major weapons designs (aircraft, missiles, etc.) and followed their development through to mass production and deployment.

military technical capabilities, and there was a certain leap. But it did not turn out to be as great as it could have been if there had been a division of responsibilities.

Q: Did he represent the interests of the industrialists or of the military?

A: He stood on the edge of the blade, and waffled in both directions. He stood on the border. On the one hand he considered the interests of the military, and on the other hand, those of the military-industrial complex. But more often, since he worked there for 30 years, he sided with the military-industrial complex. But he understood the requirements. Take Grechko; take Malinovskii. All of them considered foremost the military-strategic objectives, the political objectives, which demanded the creation of weapons in order to achieve them. Under Ustinov, we had weapons, and the strategic objectives were subordinated and built around the weapons, although this was not quite right. In this way, he put pressure on Ogarkov, etc. In any great figure, including Stalin, including the politicians, the military leaders, you cannot find anyone who is whole, who can be characterized in a single word or by a single action. They are all self-contradictory. It is the same with our military leaders—their decisions, their actions were self-contradictory. It cannot be otherwise—such is life.

Ustinov was not a conservative, and he appreciated and understood the significance of new technologies, new systems, modernization, etc., and did not simply reject them. But the personal relationships with particular OKBs was also significant. When there were difficult decisions and it is difficult to choose between two technologies that are being proposed, and both have positive qualities, and neither has yet been built, and it is hard to see the results, then the personal relationships come into the fore. I trust you, you are closer to me because of joint work, and I tend toward your solution, although often it is the wrong choice. And the other technology, which would sometimes prove itself to be desirable in the future, was neglected. There was a time when Khrushchev wanted to do away with tanks altogether. And because of relationship with Chelomei, we fell 10 years behind in ballistic missiles. And if you look for some rational reason, you will be lost. When I first came to the General Staff in 1963, I thought that every decision was thoroughly worked out and researched until they got the right answer. Later I understood that this was not so. Often the leadership will come, look, and simply say, "This is all nonsense—do it this way." And that's it.

I assume it is the same with you. Maybe not, because you have somewhat less latitude. But with us, these subjective factors had tremendous significance,

although of course, in the final tally, because of objective reasons, our line of behavior paralleled yours. Even in strategic thought and concepts, now you were ahead, now we were, now we both made the same blunder, now we both did something useful. Life imposed certain borders which limited the stupidities. In the end, reality and practice pointed out the voluntaristic errors, which were subsequently corrected.

I have raised only one side of the story—the objective and subjective processes which operated in the Soviet Union. But you have to add to that the political-military situation, the technological policies of the U.S., the breakthroughs that you achieved, the struggles that went on there—all of this was taken into consideration. Take the intelligence data. You confused us terribly. Remember the group missile basing options you considered, and other variants of systems. Or we had information that you were developing silos hardened against 1,000 kg/cm² [14,225 psi]. We had to investigate it all. All of this was superimposed on the whole.

RECORD OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: Institute of Military History, Moscow

Interviewer: John G. Hines

Date/Time: September 24, 1992, 12 noon

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Based on audio cassette tape

Q: Regarding the effect of the development of MIRVs³²⁴ on counterforce vs. countervalue targeting strategies, first strike strategy, etc.

A: Regarding the targeting policy and the choice of targets, when the rocket forces were first created, they possessed certain technical characteristics. One of the shortcomings of these first missile systems, like the R-16,³²⁵ which was one of the main intercontinental systems, consisted in the fact that the probable radius of error was from 2 - 3 km. This despite the fact that they possessed fairly powerful warheads, ranging from 100s of kilotons to 8 or 10 megatons. But their radius of accuracy was limited, and their number was limited. When Khrushchev boasted about how we produced missiles like sausages, the fact was that we could launch only 200 - 250 missiles. So we planned to use them with the maximum possible effectiveness by delivering the maximum possible damage with this limited number of missiles. Therefore, they were all aimed at the biggest cities: New York, Washington, Los Angeles, San Francisco, etc. In order to increase the effectiveness of the strike and yield the maximum possible damage, this group of missiles had to

³²⁴ MIRV — Multiple Independently Targetable Reentry Vehicle — Each warhead on a MIRV is guided independently to a specific target once released by its missile "bus."

be increased quickly, and this is one of the reasons for Khrushchev's decision to deploy medium-range missiles in Cuba, the so-called R-12 [SS-4]. These were 60 missiles which allowed us to increase the results of a strike. In effect this move targeted practically all U.S. cities with a population of 300,000 - 400,000. As for the military targets, they would be attacked incidentally [*poputno*] because many communications nodes, airfields, control centers are close to cities. Centers of military industry are also in cities. This problem was solved *poputno*. Although in the main, the attack was aimed at population centers, large administrative centers, and it was considered that such a strike would have lethal consequences for the United States. Also it must be mentioned that the majority of the strikes were planned to be ground bursts, not air bursts. This means that the whole territory of the U.S. would be subject to contamination through radioactive fallout, and in the end this would lead to the death of the entire population, or the greater part of the population because ground bursts of such power would produce tremendous levels of radiation. We did not think at the time that this fallout would eventually reach the Soviet Union, and eventually would have dreadful consequences for our own country. There was no research done on this subject at the time. So this was the basis for our nuclear strategy.

What kinds of missiles were there? They were liquid-fueled. It was impossible to keep them fueled continuously. So they were stored empty. Next to them were the fuel stores—the oxidizer and the fuel itself. They were fueled at the very last moment before launch. All of this took 5 - 6 hours. Furthermore, in the 1950s and 1960s most of the missiles were land-based. A part was based in silos with limited protection, but the warheads were stored separately. In order to make the missiles combat-ready the warheads had to be coupled to them. This took another 2 - 3 hours. So the ready times were quite long and it was difficult to talk of a retaliatory strike. The calculus was such that your missiles also had limited destructive characteristics, and therefore a considerable part of the missiles would be left unused [*sic*]. But the most important thing was to be able to strike. The goal was this: not to be late—to be the first to deliver a strike. To stall as long as possible, but not to be late. The strike must be first because if it is a second, retaliatory strike, then it will be practically ineffective because of the long ready-times. And not just against missiles, because we would not be able to retaliate at all, since our missiles or our control systems would be damaged to some degree.

³²⁵ Possibly Korolev's R-16 (NATO description SS-8) of which 23 were deployed.

But in time our missiles were improved. For example there was the mass-produced U-100 missile.³²⁶ This was a missile based in a silo, which had protection against several kilograms per square centimeter overpressure; it was pre-fueled [*ampulizirovanaia*], i.e., all of the fuel components were contained inside tanks within the missile; and it was stored with the warhead on board. Therefore the ready-times were reduced to minutes. This led to other paradigms. As a result, we now had two strike possibilities: a preemptive strike [*uprezhdaiushchii udar*], and a retaliatory strike. There was also an improvement of the tactical-technical characteristics, because not only were the ready-times reduced, but the silo protection was also improved. Whereas before we had protection of 2 kg/cm² [28 psi], for incidental nuclear explosions at a range of, say 5 km, now we had to deal with close hits. So there were now two options: retaliatory and preemptive strikes.

The majority of our strikes were directed against administrative-political centers. Later there appeared various large targets, large nodes, large naval bases, but mainly large area targets [*ploshchadnye tseli*], control centers, etc.

Q: Were they targeted in a first strike, or retaliatory strike?

A: Both first and retaliatory. It did not make any difference, because we did not know which would survive, which would not There remained a reserve of forces so that if the most important targets were not destroyed in a preemptive strike, we meant to destroy them in a second strike.

Now, how did this situation change with the appearance of MIRVs? First of all, the number of warheads increased 8 - 10 times. So now cities with populations in the 10,000s, rather than 100,000s were targeted. A town of 50,000 or even less was now a target, because there were 12,000 warheads or some such number. In other words, it was now possible to deliver massive destruction of targets on the territory of the United States, although not all of the targets were in the United States. They were planned all across the world—China, England, Europe, other continents, i.e., on a global system of targets.

But most important, the control systems were advancing, and the possibility emerged of a multi-variant use of forces: preemptive, retaliatory, retaliatory-meeting strike [*otvetno-vstrechnyi udar*]. First, there were different variants against specific regions: only Europe, or, say, only America, or both Europe and America,

³²⁶ Probably manufacturer's model number for the missile given the NATO designation SS-11. Also identified as the RS-10 by the Soviet Strategic Rocket Forces. The missile was deployed in the early 1970s.

or only China. There was now also the possibility of choosing the category of targets: only military, or only cities, or both. But fundamentally, the planning was to hit both military targets and cities at the same time, although the proportion of military sites to cities was subject to change, depending on the kind of strike. For example, in the case of a preemptive strike, it was important to reduce the effectiveness of the U.S. retaliatory measures against targets on our side. In that case, the majority of targets was to be military. All missiles, airfields, control centers, naval bases were targeted. But a portion was aimed at cities, and, in fact, there was more than enough for every city, and not just one warhead.

Q: What time frame are we talking about here?

A: The turning point came in the period between 1973 and 1975. In the case of a retaliatory strike, or a retaliatory-meeting strike, when there has already been a launch of your missiles, it was senseless to strike at missiles, and those forces that were aimed at your missiles were automatically, from a distance, switched to a different program and were aimed at cities. So the effectiveness of destruction of those cities already targeted was increased, and in addition, less important cities were also targeted. So this was the policy. Thus the changes in technological possibilities were tied to the changes in the nuclear strategy itself. There was a shift from the strategy of massive retaliation [*strategiia massirovanogo vozdeistviia*] which you and we had, to a strategy of a flexible use of nuclear weapons. This involved not only these various variants for strikes, but we also came to accept the possibility of a lengthy conventional war, and did not begin and end the war with the use of nuclear weapons. We wanted to distance ourselves from the nuclear threshold, just as you did. And in this connection there arose the possibility of "dosage" [limited] use of, at first tactical, but later on strategic nuclear weapons, and still later there appeared the possibility of such multi-scenario use. Up until 1975 or 1976 Grechko unequivocally maintained the following position: he rejected all variants for the limited use of nuclear weapons, and asserted that we would respond to any use, in any geographic region, of even tactical nuclear weapons, with a full-scale use of our nuclear potential, both strategic and operational-tactical. We did not hide this. Members of our military leadership considered it essential that the opponent should know this, and that this should act as a means of deterrence. Moreover, we thought that a limited nuclear war is totally unacceptable to us, as it puts us in an extremely difficult position, because the theater of its use would be limited to Europe and the European territory of the Soviet Union, while the U.S. would remain outside of the range of tactical nuclear weapons. So the asymmetrical consequences of such a

war forced us to be critical of such concepts. We rejected them and both Schlesinger's and Brown's statements were considered to be provocations and we did not yield to them.

So at first the possibility of a second strike was considered highly dubious. Later on, when the possibility of a second strike was guaranteed, and it was clear that regardless of whether or not there were a preemptive strike by the U.S. we would have enough forces left to deliver unacceptable damage, this, together with the realization of the catastrophic consequences of the use of nuclear weapons on this scale, eventually, with some time lag, forced us to tend toward your concept of "flexible response," although we did not use that term. We introduced the term "new periodization of war." At first there was a two-stage periodization: initial period and subsequent period. The initial period was the massive nuclear exchange, and the subsequent period was the concluding period which was the deployment of operations—land operations and sea operations which would use the results of these nuclear strikes. Now we arrived at a new strategic periodization based on other principles: a period of non-nuclear actions, then a period of limited nuclear actions, then a period of unlimited nuclear actions and lastly the concluding period. So these were four periods designated based not on the character of the use of armed forces, but on the character of the use of weapons [sic].

Q: Approximately when did this periodization change?

A: It was approximately 1976-77. It was arrived at gradually. It did not change overnight. But it was finally, officially documented in approximately 1974-76 [sic]. And we remained at this position up until recent times. Although after 1978, or even 1979 and the beginning of the 1980s, we renounced the use of a preemptive strike. This variant was removed from consideration.

Q: This happened during Ustinov's tenure in June of 1982?

A: Perhaps it did happen during Ustinov's tenure. We rejected the preemptive strike and moved to a two-option use of nuclear weapons, i.e., only in a retaliatory-meeting strike, when systems are launched based on data from SPRN systems,³²⁷ when launches have already been detected, and in a retaliatory strike, when the launches have not only already been detected, but we have already suffered hits and we use our remaining forces to retaliate. These were the two options. As for the

³²⁷ Early warning systems (probable expansion — *sistemy preduprezhdeniia raketnogo napadeniia* — missile attack warning systems).

preemptive strike, it was completely removed from all theoretical studies and all exercises.

Q: Was the retaliatory-meeting strike conceived of only in the 1980s, or prior to that time?

A: It was created approximately at the boundary between the late 1970s and early 1980s. But it did not depend only on the size of the forces and these other considerations that I have already talked about, but also on the creation of warning systems. At first there were no such systems. Then there were only above-the-horizon systems [*nadgorizontnye sistemy*]; there were no over-the-horizon systems [*zagorizontnye sistemy*]. [Unclear . . .] These systems were not sufficiently reliable. They did not allow the reliable detection of launches. The only way to reliably determine the beginning of an attack is through human intelligence, but it is dubious that such data could be obtained. And, of course after the fact [after nuclear hits the attack can be detected]. But after the fact you can no longer have a retaliatory-meeting strike, but only a retaliatory strike. But when the network of over-the-horizon systems was developed and deployed, and after that space-based warning systems, artificial satellites, then it was possible to move to the concept of the retaliatory-meeting strike. But, still in the technological sphere, not only this technology played a part, but you also needed an automated control system which could provide instantaneous . . . [data on the strike] in seconds. With manual control this is completely impossible. In other words, a whole range of factors: technological, strategic, and political conditioned the whole development of this idea and the rejection of one variant and the adoption of a second and then a third. I think that the same factors played to some degree the same roles in the U.S., although your scientists were in a rush and even though the necessary conditions did not yet exist you would adopt the corresponding concepts or postures. This baffled us, we could not see why you took such steps. We denounced them, then we would begin ourselves to look for solutions, and thus you would push us to further improvements and developments.

Q: But even when, in the mid-1970s, you took the official stand of “all against any,” in other words that you use all your potential in response to any use of nuclear weapons, there was already some understanding in the GS or in the Politburo that in case of a real war, you should have the technical ability to react somehow using less than total force?

A: Well, first of all, the “all against any” concept was the simplest policy; second, we counted on the fact that it would be a deterrent, i.e., we would not let you play around, as you intended, for example, by using battlefield nuclear weapons in Europe, and other scenarios which were very dangerous for us. We did not want you to play out any of these scenarios, and so we wanted to deter you [*sderzhat*] by frightening [*ispugat*] you into the realization that you would not be left on the sidelines, that we would strike massively against your territory. But how we actually would have acted, I would not venture to say. I suspect that if events would have forced an actual decision, they would have paused to think: do we need to do it? Are we able to do it? Although officially, both theory and practical planning were based on this variant. But theory and practice do not always coincide with real decisions. So these decisions, even at that time might have been different. And later on, as I say, after the mid-1970s, we fully gave up that concept of all against any. We decided that it was not necessary to use nuclear weapons right away, that our answer could be a limited “dosage”, or could be proportional. For instance, you deliver 200 hits, and we deliver 200 hits. Or we respond with 250 hits. You deliver 200 battlefield strikes directed at our order of battle, and we strike at your order of battle, plus an additional number of strikes. In other words, it is a kind of escalation. There could also be an inverse proportion: you deliver, say, 20 hits, and we respond with 10 hits. Meanwhile there is an exchange of statements, a diplomatic war is being waged with the aim of stopping this escalation. So in exercises we played out many different scenarios based on different guesses of how you would respond. But they were just guesses. I remember that you had one wargame where different former presidents and former Secretaries of Defense got together, and they played out a scenario of a war based on a confrontation around Iran. There were two teams: one side played the Soviets, and on the other side there was a former president, I don’t remember now which one—maybe it was Nixon—and actual former Secretaries of Defense. They made the decisions on the U.S. side. So they played out this scenario and it was very interesting. But if you could have taken those Soviet leaders and forced them to play on one side of this game, it would probably have been a big step forward, in the sense that we would have approached the situation that we are close to now.

I am thinking that, in reality, we have no adversaries now: you do not consider us an adversary, and we do not consider you an adversary. But in a situation such as we had in the 1970s and 1980s when we were afraid Although I must say that even despite all of the propaganda, we inside the GS did not really believe that you would attack, although there were some frightening situations. I don’t know about

your military, but your politicians also probably said one thing, but their thoughts were somewhat more restrained relative to the possibility of a real attack. But the fact that there was no war was due to many factors: technological and political. Both played an important role.

Q: So these plans to retaliate only against Europe, or only against the U.S., existed until the mid-1970s?

A: They existed up until very recently. I told you before that in 1972 there was one exercise with the participation of the political leadership. After that, the political leadership did not participate in any of these events even once. And the military leadership scrupulously developed all of these scenarios of action in exercises, etc., but the political leadership did not participate. I don't know about your side, but by the data that I received, the President would very actively participate in such exercises and in the development of different options for decisions. But our political leadership just did not get around to it. Khrushchev took these questions very seriously. In missile technology, for example, he had a lot of input, including some revolutionary approaches. He destroyed our whole artillery and began deploying the rocket forces instead at a time when there were virtually no missiles. But he ordered a drastic reduction in artillery. He destroyed our whole air force. We had huge fighter aviation and bomber aviation groups. But he was able in a very short period of time to create a new branch of forces—the strategic missile forces, which were created in 1960. All of this was done by Khrushchev.

Brezhnev also was involved in these matters, but in a different way—through the Politburo. He understood and was involved in military and space and missile technologies. Andropov did not have time to get involved. Although at every session of the Politburo military decisions were made, but not in concrete terms. Chernenko did not touch these matters at all. As for Gorbachev, he was involved, but in an incompetent and perfunctory manner. We had one exercise in Minsk in which he arrived, gave a prepared speech, without seeing the exercise itself and left. The military doctrine changed at this time. We were up against a united front when Shevardnadze and Gorbachev criticized us: that we are preparing to fight against the whole world, that we have an offensive doctrine, that it has to be changed to a defensive doctrine, and we did change it in the end, but in a political way. Then the “New Political Thinking” was born, that security was guaranteed not through military means, but through political means, that war was not the continuation of politics, although we disagree with that even now. It *is* the

continuation of politics and what we saw in the Persian Gulf confirms it. But all of these established canons were rejected, but on political grounds. As for the strategic and military-technological aspects, here Gorbachev was not sufficiently competent to make any decisions, although he thought that he knew and understood everything.

Q: In Minsk did he speak against the solution of problems through military means?

A: No, in Minsk he gave a different sort of speech. He was attempting to find a basis for the theory of *Perestroika*: the condition of the country, why *Perestroika* is necessary, the essence of *Perestroika*, etc. As regards the military and defense, he did not advance beyond the standard, well-known positions: the strengthening of defenses, the technological improvement of the Armed Forces, the strengthening of discipline, and others. He did not advance any new strategic concepts. Just generalities: that there is a threat, etc.; the idea that there can be no winner in a war came later; that the United States is not an enemy, but a partner in international relations came considerably later, around 1989; that the priorities should be on human values also came later. But back then in 1985 or 1986 he was still swimming with the stream. Although even then he was proposing a more restrained military policy than in the past.

Q: You said earlier that the GS never came to the conclusion that nuclear weapons have no military utility. Instead, you said that it would be senseless to use them only on a very large scale. You also said that, especially after 1980 you had come to a full understanding of the ecological consequences of nuclear use. You then began to think about a way to create realistic and rational options. In developing these options, what did the GS assume regarding the reaction from the opponent? For example, if one side struck in a very limited way, against either the territory or the forces of the other side, how could one control the reaction of the other side?

A: Of course, it is unpredictable. As Clausewitz said, "War is a sea full of underwater rocks which ambush the commander at every step." It is very difficult to guess. There are very many objective factors, but there are also very many subjective factors and random occurrences as well, which can turn the course of events in any direction. And in military industry, military theory and practice, one usually relies on the most adverse, the most difficult scenarios. And this forces one sometimes to keep to the most extreme positions. So, for instance, why did we

create such an enormous nuclear arsenal? Or such a large number of tanks? It is because we expected the worst—that we would lose them, they would be destroyed, etc. If we had counted on reasonable or on the most likely outcomes, then maybe such decisions would not have been taken. Our starting point was, “What if?” If we are ready for the worst, then we are also ready for a normal course of events. The events of 1941 showed us what can happen to the country. Because of that the worst was expected. Because of that marginal decisions were made. Because of that we produced more than was necessary.

McNamara conducted a very reasonable calculation of the limits of a strategic nuclear arsenal, but you exceeded it by a large amount, and so did we, notwithstanding the fact that the limit planned by McNamara was quite sufficient to attain the entire complex of strategic objectives that realistically stood before your armed forces. You exceeded this limit, and meant to go on further, and if events had not interfered we both would have gone on building. And now there are new possibilities to build a whole complex of even more destructive weapons, based on new physical principles: laser weapons, low-altitude weapons, [unclear] weapons, hell knows what kinds of weapons, and they might have appeared. And SDI, with all of its pluses and minuses, and space-based weapons systems, and super-EMP,³²⁸ and God-knows what else. All of these would have been superfluous, because what we have now is enough to destroy humanity 10 times over. Lenin taught that we must have all of the weapons that our opponents have. So we strove to produce everything that you had. And the same principle operated for you. I have already said that we designed SSBNs before you did. But Khrushchev rejected them. We began to build submarine-based cruise missiles. Then you developed the Pioneers [sic Polaris],³²⁹ I think. But yours had medium ranges. Your range was at first 2000 km, then 4,000 km, 8,000 km But we immediately began to build similar systems with ranges of 8-10,000 km, i.e., intercontinental sub-based missiles. Then there were the Tridents. So there was a competition. We saw what you were building, and repeated it, but on a higher level. The U.S. first developed MIRVs,³³⁰ but we later not only caught up, but passed you in MIRVed systems, both in quality standards and in control and in accuracy. We strove to avoid an imbalance.

³²⁸ EMP — Electro-Magnetic Pulse. [*elektronomagnitnii impul's* (EMI)] An effect of a nuclear explosion that tends to disable electronic and electrical devices and systems—normally beyond the range of the heat and blast effects of a given weapon. Solid state electronics are more susceptible to neutralization than are older, tube-type technologies.

³²⁹ Probably referring to the Polaris SSBN.

³³⁰ MIRV — Multiple Independently Targetable Reentry Vehicle — Each warhead on a MIRV is guided independently to a specific target once released by its missile “bus.”

We were not always successful: in intelligence systems, in RN³³¹ systems, in command and control systems, we were consistently behind you. So this process of competition in military technology was very complex and contradictory, not like a straight line. It was rather a pair of ascending, intertwining curves.

Q: You said yesterday that in the technological competition in the means of command and control and in silo protection the U.S. was consistently ahead of the Soviet Union. With regard to silo protection, we thought that the opposite was true.

A: Well, that is not right because, as I say, at the time when our silos had protection of 2 kg/cm² [28 psi], you were already building silos protected against 21 kg/cm² [299 psi] overpressure. So we thought that we were behind in protection, but we caught up. Later on we had information that you were building silos able to withstand 300 kg/cm² [4,266 psi], and later 1,000 kg/cm² [14,225 psi] and we started to think about that and decided that this process could be reduced to absurdity. We began to look for other basing options and to create a guaranteed-survivability reserve on submarines and on mobile platforms. So at first we followed your lead, but we saw that it would lead to stupidity, because the cost of such [protection] measures was enormous, and it was still useless, because we could eventually create silo protection of 1 million kg/cm² [14,225,000 psi], but if the accuracy and the guidance are good, you could hit the silo, jam the doors or disrupt the control systems, and all of these millions [of rubles] would go to the wind. So we began to look for other means of defense. Also, we were receiving a lot of information, not just from classified sources, but from open sources, newspapers, regarding the basing of a hundred MX missiles in within a limited space, etc. We thought this was stupid, but we tried to look for the advantages of this kind of scheme, although there may not have been any sense to this to begin with.

Q: As I understand it, the Americans were planning to use air bursts at a height of 120 m. You, on the other hand planned to use ground bursts on the basis of tests that showed that ground bursts were much more effective against missiles in silos. At the same time, our estimates of vulnerability differed significantly from yours. Our measure of silo destruction was based on the ability to verify the destruction from space. Your measure of destruction of a missile was any damage that prevented that missile from being launched, even if it was just a jamming of the silo doors. That missile, according to your thinking, was considered killed. Under

³³¹ Possibly abbreviation of *razvedivatel'no-nablyudatel'nye* (reconnaissance-observation) systems.

this definition, it was almost impossible to completely protect a missile from a disabling hit. This is just an observation, and it may not have played an important role. But at the same time, this definition made us think that it would take many direct hits to kill a missile with overpressure so that it could be verified from space. Conversely, based on the Soviet analysis, a kill was much easier to achieve.

A: Generally speaking, to disable a silo it is not necessary to achieve a direct hit. Even if the explosion is nearby, the silo itself is deformed and the missile cannot be launched. So that now there are all sorts of complex systems built into the silo to absorb the shock, because it is like an earthquake. Now, we do not reject fixed launch sites even now because of certain advantages. Take radioactive fallout. Mobile platforms are vulnerable to it. Servicing them is very labor-intensive. Fixed sites are unmanned, except for the guards. Everything else is done by remote control. Next, mobile platforms move around, so the whole process of preparing a strike is complicated, while with fixed sites everything is in one place. But both the positive and negative factors must be considered, and in the end both kinds of launch platforms must be developed in parallel. Now a wholesale rejection of stationary platforms is untenable. I don't know how it will be in the future, with all of the deep cuts. But the proportion of mobile platforms was always increasing.

Q: In the middle of the 1980s there were big changes which made it possible to target silos.

A: There were two theories which were considered: the theory of the counterforce strike, and the theory of the decapitation strike. The theory of the decapitation strike aimed at disabling the control systems. This is what you were saying, the super-EMI,³³² that is the air bursts, were aimed at disabling semiconductor-based control systems and on-board and external control systems. And the counterforce strike was aimed at the silos. But here it was assumed at first that in order to disable a silo you needed three times the number of hits. But this was not efficient, because it turns out that with an equal number of warheads, you would use more in the counterforce strike than you would keep. But when we got into the very large numbers of warhead stocks—10,000 to 12,000—you could afford it because even with a 3:1 ratio you still had enough warheads left to target all other categories of targets. So if at first this presented a problem, in time it solved itself. Secondly, 60% of your nuclear potential is on submarines. So we began to develop

³³² EMI — *Elektronomagnitnii impul's* — Electro-Magnetic Pulse (EMP).

SSBNs, and eventually the number of our nuclear submarines surpassed yours. But we also had problems related to basing these subs. The problem was that our missile-carrying subs had to get close to the shores of the U.S. But you had an advanced system of passive detection and antisubmarine warfare, CAESAR,³³³ etc., and this made our subs very vulnerable, not to mention the fact that it took a lot of time to send them out and bring them back. Plus, we were blocked in by your anti-sub barriers, both in the east and in the west, which made our access to open seas very difficult. So we developed intercontinental ballistic missile submarines. But here we also had problems: how to defend them? Then there was the idea of launching directly from the bases. But if we do that, we lose the mobility. So there are many difficult problems. One more thing is significant: you had better hydro-acoustics. So when there is anti-submarine surveillance you can hear us, but we cannot hear you. This worried and continues to worry us.

I just wanted to say one more thing. Now we have declared officially that we have no adversary. But any politician can declare that. These declarations must be based on realistic, material decisions. And in the material sphere, movement is still dubious. Take the missile forces of the U.S. and Russia. Where are they aimed at, the moon? At Africa? At Antarctica? No! They are aimed at each other, just like they were before. What kind of standoff is this, a "friendly" one? So this element is preserved. Or take the armed forces of NATO and Russia. Those whole systems of supply, of technical specifications, etc. Are they designed to wage war against African states, or Saddam Hussein or the Chinese? No! They are objectively, technically adapted for war with one another, between NATO and the former Soviet Union. We prepared them for 70 years for such a war, and they have remained that way. Or take the PVO [Air Defense] system. Your theater-level PVO system is pointed where? It is pointed to defend against an attack from the East. It is politics that has the decisive significance because politics deters the use of these systems. But what if the politics change? What if some new forces come to power here or in the U.S., anything can happen. So in that sense there is a potential danger that cannot be ignored. So I have advanced the idea of a deep *Perestroika*, an extensive integration of our military forces that would alleviate this danger. The question of absorbing Russia into NATO, for example. But what does this mean: you will not agree to that because it means giving us access to your strategic planning, etc. There are elements of mistrust which will condition your

³³³ CAESAR — A highly classified system, part of the Navy's overall Sound Surveillance Systems, which provides passive underwater sonar arrays which detect the sound of a submarine and transmit the information to shore installations where data is correlated.

decision. But if such a decision were made, it would remove the danger because the whole system of planning would change. I don't know about how your planning process has been changed, but right now we have no plans at all, because we do not know against whom and with what to fight. All of our planning and all of our groups of forces, etc. have gone down the tubes. NATO remains and it says that its strategy has changed, but as for the concrete plans for nuclear strikes, I suspect that they remain and are maintained at the ready to this day. As for the whole system of other operations, I cannot envision it. But if NATO were a unified military alliance which would guard against threats to European and global security, on the basis of a partnership and of unified planning, this would be a tremendous step forward. But I guess the time is not ripe for this.

Now a second thing. Cooperation in the area of early warning systems. El'tsin moved on this, but he received no response. Cooperation in the development of unified intelligence systems. Cooperation in the development of, if not unified, then perhaps jointly-vetted air defense systems. Cooperation in the area of joint use of naval forces. Cooperation in other military areas. These are all areas which could remove the lingering elements of distrust.

Kirshin and I have proposed a plan detailing these and other suggestions, entitled, "Military Aspects of the New Complex of Security in Europe." We wanted to propose it through the Germans, but they do not want to move on it without U.S. support.

List of Possible Areas of Cooperation:

- 1) Joint assessments of strategic situation, planning, decision making.
- 2) Joint intelligence, reconnaissance.
- 3) Joint warning systems.
- 4) Joint air-defense systems.
- 5) Joint work on anti-missile and space systems.
- 6) Joint mobile task forces.
- 7) Integrated combat structures.
- 8) Integrated systems of preventing accidental launch.
- 9) Joint efforts on non-proliferation.
- 10) 10) Joint military-historical research.
- 11) 11) Integrated control links over strategic forces.

Q. You said that if the U.S. or NATO had used tactical nuclear weapons against Soviet forces or against members of the Warsaw Pact, then you had possible

responses which had been worked out, including limited nuclear strikes against the U.S. In what specific time period were such limited options developed?

A: It was approximately 1978, 1979, 1980. And if you were to connect it with specific personalities, it was associated with the exit of Grechko, and the entry into the Ministry of Defense of Ustinov and the rise of Ogarkov as chief of the GS. But it was connected not only with personalities, and not only with the political situation, but also with military-technical changes which also occurred in the Armed Forces, in the condition of the strategic nuclear arms.

Q: You also said that tank production in the USSR, as I understood it, was influenced by the fact that the production capacity in the U.S. was so high that in case of a prolonged long war, there would not be enough time to produce the necessary amount.

A: Well, during WWII we produced up to 26,000 tanks per year, while our losses were approximately 18 - 20,000. So we could not only replenish our losses, but we could actually increase the size of our Armed Forces and raise the level of our technology. This played a decisive role in our victory because the Germans could also produce enough to cover their losses, but not enough to increase their tank force, so the correlation of forces was constantly changing in our favor.

How did we assess the economic situation in analyzing a prolonged conventional war? Take the rates of attrition. Today, with the highly accurate weapons and specific anti-tank weapons, the rate of attrition would be five to six times higher than in the last war. In other words, the rate of attrition per operation was estimated at 120%. This means that if we had 1,000 tanks at the beginning of an operation, we would lose 1,200. This seems absurd. But the fact is that in the course of an operation there is 25% rate of attrition due to repairable mechanical failure. In the course of an operation these tanks would be repaired and put back into action. They would fail a second time, and again be repaired, and the total would be 120%. But now this rate would rise to 200 - 300%. So you needed a tremendous repair capacity within the formations themselves. But even a tremendous repair capacity could not replenish these losses, so you need a huge industrial capacity. But the tanks are much more complex now. To produce a T-34 you needed four plants: one for engines, one for the main body, one for the control systems Now you need 340 plants to build a medium tank, say a T-64A. You need all of the above, plus night vision systems, laser sights, stabilization systems for fire-on-the-run, fire control systems, anti-radiation systems, various kinds of

armor, etc. 340 plants! Try doing all of this during a war. And you cannot use low tech. Well, you can, but if the other side has high-tech, it will be a rout. So you need high-tech tanks. Our tank production was roughly 10 - 12,000 per year. But the losses were expected to be 20,000 tanks per year, roughly. So every year of the war our tank force would decline, According to mobilization schedules, the overall size of our forces was supposed to increase four-fold, new formations were supposed to appear. It is because of this capacity that we won the last war. All of this was now out of the question—there was no such possibility. We could not even maintain our forces at the same level, let alone increase them. If we began with 40,000 tanks, by the end of the war we would have 5,000. This, given the fact that our industry and all of our territory would be under constant conventional attack, whereas the U.S. industry would not be subject to any such attack. The mobilization capacity of the U.S. far outstripped ours. So the Americans could not only make good their rate of attrition, but could increase their forces manifold. If our tank production curve was this steep, then yours was much steeper, and the difference was tremendous. So we began to look for a way out. We decided to produce a much larger number than what was immediately necessary and to use the surplus as a mobilization reserve. If one generation of tanks becomes obsolete, we will not remove them from active duty. There was the suggestion to remove them from active units and to concentrate them somewhere in Central Asia. But this required additional servicing and additional personnel. So it was decided to keep them integrated within the units so that the units would have an increased number of tanks, and have the same personnel master the new generation of tanks. A second point was that we considered our tanks to be our main trump card in a conventional war which would give our side a considerable advantage. Many other factors were negative. We strove to make tanks which were at a higher level than the American tanks. But for this it was necessary to quickly adopt innovations and rearm using new systems. One tank is developed and 5 years later it is replaced by a new one. But by that point we had not yet had enough time to equip such a large army with the old type of tank. We would rearm 10 - 20% of our force, and a new model would come out. So the old type would be mastered and integrated and would already be in mass-production, while the new one was still being produced in single digits. So you had to make a decision: to stop the production of the old type or not. We would decide to produce both types. So it happened that we were producing 6 different types of tanks. This also added to the total tank force. Now we are scrapping the tank force, and this takes money and resources. A portion of our tanks have been moved to the East and there the sand is ruining them and

turning them into scrap metal. It is a scary situation. As for waging war, we are not even thinking about that anymore.

The mobilization capacity of the U.S. military industries was estimated to be very high, according to our intelligence sources. Of course you have a very different structure: you have private firms and government firms that produce military technology. Furthermore you have tested mobilization and shifting to war production many times. Because we have always had economic difficulties, we could never conduct a test of the mobilization readiness of our whole industry. There was one such attempt in which four small plants were tested, and even that experiment was stopped quickly because it hurt production. Therefore the real mobilization readiness of military industry, not to mention the civilian industry, was never tested. We could only estimate this capacity on paper. You, on the other hand, had exercises, and detailed tests, so there were some big differences in this respect.

Q: Regarding the combat-readiness of NATO, what were your estimates of the length of time necessary for NATO to prepare for defense or offense?

A: You would know this better than I, but all of the exercises we conducted were based on the assumption that NATO would attack first. Grechko would always ridicule the West by saying, "The West? Defending? Defending against whom?" So the assumption was always that today you attack, and tomorrow we go on the offensive. Later we began to approach it more soberly, as NATO's capabilities changed, and the period of defending against the attack kept getting pushed back to 6 days, 8 days, then almost a month and only after that we would start the counteroffensive. At some point in the 1970s there were offensive, as well as defensive plans, i.e., a preemptive strike. Later these offensive plans were rejected, forgotten, it was ordered to destroy them, and the only option left was this one of retaliatory actions.

Q: Was it assumed that you could rely on your allies in Eastern Europe?

A: Well, I assume that with the reunification of Germany all of our plans have been revealed, although they tried to destroy them before unification. But all of the internal plans remained. All of the armies of the allies were included in the overall system of operations, although the majority were involved in operations on the flanks. The Hungarians, for example, were included in the order of the corresponding Soviet fronts as army formations. There was a Czech front, Polish

fronts, formations, which were used in the second echelon, and so forth. They were all included in the general system of our operations. The planning was centralized within the GS: it refined the plans, controlled their fulfillment, ensured combat-readiness, etc.

Q: Was it assumed that they would take part both actively and responsibly?

A: Yes, I think that they were fairly well-prepared armies. They were supplied with Soviet arms, they conformed to Soviet operational views and doctrine—they did not have a doctrine of their own to speak of—a single system of control, a single system of training, since the bulk, even the whole of the corps of generals were graduates of our military academies. Therefore, neither in operations nor in the technical sphere did we have any problems. There were some language problems, but they were practically non-existent, except at the lower levels. Otherwise, the political leadership was united in its approach. Despite some of the criticisms coming out now, I never saw any contradictions within the military leadership. There was some criticism, but we had full confidence in the military leadership of these countries, and likewise, they had full confidence in the Soviet leadership. Of course, we sometimes went a little too far, pressed them too much, and this sometimes raised national feelings and resentments, that we did not consult them, but these were trivialities which did not play a decisive role in the unified military policy.

Q: You said before that at one point the Soviet Union equaled the U.S. in naval systems, perhaps in submarines. But it is unclear when this point was reached. Perhaps the Typhoon was similar to our Trident. However, you also said that the U.S. was ahead in acoustic detection systems. Do you think that there was a point when the Soviet Union was at the same level as the U.S. in naval systems?

A: In naval nuclear strategy, there were several stages. We had different approaches to naval forces in general. Before and during WWII, our main adversary was on the Continent—Germany. Our naval forces were secondary, and anyway, they were held in check by the naval forces of Great Britain and Germany, and were used in a limited way in our northern communications. But these naval forces did not present any threat for us. Therefore our whole thinking was aimed at the creation of powerful land forces. The naval forces played an important, but ancillary role, although we did create a powerful Northern Fleet, and a Pacific Fleet, and a Black Sea Fleet. But their primary role was to support the land forces.

After the war there was a reassessment. We considered our primary opponents to be the U.S. and Britain, strong naval powers, possessing huge fleets. There was a need to reassess the role of our own fleet. So we began to create not a coastal defense fleet, but an oceangoing fleet, a missile-carrying fleet, an atomic fleet. A totally different strategy: instead of supporting land forces, our navy acquired the ability to achieve its own autonomous strategic objectives, to conduct strategic operations in ocean theaters. This had not existed previously. Before, the fleet was intended largely for combat with the enemy's fleet. Now the fleet took on all of the elements of the military-industrial structure of the enemy. The main objective became the destruction of the military-industrial potential of the enemy. The fleet's primary efforts now extended not to actions against the oceans, but to the whole globe, to all the continents. Therefore the question of the creation of a missile fleet arose. At the first stage, we were the first to create missile submarines—submarines carrying cruise missiles. These cruise missiles were not intended for use against land targets, but against sea targets at long distances, on the order of 100 km. Later these missiles were adapted for the destruction of coastal targets. Later a ballistic missile for submarines was created. When Khrushchev saw a mockup of this submarine, with these rockets inside it standing vertically, as opposed to the cruise missiles which lay horizontally behind a lid, he called it the "Dragon's Teeth" and criticized the system so that it was terminated. At the same time you acquired the Pioneers [sic-Polaris] with a range of 2,000 km. We also scrambled to create subs with ballistic missiles, but ones with intermediate range—1,200 km. One of these subs sank off Hawaii, and there was some question of whether or not the Americans raised it or not. Anyway, it was difficult to get close enough to the U.S. with these subs. Later, gradually we raised the range to 2,000 km and increased the number of missiles. But you jumped to 4,000 km with the Pioneer II [sic]. We decided that if we would race after you like that, we would never catch up. So we decided to immediately create an intercontinental underwater system. So we created a 20-silo sub, a 12-silo sub, project 607, different projects that you know about. Our thinking outpaced our industry's ability to put it into reality. Therefore there were many different designs. When you had a new design, you would put the new missiles on an old platform. We, on the other hand, did it differently. When a new missile was designed, a new submarine was designed to carry it. This was not economically sustainable, but we did it in order to create a powerful missile fleet. So, as I said, we were the first to create intercontinental ballistic missile submarines. We also were ahead in control systems at a certain stage. Later you began to overtake us and created a more effective system, say, in accuracy. The accuracy of our missiles is lower than yours. Then also in control

and in noise. Our greatest vulnerability is high noise related to engines, ball-bearings, etc. We cannot reduce noise to the same levels as you. So the competition also existed in this field. Now 60% of your nuclear potential, as opposed to our 30%, is on submarines. Our main efforts were directed at ground-launched missiles. We created the R-36³³⁴ missile that scared you to death. They carried almost 18 megatons in their warheads. Most important, they could be launched in either global direction, and thereby all of your warning systems could be rendered useless, because it was not easy to create a warning system which looked in the other direction.

The latest doctrine stated that the missile submarines constituted our strategic nuclear reserve. In other words, after the ideology of a retaliatory strike was adopted, the question arose of how to guarantee an unacceptable level of damage after the first nuclear strike had already occurred. To do this you must have a group of forces with guaranteed survivability, which would launch missiles at the most important targets under any scenario of hits. They did not carry flight programs [*poletnye zadaniia*], but they could be programmed remotely to attack the most important targets still remaining—cities and military targets, taking into consideration the real situation. The basis of our strategic nuclear reserve was this volley from nuclear submarines.

Q: Revisiting the question of whether the GS had more influence over the structure of the Armed Forces than the Military Department of the Central Committee [CC].

A: Well, you see, you do not know what the Military Department of the CC was. There was a Department of the Administrative Organs of the CC. It was headed by [Nikolai I.] Savinkin.³³⁵ This department guided [*kuriroval*], the Armed Forces, civil defense, the KGB, MGB,³³⁶ the Prosecutor's office, DOSAAF,³³⁷ things

³³⁴ Identified in one source as the "Tsiklon" space launch vehicle, a space-launch variant of a previously developed ICBM. General Danilevich is almost certainly referring to the SS-18 (the official Soviet designation for the military missile was "RS-20"). See Lieutenant Colonel I. Safronov, "19, November is Missile Troops and Artillery Day: Both Shield and Sword," *Voennye znania*, No. 11, 1993, reprinted in translation in JPRS, JPRS-UMA-94-013, 13 April 1994, p. 11. This conclusion is supported by comments made by General Danilevich in a subsequent interview (see Danilevich, December 13, 1992). He commented that "by the end of the 1970s the development of the R-18 [sic-full Soviet designation RS-18, NATO designation SS-19] and R-36 gave the Soviets a throw weight of over 20 tons, surpassing U.S. capability." Both the SS-19 and the SS-18 came on line at the end of the 1970s. The throw weight of the SS-18 was 8.8 tons, the SS-19 was 3.35 tons, exceeding the lift of any Soviet ICBM deployed before or since 1979. See Safronov, "19, November is Missile Troops and Artillery Day," p. 10.

³³⁵ Author was not able to identify this person in the military-industrial sector.

³³⁶ MGB — *Ministerstvo Gosudarstvennogo Bezopasnosti* — Ministry of State Security.

like that. But it mainly prepared the cadres. Then there was also a Military-Industrial Department of the CC which was headed by Sablin³³⁸ and someone else was the last one, I forget his name. Its main concern was the military-industrial complex, the military industry.

Q: Was [Leonid Vasil'evich] Smirnov the head?

A: No, Smirnov was the head of the VPK³³⁹ and the Deputy Chairman of the Council of Ministers. But they [in the CC] were mainly concerned with the selection and placement of cadres. They had no influence on the development of strategy or policy. And therefore the Military Department of the CC The GS did all of that, and the military structures of the Central Committee had no influence on it. But, who did it report to? To the Defense Council. The Defense Council consisted of 8 - 10 people: the General Secretary, the Chairman of the Council of Ministers, the Foreign Minister, the Defense Minister, the Head of the General Staff, the Head of the VPK, Smirnov was included—a small group of individuals which decided on defense issues. Here the decisions were taken. But this was a government, not a party, structure.

Q: And the Military-Industrial Department was not influential?

A: No, it worked on questions related to the selection of cadres [sic]. They discussed, rejected, awarded ranks, they decided a lot of questions of discipline, sometimes they corrected the political aspects of documents, orders regarding the training of forces. But regarding military strategy, they did not know anything about it. They were mostly political workers who did not understand military matters.

Q: What about the VPK?

A: The VPK, Smirnov, they did work on questions relating to the development of technical policy—the development of concrete systems, OKBs,³⁴⁰ their

³³⁷ DOSAAF — *Dobrovol'noe obshchestvo sodeistviia armii, aviatsii, i flotu SSSR* — The Voluntary Society for Cooperation with the Army, Aviation, and Navy of the USSR. DOSAAF was a quasi-military organization embedded in the Soviet educational system for the purpose of preparing Soviet youth for military service or for support of those who did serve in the military. It was not generally regarded as voluntary by Soviet youth.

³³⁸ Author was not able to identify this person in the military-industrial sector.

³³⁹ VPK — *Voennaia Promyshlennaia Kommissiia* — (Military Industrial Commission).

³⁴⁰ OKB — *Opytno-konstruktorskoe buro* — [Experimental] Design Bureaus. These were R&D facilities in the military-industrial sector that originated major weapons designs (aircraft, missiles, etc.) and followed their development through to mass production and deployment.

management—all of this did take place. But this was a State structure under the Presidium of the Council of Ministers of the USSR.

Q: And the VPK had more influence on the selection of strategic and conventional defense systems than, perhaps, the GS?

A: Well, there was competition here because we argued from operational-strategic grounds, they argued based on military-technical grounds, they argued based on the possibilities, and we were forced to agree with them sometimes. But the decisive voice in the development of military-technical policy belonged to the GS.

Q: What about the relative influence of the various armed services?

A: This had great significance because they served as the customers for their own kinds of armed forces, as their ideologues. They reported to the GS On most issues, the GS had its own opinion. Of course they [the services] tried to get the most for themselves, just like the case was with you, to get the biggest budget possible. We [in the GS] always approached it in a balanced way, so we rejected some items. We approached it from general, global positions, from the general, overall plans for the conduct of war, while they approached it from the point of view of the interests of their own branch of the Armed Forces. So perhaps they understood more about the technical details, but, again, the GS played a decisive role because, in the end, our positions Well, of course, the position of the Minister of Defense was of great significance and it was very important whether or not he would support a particular program or project.

Q: So the branches of the armed services played an important role in the choice of weapons systems?

A: Well, yes, in the formulation of the problems, they had very close interactions with the VPK. So did we, but at the level of the OKB the various branches of the armed services were interacting more closely and concretely. They had their own institutes which conducted the research and development for all of these systems. Industry had its own institutes which conducted concrete technical development of systems. But they worked in very close contact with each other. These industrialists showed up at the GS maybe once a month, while these others [the services] worked practically every day, they would show up, the one, the other, going back and forth, resolving problems, etc. That was the system.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Interviewer: John G. Hines

Date/Time: December 13, 1992

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Paraphrased summary

Gen. Danilevich painted a broad picture of the evolution of Soviet military doctrine from World War II to the collapse of the Soviet Union. This history falls roughly into five stages, which are outlined below.

I. Full Mechanization: 1945 - 1950

The immediate post-WWII period was devoted to completing the mechanization and modernization of all branches of the Armed Forces, absorbing the lessons of the war, and consolidating them into a doctrine. Soviet strategy emphasized the use of massive conventional armored land forces to gain a threefold to sixfold advantage over the opposing forces, and to defeat them with fast, decisive offensive ground actions. Air and naval forces were modernized and strengthened through the introduction of jet aviation and modern air defenses, but continued to play a supporting role.

II. Acquisition of Nuclear Weapons: 1950 - 1960

By 1950 the Soviet Union had acquired the atomic bomb. At first, nuclear weapons were seen primarily as anti-city weapons, but their strategic and tactical importance

was quickly recognized. By 1955, nuclear weapons had supplanted the tank as the central strategic weapon.

Despite the central role of nuclear weapons, their acquisition did not immediately lead to a revolution in military thought. Rather, at first nuclear weapons were absorbed into the existing structure of WWII strategic and operational thinking. Like the tank before it, nuclear weapons would be used to achieve a strategic breakthrough on the battlefield, which would be exploited by a massive conventional steamroller advancing at 20 - 30 km per day. The new doctrine was even more clearly offensive in nature. Strategic defensive plans were non-existent.

III. "Nuclear Euphoria": 1960 - 1965

The revolution promised by nuclear weapons arrives with Khrushchev. A strategy emerges based on global and theater preemptive nuclear use. Nuclear weapons gain in importance almost to the point that all other weapons are seen as superfluous. Strategic Rocket Forces are created as a separate military branch. Aviation, especially the massive fighter force, is sacrificed, as is artillery, which is replaced by tactical nuclear forces. Khrushchev even considers reducing the armored forces because they are deemed unnecessary. Defensive actions, including front- and army-level defense, are now totally and explicitly rejected. Defense is seen as possible only on the level of tactical maneuvers.

The new thinking found its most vocal advocate in Marshal V. D. Sokolovskii, who lectured on the new strategy at the General Staff Academy in 1962 and edited the influential book, *Modern War*. These ideas were embraced as doctrine at a Ministry of Defense conference in the same year and were put into practice during exercises in 1962 and 1963. The core of the strategy was an attack in two phases:

- 1) An intercontinental preemptive strike against the U.S. The plan to use Cuba as a base for intermediate-range missile attacks on the U.S. had backfired during the "Caribbean Crisis". However, the new R-16³⁴¹ missiles gave the U.S.S.R. a limited ability to strike U.S. territory.
- 2) A single, strategic offensive along the entire front, with the use of preemptive nuclear strikes, followed by a decisive, uninterrupted land advance. R-12³⁴² and R-

³⁴¹ Possibly SS-8.

³⁴² SS-4.

14³⁴³ medium-range stationary missiles would be used to attack strongpoints in Europe. Although their numbers were relatively small, these missiles carried powerful 1.8 and 2.4 megaton warheads. Following the nuclear strikes, land armies would sweep west, using envelopment, cleanup and other offensive operations. The rate of advance was now planned to be 40 - 100 km/day and the entire strategic operation was expected to take no more than 10 days.

Such optimistic forecasts were made based on the assumption that the opponent would be preempted in his use of nuclear weapons. Missile technology of that era put a heavy premium on preemption because the long time required to fuel the missiles and attach their warheads made a "retaliatory-meeting strike" impossible and a purely retaliatory strike highly unlikely.

IV. "Descent to Earth" and ICBMs: 1965 - 1975

With the ouster of Khrushchev, conservatism and realism returned to military thought. Their return was marked by the realization that the usefulness of nuclear weapons had been overestimated, and by the acknowledgment that the enemy has a large number of nuclear weapons which could cause "unrecoverable losses." The new thinking proclaimed that a single type of weapon cannot be relied upon to achieve victory and that each type of weapon, including conventional weapons, has an appropriate role in war. Conventional forces, decimated during the Khrushchev period, began to be restored. Greater attention began to be paid to strategic theater operations, which were broken down among several fronts and included expanded naval and air operations, as well as strategic anti-air operations. It was no longer thought possible to conduct a one-stage strategic operation. The strategic advance was divided into two operations—the advance to Germany's western border, and the advance to La Manche. The rate of advance was scaled back, with the projected time for the conquest of Europe pushed back to one month. Defense was gradually revived, first on the level of army, then front, and finally, around 1972-75, on the strategic level.

Despite the changes, war was still seen to be ultimately nuclear. A purely conventional war was not seen as a realistic possibility. However, technology and experience bred a greater sophistication of thought regarding the use of nuclear weapons. The growth in the strategic arsenal and the beginnings of a secure second-

³⁴³ SS-5.

strike capability on SLBMs,³⁴⁴ made possible options for Strategic Forces operations. Instead of a single massive salvo, multiple nuclear strikes were now planned.

Also during this period a clearer appreciation of the devastating consequences of a full-scale nuclear exchange began to emerge. At a nuclear exercise in 1972, Brezhnev, Podgornyi, and other high-ranking Politburo members were presented with the results of a simulated U.S. first strike using ground bursts against the Soviet Union. The simulated damage shocked the leadership: 100% of non-strategic aviation wiped out; 100% of ground forces wiped out; 80% of strategic aviation destroyed; 100% of naval forces destroyed; the European part of Russia suffers radiation contamination from fallout with levels of 400 - 3,000 Roentgens.

Meanwhile, ferment in strategic thought in the U.S. yielded new theories of escalation, flexible response, limited use, etc. At first the Soviets considered these theories to be unrealistic and strongly rejected any notion of a limited nuclear war. Officially, Soviet policy was to respond with a full nuclear attack to even a single hit. However, from 1970 to 1975 the position shifted away from rejection toward the necessity of a "controllable conduct of nuclear war." In concrete terms, this shift manifested itself in three doctrinal changes:

- 1) Preemptive strike is not the only option. Retaliatory-meeting and retaliatory strikes become valid options.
- 2) Multiple-scenario strikes: either global, or regional, depending on the military situation.
- 3) "New Periodization of War." The course of the war was expanded to four stages: a non-nuclear phase, a nuclear phase, follow-up actions, and concluding actions. Of these, the most important addition was the non-nuclear phase, which gradually grew in length from several hours to 7 - 8 days. Still later, it was planned that the first frontal operations would remain non-nuclear up through the advance to the Rhine. Strategic operations, however, remained nuclear.

V. Strategic Balance: 1975 - 1991

This long period was characterized by rough parity in strategic systems between the two superpowers, rapid growth in both sides' nuclear arsenals and bitter

³⁴⁴ SLBM — Submarine-Launched Ballistic Missile.

technological competition. Although the Soviets still lagged behind in C³ and silo protection, a series of technological advances greatly expanded Soviet strategic capabilities. A new, more efficient method of "direct drilling" was developed, which allowed 200 silos to be built every year. Missiles with self-contained fuel tanks [*ampulizirovannyye rakety*] and, later on, solid fuel missiles reduced ready times to 1 - 2 minutes. Strategic bomber aviation was advanced with the deployment of the Tu-16 and Tu-22 bombers. The Soviets very quickly matched and surpassed U.S. MIRV technology. By the end of the 1970s the development of the R-18 and R-36 gave the Soviets a throw-weight of over 20 tons, surpassing the U.S capability.³⁴⁵

The period can be broken down further into three parts, each of which saw profound changes in the Soviet military doctrine as a result of technological and political developments:

1975 - 80 Limited nuclear war was still officially rejected, but it was now considered possible to conduct the war at the conventional level from beginning to end.

1980 - 85 Limited nuclear war now accepted in documents and planning for options presented to the political leadership. Different options became available for use of nuclear weapons during the new limited phase: only on the battlefield; only against military targets; limited strategic strikes; proportional retaliation for enemy limited strikes (either with escalation or de-escalation). Gradually, the projected length of the limited phase was expanded from hours to several days.

1985 - 91 Adoption of a defensive doctrine. Realization that a nuclear war cannot be won. Preemptive strike ruled out—only retaliatory strike. The new foundations of doctrine becomes: deterrence, war prevention, and limited war, if war must be fought.

³⁴⁵ The R-18 was the RS-18, NATO designation SS-19. The R-36 almost certainly refers to the SS-18 (see Danilevich interview, September 24, 1994). Danilevich comments in the earlier interview that the R-36 could carry 18 megatons in its warhead. The "20 tons", asserted here may also refer to the potential megatonnage of the warhead. The *throw weight* of the SS-18 is listed elsewhere as 8.8 tons. See Safronov, "19, November is Missile Troops and Artillery Day," p. 10.

RECORD OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: Institute of Military History, Moscow

Interviewer: John G. Hines

Date/Time: December 14, 1992

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Based on audio cassette tape

Q: Based on what you said earlier, there was no acceptance of the notion of selective strikes prior to the 1980s. But after 1980 the notion that it was possible to respond with less than full nuclear force, or even with selective strikes, gained currency. Is this accurate?

A: Yes.

Q: And when we met in October [sic] you said that if NATO forces had struck Soviet territory with 3, 4 or 10 warheads, the leadership would have at least considered responding with selective strikes on the territory of the U.S.

A: There was a time when our thinking was: retaliate with full force to even one hit. Later we adopted the concept of a dosage nuclear response—a limited use of nuclear weapons. But this was only after we rejected the policy of preemptive strikes and replaced it with the policy of meeting strikes and retaliatory strikes.

Now, we never discussed or developed at any of the exercises the option of using selective strikes first, in a premeditated way. The exercises always developed scenarios of retaliatory actions. It was never planned for or envisioned. The plans

involved only massive use of nuclear weapons on a regional or global scale. There were no plans for selective strikes. It was assumed that decisions would be based on the particular situation at hand. So all exercises involving strategic weapons were conducted based on particular scenarios and decisions. We had concrete scenarios. For example, the enemy attacks with, say, five strikes against our troops, three against German cities, one strike against Brest, etc. The leadership would meet to decide what to do. First there would be a warning to the American president and a strike would be delivered. There were various options. For example a strike using tactical forces. If the U.S. delivered 20 hits, we might have responded with 15. There were other times when you struck with 15 and we retaliated with 30. Mainly the targets would be military. I don't remember an exercise where we developed the option of targeting U.S. territory, although in principle this was considered possible. But because your limited strikes were always limited to the Theater of Operations (TVD)³⁴⁶ and we did likewise in our wargames. But there were no general plans. The principle was that we must have adequate actions at our disposal, as well as preemptive and deterring actions, which included a larger number of strikes than the opponent. But this was considered less desirable because if we used less, then the Americans also may use less. Otherwise there would be escalation. The best option was considered to be an equal number of strikes against analogous targets.

Q: Even on U.S. territory?

A: We never considered a scenario where you hit the Soviet Union immediately. [In our scenarios] you hit the army formations, the nuclear forces, control centers, etc. But I don't remember any scenarios where you hit Soviet territory. So the question of hitting the U.S. never came up. But as to further, massive strikes, this was considered. In that case we would strike indiscriminately.

Q: Based on some interviews here in Moscow, I know that in one exercise, the U.S., in order to demonstrate resolve, launched three or four warheads at targets on the territory of the Soviet Union.

A: Yes, in theory such a possibility was considered possible. But in practice, in the conduct of exercises, of which there were not many during those years, and I was present at all of them, I do not remember any where this possibility was played out. It all depended on the people who designed the scenarios. They could do it

³⁴⁶ TVD — *Teatr voennykh deistvii* — Theater of (Strategic) Military Action, for example, Central Europe from Ukraine to the western shore of Ireland.

one way or another. The Chief of the General Staff could make certain adjustments. Akhromeev did that a lot. Ogarkov did too. But Akhromeev especially got down to the details of the launches, the work at the command centers, the process of decision making, the development of preliminary orders, final orders, the playing out of the scenarios, like in a movie.

Q: In our exercises, only the highest level staff officers participated. When we developed options and strategies, it was done at the highest levels. Was it the same with you?

A: The thing is that we did not conduct this kind of wargame using maps during that period. All of the strategic training exercises were conducted at the command centers. There were four people at the controls: the Minister of Defense, the Chief of the General Staff, the Chief of the Main Operations Directorate, and I was present also because I wrote all of the analysis. The group commander was not always present—sometimes he would participate by telephone. It was a very narrow circle. There would be a colonel with a telephone link to the President or the Chairman of the Supreme Soviet who would be presented with various options for action.

Q: Was the dosage strategy applicable only to the Theater of Operations, or did it also apply, at least nominally, to intercontinental exchanges?

A: After 1980 this strategy became dominant. On the tactical level the process of decision making was not thoroughly worked through, but the background for army exercises was not to go to nuclear war immediately, but to start with a conventional phase, then limited nuclear use, which would range from 3 or 5 to 100 warheads. The exercises were conducted against this background. The process of decision making itself did not concern the theater-level forces. The methodology of decision making was worked out here, at the top: what are the targets, when to react, in what form, how to give warning, and so on. Usually, at the last stages before retaliation, there would be political statements and warnings, both from your side and from ours. It was a game, a theater. But as for the actual war plans, none of this was precisely envisioned. It was impossible to develop plans for every situation. You may develop 1,000 scenarios, but the reality may turn out to be the 1,001st. You must have principles, but the actions have to be based on the situation at hand. The main targets for selective strikes were: troop formations, airfields, control centers, and missile fields. As for cities, as a rule they were not targeted. Sometimes, in the course of more massive exchanges, up to 100 warheads, some

cities were also hit. And as a rule, all strikes were delivered by means of air bursts. When we were developing earlier options, almost 80% of the hits were ground bursts, both against military and non-military targets—it did not make any difference. The important thing was the contamination that followed.

Q: This is an important source of misunderstanding. In general, the Soviet Union employed ground bursts until the end of the 1970s?

A: Yes, approximately. We used a combination of both, but the proportion of ground bursts gradually decreased because as the strike grew more and more massive, and the number of bursts grew, the consequences grew more unpredictable. Also, we tested our predictions of the spread of contamination during several exercises. We had maps and slide rules, and we made computer calculations of fallout zones to forecast the radiation spread. But when we actually exploded the weapons,³⁴⁷ the shock wave and everything else would often not go where it was forecast. So there are many dangerous and unpredictable factors.

Q: So during the 1960s and 1970s the rocket forces planned to use mainly ground bursts, especially, or exclusively against military targets?

A: Yes, against hardened military targets. But we planned air bursts against unprotected targets.

Q: Even during the 1960s?

A: No, then 80% were ground bursts. But in the 1970s we had a more reasonable approach.

Q: And your approach changed because of your assessments of the fallout and contamination caused by ground bursts?

A: Well, at first our understanding of the contamination was very simplistic. We thought that it would drift somewhat, but that would be all. Later we came to the conclusion that it travels much farther than we had thought earlier. It was like that with Chernobyl. There are even some areas near Moscow which are contaminated from it, while regions closer in have no contamination. This unpredictability gradually began to be taken into consideration. Also, before we did not have enough warheads—only 200, 250, which could reach the U.S. This

was not thought to be enough to destroy the country. Later when it became possible to target cities with populations of 50,000, then 10,000, then this was no longer an issue.

Q: Before 1972, while most of the missiles in your silos had liquid fuel, the leadership had a very narrow window of decision in case of a crisis. It took hours to get a missile ready. In a crisis, it would not be possible to plan for multiple options.

A: That's right. To fuel the missiles and attach the warheads it took 5 - 6 hours. At this time—the 1960s—the strategy was different: the earlier and the more you launch, the better. Therefore the strategy was to preempt. You cannot have a retaliatory strike if you have to ready your missiles for 6 hours after the strike. But when we acquired missiles with internal fuel tanks, which had ready times of 1 - 2 hours, now there was also the possibility of a retaliatory strike. So both the political-military, and the military-technical aspects of the strategy changed.

Q: When did you acquire your first missile that was completely ready to fly?

A: The R-100.³⁴⁸ This was one of our primary missiles. It had internal liquid fuel tanks and had a ready time of 1 - 2 minutes. This was in 1970. In the 1960s our main ICBM was Korolev's R-16.³⁴⁹ The main intermediate-range missiles then were the stationary R-12³⁵⁰ and R-14,³⁵¹ half of which were in silos, and half on open ground launch platforms. For this second half, the missiles were stored in hangars and had to be taken out, installed on the launch pads and fueled before being fired. This was the missile we brought to Cuba. They were detected when we placed them on the launch pads and the fueling equipment was brought in, etc. It was a complex system which encouraged one to strike first.

However, we in the GS never for a minute thought seriously about it. Recently there have been rumors and questions floating about: is it true that you had certain plans? What were these plans? Was there a plan in 1957 deliver a first strike against the U.S.? We never had a single thought of a first strike against the U.S. I mean in a practical, not theoretical sense. Theoretically there were mountains of plans and

³⁴⁷ The Soviets apparently did not violate the Treaty Banning Weapon Tests in the Atmosphere, in Outer Space and Under Water. Tests were conducted using underground detonations, high explosive simulations and computer simulations.

³⁴⁸ Probably the SS-11, called the U-100 elsewhere in the interview record.

³⁴⁹ Possibly Korolev's SS-8 (NATO designation) of which twenty-three were deployed.

³⁵⁰ SS-4.

³⁵¹ SS-5.

writing, and exercises. But in practice, to hold discussions at the political level to decide such questions, this was absolutely out of the question. The ministers of defense and the GS were very careful with respect to these issues because they understood the consequences. There was one officer, Tolubko, a commander of the rocket forces, who made extremist speeches in favor of such an attack. But he was not taken seriously by anybody. Khrushchev also made threatening noises. But the question of a first strike was never considered at the political level. Even during the Caribbean Crisis, when nuclear war was a real possibility, the question of a preemptive strike was not considered. Then the issue was that if the U.S. made a strike against Cuba, then we would respond. So we understood what it all meant and what the danger was to us. Then there were also the calculations of damage I told you about.

Q: What is the difference between your concepts of first use and of the preemptive strike?

A: There is no difference—first use is a preemptive strike. The meaningful difference is between first use and simultaneous use, as soon as your remote early warning (EW) sensors detect an attack within the first 5 or 10 minutes, and the command is immediately given, in order not to be too late. But this approach was considered to be problematic because of false warnings caused by flocks of geese, etc. So a new decision-making procedure was created, involving several individuals. Later on we created a nuclear briefcase, the same as you, with codes that the president had to dial in. So the procedure became better developed and standardized. Before there was no special procedure to speak of. Looking back, there was a certain unseriousness on this subject. The thinking was, “we’ve got nuclear weapons and we will use them if we need to.” Khrushchev took the most hard-line position, because of his personal character. Brezhnev was quite different. After Brezhnev there was a power vacuum. As for Gorbachev, he did not even take part in any of the exercises at the command center, like Khrushchev and Brezhnev.

Q: So until the mid-1970s it was not practically and technologically possible to make a retaliatory-meeting strike?

A: Before we had satellite EW systems we had land-based above-the-horizon radar systems, like your BMEWS³⁵² system. There was the Riga array, which looked out 5,000 km and provided 5 or 10 minutes warning, which was very little

time. Later there were over-the-horizon radars, but these did not work very well. The most important advance was when we began building systems of EW satellites. Then the automation of the [unclear], control displays, launches, controls, etc.

Q: Other people who took part in this process, described an automated system of last resort called the “Dead Hand”, that would automatically launch missiles which were to give commands to ICBMs and which was triggered by overpressure or radiation.

A: Well, you had such a system. At first we were working on a system to prevent unauthorized launches of nuclear weapons. This was a whole complex of organizational and technical means to ensure that no one could launch a weapon. This was considered important and it was done. Then the next question was how to guarantee that they would be launched—the opposite question. We developed a system of automated transmission of commands which was made redundant across several means of communication and on many channels—by telephone, by radio. Then they built [sic] this system with missiles. In the event of a hit, a missile was launched which gave a signal for the automatic use of the remaining nuclear weapons. But only after the hit had already taken place and the seismic activity indicated that a massive hit had taken place. The same as you had. But you had it earlier and we built the same type of system.

Q: As I understand it, our system was called ERCS.³⁵³

A: Yes, I remember the name . . . we called our system something different.

Q: . . . But in our system, someone had to push a button to launch the rocket which would then give launch signals to the automatic equipment.

A: Yes, that’s right. The missile was launched and the signal was transmitted automatically. Now we are facing a different threat—super-EMP weapons—very high-altitude nuclear bursts which can knock out control equipment. This is what we are afraid of and we are developing systems to protect control centers from this kind of weaponry. But whereas before our two sides were developing parallel weapons systems, and each side gauged its progress by the other side’s successes and failures, now all of these advanced technology programs have been put on hold.

³⁵² BMEWS — Ballistic Missile Early Warning System.

³⁵³ ERCS — Emergency Release Communications System — The Air Force 494L system providing a UHF communications package launched by Minuteman to provide Strategic Air Command communications in the event of nuclear attack.

There is no money, we are not allocating anything for research and development, the research institutes are barely surviving, only the most urgent, tactical problems have priority: to guard the new borders, to deploy border guards, to build air bases for long-range aviation, since we have lost all of our airfields, to build testing grounds, to build living quarters for all the officers—there are 200,000 or 300,000 of them—and the leadership is afraid of rebellions and mutinies, if not by the officers themselves, then by their wives. Like in the Baltics, where we were forced to halt the pullout because the children were living in tents. All of our expenditures now go for this. And the high-tech development projects have been abandoned. They may recover some time, but maybe they won't—I do not know what their fate will be.

Q: It would be interesting historically to explore the difference between the Soviet and American approaches to automatic systems like Dead Hand, which would have guaranteed a retaliatory strike even if the leadership and the command centers have been destroyed.

A: I know that you had such ideas, and so did we. But this is a dangerous business because automation is automation Anyway, today such systems don't make any difference because with modern early warning systems and missile readiness measured not in minutes but in seconds, a whole quorum of decision makers can be gathered together, rather than having only one or two minutes to make a decision. But be that as it may. But, if one were to create such a system, and, as I say, there was such an idea—and it is [unclear—not being realized?] by the way—but it is very dangerous because it can cause accidental nuclear war with unpredictable consequences. So this idea was rejected and it was not developed in practice.

Q: But if it were possible to turn such a system on or off, it would at least be possible to defend the Soviet Union

A: Well, now there is a different approach. You create a reserve of absolutely protected weapons, like mobile missiles and SLBMs, which practically cannot be destroyed, with a corresponding system of automated signal transmission, as well as with autonomous capabilities. We had a redundant system of command centers: you could send the command from the GS, from the central command center of the Rocket Forces, from the central command center of Strategic Aviation, from the central command center of the Navy, from the central command center of the Army, and finally from the system of automatic missiles. And the command and

control system continued and continues to be refined and its readiness is not a cause for concern. Also, it was thought that a reserve of just 1/10 of the original nuclear potential would be sufficient to cause unacceptable damage.

Q: One of the most difficult questions to analyze is the differences in the understanding of "deterrence" on the part of the Soviet Union and the U.S. Under Gorbachev the Soviet Union first accepted the principle of deterrence. Before Gorbachev the official position rejected deterrence. But your force development, the development of certain systems, including Dead Hand, had an effect on American decision makers which depended on their understanding of the fact that these systems already existed and that it would be useless and dangerous to start a nuclear war. This is the essence of deterrence. We are trying to understand to what extent there existed in the minds of political and military leaders the expectation that their American counterparts knew that, in case of a first strike, a retaliatory strike was inevitable. To what extent did Soviet leaders understand that this was a very important component of Soviet security?

A: You are right. We tried to convey this [message]. For example, the threat that we would respond with full nuclear force to the use of a single nuclear weapon on the part of the U.S. This message was repeated at all levels, from the Minister of Defense on down. But these statements had purely propagandistic and political targets. If it ever became reality, we would not have acted like that. If the U.S. did make such a strike, we would have gathered together to discuss what to do, even though we officially and loudly proclaimed the opposite, and it was written up in documents, etc. So by doing this we wanted to convey the message that retaliation was inevitable. Also, we had the capability because of various systems. For example, our systems of early detection, although less reliable than yours, still provided this capability. This included all three kinds: over-the-horizon radar, above the horizon, and the third one. Then, there were the protected hardened silos. We thought that it was impossible to destroy all of them. Then the mobile missiles: as their number grew we gradually phased out the "Pioneer"³⁵⁴ missile. That was a powerful missile and we were sorry to see it go. The railroad arsenal and the SS-25 mobile arsenal had some drawbacks: they were complicated to control because they were so unwieldy, required special roads, and maneuvering was very complex. Finally, they carried single warheads, and had many shortcomings. So right now there are many in military circles, and in military

³⁵⁴ The Pioneer was the Soviet name for the SS-20 Intermediate Range Ballistic Missile (IRBM), Soviet military industrial designation, "RSD-10."

publications, who oppose this latest [START] agreement because it puts us in a difficult position. They feel that the elimination of silo-based MIRVed ICBMs would give the U.S. a big advantage. It would also leave untouched the sea-based missiles and takes a convoluted approach to counting bomber-based warheads. Some think that our concessions are unfounded. But our politicians were firmly convinced that the agreement is sufficiently justified. And our military leaders are such that if they are ordered to do something, they will. The main point is that, although the concessions were unequal, we would still have enough in our arsenal to deliver an unacceptable level of damage.

Q: Several times during the interviews you have said that one can plan for 1,000 scenarios, but the reality will be scenario number 1,001. Nevertheless, much energy and resources were spent on finding the best strategy for fighting a nuclear war, even though by 1970 everybody understood that it would be very difficult to reasonably

A: You see, before the 1960s we had a different point of view. We thought that if there were ever a nuclear exchange, we would have an advantage: more territory, less concentration of industry, of population, certain spiritual arguments—we thought that in the event of an equal exchange the U.S. would be destroyed but we would survive. But by the 1970s we had concluded that there was no chance in hell that we would survive. By the 1980s we concluded further that we would be destroyed by our own strike, so that we could not strike at all. As our nuclear arsenal grew, the political environment changed and our views changed. The scientists also gave us a scare with their Nuclear Winter and Nuclear Night forecasts. I don't know about your military circles, but most of ours do not trust these sorts of calculations. But a large number do believe it.

Q: The last question. In the U.S. Army, artillery is a very important branch and even in the 1950s we were building nuclear artillery. Why did the Soviet Union not develop similar weapons until as late as the 1980s? Was this a political decision, or a technological decision?

A: We had a 17-fold advantage in tactical [nuclear] means in Europe. So Bush's proposal to destroy tactical nuclear weapons was correct, but it affected us very disproportionately. Regarding nuclear artillery, we did have it—203mm as well as special weapons. We did not consider it essential to build it. But when you began building it, we thought, "Why don't we also build some?" So we did. We built nuclear shells for ordinary artillery—152mm guns. We don't have a special nuclear

artillery, but we do have nuclear shells which can be fired from dual-use guns. So the atomic guns and 160mm atomic mortars appeared. Although their missions could easily have been carried out by means of tactical missiles.

There was also another factor—our acceptance of limited strikes. We needed weapons we could use mainly on the battlefield, and mainly against front-line troops. Tactical missiles were not sufficiently accurate and in this situation we needed precise hits. Because of this we decided to create nuclear shells. Consequently a great number were built and right now we surpass you by two or three times. And now they are being destroyed, along with nuclear land mines. You developed nuclear land mines faster than we did, and we fell behind. They were created as a means of defense, to create a nuclear belt along the borders. So at first we aimed at overcoming this obstacle, and afterwards, when we accepted strategic defense ourselves, we began to build our own nuclear land mines.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. (Ret.) Andriian A. Danilevich

Position: A General Staff Officer from 1964 to 1990. Senior Special Assistant [*pomoshchnik*] to the Chief of the Main Operations Directorate (GOU) in the 1970s. Assistant for Doctrine and Strategy to Chiefs of the General Staff Marshal Akhromeev and General Moiseev from 1984 and 1990. Director of the General Staff authors' collective that composed and refined, between 1977 and 1986, the top-secret, three-volume *Strategy of Deep Operations* (Global and Theater), that was the basic reference document for Soviet strategic and operational nuclear and conventional planning for at least the last decade of the Soviet state.

Location: General Danilevich's home in Moscow

Interviewer: John G. Hines

Date/Time: December 9, 1994, 2:00 p.m.

Language: Russian

Prepared: Paraphrased summary

For the first time in the almost 5 years I had known him, General Danilevich invited me into his home for an interview. Because his wife had for many years suffered from a fairly serious, lingering illness, we normally met in the Institute for Military History located next to his apartment building in the center of a special apartment complex for senior general officers. (General Gareev's apartment was located in a similar building on the other side of the Institute.) His wife seemed to be in better health and the Military History Institute seemed to be less and less willing to tolerate meetings between retired generals and foreigners who provided no (financial) assistance to the Institute itself. His apartment was located on the tenth floor of his building. It was better maintained and more cheerfully decorated than the apartment of Gareev, although in size and basic layout, the apartments were identical. General Danilevich was proud of his home and pointed out that many of the buildings visible from his windows were foreign embassies or residences.

He explained that he and his fellow retired general officers had formed a Russian Academy of Military Science of which General Gareev was president. He explained that he was involved in a number of projects through the Academy, some of which were resulting in published works. He gave me a copy of one such book,

Mezhdunarodnaia i natsional'naia bezopasnost' (International and National Security), written under his direction in 1994. He was more animated and in better health than during many previous interviews. He clearly thrives on work and his memory and interest in the subjects discussed was very keen.

In our conversation over lunch he asked me again when I had left the military and what I had done in the U.S. Army. He knew that I had been trained as a Soviet specialist so I mentioned that I had spent the late 1960s and much of the 1970s in the Signal Corps in Germany and Vietnam. He smiled broadly and explained that he had been commissioned as a signal officer before the Great Patriotic War and had actually commanded a Soviet signal battalion during the war until mid-1942 when he went on to other operational and command assignments. This led him to repeat that he had joined the General Staff in 1964 and became a special assistant to the Chief of the Main Operations Directorate in 1974, and special assistant to the Chief of the General Staff in 1984.

The primary purpose of the interview was to review some issues on which there were differences in views among various general officers and party officials, especially on topics such as deterrence and selected use of nuclear weapons.

Q: Early in the discussion, the interviewer raised the general question of personal relationships and the effect on decisions of key leaders in the MoD and General Staff.

A: General Danilevich responded that personalities and relationships mattered a great deal, especially in the areas of force structure development [*voennoe stroitel'stvo*] and organization of the Armed Forces. He cited, as an example, the well-known support of Khrushchev for the chief designer, Chelomei (favoritism that continued even under Brezhnev) and Ustinov's long-standing alliance with chief designer Iangel'. Such conflicting sponsorship led to decision stalemates typically resolved by producing everything.

General Danilevich was close to Ogarkov for much of both of their careers in the General Staff. Danilevich indicated that Minister of Defense Malinovskii launched Ogarkov's General Staff career when he appointed him a Deputy Chief of the General Staff in the 1960s. Minister of Defense Grechko greatly favored Kulikov and appointed him Chief of the General Staff as soon as possible after he had replaced Malinovskii as minister (Malinovskii died in 1967). Ustinov held Kulikov in very low regard and fired him immediately when he became MoD and appointed

Ogarkov whom he found more capable and intelligent. Over time Ogarkov and Ustinov developed very deep disagreements not, as the interviewer suggested, because Ogarkov wanted to put in place a professional contract system to replace conscription for part or all of the Armed Forces, but rather over technical questions of procurement and organization of the Armed Forces. Ogarkov wanted to eliminate or radically alter the Strategic Air Defense Forces, for example, and to rationalize the procurement process and practices. Danilevich said that both were very assertive leaders. If Ustinov did not like what he heard in a discussion, he would cut off the speaker or briefer and throw him out of his office. Ogarkov, in contrast, would hear out the entire argument, ask questions, and then do what he wanted to do anyway. In many instances, the results were the same.

General Danilevich cited a more recent example from the Gorbachev period (Danilevich left the General Staff at the end of 1989). He said that, regardless of who was Minister of Defense—Sokolov or Iazov—Gorbachev talked to and worked with Marshal Akhromeev (Chief of the General Staff) on military and strategic questions. They could communicate and they developed a level of trust. Even when the Defense Minister accompanied the Chief of the General Staff Marshal Akhromeev to meetings with Gorbachev, the President would address his comments and questions to Akhromeev. Danilevich was present for a number of such exchanges.

Q: The interviewer raised again the question of deterrence and preparation for war. Did key General Staff planners think about what they were doing primarily in terms of fighting a war with minimum damage to Soviet Union, punishing the U.S. and NATO for initiating war and striking first, or of preventing war by so intimidating the U.S. that American leaders would not initiate a war nor try to strike first?

A: The Soviet military leadership evolved through a number of phases in its understanding of the nature and role of nuclear weapons and senior military leaders often were not in agreement. The general did not repeat his previous comments on this question but rather summarized them. He said that “we in the General Staff came to describe our approach thus: we have a policy of deterrence [*politika sderzhivaniia*] but a strategy of overwhelming destruction [*strategiia sokrusheniia*—which denotes “smashing” or “shattering”]. If we could no longer hold off [*sderzhat*] an attack we wanted to be able to destroy decisively the U.S. We had a small joke in the General Staff under Gorbachev that our posture had changed. We

now had a policy of deterrence, but a strategy of capitulation [*strategiia kapitulatsii*]. It was a bitter joke.”

Q: The interviewer raised with General Danilevich that the General’s earlier descriptions of General Staff interest in, and planning for, selected and limited nuclear strikes were contradicted by very senior General Officers from the Strategic Rocket Forces (SRF), the analytical institute of the Strategic Rocket Forces (TsNII-4), and by senior staffers in the Defense Industrial Department of the Central Committee of the Communist Party of the Soviet Union. A senior SRF general had indicated that, to his knowledge, the SRF had never exercised selected strategic nuclear strikes either in theater or intercontinentally. A senior NII-4 analyst declared that the institute, in his 20 years of experience, had not examined the question of limited use of strategic missiles. The senior staff from the Military-Industry Department of the Central Committee claimed that limited use had been raised as an issue affecting support of various missile weapons programs and that, at such meetings, designing weapons to support selective strikes was explicitly rejected as was, they believed, the concept of selective use.

A: General Danilevich waited and listened patiently (which he often does not do) and he began to smile with an expression of slightly exasperated forbearance at the question. First, he stated that the General Staff, and specifically the Main Operations Directorate, not only considered selected strikes but also designed various strike options for various scenarios. For example, they had designed one option for eight missiles against the U.S. and NATO in which six missiles were targeted on Europe and two missiles were targeted simultaneously on the continental United States. The purpose of such an option was to assure U.S. leaders that even a limited nuclear war would include the U.S. He said that most General Staff officers most closely associated with such planning had no idea whether “we really could do it,” whether any of it would work or how it would turn out.

He said that senior General Staff planners were “forced into looking at many variants” as we came to understand better the real operational and other consequences of nuclear use. We first had to get over our “naive” expectations of facile use of nuclear weapons on the battlefield and rates of advance of 100 kilometers per day. Some never did. Tolubko (Commander in Chief of the Strategic Rocket Forces), for example, was still dying “to push the button” until the very end (Tolubko retired in 1985).

He indicated that such planning was not widely discussed, even within the General Staff. Major commands such as the Strategic Rocket Forces were not normally involved in this level of planning, and the various institutes outside direct General Staff oversight definitely were not included in such discussions and analysis. As for the Politburo and Central Committee, "they had no real idea of what they were doing," in the area of strategic nuclear planning. He repeated what he had said in earlier interviews, that after the 1972 high-level exercise in which Brezhnev and the Politburo participated, the political leadership, including even Minister of Defense Ustinov, ignored strategy. "They never really asked what we were doing," after that experience. This did not change under Andropov, Chernenko, or Gorbachev. He supposed that, had there been a real crisis or emergency, they would have become concerned and would have turned to people who, they would have hoped, had been thinking about what to do if some real strategic emergency had come up.

RECORD OF INTERVIEW

Subject: Gen.-Maj. Vladimir Zinovievich Dvorkin

Position: Director of TsNII-4, the Central Scientific-Research Institute of the Strategic Rocket Forces

Location: Georgii Arbatov's office in ISKAN (Institute of U.S.A. and Canada), Moscow (neither the Director, Georgii Arbatov nor his scholars were present)

Interviewer: John G. Hines

Date/Time: June 24, 1993, 4:30 p.m.

Language: Russian

Prepared: Based on notes

Q: Did the Soviet Union have a policy or strategy of deterrence [*sderzhivanie*]?

A: We did not use the word "deterrence" [*sderzhivanie*]. We really didn't discuss what we were doing as deterrence. Instead, we consistently spoke of "not allowing" [*ne dopustit'*] the U.S. to believe it could strike the Soviet Union first without experiencing a devastating retaliatory blow. We said we would not allow [*ne dopustit'*] the U.S. to exercise its will in Europe with impunity and without fear of consequences. We would not allow the U.S., on a broader, global scale, to feel such a sense of overall military or nuclear superiority that U.S. leaders would pursue adventuristic policies in the various regions including the Third World.

Q: Did the Soviet Union ever consider the use of selective nuclear strikes on a global or theater level?

A: I can only say that we at TsNII-4 never to my knowledge looked at the question of making selective nuclear strikes in any scenario. We did not analyze it as a variant.

Q: Why did the Soviet Union begin to develop mobile ICBMs in the 1960s?

A: Primarily to improve survivability. Our silos were hardened to only 2 kg/cm² [28 psi] and hence were very vulnerable to a U.S. first strike. Later in the 1970s, we hardened our land-based ICBM facilities much more thoroughly, some to 400 kg/cm² [5,688 psi]. We expected the U.S. to strike first and therefore survivability was a critical consideration.

Q: Did the Soviet leadership consistently assume that the U.S. would strike first?

A: That was our basic planning assumption in our models and testing. Once, in the early 1980s, however, Defense Minister Ustinov asked us to model a depressed trajectory launch of ICBMs against your silo fields to determine the probable destructive effect. We found that the angle of attack and depression of our missiles would be such that the strike would not be very effective against your ICBMs. We recommended against such an attack mode.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. Makhmut A. Gareev

Position: Chief of the Tactical Training Directorate of the General Staff (1974-1977). Deputy Chief of the Main Operations Directorate of the General Staff for Training and Readiness (1977-1984). Deputy Chief of the General Staff for Scientific Work and Operational Readiness (1984-1989).

Location: Institute of Military History, Moscow

Interviewer: John G. Hines

Date/Time: April 30, 1993

Duration: Approx. ½ hr. total

Language: Russian

Prepared: Based on written notes

Q: When was OMG³⁵⁵ decided upon?

A: Ogarkov and I implemented the idea of the OMG during 1979-80.

Q: Did the Soviet side ever plan to use selective strikes against NATO?

A: In theory, a selective strike was considered a possible option for a response to a selective strike from NATO. The Soviet Union took steps to ensure that selective strikes were technically possible. This was not a trivial task, because it required replacing the older "all or nothing" command and control system with a sophisticated control system which allowed launches from individual silos. However, in practice the Soviets did not believe that selective strikes were possible. The Soviets believed any nuclear use would lead to uncontrolled escalation.

Q: Who were the inside opponents of the OMG?

A: Opponents included Kulikov and Danilevich. Opponents generally thought that individual divisions were capable of exploiting their own successes on the front line.

³⁵⁵ OMG — *Operativnaia manevrennaia grupa* — Operational Maneuver Group. OMG were highly mobile division-to-army-sized formations subordinated to first-echelon Warsaw Pact armies and Fronts and were designed to disrupt and destroy preemptively the enemy's rear-area control, lines of communications and nuclear capabilities very early in any theater conflict.

Ogarkov believed that the military should be modernized and made more competitive on the high-tech battlefield. He favored professionalizing the services, reducing spending on infantry, civil defense, air defense units not located near the periphery, aircraft carriers, etc., and closing unneeded academies. Savings would go toward developing modern high-precision weapons.

The Soviet Union did not possess the technological base to compete with the U.S. in developing high-tech, high-precision weapons. In this sense Ogarkov's opponents were not entirely incorrect in their opposition to his proposals for restructuring the military. Instead the Soviets concentrated on developing cheap, effective counter-measures to NATO's technology. The OMG was one such counter-measure: if you are highly mobile, your opponent's precision weapons are ineffective, since he never knows your position with certainty.

NATO's combined arms strategy was conceptually close to the thinking behind the OMG. However, in implementing its strategy, NATO kept its existing units and simply reorganized them to combine coordinated air and ground operations. The mission of each individual unit remained the same. By contrast, the Soviets developed the OMG as a special group with its own mission distinct from other units.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. Makhmut A. Gareev

Position: Chief of the Tactical Training Directorate of the General Staff (1974-1977). Deputy Chief of the Main Operations Directorate of the General Staff for Training and Readiness (1977-1984). Deputy Chief of the General Staff for Scientific Work and Operational Readiness (1984-1989).

Location: Subject's home in Moscow

Interviewer: John G. Hines

Date/Time: June 20, 1993, 12:30 - 4:00 p.m.

Language: Russian

Prepared: Based on notes

Q: Why did the General Staff decide to put nuclear warheads on operational-tactical and tactical missiles?

A: Because it was possible. The General Staff thought that tactical nuclear weapons were a good idea once their yield was small enough to avoid friendly casualties. No serious disagreements regarding tactical nuclear weapons arose between defense industrialists and the operational military.

Q: Was the employment of tactical nuclear weapons in Europe expected to slow down a Soviet advance?

A: The General Staff conducted quantitative analysis in the early 1970s on the effects of battlefield nuclear weapons and found that if those weapons were used, all significant movement would cease for several days. Before the 1970s, the GS expected the rate of advance to be 20 - 30 km per day with only conventional forces and 40 - 50 km employing nuclear weapons.

Q: East German NVA [National People's Army] documents describe nuclear use, including nuclear preemption, in Warsaw Pact exercises before 1981. Was this evidence of the Soviet intention to initiate nuclear use in the European theater?

A: No. The Soviet Armed Forces did not plan to use nuclear weapons first and were forbidden to exercise initiation of nuclear use. All exercises, tactical to operational-strategic, passed through my hands from 1974 to 1988. Before that I

was assigned to high-level staff and command positions in various Western military districts, and I would almost certainly have known if such a scenario were used.

Soviet forces exercised for many reasons: (1) to train command, staff, and troops; (2) to test new operational concepts; and (3) to prepare forces for execution of war plans. In training, we often included nuclear strikes in scenarios because we assumed that NATO would employ nuclear weapons and that we must be prepared to respond and to continue operations under nuclear conditions. In most exercises we would train people in all possible requirements in the event of war and most armies of the world that I'm aware of do that.

Q: Was "dosage use" considered an option against the U.S. or only in Europe?

A: Intercontinental selective use might have been considered but would be very likely to lead to a general nuclear exchange. The level at which "dosage use" was given any serious thought was within the TVD.³⁵⁶

Q: If the U.S. had launched a selective strike on one or two radars in the USSR, how would the Soviet High Command have reacted?

A: Any initial selective nuclear use by the U.S. against Soviet missile attack-detection radars as a signal to the Soviet leadership would be extremely dangerous. The Soviet military almost certainly would regard such an attack as a precursor strike against Soviet radars to be followed immediately by strikes against central systems. We very likely would assume we were under general attack and would launch massively.

Q: Are there specific examples of weapon systems that were developed despite objections from the General Staff or were produced in larger numbers than the GS wanted?

A: First, many in the GS opposed development of aircraft carriers. Second, the Ministry of Defense opposed the development and deployment of mobile ICBMs but ultimately was overruled by the defense industrialists. Third, in 1964, as a division commander, I had major problems with high failure rates of tank engines and demanded a programs overhaul from the Ministry of Defense Industries, but to no avail.

³⁵⁶ TVD — *Teatr voennykh deistvii* — Theater of (Strategic) Military Action, for example, Central Europe from Ukraine to the western shore of Ireland.

Q: In what year was the “all or nothing” command and control system replaced by a system that allowed launches from individual sites?

A: In the early 1970s when MIRVs were deployed.

Q: In the 1960s, did Soviet plans for a preemptive strategic nuclear strike envisage participation of naval forces?

A: No. SLBMs only had accuracy for use against economic potential and industrial infrastructure and therefore were very poor weapons for anything but retaliatory strikes. Communications to SSBNs were not sufficiently responsive to rely on in an initial response or a retaliatory-meeting strike. Even in a retaliatory strike, there was a high enough probability that the control system to the submarines would be damaged that SSBNs were not a very reliable retaliatory system.

Q: In your written comments prepared in April you noted that the military was not represented in the final phase of key defense decisions such as, for example, the move into Afghanistan. You said that Ustinov was involved, but that he was not military. What effect did Ustinov have on the military’s role and influence when he became Minister of Defense in 1976?

A: At first, for the first year to year and a half, the effect was positive in the sense that, as the most influential industrialist he was able to cut through the bureaucracy and disagreements between the MoD and the industrialists and get things done. After all, they were his people. Then we realized that we had been taken over by the enemy. He really wasn’t representing the interests of the military.

Q: Throughout the late 1960s, the 1970s and early 1980s several military and civilian military-industrial institutes, using quantitative analysis and models of various kinds, had carried out extensive analysis of the likely forms of warfare and the forces that would be needed to carry out such warfare. Did this analysis actually affect decisions taken at higher levels?

A: Not really, because nothing ever changed. The industrialists kept producing what they wanted to produce and the desires of the military customers [*zakazchiki*] continued to be ignored.

SUMMARY OF INTERVIEW

Subject: Dr. Fred C. Iklé
Position: Under Secretary of Defense for Policy, 1981-1988
Location: Center for Strategic and International Studies, 1800 K Street, NW, Washington, D.C.
Interviewer: John G. Hines
Date/Time: December 11, 1991, 11:00-11:45 a.m.
Duration: 45 minutes
Prepared: Based on notes

Dr. Iklé pointed out that none of the Reagan Administration's documents provided a definitive interpretation of Soviet actions. Individuals in the administration had their own views on Soviet military intentions.

The Soviet Union was not preparing to initiate war but was planning, if war broke out, to fight and win. The Soviets were serious about nuclear warfighting. They believed that nuclear weapons had military utility, as evident from their investment in nuclear forces, such as SS-18s and SS-20s.

The USSR built up its nuclear arsenal in order both to deter and to fight. In Dr. Iklé's personal opinion, the Soviet buildup was intended mainly to deter U.S. first use of nuclear arms. Soviet weapon programs were not influenced much by U.S. force deployments. The USSR had its own seven-year cycle and track for arms procurement.

The Soviets did not share the U.S. view of mutually assured destruction. Instead of settling for a SALT-like approach, they sought an edge. Their force deployments created the image that they wanted more than parity. Dr. Iklé tried to silence talk of a "window of vulnerability" (though U.S. concerns about C³ vulnerability were real). By his assessment, the Soviet Union wanted a coercive (not a first strike) capability, but some administration officials genuinely thought that the USSR was out to acquire a first-strike capability.

Dr. Iklé also made the following points:

- The Soviet Union, due to its growing strength, was moving toward acceptance of limitations on nuclear war.

- The USSR could win a war with limited objectives using only conventional forces.
- The U.S. government was concerned about the possible Soviet employment of chemical weapons.
- The Soviet Union probably would not escalate from theater nuclear to global nuclear use, but the Reagan Administration had no sharply chiseled views on this question because when deterrence failed, thinking stopped.

In Dr. Iklé's personal view, first use was a useful doctrine for NATO in peacetime but would be dangerous in war, because London and Bonn would do everything to prevent nuclear first use and would thus leave NATO open to Soviet blackmail. Secretary of Defense Weinberger probably did not accept Dr. Iklé's argument that the NATO decision process, which was slow and which the Soviets could listen into, would give the USSR time to preempt. The Soviet Union was geared to preempt.

The analysis which Dr. Iklé received was of mixed quality. Mr. Andrew Marshall produced good stuff. The analysis from the acquisitions part of the Pentagon was poor. Dr. Iklé relied much more on the data than on the analysis provided to him.

Dr. Iklé complained that too much attention was devoted to arms control. In his view, the Reagan Administration also made too much of the MX missile. Secretary of State Haig pushed for the MX in order to prevent the USSR from acquiring a coercive nuclear potential. If the D-5³⁵⁷ had been ready earlier, the U.S. could have done away with the MX.

³⁵⁷ Trident II D-5 SLBM.

SUMMARY OF NARRATIVE

Subject: Gen.-Col. Igor V. Illarionov

Position: From 1965 aide to Ustinov at Ministry of Defense Industries, Council of Ministers, Central Committee, Ministry of Defense; 1976-84 Ustinov's aide on special assignments in Ministry of Defense specializing in Air Defense, Rocket Forces, Aviation; following Ustinov's death in 1984 worked with Marshal Sokolov in MoD.

Location: Institute for Defense Studies (INOBS)³⁵⁸ Offices, Moscow

Interviewer: INOBIS

Date/Time: April 1993³⁵⁹

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Based on audio cassette tape

During the late 1940s and early 1950s, several Main Directorates for special technologies were created within the structure of the Council of Ministers of the USSR. I was quite familiar with the Third Main Directorate (TGU), which dealt with air defense technology. The Design Bureau-1 (KB-1) was created to design all air defense systems. At first this was a relatively small research organization with its own experimental production plant. Later on it grew into a huge scientific research organization, which developed almost all air defense missile systems. The first project of TGU and KB-1 was to create the Moscow air defense system. This was an enormous fixed-site construction consisting of two large rings designed to combat American "flying forts"—the newest bombers—and to protect Moscow and the Moscow industrial region. This system had a code designation S-25.

During the early years KB-1 had working for it several German specialists who had worked on air defense systems in Germany during the last year of the war. They worked in KB-1 with a small group of our own specialists, chief designers, but all the rest were isolated. The system was very large and expensive, but since we had no experience of this sort, we decided to build it. As a result, several years later the system was built and put in place. TGU existed for a relatively short time and in

³⁵⁸ *Institut Oboronnykh Issledovaniï* (Institute for Defense Studies). Scholars from INOBIS assisted in the collection of some of the taped interviews.

³⁵⁹ INOBIS carried out the interviews resulting in this narrative at various times during the month of April 1993.

the 1950s all of its divisions were turned over to the ministries. It should be noted that TGU employed civilian specialists from all branches of industry who could take part in the development of such a large system, as well as military specialists who later on moved into the Ministry of Defense to work on the operation of the system.

The TGU had considerable rights and the decisions it made were signed by the Council of Ministers without any discussion. It was allowed to use any ministry and any production facility, and use funds from any source. It was not limited in anything and this speeded up the development process considerably and created an atmosphere in which work was relatively easy and fast, which cannot be said for the ministries. In the ministries you had to fight with GosPlan, GosNab and the Council of Ministers every time you introduced any little innovation—a new, relatively simple design. All of this took a lot of time and slowed down work. When the TGU was eliminated, a department called the Military-Industrial Commission (VPK) was formed inside the Council of Ministers there. The task of this Commission was to coordinate all development of military technology, planning and preparation of Council of Ministers decisions on these questions. The VPK played a very important role in directing new R&D efforts, and thus, was responsible for conducting the arms race from the Soviet side. In later years it also worked on questions of arms reductions and prepared materials for our delegation at the arms reduction negotiations, together with the Ministry of Defense and other government bodies.

We were always behind the U.S. in the development of nuclear missiles, and because of this a first strike was not even discussed. I don't know of a single document or discussion in which a first-strike doctrine was adopted. But individual highly-placed officials sometimes stated that if we did not keep up with the U.S. in armaments, then in a crisis, upon observing U.S. preparations for a nuclear strike, we would have to preempt. But I repeat that officially there was no such doctrine in the documents with which I was familiar. During the Khrushchev era and prior to it I was not in the center of international affairs and cannot say that such views did not exist then. The retaliatory-meeting strike doctrine began to be worked out in the late 1960s and early 1970s. Conferences held under the chairmanship of the MoD (Grechko et. al.) and conferences involving the Chief Designers (Ustinov, Riabikov, et. al.) came to the conclusion that at the time we did not have the capability to conduct a retaliatory launch before the enemy's warheads hit our missiles. There were many debates and calculations, but the doctrine was not

worked out. One of the most difficult and labor intensive tasks was coming up with a decision at the highest level of leadership. The commander-in-chief—Khrushchev, and after him Brezhnev—did not want to take on the personal responsibility, and a meeting of all of the top-level officials, discussion and taking of decisions would require not minutes and seconds, as would be required by the time of flight of a missile, but hours.

During this time development began of the second generation of ICBMs with MRVs³⁶⁰ as a counterweight to the American Minuteman II missile. In consideration of the special importance of this system, Ustinov and Smirnov, on the instructions of the Ministry of Defense, assigned the preliminary development to two design bureaus—those of Iangel' and Chelomei. Both designs were completed and discussed at a meeting of the Defense Council. There was a difference of opinion: the MoD backed the Chelomei design, while the VPK (Ustinov, Smirnov) and the Academy of Sciences (Keldysh) preferred the Iangel' missile. [Sergei Aleksandrovich] Afanasiev, the Minister of General Machine Building, sided with the MoD, but inside his ministry the chief of the head Scientific Research Institute (NII)³⁶¹ Mozzhorin, and the First Deputy Minister Tiulin did not go along with him. The meeting of the Council was held in Crimea, in the mountains overlooking Yalta in a forest clearing near a small cottage. The people who lived in the cottage had been temporarily moved out and replaced by workers of the 9th Main Directorate of the KGB. The number of participants in the meeting was quite large: ministers of the branches of defense industry, the top-ranking military men, general and chief designers, heads of the Central Committee and Council of Ministers apparatuses, academicians from the academies of science of the USSR and UkrSSR. In all there were at least 50 - 60 people.

The meeting of the Defense Council was chaired by Brezhnev. The Secretary of the Defense Council, M. M. Kozlov, played a passive role, kept a thick folder full of documents and took notes. Seeing this, Ustinov sat me and the head of the Defense Department of the Central Committee down next to Kozlov to take careful and accurate notes, and to make sure that Kozlov did the same.

Iangel' and Chelomei made their presentations. Chelomei was usually very self-congratulatory, always exaggerating the capabilities of his designs. By contrast,

³⁶⁰ MRVs — Multiple reentry vehicles as distinct from Multiple Independently Targetable Reentry Vehicles (MIRVs) which were developed later. MRVs fall in a "footprint" determined by ballistic momentum once released over the target area by the last stage of a missile. Each warhead on a MIRV is guided independently to a specific target once released by its missile "bus."

³⁶¹ NII — *Nauchno-issledovatel'skii institut* — Scientific Research Institute.

Iangel' and Piliugin, who designed the missile's control system, were cautious and always gave themselves a margin for error. Chelomei, knowing that Brezhnev and Grechko were predisposed towards him, as Khrushchev and Malinovskii had been before them, lavishly praised his brainchild. Iangel' emphasized the innovations of his design: survivability, etc. Although he did not state it directly, it became apparent that Chelomei considered protection of missiles and silos against nuclear blast to be superfluous. The uniformed military did not pay particular attention to the details of the presentations and focused instead on the quantitative characteristics. Iangel' had four MIRVs,³⁶² and Chelomei had six.³⁶³ Most of those who spoke and who depended on Grechko and Afanasiev for one reason or another supported their position. Mozzhorin, the chief of the leading NII³⁶⁴ of the Ministry of General Machine Building gave a detailed comparative analysis of the two missiles which clearly showed that the Iangel' design was preferable. The president of the USSR Academy of Sciences, Keldysh, touched on questions of doctrine, as well as technical questions. He proved that all debates regarding missiles stemmed from questions of doctrine—first strike vs. retaliatory strike—and that certain circles still held on to the vain hope of destroying the opponent with a single strike. Instead, he argued, we should use all of our technical capabilities to guarantee a retaliatory strike, as this is the only way to deter the U.S. from first use of ICBMs. Afanasiev declared with pride that the Ministry had carried out the instructions of the Party and government, had developed both missile designs, and had begun preparations for production. He took the side of Chelomei saying that he supports the position of the Minister of Defense because most of the specialists had spoken in favor of this missile. For the first time he spoke against Ustinov. He said to Brezhnev, "Unfortunately, Leonid Il'ich, Dmitrii Fedorovich has become an opponent of Chelomei and greatly hampers our efforts." Before this meeting he had always sworn allegiance to Ustinov and was fond of saying, "Dmitrii Fedorovich, you are our teacher and we—your students."

Tensions were very high. Despite the tents that had been set up, the July sun had made it very hot. Brezhnev announced a 20-minute recess. We all got up and split up into groups, continuing the discussion in the shade of the trees. Brezhnev called Ustinov and Grechko over to him and talked to them in a fairly loud and agitated way. I could hear phrases like, "What kind of position have you put me in? Why was it not possible to discuss these questions beforehand?" They replied that they

³⁶² Iangel's missile probably was an early version of the SS-17 (Russian designation RS-16).

³⁶³ Chelomei's design became the SS-19 (Russian designation RS-18).

³⁶⁴ Mozzhorin's institute, TsNIIMash, employed over forty thousand scientists and engineers.

had discussed this problem many times, but were unable to reach consensus. Epishev came over and said to Brezhnev, “Leonid Il’ich, since when have the industrialists begun to dictate to us in the military what kind of weapons to buy? We know better than they what we need.” I could not hear the reply to this of the others, but it seems that he was ignored.

After the break there were no more speeches, and the chairman stated that objections had been raised to the draft decision prepared by the Council. The problem would need to be reworked by Ustinov, Serbin,³⁶⁵ Keldysh and Kozlov. Usually meetings like this ended with a traditional dinner and toasts to the leadership, but I don’t think that happened this time. Maybe they had a dinner down in Yalta, as all of the main participants quickly left to go down from the mountain. Ustinov, Keldysh, Alekseev, Serbin and I stayed behind. We discussed how to prepare the draft decision and what to put in it. Keldysh played the most important part. His suggestions were adopted. He proposed to outline the requirements for a strategic missile system—practically a military doctrine for the country. Also, to write a compromise—to produce both missiles. This decision, which was very harmful to the country’s economy, was made because of Brezhnev’s indecisiveness and unwillingness to quarrel with his closest friends. The decision was written by Keldysh and Ustinov, and the rest helped. When the signatures were collected, Grechko tried to delay the decision and even hid from Serbin at his dacha when Serbin arrived with the documents. The Marshal left his dacha through the back door and did not return for several hours. Ustinov and Keldysh liked working together very much and switched to the familiar form of address—*ty*—in their conversation.

³⁶⁵ Serbin, Ivan — Chairman of the Defense Industrial Department of the Central Committee of the Communist Party of the Soviet Union in the 1960s and early 1970s.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. Igor V. Illarionov

Position: From 1965 aide to Ustinov at Ministry of Defense Industries, Council of Ministers, Central Committee, Ministry of Defense; 1976-84 Ustinov's aide on special assignments in Ministry of Defense specializing in Air Defense, Rocket Forces, Aviation; following Ustinov's death in 1984 worked with Marshal Sokolov in MoD.

Location: Institute for Defense Studies (INOBS), Moscow

Interviewer: John G. Hines

Date/Time: June 23, 1993, 1:00 p.m.

Language: Russian

Prepared: Based on notes

Q: Could you discuss the role of the Military-Industrial Commission (VPK)³⁶⁶ at the time of the July 1969 meeting of the Defense Council in Yalta and Dmitrii Ustinov's position at that time.

A: The VPK was responsible for the formulation of military-industrial policy. Specifically, the commission had responsibility for defining what weapon systems and equipment were necessary and in what quantities, who would build them, etc. The VPK also was responsible for saving resources on arms building where possible.

By 1969, relations between the Military-Industrial Commission and the military were hostile. There were continuous battles over weapon systems. This was true even though the Ministry of Defense was represented on the VPK by a First Deputy Minister of Defense.

In 1969, Dmitrii Ustinov held no state positions. He was CPSU Party Secretary for military-industrial cadres and armaments where, among his responsibilities, was the definition of the probable enemy and the enemy's present and future capabilities and objectives. Before he assumed the Party position as Secretary, he was First Deputy Chairman of the Council of Ministers, and before that, Chairman of the military committee within GosPlan, the state economic planning agency.

³⁶⁶ VPK — *Voennaia Promyshlennaia Kommissiia* — (Military Industrial Commission).

For much of his career, up until he became Minister of Defense, Ustinov held the military rank of General-Colonel, but he was not military.

Q: Could you please expand on the nature of the issues and personalities that were debated. Who was on which side of the main issues?

A: The debate concerning intercontinental missile systems focused on the differences between the proposals for missiles by Iangel' and Chelomei. Early in the history of missile development, Chelomei had received Khrushchev's blessing (Chelomei had concentrated on the development of cruise missiles, and Iangel' on ballistic) and such support gave Chelomei an advantage vis-à-vis other chief designers for some time.

Of the two missile systems presented in July of 1969, Chelomei's was the less survivable and less reliable for a retaliatory strike. At the same time, Chelomei's design, which was for a MIRVed³⁶⁷ system, included six warheads whereas the Iangel' system, admittedly more reliable and systemically more survivable, had only four warheads per missile.

These contrasting characteristics led the participants in the Yalta Defense Council meeting to take sides. The military, especially Minister of Defense Grechko, liked Chelomei's design because it provided more warheads per missile and because Grechko didn't care about survivability. Others on Chelomei's side included the Minister of General Machine building (MOM) Afanasiev, his deputy Tiulin.

Supporters of the Iangel' system tended to include those who believed that survivability was an important factor. Most of those who supported Iangel' were from the VPK or people associated with the VPK. This included Ustinov, Smirnov, and Keldysh, the President of the Academy of Sciences. For slightly different reasons, Mozzhorin, the Director of TsNIIMash, the Central Research Institute for MOM, opposed his boss, Afanasiev, and supported Iangel'.

Q: Was the concept of survivability defended on the basis of any concept of deterrence?

A: No, there was no formal concept of deterrence. If we had accepted a concept of deterrence in which survivability of a smaller number of missiles was the logic we would have to follow, we would be forced to reduce radically the number

³⁶⁷ MIRV Multiple Independently Targetable Reentry Vehicle — Each warhead on a MIRV is guided independently to a specific target once released by its missile "bus."

of missiles in our inventory. We did not formally accept that logic. We did consider survivability, however, including the possibility of missiles launching in time to avoid destruction by an incoming nuclear attack. We called this a “retaliatory-meeting strike” [*otvetno-vstrechnyi udar*] which is what would happen under such circumstances. The July 1969 Defense Council meeting was the first time retaliatory-meeting strikes were discussed seriously as something we might be able to do. It was clear that it would be preferable to simple retaliation where we would absorb a first strike before launch.

I would say, however, that Grechko himself did not really care about survivability. Grechko canceled the mobile ICBM program in 1968 and he prevented the hardening of silos beyond 2 kg/cm² [28 psi]. He alone, a simple cavalry officer with very little ability to understand technical and strategic questions, was able to hold back much of the MoD and the technical analytical specialists in the military industries and military-political staff in making progress in improving systems and systems survivability. He overruled many including the Chief of the Strategic Rocket Forces (SRF) who relied for advice on his own military-technical committee [NTK—*nauchno-tekhnicheskii komitet raketnykh voisk*]. We understood that Grechko took such a position because he did not really believe in retaliation nor in retaliatory-meeting strikes. He believed in first strikes even though it violated our official military policy [*Voennaia Politika KPSS*] of not initiating nuclear strikes.³⁶⁸

Q: Could you comment on the relationship between Marshal Ustinov and Nikolai Ogarkov?

A: That is a very difficult, uncomfortable question. I would prefer that you ask Ogarkov himself.

Q: Marshal Akhromeev in the book he wrote with Kornienko, which was published posthumously, explained that when he (Akhromeev) left in 1980 to be the representative of the Supreme High Command in Afghanistan, Ogarkov and Ustinov were getting along very well. When he returned in 1982, relations between the two officers were terrible, so bad, in fact, that the work of the General Staff and the Ministry of Defense were very negatively affected. Routine work and decisions would be prepared in the General Staff and never be approved, or not even transmitted, to the Minister of Defense because of the hostility between the two senior Marshals in the Armed Forces.

³⁶⁸ The *Voennaia Politika KPSS* (Military Policy of the CPSU) represented the most authoritative, high-level expression of the will of the Communist Party with respect to issues of defense and state security.

A: Yes, that sounds like an accurate description of what it was like.

Q: Was it personal or professional?

A: Well, Ustinov liked the high-technology and nuclear strategic systems and strategies, and Ogarkov thought conventional war, the ground forces, and preparation for war in the TVD [*teatr voennykh deistvii*—Theater of Strategic Military Action] were more important. In 1980, Ogarkov even argued for a cut in strategic forces and an increase in conventional forces. But that was not the main problem. The major differences seemed to be personal.

Addendum to June 23, 1993 Interview on July 1969 Crimea Meeting of the Defense Council

The opposing blocs according to Illarionov:

Chelomei design (SS-19):

Favored by Ministry of Defense specialists and uniformed military

Weakly protected/first strike weapon

Six warheads

Principal supporters: Grechko (MoD), Afanasiev (MOM), Epishev (Deputy MoD for Political Issues)

Iangel' design (MR-100/SS-17):

Favored by VPK/industrialists

High protection, survivability/retaliatory-deterrence weapon

Four warheads

Principal supporters: Ustinov, Mozhgorin (head of TsNIIMash), Keldysh (Acad Sci), Serbin (head of defense department of Central Committee), Alekseev, Illarionov (assistant to Ustinov)

Although as a compromise Brezhnev put both types of missiles into production, the Iangel' bloc won the doctrinal argument, leading to the formal adoption of the retaliatory-meeting strike doctrine.

SUMMARY OF NARRATIVE

Subject: A. S. Kalashnikov

Position: Missile and nuclear weapons tester; former member of Military-Technical Committee of Ministry of Defense and Chairman of Strategic Rocket Forces; former chairman of commission on nuclear testing at Semipalatinsk.

Location: Institute for Defense Studies (INOBS), Moscow

Interviewer: INOBIS

Date/Time: April 1993³⁶⁹

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Based on audio cassette tape

Both the U.S. and the Soviet Union always stressed the vulnerability of strategic and tactical nuclear weapons, especially fixed, land-based missiles, which can be successfully destroyed using conventional weapons. Therefore the Soviets continually improved the protection of silos, de-concentrated and dispersed silo groups, and created mobile ICBM systems which could roam the vast territory of the country. The principal Soviet strategic advantage was this vast territory—22 million square km. The principal U.S. advantage was its access to warm water, of which the Soviet Union had virtually none. Even when Soviet submarines came out into open waters they were immediately detected and tracked. In order to fully exploit their advantage Soviets created mobile land-based systems. By contrast, the U.S. had only approx. 1,000 land-based Minuteman III launchers and 54 Titan II launchers. But in general the U.S. based its missiles away from its territory in order to draw the fire away from its territory.

Tactical Nuclear Weapons.

Kalashnikov was a member of the military-technical council of MoD; Kalashnikov argued that it was a grave mistake to outfit operational and tactical missiles with nuclear warheads. However these arguments were in vain because it was the industrial complex that dictated procurement and production.

³⁶⁹ INOBIS carried out the interviews resulting in this narrative at various times during the month of April 1993.

First Definition of Missile Role and Silo Design.

From 1950 - 1961 Kalashnikov worked at Kapustin Iar as head of First Testing Directorate testing virtually all ballistic and cruise missiles designed during that time. After observing a test on Sept. 14, 1958, Khrushchev commented that in the future missiles would be the sword and shield of the country. The following day Kalashnikov was directed to draft a highly secret report on options for silo designs to increase survivability of Soviet missiles. The report outlined three options:

- 1) single-launch dispersed silos
- 2) groups of four silos
- 3) re-fire: single silo containing missile drum

The first option was selected for prototype testing using an R-12³⁷⁰ missile. The first launch occurred in spring of 1959. Kalashnikov considered the type of basing to be the single most important determinant of system effectiveness.

Threat from NATO Countries.

The following technological developments particularly threatened security:

- 1) Technological achievements of the U.S. generally, particularly the ever increasing accuracy of U.S. missiles. Accuracy doubled every 5 years:

| | | |
|------|------------------------|-------------|
| 1960 | Minuteman IA | 4 km radius |
| 1965 | Minuteman II | 2.1 km |
| 1970 | Minuteman III | 1.2 km |
| 1975 | Minuteman IIIA | .8 km |
| 1980 | M III (single warhead) | .5 km |
| 1985 | MX (self-guided) | .25 km |
| 1990 | MX (self-guided) | .15 km |

- 2) Cruise missiles with self-guiding warheads.
- 3) Reconnaissance-strike systems with separate self-guiding elements used as anti-tank weapons in Europe.

³⁷⁰ SS-4.

Threat from Warsaw Pact Countries.

The following Warsaw Pact systems were the most destabilizing:

- 1) The Tem 2-S [probably SS-16] mobile missile system, which had an astounding effect on the U.S.
- 2) The Pioneer SS-5 [SS-20] mobile missile system
- 3) Silos of the "Oss" type with super-hardening for SS-18 liquid fuel missiles
- 4) Nuclear tactical/operational missiles and nuclear artillery

Regarding Periods of High Tension and Danger.

Crises were primarily manufactured in the highest echelons of party and government leadership, some for political, some for economic or other reasons. An example: In June 1966 Kalashnikov was assigned to conduct a demonstration test of the R-16³⁷¹ missile for De Gaulle. What De Gaulle saw had a profound effect on him. He turned to Brezhnev and asked, "You've got quite a lot of missiles. Where are they aimed?" Brezhnev replied, "At cities, including Paris." At that time NATO headquarters was located in Paris. After the exercise De Gaulle cut short his visit and left the country. This story illustrated how the high leadership periodically deliberately brought about political tensions.

Mutual Assured Destruction.

Soviets did not accept the concept of mutual destruction. But the doctrine of retaliatory-meeting strike (RMS)³⁷² in effect produced the same result—mutual destruction. This (RMS) was a senseless doctrine. The targets of retaliatory strikes for both U.S. and USSR were administrative-industrial centers, air bases, C³ centers, and others, which resulted in the destruction of the industrial and military potential and of the population. The targeting of launchers did not make sense from our point of view because RMS relieved the launchers of their missiles and it did not make sense to hit empty silos. It was impossible for either us or for the Americans to destroy warheads in flight.

Protection from Surprise First Strike.

Soviets had several concrete projects for protection against a surprise first strike.

- 1) Silo protection was continually improved.

³⁷¹ Probably the SS-8.

³⁷² Referred to elsewhere in interview records by the Russian phrase, *otvetno-vstrechnyi udar*.

- 2) More attention began to be paid to the early warning system. This was done primarily by organizations subordinated to the Radio Industry Ministry, headed by Valerii Dmitrievich Kolmykov. Kalashnikov was a strong advocate of a sophisticated early warning system, including introduction of “noise-like” [scrambled] C³ signals. His arguments were resisted by Kolmykov who got bad advice from his chief designer and consultants. The need for a strong early warning system was finally made clear by Pleshakov,³⁷³ an arms control negotiator in Geneva and Kolmykov’s deputy, who claimed that Radio Ministry’s resistance to modernizing the system had put the Soviets far behind the Americans and undercut the Soviet negotiating position.

The situation regarding EW protection against a surprise attack was quite serious. In 1975 a commission, of which Kalashnikov was a member, was set up to study the problem. Kalashnikov, after consulting with bright young specialists whose views were often suppressed, pointed out that Soviets could not keep up with the U.S. in terms of accuracy. However, as U.S. accuracy increased, the velocity of the reentry vehicles (RVs) also increased, and their size decreased. This leads to the possibility of disabling the RVs by putting ordinary chaff in their way. This idea led to preliminary R&D on the SAMBO system led by Kalashnikov in conjunction with Sergei Pavlovich Nepobedimyi, who was designing a similar system for protection of tanks against missiles. The preliminary work led to four or five abstracts [*avtorskie svidetel'stva*]. The outlines of the system: burst 500 - 1,000 m above the silo or C³ center scattering “ordinary elements” in a horizontal plane with a velocity of 2,000 km/s (in addition to the speed of the RV itself).

Support was found for this idea, and it was proposed to Ustinov and presented to an MoD Collegium in April 1980, which included Gorshkov (VPK—Smirnov’s first deputy) and members of the industrial complex. Gorshkov was opposed to the idea because PRO³⁷⁴ was developing its own anti-missile system, under the direction of the Nudelman KB³⁷⁵ at the time. However, eventually the protocol was signed by all the members of the Collegium and Nudelman’s work was subordinated to this project. This was a serious project, which continues to undergo development and has yielded some positive results. Work is now continuing in the KB headed

³⁷³ Author was not able to identify this person in the military-industrial sector.

³⁷⁴ PRO — *Protivoraketnaia oborona* — Anti-Missile Defense. Anti-missile defense was a responsibility of the commander-in-chief of the Air Defense Forces (Voiska PVO).

³⁷⁵ KB — *Konstruktorskoe buro* — Design Bureau. The complete designation is *opytno-konstruktorskoe buro* (experimental design buro). Author could not identify Nudelman’s first name and biography.

by Nikolai Ivanovich Vushchii. The work involves both radar/radio and optical detection methods, including a phased array system for electronic scanning. If the system is built and deployed, it will eliminate the possibility of a surprise attack on our silos.

Right now the emphasis continues to be on precision weapons which can destroy silos and other targets with reasonable accuracy. Weapons are not developed in a vacuum, but in response to something.

Scenarios for Limited Global Nuclear War.

Scenarios for limited global nuclear war were not developed. NATO's medium-range missiles (with ranges to 2,000 km) did not present a threat to us. Our medium-range SS-20s had a range of 4,500 km; the SS-4, SS-5 have ranges of 2,500 and 4,500 km.

Strategic Superiority.

The Soviet Union did strive for strategic superiority. It achieved superiority in the following areas:

- 1) Number of launchers
- 2) Silo protection
- 3) Yield of warheads
- 4) Range and power of missiles

However, Soviets were never able to create a sophisticated, survivable, integrated command, control and communications system. This was their "Achilles' Heel". Kalashnikov produced an analytical report for the General Staff comparing C³ systems of the U.S. and USSR. This analysis had a devastating effect on the GS because it reported that the U.S. possessed eight command and control centers which were absolutely protected, while the Soviet Union had none. This report created some movement toward modernization. Kalashnikov calculated that after sustaining an all-out nuclear strike—the Soviets would be able to launch only 2% of their missiles. This calculation was based on data supplied by several industrial NIIs, including TsNIIMash [the Research Institute of the General Machine Building - Missile - Ministry] (which reported a figure of 6%) and NII-4 [the Research Institute of the Strategic Rocket Forces] (10%). However, a figure of 2% is most realistic—out of 100 surviving silos, only two would be able to launch their missiles.

Kalashnikov produced an *avtorskoe svidetel'stvo* to build two spherical command centers inside mountains: one for the General Staff, one for the SRF (Strategic Rocket Forces) command. However, a major difficulty was the lack of an adequate communications infrastructure. The Soviets had [have] only one military communications cable linking Moscow with the Far East. By contrast, the U.S. has a network of command centers linked by a computerized communications system. If one region or sector of this communications net was knocked out, bypass links could be set up in a matter of seconds.

Therefore Soviet superiority in the number of launchers did not give them any real advantage. This numerical superiority reflected a mechanistic, wasteful approach to force building.

The Soviets had amassed a superior first-strike arsenal. But they were not able to destroy an aggressor in a retaliatory strike because they did not have an adequate C³ system for launching their surviving missiles.

Nuclear War in Europe.

The Soviets tried to plan for nuclear scenarios, however they were all senseless. The main threat for NATO was the large number of Soviet tanks located in Europe. The Soviets had no incentive to escalate the war to the nuclear level because the consequences would be equally devastating for Europe and for the European part of the Soviet Union. The leadership believed, with good reason, according to Kalashnikov, that Soviets could certainly win a strictly conventional war in Europe and advance at least to the English Channel. The ban on tactical nuclear weapons has without question drastically reduced the level of the Cold War.

Economic Competition.

The Soviets were not on even ground with the U.S. economically. U.S. GDP in 1981 equaled \$2,925 billion. 1981 Soviet GDP equaled 939.16 billion Rubles. But they spent more on weapons, which led in the end to the ruin of the economy and the pauperization of the people. The arms race and instability were aggravated by military bases outside the borders of the two superpowers, considering that they reduced flight times, etc.

1972 Exercises.

During this time there were tests held at Semipalatinsk to determine the nuclear survivability of all existing silo and command center designs. For this underground nuclear tests and above-ground tests using conventional explosives equivalent to 10 kilotons were used. For the above-ground tests many kinds of equipment were used, including mobile missile platforms, SS-20s, planes, tanks, other kinds of armor, etc. Kalashnikov was deputy in charge of missiles on the commission conducting the tests. Findings: ground bursts were generally effective at disabling silos, but results were somewhat mixed. Air bursts were very effective against planes, tanks, etc.

Deployment of SS-20.

There were several reasons for the deployment:

- 1) Obsolescence of existing medium-range missiles. Existing missiles were: R-12 [SS-4] - deployed March 1959, unprotected, above-ground launchers, with range of 4,500 km and carrying a .5 megaton single warhead; R-14 [SS-5] above-ground, unprotected with 4,500 km range and 1 megaton warhead. Both were liquid fuel missiles with low combat readiness. These two systems were deployed in the European and Central Asia parts of the USSR, first on unprotected above-ground launchers, then, as a result of Khrushchev's decree of May 30, 1960 (mentioned above) in group silos, hardened to withstand only 2 kg/cm² [28 psi]. Deployed in silos 1964. The Soviets wanted to eliminate these obsolete systems and replace them with solid-fuel missiles.
- 2) The Soviets wanted to deploy a mobile missile system.
- 3) By this time the Tem-2S mobile ICBM [probably SS-16], using the MAZ-500 mobile launcher, had been developed, and was in production, but it was banned by the SALT II agreement. Kalashnikov pointed out that it was technically a simple matter to convert the 60 existing ICBMs into the Pioneer [SS-20], which was permitted by the agreement: simply remove the second stage of the missile. Thus the SS-20 was born. The Central Committee decree was prepared in a matter of days. The creation of the SS-20 caused a great uproar in the West, particularly in American military circles.

Strategic Superiority Revisited.

The Soviet Union did strive for strategic nuclear superiority. In 1975 the U.S. had 1,710 launchers operational. We had 2,558. After 1968 the U.S. practically did not add any launchers.

Soviet megatonnage per warhead was two to three times that of the U.S. However, the *udel'naia moshchnost'* [warhead size in proportion to weight, thrust and range of the missile] of the U.S. warheads was 25% greater than Soviet. Soviet missiles had far greater launch weight than U.S., e.g., the Minuteman weighed 35 tons, carried three warheads and had a 10,000 km range. Soviet missiles compensated for the inadequacy of their designs by their great launch weight and throw weight. The pressures in their burn chambers were lower because of less sophisticated materials. Even the Soviet solid fuel missiles had far greater weight than their U.S. counterparts.

NATO Threat.

The Soviet Union perceived a threat from NATO behavior. The main goal of the U.S. during the Cold War and the arms race was to force the Soviet Union to commit the maximum resources to nuclear and other weapons in order to destroy its economy. This strategy was in the end successful because when the Soviet Union was committing 60 to 70% of its industry to defense needs, the economy crumbled.

During a meeting involving Central Committee Defense Secretary Dmitrii F. Ustinov and Chief of the General Staff Zakharov,³⁷⁶ Kalashnikov argued that industry was overextended and committed too much to armaments. This economic over-extension was driven by the arms race and by the growing complexity and sophistication of modern weapons. During and after WWII, four industrial plants were required to build a tank. Now, after the arms race at least 150 plants are needed. This means that many industrial plants which under normal conditions would be non-defense, were deliberately and systematically drawn into defense production. The U.S. was much stronger economically. U.S. industry was working at 75% capacity throughout the Cold War period, while Soviet industry was working at full capacity. The U.S. GDP rose consistently. From 1967 to 1981 real GDP actually declined in the Soviet Union.

³⁷⁶ Zakharov, Matvei Vasil'evich — Marshal of the Soviet Union — Chief of the GS from 1960 to 1963 and from 1964-1971.

Every year since 1969 the U.S. produced 280 - 300 missiles. The Soviet Union produced 540 - 570. This vast industrial base devoted to the production of missiles destroyed the national economy and pauperized the people. Most important, the Soviet Union had more than 20 types of missiles serving essentially the same roles. The military's ambition had always been to eliminate this redundancy and have just two or three types, e.g., one heavy and one light ICBM. Kalashnikov repeatedly made proposals to this effect. But these arguments were always rebutted with the question of what would happen to the workers if KB [design bureau] Chelomei or KB Iangel', which operated the Iuzhnoe facility, were closed down. During one particular meeting of the Defense Council held by Brezhnev in Crimea, the redundancies were clearly demonstrated and the proposals for design of MR-100³⁷⁷ and R-37³⁷⁸ were also presented. Brezhnev made the militarily senseless and economically destructive decision to keep all designs in production.

At this meeting Kalashnikov argued for the design of a solid-fuel missile to replace the SS-18 to be known as the SS-21 and developed at Iuzhnoe. The SS-18 was not canceled, but Kalashnikov's proposal was received favorably. Some of these missiles would be rail-based. Grechko was strongly opposed to the rail option because he thought that the railroads, which are the Soviets' lifeline, would be seriously disrupted by rail-based missile launches. Kalashnikov headed the development team for this missile [ultimately produced as the SS-24].

Closing remarks.

Kalashnikov is convinced that throughout the period of the development of nuclear missiles, especially when the Soviets began their production in earnest, the U.S. was very afraid of Soviet nuclear power, and of the possibility of accidental or unauthorized launch. The fact that Bush agreed to equal numbers of warheads for each side in the recent START II agreement, even though Russian warheads are of much higher yield, reflects this concern, especially in view of the political instability in Russia, and constitutes a great concession in favor of the Russians. Kalashnikov noted that it would be a great loss for history to lose a civilization like the United States. History shows that advanced civilizations have always been destroyed by more primitive ones (Rome, the Moors in Spain, etc.).

³⁷⁷ The MR-100 is probably the manufacturer's number for the SS-17, the Iangel' four-warhead missile proposed in July 1969. The Strategic Rocket Forces (SRF) designation for the same missile was the RS-16 (missiles often were known under two or three designations; the manufacturer's number, the SRF number and, for some systems, a number for general space applications).

³⁷⁸ Almost certainly a general space missile system number for Chelomei's SS-19 known also by the SRF number RS-18.

SUMMARY OF INTERVIEW

Subject: A. S. Kalashnikov

Position: Missile and nuclear weapons tester; former member of Military-Technical committee of Ministry of Defense and Chairman of Strategic Rocket Forces; former chairman of commission on nuclear testing at Semipalatinsk.

Location: INOBIS, Moscow

Interviewer: John G. Hines

Date/Time: April 14, 1993

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: Based on audio cassette tape

The communications system was the Soviets' Achilles' Heel in the late 1960s and early 1970s. The U.S. cable communications system is very survivable because it consists of a computerized grid with many nodes that is difficult to knock out completely. U.S. command centers are very well protected and employ long-wave communications. By contrast, the Soviet cable communications are very weak, leading to poor survivability in models. This vulnerability has not been corrected to this day. A new cable system linking Moscow with the Far East has not been put in.

The Soviet Military-Industrial Complex was very resistant to change and innovation and there were "titanic battles" for the quality of weapons. For example, there was great resistance to introducing scrambling devices [*shumobraznyye signaly*] into Soviet naval communications. Kalashnikov became convinced of the need to introduce these devices in the early 1980s after talking with Admiral Lobov, commander of the Northern Fleet. Lobov described shadowing a U.S. fleet on maneuvers and not hearing any radio traffic. A tremendous battle ensued involving the Minister of Radio Industry Kolmykov. Such battles were commonplace during the Brezhnev period, when the Military-Industrial Complex became entrenched.

A great tragedy for rational weapons development was the closing of the General Staff Scientific-Technical Council (NTK) by Grechko. The NTK was an independent body not responsible to any of the ministries. It was therefore

difficult to muffle. After Grechko disbanded it the only NTKs left were ones belonging to the services of the Armed Forces. However, they were greatly weakened.

Q: Did the Soviet Union conduct tests to compare the effects of ground-bursts vs. height of bursts?

A: When the first silos were built Soviets needed data for building shock absorption. The first tests to assess the effectiveness of shock absorption were conducted in 1963-64. At first these tests used conventional high explosives, but later on more elaborate tests using nuclear blasts were conducted. These later tests were made using silos and a command center. Later still, above-ground tests were conducted using conventional explosives to measure the effect on equipment like tanks, planes, etc. A series of tests was conducted in Novaia Zemlia in 1961, but only to measure warhead yields.

SUMMARY OF NARRATIVE

Subject: Vitalii Leonidovich Kataev

Position: Former Senior Advisor (1967-1985) to the Chairman of the Central Committee Defense Industrial Department (Renamed "Defense Department" in 1991) of Central Committee of CPSU responsible for strategic arms and defense policy, arms control negotiations and military doctrine.

Location: Institute for Defense Studies (INOBS), Moscow

Date/Time: May 1993³⁷⁹

Language: Russian

Prepared: Based on audio cassette tape

Note: Also present: Viktor Popov, former senior staff member of the Central Committee Defense Industrial Department.

Since the times of Stalin, decision makers worked in very close contact with the chief designers. Most chief designers were very erudite, capable people who understood well the problems facing the country, the economic constraints, and the scientific aspects of the problems. The military industrial complex absorbed the best technical and scientific capabilities of the state. The benefits and privileges inside the complex were also greater. In the end these circumstances gave the complex its own life which contributed to the fact that, despite the lack of necessity for massive series production of armaments, and without any military actions in which these arms were depleted, arms were stockpiled and the industry continued to grow independently of military needs. In the 1970s and 1980s certain branches of industry, such as the munitions industry, grew at three or four times the rate of the defense industry as a whole.

The defense industry never accepted simple solutions. Changes were made only in favor of the growth of the complex. All intelligence assessments of the probable opponent were skewed in favor of the maximal threat when they were made available to the leadership. The principle was always that it is better to overestimate than to underestimate the opponent. Our retaliatory measures were always taken in response to the opponent's maximal capability.

³⁷⁹ INOBIS carried out the interviews resulting in this narrative at various times during the months of May 1993.

The corps of directors [comprised of directors of major defense conglomerates or “NPOs”]³⁸⁰ also helped to maintain high production levels. When the military was fully saturated with heavy strategic missiles, there were concrete instances when directors of production facilities, such as the director of IuzhMash, Makarov, would visit Minister of Defense Ustinov and would say: “Dmitrii Fedorovich, please take a few dozen missiles.” And Ustinov would reply, “But what will I do with them, Aleksandr Maksimovich?” To which the director would reply, “But if you don’t, how will I feed the working class?” And Ustinov would take the missiles, which the army did not really need. But they were produced, and the Ministry of Defense had to buy them.

The army and the industry had a common interest in producing more and more powerful systems in greater and greater numbers, independent of changes in the international environment. And the pressure to produce was greatest on the most sophisticated kinds of systems, especially on the strategic systems. So, in the structure of the defense industry, space, missile building, and aviation accounted for 34% of all specialists; communications and radio electronics took up 20%; shipbuilding took up 9%; artillery, munitions and small arms took about 12%. Only 55% of the capacity of the defense complex was employed in the production of military goods. 40% was employed in the production of civilian industrial and consumer goods. For example, at the Ural Railroad Car Plant in Nizhnii Tagil—the largest tank plant in the world—the proportion of defense production was 64%; at the Votkinsk missile technology plant, the proportion was also 64%; at Volgograd’s “Barricade” works, which produced missile launch equipment and artillery, it was 72%; some of the shipbuilding plants were 80 - 95% dedicated to defense production.

Although generally speaking the defense industry was a monolithic structure, there were occasional rifts. While some designers were orthodox in their thinking, others were not. For example, the question of protection of strategic missile complexes led to a drawn-out debate. Iangel’ and some others designers proposed to create silo-based, protected strategic missile complexes, with protection of at least 100 atmospheres. This proposal was opposed by some designers, including Rudiak,³⁸¹ who insisted on retaining the old silo design, with in-silo engine startup, and which were not well protected against nuclear attack. As a result of lobbying by Iangel’, Glushko and Piliugin, Rudiak was removed from his position.

³⁸⁰ NPO — *Nauchno-proizvodstvennoe ob'edinenie* — Scientific-production conglomerate.

³⁸¹ Author was not able to identify this person in the military-industrial sector.

The need to get ahead was not always determined by military necessity or by the scientific capabilities of the design bureau. It was largely determined by the military-technical leadership. In the early 1960s the well-known Miasishchev aviation design bureau was transferred to the Chelomei missile design bureau, where Khrushchev's son was working. Khrushchev relied on the information supplied by his son, which gave Chelomei great advantage. His missiles were not bad, and were highly esteemed by the troops for their reliability, ease of use, and good design. In order to avoid slighting the other design bureaus, their missiles, which were of the same class as Chelomei's, were also put into series production simultaneously. This caused some difficulty in the Rocket Forces, which at one time had more than 10 different missiles serving the same mission. This led to a kind of internal arms race inside the defense industry, which did not always adequately reflect the country's defense requirements. Of course, this arms race was defended on a theoretical basis, found expression in mini-doctrines of development of one kind of technology or another, and was supported by those members of the military who always believed that there could never be enough weapons.

The defense plants never stopped production of defense goods, but rather aimed to increase production, independent of the demand, which led to stockpiling of expensive technology. For example, there were at different times up to four, five, and, in the case of particular systems, eight nuclear basic loads [*boekomplektov*] of naval strategic missiles. The submarines themselves permanently carried approximately 0.7 nuclear basic loads, which was quite sufficient for all sorts of testing, etc., as was also the case with the American side. Not more than 1.5 nuclear basic loads would have been sufficient.

While working in the Defense Department of the Central Committee, I attempted to bring these facts to the attention of the leadership, but was simply told not to concern myself with these matters. The work of the Defense Department aimed constantly to increase weapons production, to make sure that the technological level of the weapons being produced did not fall behind that of our probable opponent. The role of the Defense Department was limited to the development of new kinds of weapons, organization of their series production, and their transfer to the active forces. Use of new systems and their incorporation into the force structure was entirely the role of the military. What the army did with their weapons was not under the control of the specialists inside the Defense Industries Department. The traditional approach inside the Defense Industries Department,

which dated back to the days of Stalin, was that the customer, that is to say the MoD, is always right. However, what was meant by the MoD was often the view of the Minister of Defense. This subjective view was the decisive one in the creation of new weapons systems and in the arms race in general. So, for instance, in the early 1960s the Iangel' design bureau suggested responding to the Americans' increasing accuracy by designing mobile missiles which would in effect counter accuracy by creating uncertainty about the location of our missiles. It should be noted that with the appearance of the highly precise MX missile, we faced a significant gap in retaliatory capability using silo-based missiles. Bringing on-line the mobile missiles eliminated this shortcoming. When the science committee of the Rocket Forces agreed with this view, Minister of the Defense Grechko disbanded the committee and unilaterally rejected the rail mobile missile complex, thereby stalling its development by 10 to 12 years. If the decision to develop these mobile missiles had been made in the mid-1960s, as was planned, it is doubtful that the U.S. would have invested in the MX. In this case we [Soviets] would not have invested in various other countermeasures to the MX.

In practice, our government did not have a structure for making important political-military decisions of this type. Such decisions were made by the top three or four leaders: the Secretary of the Central Committee, the Minister of Defense, the Central Committee Secretary responsible for the defense industry, and the Chairman of the Military-Industrial Commission (VPK). However, these decisions were not always made based on a balanced discussion of options. For example, the decision to build the Krasnoïarsk radar site was made by this troika or foursome in violation of the ABM Treaty. But this was easily demonstrated, and in the end led to the liquidation of this site. A similarly thoughtless decision was made regarding the deployment of Pioneer [SS-20] missiles in the European part of the USSR. In response to this we got the Pershings, which led to a complete strategic destabilization in Europe and we later had to liquidate these missiles at great political and economic loss to us.

RECORD OF INTERVIEW

Subject: Vitalii Leonidovich Kataev

Position: Former Senior Advisor (1967-1985) to the Chairman of the Central Committee Industrial Department (Renamed "Defense Department" in 1991) of Central Committee of CPSU responsible for strategic arms and defense policy, arms control negotiations and military doctrine.

Location: Institute for Defense Studies (INO BIS), Moscow

Interviewer: John G. Hines

Date/Time: June 23, 1993, 3:30 p.m.

Language: Russian

Prepared: Based on notes

Note: Also present: Viktor Popov, former senior staff member of the Central Committee Defense Industrial Department.

Q: In your narrative discussion, you indicated there was no formal structure for political-military decision making but that a "troika," or perhaps a foursome of top officials actually made such decisions; the Defense Minister, the Central Committee Secretary for defense industries, the Chairman of the Military Industrial Commission (VPK), and the Secretary, I assume General Secretary, of the Central Committee. In our earlier discussion you and Viktor Popov mentioned the "piaterka" [the five] who had the final say on defense issues. The five you mentioned were: Smirnov, Chairman of the VPK; Ustinov, the Minister of Defense and Secretary for Defense Industry; Gromyko, Minister of Foreign Affairs; Andropov, the head of the KGB, and Brezhnev, the General Secretary.

A: The broader "piaterka" with Andropov and especially Gromyko was more likely to be involved on defense questions that went beyond the interests of only the military or the industrialists, questions related to doctrine and high-level, international decisions related to arms-limitation negotiations.

Q: It has come up in earlier discussions that the Chelomei missile [SS-19] presented for decision in Yalta in July 1969 was assessed to be less reliable than the Iangel' missile [SS-17]. What determined the reliability [*ustoichivost'*] of a missile system?

A: First of all, Chelomei's missile had a low survivability [*zashchitnost'*] rating, low reliability [*ustoichivost'*] rating, and an overall reliability [*obshchaia nadezhnost'*] rating of 90%. (The Minuteman was rated between 70% and 80%.) The overall reliability is the product of several factors—the missile's inherent stability and the hardness of onboard control and launch systems, the silo, the local control system, the central control system, especially to include its survivability and the survivability of the control links under nuclear attack (including Electromagnetic Pulse, EMP)—that would affect a missile system's ability to launch and strike its target in the aftermath of a nuclear attack. Kataev made clear that, by Soviet criteria, the Minuteman was systematically less reliable under or after attack than the SS-19 (even though, in the late 1960s, Minuteman was hardened to 20 kg/cm² [284 psi] versus the Soviet Union's 2 kg/cm² [28 psi]).

Q: In your calculations, what assumptions did you make about U.S. intentions and capabilities to launch against the Soviet Union?

A: We assumed that the U.S. would launch first and, given your focus on accuracy and relatively smaller yields per warhead, that you intended to strike our weapons and control systems in an attempt to disarm us.

Perhaps the single most important factor affecting our calculations was the accuracy of your strategic missiles. In our estimation, the U.S. began its pursuit of very high accuracy in 1963 in what we called the MX program. Your determination to increase warhead accuracy led us to be more and more concerned about the survivability of our systems. By 1965 we had decided to develop mobile ICBMs. By the early 1970s, we were to have tested the first rail-mobile system. Grechko, however, canceled the mobiles program.

Nuclear power [*iadernaia moshch'*], in our assessments, is a function of yield, number of weapons, and accuracy. Accuracy can have a decisive effect as a multiplier to greatly increase the effective power of a nuclear missile. Several factors, especially accuracy, for example, increased the power of the U.S. nuclear arsenal by a factor of three in the years leading up to difficulties associated with RIA^N [*Raketno-Iadernoe Napadenie*—nuclear missile attack] in the early 1980s.

Q: Could you expand on the role of the "Dead Hand" missile communications system?

A: "Dead Hand" represented one of two trigger mechanisms on a basic system of command missiles [*komandnye rakety*] designed to launch Soviet ICBMs. The basic command-missile system is comprised of a command missile or missiles deployed near, but not in, clusters of silos. The command missiles are well concealed, physically hardened well beyond the hardening of weapons launch platforms and especially well hardened against damage from electro-magnetic pulse [EMI—*elektro-magnitnyi impul's*]. Each command missile is linked in its communications package with a specific set of launch platforms. Upon command, the missiles are launched into near space from which each missile transmits launch orders to that cluster of ICBMs to which it is linked. (The scenario under which the system would be used assumes that all ICBMs are retargeted from enemy missiles to objectives that have economic and infrastructure value.)

There are two means by which each command missile might be launched to transmit its message to the ICBMs. The first is under positive control from the central control system. The decision is taken to launch and the time before impact of the enemy's strike is seen to be insufficient to permit normal launch procedures. The second is the "Dead Hand" launch mechanism. Under the "Dead Hand" mechanism, the decision maker at the center unblocks [*razblokirovat'*] the no-fire mechanism at the center, thereby releasing launch control to local automatic triggers associated with each command missile. The triggers, fed by numerous sensors, will launch its local command missile and, in turn, its associated cluster of ICBMs once the sensors are excited by the light, or seismic shock, or radiation, or atmospheric density associated with an incoming nuclear strike.

Q: Were the missiles operational by 1981?

A: Yes, definitely operational by the early 1980s.

It is important to understand that unblocking of "Dead Hand" assumes the scenario of a situation that is extremely threatening to the political and military leadership of the state. The basic expectation is that all decision makers are dead when the command missiles automatically fire.

Q: I would like to touch once more on the question of selective strikes.

A: We never accepted a limited strike option, not in the Central Committee, not as an element of the military policy of the CPSU [*Voennaia Politika KPSS*].

Q: But very well informed generals in the General Staff claim that they analyzed limited options of various kinds, and, under some conditions, would be prepared to implement them.

A: Of course the military played with this inside their own little box to which they would then pull down the cover, shutting themselves in the dark away from exposure to what was really going on. [He formed a box around his eyes with his hands and then pulled an imaginary cover out and down over his eyes]. Even though the military looked at limited options I know, personally, that they were not accepted. I attended many very high-level [the Defense Council supported by Central Committee Defense Industrial Department] meetings where major weapons and other development and procurement decisions on missile systems were debated and made. At many if not most such meetings, the doctrinal and strategic rationale for such force development decisions were reviewed and sometimes challenged. At such meetings selective use was occasionally raised as a possible option and was always rejected. Selective use was not approved, even for the tactical level.

Q: It seems to me that holding on to a position that “one little nuclear weapon from the enemy will end the world,” was designed to deter [*sderzhat*] the U.S.

A: (Kataev and Viktor Popov, with recognition and enthusiasm): Of course. Exactly so!

Q: All right, what if for some reason deterrence failed and the Americans did what General Korobushin said we exercised in the mid-1980s, two or three nuclear missiles on remote military facilities in Siberia—or even seven to twenty tactical nuclear strikes from NATO in Europe against Soviet Forces in the course of an ongoing war? What would the Politburo do—in the 1980s or 1970s? End the world by retaliating with a massive strike? Ignore the strike? Respond with limited strikes and negotiate?

A: [After a fairly lengthy and very serious pause] I just don't know. That would be a very tough decision. [Viktor Popov also thought that the actual response would be very difficult and very hard to predict. Both seemed to be caught by surprise by the question—as if they actually had never considered it before.]

SUMMARY OF DISCUSSION

Subject: Gen.-Maj. (Ret.) Iurii A. Kirshin

Position: Self-employed International Security Specialist, Former Deputy Director of the Institute of Military History, USSR/Russia (1985-1992), Former Chief of the Strategy Department of the Military Science Directorate of the Soviet General Staff

Location: Cambridge, England

Interviewer: John G. Hines

Date: January 9, 1990

Language: Russian

Prepared: Based on notes

I met General Kirshin for the first time at a conference on East-West security issues held at St. John's College, Cambridge University. At an informal meeting toward the end of the conference, General Kirshin and I became better acquainted and he answered some of my questions related to his work with General of the Army Makhmut Gareev and Marshal Nikolai Ogarkov.

I commented that Marshal Ogarkov impressed me as a very thoughtful, intelligent officer who had written a great deal of interesting articles and monographs. General Kirshin countered, almost dismissively, "*on ne pisal, on podpisyal*" (He didn't write these things, he signed them).

I asked then, that if Ogarkov had only signed these writings, who wrote them? Kirshin replied that the military theoretician and author behind Ogarkov for many years was General-Colonel Danilevich. Danilevich, he stressed, was a major military thinker and presence in the General Staff but not well known nor widely published. He was well known, however, within the General Staff. He said that Danilevich was retiring at the end of the year. I asked if Kirshin could arrange a meeting. He promised that he would.

Kirshin added that, even though he didn't always write his own material, Marshal Ogarkov was a very intelligent, active Chief of the General Staff who closely reviewed and critiqued everything that went out over his signature. When asked what happened that caused Ogarkov to be reassigned in September of 1984, Kirshin replied that Ogarkov was fired, personally, by Minister of Defense Marshal

Ustinov. Kirshin, seemingly on the basis of detailed knowledge, added that the firing was carried out abruptly and with considerable rudeness. Ogarkov had gone on vacation to the Crimea in August of 1984. Ustinov telephoned Ogarkov in the middle of his vacation and informed him that he could extend his vacation because he had been fired [*uvolen*] and given a new assignment. Ogarkov returned immediately to Moscow to confront Ustinov who refused to change his decision and who assigned Ogarkov to the High Command of Forces of the Western TVD. He said that the events in August of 1984 represented the culmination of months and years of bad and deteriorating relations between Ustinov and Ogarkov.

I mentioned General Gareev, and Kirshin volunteered that Gareev was a serious thinker and scholar. Gareev, he said, wrote his own books and articles.

SUMMARY OF DISCUSSION

Subject: Gen.-Maj. (Ret.) Iurii A. Kirshin

Position: Self-employed International Security Specialist, Former Deputy Director of the Institute of Military History, USSR/Russia (1985-1992), Former Chief of the Strategy Department of the Military Science Directorate of the Soviet General Staff

Location: Moscow

Interviewer: John G. Hines

Date: June 26, 1993

Language: Russian

Prepared: Based on notes

I mentioned to General Kirshin that I had heard that General Danilevich, as part of his responsibilities in the Main Operations Directorate of the General Staff, had been responsible for preparation of a major work on strategy for use, in the event of war, by the Armed Forces of the USSR. I mentioned that it was a large, three-volume book. General Kirshin corrected me. It was not a book but rather a *nastavlenie* (directive) of the General Staff for the conduct of strategic operations in the event of war. It was years in preparation under General Danilevich's direction and covered every aspect of strategy: intercontinental and theater, nuclear and conventional, in space and at sea. I asked if it might be possible to obtain a copy of the directive. Kirshin laughed and said that the entire set was top secret and protected by restricted access.

I asked about the relative knowledgeability of various general officers on questions of strategic nuclear doctrine—issues such as first strike and use of selected nuclear strikes. Kirshin asked me to be specific. I asked who would be better informed on such questions, General Varfolomei Korobushin or General Danilevich? Kirshin responded that General Korobushin, while technically very knowledgeable based on his many years in the Strategic Rocket Forces (SRF), would not necessarily know the context within which he was carrying out orders in training and exercises. The services, including the SRF, were not privy to the most sensitive details of scenarios and doctrinal questions which were developed and resolved among a relatively small group of officers within the Main Operations Directorate (GOU) of the General Staff. General Danilevich worked as special assistant to the

Chief of the Main Operations Directorate for over 15 years and worked in sensitive positions in the General Staff for 26 years. He had long been a major influence on questions of strategy and doctrine as witnessed by his responsibility for preparation of the most comprehensive document on strategy ever prepared by the Soviet General Staff. He believed that in the area of questions on strategy Danilevich would be among the best informed in the Soviet Armed Forces.

SUMMARY OF INTERVIEW

Subject: Robert W. Komer

Position: Advisor to the Secretary of Defense for NATO Affairs, 1977-1979; Under Secretary of Defense for Policy, 1979-1981

Location: Washington, D.C.

Interviewer: John G. Hines

Date/Time: October 22, 1991, 3:00-5:00 p.m.

Duration: 2 hours

Prepared: Based on notes

The Soviets, in Ambassador Komer's view, were reluctant to wage war because they were not sure that they would win. The more they developed their nuclear capabilities, the more aware they became of the destructiveness of nuclear war.

The Soviets thought that the United States had strategic superiority into the late 1970s. They had achieved parity and were striving for superiority. Mutually assured destruction was too sophisticated a concept for the Soviets. They built up their nuclear arsenal in order to enhance deterrence and also to gain leverage over the U.S. They spent a great deal on intelligence to copy U.S. nuclear weapons programs.

The U.S. government hoped that limited nuclear strikes would work but was unsure whether the USSR would back down if the U.S. fired nuclear warning shots. There were no hard indications of what the Soviet leaders thought.

The Soviets would try to wage war with conventional weapons, but if the U.S. were about to use nuclear arms, the USSR would preempt. The advantage gained from preemption would be large in a theater war.

The Soviets considered chemical weapons more useful than the U.S. did. Nevertheless, they were deterred by U.S. stockpiles of CW.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. (Ret.) Varfolomei Vladimirovich Korobushin
Position: Former Deputy Chief of Staff of Strategic Rocket Forces
Location: Office of Vitalii Kataev, Former Central Committee Building, Moscow
Interviewer: John G. Hines
Date/Time: December 10, 1992
Duration: Approx. 1 hr.
Language: Russian
Prepared: Based on notes
Note: Vitalii Kataev participated in the exchange.

Throughout the mid-1970s and up through the mid-1980s I firmly believed that the U.S. was willing and capable of a first strike against us. NATO's official stance, which did not rule out this possibility, only affirmed my belief that this was possible. We were very much afraid of this possibility.

I was responsible for control systems for Strategic Rocket Forces. Because our main fear was of a U.S. first strike, our main objective was to design a system that was capable of launching as soon as launches were detected. I believe that we reached this objective.

As for our side, I am deeply convinced that no one on our side was capable of initiating a first strike.

Q: Even at the theater level?

A: At the theater level, in case of a war in Europe, we would have crushed NATO forces in a conventional conflict, and NATO would have been forced to use nuclear weapons first.

Q: Our relations with Europe were always very complicated. In discussions with former Secretaries of Defense it was clear to me that nuclear use would have been unlikely.

A: In the mid-1980s the U.S. held exercises in which it used three to five preventive selective nuclear strikes against the territory of the Soviet Union during an imaginary conflict in Europe. This was done in order to demonstrate U.S. willingness to use nuclear weapons if necessary. Conflict in Europe was possible.

We came closest to nuclear war during the Cuban crisis. This was Khrushchev's adventure and I did not agree with what we did there. But we in the military did our job. Marshal Biriuzov, the commander of Soviet forces in Cuba, informed us of the decision to couple our existing nuclear warheads to our missiles. We had very few missiles at that time capable of reaching the U.S. There were some in Plesetsk. But in Cuba there were around 40 missiles, including 9 R-5³⁸² missiles with a 5,000 km range and carrying 1 megaton warheads. [*According to Danilevich, the missiles based in Cuba carried two types of warheads: 1.8 and 4.2 megatons.*] If it had come to war, we would have wiped out Europe, Africa, Israel, Turkey.

We never planned any selective strikes [*vyborochnye udary*]. As Grechko stated on more than one occasion, we would answer with full force to any use of nuclear weapons on the part of the Americans, no matter how limited. We never conducted any exercises using selective strikes, and I know because I participated in all our nuclear exercises. I suggested to Akhromeev that we conduct exercises using limited strikes, but he rejected this idea. We never considered using selective strikes even in theory. There were never documents or studies suggesting their use. Up until the 1970s we never even considered that the Americans might use limited strikes, so we did not consider how to respond to them. Limited nuclear use only occurred in American exercises in 1982-85.

Q: What led to fears in the early 1980s that a U.S. attack was imminent?

A: All U.S. actions pointed in this direction: the deployment of more Minuteman missiles, the deployment of MIRVs, the deployment of the L-492 flying command centers which used the recorded voice of the president to activate launch commands. These command centers began development in the early 1970s. In 1977 we developed a similar but better system which could order missile launches.

Q: Did the issuing of Presidential Directive No. 59 (PD-59)³⁸³ influence General Staff perceptions?

³⁸²Probably the missile NATO designated the SS-5, although other Soviet sources identified the SS-5 as the R-14. R-5 may be an abbreviated industrial designation for the same missile.

³⁸³ Presidential Directive 59, a key White House statement on U.S. nuclear strategy that was discussed by knowledgeable U.S. government officials in the U.S. press. Published accounts reinforced the concept of

Yes, but your PD-59 would have been futile. Right now we have a system in place which would automatically launch all missiles remaining in our arsenal even if every nuclear command center and all of our leaders were destroyed. This system, called the Dead Hand [*Mertvaia Ruka*] would have been triggered by a combination of light, radioactivity and overpressure and would cause several command rockets to be launched into orbit, from where they would send launch codes to all our remaining missiles. These special rockets were protected in special hardened silos with protection to 240 kg/cm² [3,412 psi]. Thus, there was no need for anyone to push a button. All of our ground-launched missiles are protected to over 100 kg/cm² [1,422 psi]. Your missiles are not as well protected. We assumed this was because they were meant to be first strike weapons.

Q: What about accidental triggering, by earthquakes, for example?

A: The system is not on. It is to be activated only during a crisis.

Kataev: We in the Central Committee's Defense Department considered the early 1980s to be a crisis period, a pre-wartime period. We organized night shifts so that there was always someone on duty in the Central Committee. When Pershing IIs were deployed, there appeared the question of what to do with them in case they were in danger of falling into Warsaw Pact hands during a war. These missiles had to be launched. This made them extremely destabilizing. Furthermore, the only possible targets of these missiles was our leadership in Moscow because Pershings could not reach most of our missiles.

Korobushin: I offer one more piece of evidence that we had no intention of initiating a first strike. In case of a conventional attack against us, we always planned to destroy all our missiles and silos, rather than use them to launch missiles. This was standard operating procedure. We had on hand mines and destruction devices which we would have emplaced in our silos if they were ever in danger of being overrun.

Q: Were there also provisions for destroying mobile missiles in Europe?

Kataev [after some hesitation]: Yes. The same was planned for theater weapons.

Korobushin: I argued with Akhromeev that because of our nuclear shield, we no longer had any need for East Germany and that we needed to negotiate directly

selective use of nuclear strikes under various scenarios and suggested early targeting of Soviet leadership and command and control in the event of Soviet aggression.

with the FRG, not with the U.S. regarding the withdrawal of all our troops from Germany. I argued that it did not matter how many men the Americans had in Europe. I did not care if they increased their forces in Germany. We had to get out. But Akhromeev was solidly against this kind of move.

Kataev: Shevardnadze and the Foreign Ministry argued that the number of U.S. troops and our troops in Europe should not be linked. However, the military and the political-military leadership were against it.

Korobushin: We were very afraid of the Americans. If we were not afraid, why would we need missiles and silos with ready times of 60 seconds!? Our EW satellites were able to detect a strategic missile attack upon launch, approximately 30 minutes from impact but we did not consider the attack confirmed until our radar confirmed the trajectory to target approximately 14 minutes prior to the first splash. Yet our control system was so well prepared that this was more than enough time to launch a retaliatory strike, even if it took the leadership over 10 minutes to make a decision. It took just 13 seconds to deliver the decision from Moscow to all of the launch sites in the Soviet Union. This shows that we were preparing only for a retaliatory-meeting strike [*otvetno-vstrechnyi udar*]. Why else would we have spent billions of rubles to design and build such a sophisticated command and control system?

Q: Was such a term as "deterrence" [*sderzhivanie*] ever used in regard to strategy?

A: Maybe among the leadership there was such a concept. But speaking as a military man I have to say that all of our calculations for force building were based on the scenario of the retaliatory-meeting strike, not on the idea of deterrence. We calculated that a 40 - 45% destruction of the U.S. GDP would be enough to be considered unacceptable damage. Likewise, we know that the Americans calculated that 30 - 40% destruction of our GDP would be considered unacceptable.

Our early missile, the R-4,³⁸⁴ was not capable of a retaliatory-meeting strike. It had a ready time of 20 minutes. It was only in the mid-1970s that we had acquired a generation of missiles with retaliatory-meeting capability.

³⁸⁴ Probably the liquid-fueled missile designated, "SS-7" by NATO.

SUMMARY OF INTERVIEW

Subject: Gen.-Lt. (Ret.) Nikolai Vasil'evich Kravets

Position: Thirty years of experience in the Strategic Rocket Forces working on force design, systems acquisition, testing and evaluation and final acceptance. Currently Deputy Director of Joint Stock Company "ASKOND."

Location: Chartered bus en route from Moscow to NPO NIIKhimMash outside Zagorsk

Interviewer: John G. Hines

Date/Time: June 22, 1993, 10:30 a.m.

Language: Russian

Prepared: Based on notes

Q: Were you aware of a meeting held in July 1969 in the hills above Yalta and attended by Brezhnev and virtually all senior industrial directors and military officers involved in the force development process?

A: Yes. I did not attend the meeting. We (the SRF) were represented by Marshal of the Soviet Union (MSU) Krylov, CINC of the SRF, but I am very much aware of the meeting because I had staff responsibility after the meeting for working out how to implement in the SRF decisions taken at Yalta in July 1969. The 1969 Yalta meeting *was* attended by the entire senior military-industrial leadership to include all Politburo members with any interest in force development [*voennoe stroitel'stvo*]. The meeting was a very special meeting of the Defense Council (which normally met every 4 months or so) whose purpose was to establish a fifteen-year plan, or at least guidelines, for development of the Armed Forces of the USSR. The meeting was called specifically to get arms building under some kind of central direction. This was driven by the realization, at the highest levels, that arms building in the Soviet Armed Forces had become an unguided process [*nepravliaemyi protsess*], with each service [*vid*] pushing for its own systems and for as large a part of force authorization as possible uncontrolled by any central concept, and such a concept and overall plan was to be established clearly by the Defense Council at the Yalta meeting.

[General Kravets added that he was personally very familiar with the process in the missile-building industries. He complained, for example, that the general designers [*glavnye konstruktory*] and military industrialists created a complicated and wasteful

situation because, in the continuous aggressive internal competition among various designers and industrialists, each participant ultimately had his own way. That is to say, competing missile systems would be developed and tested and all variants, usually two but sometimes more, would be accepted for production and put into the forces. This led to a situation where the USSR had 12 types of ICBMs, which created a situation of great waste of resources, time, and research and development effort for the Soviet Union. “The U.S.,” he said admiringly, “has only three types of ICBM, a more rational arsenal.”

Q: When did the mobile ICBM program begin?

A: We started by developing operational-tactical mobile missiles in 1964 in Chelomei’s design bureau. Iangel’ tried to put together a longer range mobile missile by combining a liquid-fueled first stage and a solid-fueled second stage. He tested it in 1968 with terrible results—there was a massive explosion. The program was canceled, I believe in 1969. Another mobile ICBM program was initiated in 1968 as we improved our competence with solid fuel.

Q: Were any of these systems what NATO called the SS-16, or some other designation?

A: No. NATO never had a designation for these two systems. They were very closely guarded programs that we hid successfully from many, certainly from NATO.

Q: Why did the USSR invest in intercontinental mobile missile programs?

A: Because of Minuteman. You had a solid-fuel missile with a 10,000 km range. It was responsive, simple and accurate. We had nothing like that.

The second reason is that our silos were hardened to only 2 kg/cm² [28 psi] and yours were hardened to 20 kg/cm² [284 psi]. Our silos weren’t improved until somewhat later into the 1970s.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. Gregorii Fedorovich Krivosheev
Position: Deputy Chief of the General Staff, Chief of the Main Directorate for Organization and Mobilization
Location: Room 8074, (General Krivosheev's Office) General Staff Building, Moscow, USSR
Interviewer: John G. Hines
Date/Time: December 20, 1990, 11:00 a.m.-1:00 p.m.
Duration: Two hours
Language: Russian

“Purpose of Interview”

1) Explore questions of forecasting future force structures given the impact of new military technologies and the increasingly important role of space in warfare. 2) Invite Gen. Krivosheev to Washington for informal RAND-hosted discussions about long-range military forecasting and nuclear proliferation.

The meeting was arranged by General-Major Victor I. Filatov, Editor-in-Chief of *Military Historical Journal* [*Voенно-istoricheskii zhurnal*]. I have known Filatov since December 1988. He is extremely open and friendly and invited me to address him in the familiar, [*na ty*]. He is also extremely conservative in his views and quite well connected in the General Staff. He had offered to arrange a meeting with Krivosheev when I met him in October in Washington and he kept his promise in December. I explained to Filatov my reasons for wanting to speak with Krivosheev. Filatov passed them on to Krivosheev with, I am convinced, a great deal of support and persuasion. As I discovered later, Krivosheev discussed the general concept of an informal visit to the U.S. with Minister of Defense Iazov and received agreement in principle to the visit as well as permission to let me into the General Staff building to discuss my proposal. Filatov informed me before the interview that Krivosheev had already agreed, in principle, on the idea of an informal visit.

General Filatov took me over to the General Staff in his Volga at 10:40 a.m. We arrived at the main entrance to the large white General Staff building at 10:50. General Filatov escorted me into the building, displaying his I.D. to the guard who

saluted and let us pass without challenge. We went by elevator to the fourth floor and walked an additional fifteen or twenty meters to General Krivosheev's office. The General Staff building is bright and extremely well maintained. The ceilings are high, twelve to fourteen feet, the hallways wide, at least ten feet, the walls painted a light beige and many of the floors, including the hallways, are covered with oriental carpets. All windows, doors, baseboards and ceilings are trimmed in carefully stained wood that appears to be oak. The offices that I saw are trimmed in wood of similar quality and all office furnishing were of wood and appeared to be well made. The bright, clean, well-maintained appearance of the General Staff building contrasts sharply with the generally shoddy state of most of the civilian institute buildings I have visited.

General Krivosheev occupies a suite of offices (No. 8074) comprised of a reception room perhaps twenty-five feet square, his adjutant's office, somewhat larger than the reception room and located to the right of the main entrance to the suite, and the General's office itself, which is the size of a medium-to-large sized conference room. General Krivosheev came out from behind his desk, greeted me very warmly, and took a seat across from me at the conference table (that could accommodate fifteen to twenty people) located in his office. General Filatov sat to his right. Seated to my left was a young Soviet lieutenant colonel linguist whom I used twice to clarify statements made by the General. The lieutenant colonel also seemed to function as a notetaker with the mission of making a record of the exchange.

I came prepared to deliver my proposal very quickly and succinctly and to leave with his response. It soon became clear to me that the General was prepared to chat—at length. It also became clear that he was not entirely comfortable with the forecasting agenda I proposed and was more interested in addressing more pressing [*nastoiashchie* —which means both “current” and “real”) problems related to force organization, force manning, industrial mobilization potential and general issues of force mobilization.

“General Krivosheev's Proposed Agenda for U.S. Visit”

The General said that he would prefer to discuss:

1. Issues of force building, force organization and force manning. He would like to discuss his plans for the Soviet Armed Forces and to hear from us about our past and present experience with an all-volunteer force. Of special interest

is the recruiting and maintenance of an all-volunteer force and integration of reserve components into the active force.

2. Issues of the industrial mobilization potential of the state. He said he realizes that this may be a sensitive area but that he is prepared to discuss it.

3. A range of questions about recent events in Europe and the results of recently completed arms control talks. I would list these questions under "venting"—the general seems to feel that it would be useful to explain to us in person the impact of recent events on the whole process of force planning in the Soviet Union. His presentation of these questions to me was amicable but firm:

The basis for NATO continuing to identify the USSR as the main threat. He pointed out that the Warsaw Pact collapsed several months ago and that the strategic structure in Europe had changed markedly. He explained that this was important because the General Staff must take seriously this pronouncement by such a powerful coalition located on the Soviet doorstep in Europe.

Perceived inequities of the CFE agreement - He invoked Supreme Soviet deputies reactions to bolster his case. Subissues include:

Asymmetrical cuts - He clearly felt CFE was unfair in the distribution of force reductions. He cited 80 NATO tanks to 8,000 Soviet as an example.

Destruction of old equipment first by both sides - He indicated that he was hearing complaints from the U.S. about this and claimed to be puzzled because the U.S. was doing the same thing.

New equipment east of the Urals and in the U.S. - He again claimed that the U.S. was saving and hiding equipment in the U.S. and elsewhere and was excessively self-righteous on this question.

The U.S. Navy's evasion of arms control constraints - He stated that the U.S. Navy has at least three times the combat potential of the Soviet Navy against a Soviet threat that is diminishing measurably.

Continued concern about Germany - He seemed genuinely to fear German irredentism in Poland and even Kaliningrad. His greatest concern was that they would get back former German lands without war because of weakening European and American resolve vis-à-vis Germany.

He indicated that many of these questions, especially the German question, were far too sensitive to put in an official written agenda. Consistent with this attitude, he was concerned that the visit be informal and unofficial and not widely advertised. He asked for an invitation from the Deputy Secretary of Defense to MoD Iazov but he did not want any publicity for his visit. General Filatov told me later that he was especially concerned about European reactions.

Despite his preference for a quiet visit, the General volunteered to make a presentation at "the institute" where we prepare our officers for planning industrial and force mobilization and to give a talk in the Pentagon.

General Krivosheev and General Filatov both made it clear that participation in the visit by general officers from the Center for Operational-Strategic Research and from his own directorate was acceptable but not welcome. Filatov promised a much more open General Krivosheev if he were not accompanied by younger generals and officers.

"Krivosheev on Future Force Manning Option"

General Krivosheev explained that the USSR is still in a demographic hole [*iama*] with respect to 18-19 year old males. Recovery is expected by 1994-1995. Many of his solutions are affected by this situation.

He indicated that he planned to move toward a professional contract force incrementally and that the process would be monitored to help to determine the nature and direction of subsequent changes. As a first step toward changing force manning practices he plans to:

Draft young men for 6 months of specialist training, e.g., equipment operator, PVO [Air Defense] specialists, etc. At the end of the 6-months training period, the soldier would be offered two options:

1. Sign a contract for 2 (or more) years additional service at better pay.
2. Or serve out the remaining 18 months service without a contract at a conscript salary level.

By 1994 the total length of conscript service would be reduced to 18 months (in anticipation of getting well demographically). By 1994-95, he expects the Armed Forces to be 50 percent professional. (He believes it is 30 percent professional today, taking into account all officers, warrant officers, and extended-service enlisted men.) He will augment the professional force by accepting a larger number

of women into the Armed Forces than is now the case. Based on experience with a 50 percent professional force, decisions on further changes will be taken.

“Plans for Reducing Force Levels”

General Krivosheev stated that:

The current strength of the Armed Forces is 3.8 million men. This number includes:

MVD (Internal Security), Civil Defense Forces, construction troops, DOSAAF,³⁸⁵ and what the General called the real military—the combat, combat support and combat service support troops who would actually defend the Soviet state.

By May 1991, the Armed Forces will be reduced to 3.6 million men. By the year 2000, strength will be at 3.0 - 3.2 million.

Forces are being reduced through attrition, early retirement, and, an area very important to him, elimination from Armed Forces accountability of civil defense and construction troops, DOSAAF personnel, and others. General Krivosheev explained that he was charged, for example, with the members of “hunting clubs” who made no real contribution to the readiness of the Armed Forces.

The General stressed that the present figure 3.6 - 3.8 million far exceeds the number of real soldiers who would actually defend the Soviet state. He almost gave me the real number, looked askance at the silent Soviet interpreter by my side, and said that the actual strength was restricted. I proposed that the figure might be approximately 2.6 million and he responded that I was probably “right,” or at least very close.

The General spent a great deal of time venting his frustration at the proliferation of civilian “defense specialists” such as Georgii Arbatov who had the temerity to publish the “real” strength of the Soviet Armed Forces in foreign journals. The numbers, he said, were absolutely incorrect but that he was unable to correct him openly. I suggested to him that it might improve the quality of the defense debate if the General Staff were to find a way to participate more openly and actively. He

³⁸⁵ DOSAAF — *Dobrovol'noe obshchestvo sodeistviia armii, aviatsii, i flotu SSSR* — The Voluntary Society for Cooperation with the Army, Aviation, and Navy of the USSR. DOSAAF was a quasi-military organization embedded in the Soviet educational system for the purpose of preparing Soviet youth for military service or for support of those who did serve in the military. It was not generally regarded as voluntary by Soviet youth.

responded that there was movement in that direction already. He then cited the fact that I was in the General Staff building in his office as indicative of major changes in the MoD's approach to dealing with "outsiders." He said that my visit was unprecedented and that he had received permission from Iazov himself to see me in his office. This event, he offered, reflected a new type of Soviet-U.S. relationship based on dialogue which he fully supported.

SUMMARY OF INTERVIEW

Subject: Colonel Petr M. Lapunov

Position: A director of a department for force analysis, Center for Operational-Strategic Research (TsOSI) General Staff, Russian Federation.

Location: Moscow

Interviewer: John G. Hines

Date/Time: May 5, 1991, 10:00 a.m.

Duration: 3.5 hours

Language: Russian

Prepared: Based on notes

“Purpose of Interview”

- To review with the interview subject his expectations about the course of military reform from the perspective of the General Staff.
- To discuss the influence of the development of new weaponry on future force structure.
- To solicit his views on the likely outcome of the struggle for control over force development and procurement between the Defense Ministry and the Military Industries/Design Bureaus.
- To discuss the political-military games and role playing planned for the June 1991 Joint Simulation conference to be held in Garmisch, Germany.

“Military Reform”

Contrary to comments by others I interviewed in April and May, the interviewee said with considerable conviction and authority that the military reform plan receiving primary attention within the General Staff did not differ substantially from the one published by *Military Thought* [*Voennaia mysl'*] in November of last year. The principles on which the work is based remained unchanged. These include:

- One Army—The Soviet Armed Forces must function as an integrated organization at the federal level.
- Mixed conscript and professional (contract) force—The General Staff reform plan does not even hold out as a goal eventual total professionalization of the Army. According to the General Staff plan, conscription will be preserved as one of the chief means for manning the Soviet Armed Forces “over the next 10 to 15 years.”
- The Armed Forces must be adequate to counter, but not to exceed, the scale of the threat to the Soviet Union.
- There must be a reasonable balance between research and development and force procurement (overcoming previous excesses on the side of procurement).

The issue of conscription is key for military planners. The interviewee conveyed to me the dominant General Staff justification for retention, indefinitely, of a conscription system on some scale. The Soviet Union, he explained, is surrounded by potentially hostile states that individually or collectively could some day threaten the USSR. As a consequence, the Soviets could be forced into a war at a time and on a scale not of their choosing. To hedge against this unfortunate possibility, the Soviet Armed Forces must maintain a reserve mobilization base on which to expand the Armed Forces in the event of a national emergency. In contrast, according to the General Staff argument, the U.S. sits behind two oceans and very secure land borders that virtually assure war will not come to the U.S. The U.S. can choose the wars in which it wants to become involved in on terms that do not seriously threaten the basic security of the state.

Conscription, in turn, is closely tied to the relative level of centralization of the future Soviet Armed Forces. According to the interviewee, the nine republics (all except Lithuania, Latvia, Estonia, Georgia, Moldova, and Armenia) that signed a preliminary agreement on the nature of the future union with the Center on April 23, agreed to the concept of “one (central) army” and continuation of conscription. The republics would retain police forces appropriate for maintenance of security within each republic. The key determinant of the nature of republic-level forces would be the capabilities of the weapons and equipment assigned. Republic-level forces would be restricted in their equipment to armored troop transport vehicles

(BTRs and modified BMPs) with heavy machine guns. No republic would be allowed artillery, tanks, combat helicopters, or high-performance combat aircraft.

The key concession the republics have gained from the center thus far, according to the interview subject, it is the right of each republic to determine how it will generate the conscripts levied by the Center. Laws on exemptions, age limits, etc., governing each citizen's vulnerability to conscription would be determined at the republic level. The interviewee indicated that concessions would not be made on extraterritoriality since insistence that each soldier must be allowed to serve in his native republic would eliminate, in effect, the possibility of truly centralized, unified Armed Forces.

The interview subject indicated that the size and structure of the Armed Forces would be responsive to any new arms control or general political agreements reached by the Soviet Union and other major powers such as the U.S. At the same time, he indicated that considerations beyond arms control were tending to strongly influence future force planning. For example, internally imposed budget and force sizing constraints led him to predict that the Soviet Ground Forces west of the Urals would be limited to 52 divisions (with an upper limit of 58 divisions). Included in the 52 divisions would be 16 to 18 tank divisions and "several" machine-gun artillery divisions. The machine-gun artillery divisions were considered to be limited in their operational mobility and would be assigned to locations where relatively static defense was expected. The interviewee identified mountainous regions of the Transcaucasia, the Far North and Far East as probable deployment sites for such divisions. He commented that differences between tank and combined-arms divisions would be maintained but that the difference in the number of tanks in each type division would be relatively small.

"The Military-Industrial Complex (VPK), the Ministry of Defense and the General Staff"

The interviewee confirmed that the Ministry of Defense is fighting for control of the entire military budget to include military procurement. He stated that to date the MoD has controlled what he called the artificial budget of approximately 20 billion rubles representing salary, quarters and "housekeeping" expenses for the Armed Forces. The MoD is now striving to wrest control over military research and development and procurement from the military-industrial complex.

To make clear the significance of MoD's current struggle, the interviewee explained how the weapons procurement process has worked in the past. Force development was carried out within the military-industrial complex (VPK), specifically the major design bureaus, in a process that operated essentially independently from the Defense Ministry. The MoD, moreover, had relatively little control over either the R&D or production processes. The VPK system was optimized for continuity of production rather than for innovation or force rationalization based on operational requirements. The design bureaus and military industries were rewarded for plan fulfillment and production stability rather than for conformance to operational demands generated by the General Staff or even the services. There were absolutely no incentives for the VPK to explore radically new designs or technological departures that involved high risk of failure or production delays, which were to be avoided at all costs. The military (MoD, General Staff, Services) were unable to exert any significant pressure to counter this extremely conservative, self-serving military production complex.

The interviewee cited several indicators to bolster his argument. He claimed that the Ground Forces, the service with which he has the most experience, has been forced over the years to take 1,000s of tanks that were neither ordered nor required. Moreover, the Ground Forces were issued three to four variants of various weapons rather than a single, carefully designed and produced weapon of each type because each design bureau produced its own variant to ensure continuity of production regardless of the needs of the service for which it was nominally produced. He added, angrily and resentfully by way of example, that the Soviet system couldn't produce an "MX" tank in which designers disappeared for a decade and began with a "blank sheet" to produce a tank that captured the most advanced technologies available. The Soviet ground forces, in contrast, received large numbers of marginally improved, unnecessary different tanks with essentially the same capabilities.

"Joint Simulation Political-Military Games Conducted by the European Center for International Security"

I mentioned to the interview subject Albrecht von Muller's interest in having the "red" side work out in some detail its estimates of probable "blue" threat assessments after completion of CFE implementation. The interviewee reacted by rejecting the idea of even continuing to consider scenarios built upon the assumption of possible conflict in Central Europe. He advocated moving on to

other types of considerations of common security requirements and abandonment of such “useless” exercises.

SUMMARY OF INTERVIEW

Subject: Andrew W. Marshall
Position: Director, OSD Net Assessment, 1972-present
Location: OSD Net Assessment, The Pentagon
Interviewer: John G. Hines
Date/Time: October 22, 1991, 8:30 a.m.
Duration: 3 hours
Prepared: Based on notes

The view held by Henry Kissinger, certainly in the late 1960s and through the 1970s, was that the Soviets were ambitious expansionists whose ideology prevented them from acting like a normal country. The United States had to reach the best deal possible with the USSR. Kissinger was concerned about the Soviet Union converting its increased military power into political influence.

In the prevailing view under President Carter, the USSR was not anxious for war, but if war broke out, the Soviet military would be serious about warfighting. Soviet forces had made provisions for conducting operations in a nuclear war. For example, as part of the targeting review (run by Mr. Marshall and Walter Slocombe) connected to PD-59,³⁸⁶ DIA found extensive facilities built to protect the Soviet leadership, which reinforced the warfighting posture of the USSR.

PD-59 was developed to reinforce deterrence by making it clear to the Soviet leadership that they would not escape destruction in any exchange. The objective was to clarify and personalize somewhat the danger of warfare and nuclear use to Soviet decision makers. Publication of selected elements of the contents of PD-59 was an integral part of the strategy, and Secretary Brown directed and personally cleared certain articles and discussions of the directive to ensure that Soviet leaders were made aware of some of its most important aspects. Walter Slocombe, deeply involved in the preparation of PD-59, drafted one of the key articles prepared under the program to “communicate” with the Soviets.

³⁸⁶ Presidential Directive 59, a key White House statement on U.S. nuclear strategy that was discussed by knowledgeable U.S. government officials in the U.S. press. Published accounts reinforced the concept of selective use of nuclear strikes under various scenarios and suggested early targeting of Soviet leadership and command and control in the event of Soviet aggression.

The Carter Administration was split over whether or not American accommodation would encourage moderation on the part of the Soviet Union. Harold Brown observed some relation between U.S. moves and Soviet actions, but he expected the Soviet arms buildup to persist even if U.S. modernization stopped. His conclusion was based partly on the Soviet investment in power projection capabilities and the Soviet weapons modernization rate which exceeded that of the U.S.

The United States did not have a policy for forcing the Soviets to spend their way into economic defeat. In fact, the Joint Chiefs were worried that the USSR could always spend more than the U.S. because the Soviet Armed Forces did not face the sort of budget constraints placed on the U.S. military.

The first Reagan Administration undertook a large effort to catch up with the Soviets in strategic military power. Senior members of the administration intended to make up for the previous years of reduced U.S. defense expenditures.

President Reagan believed that the Soviet economy was in trouble. In contrast, Casper Weinberger refused to believe in Soviet weakness.

SUMMARY OF INTERVIEW

Subject: Rod McDaniel
Position: NSC Staff Member, 1985-1987
Location: Mr. McDaniel's apartment, Crystal City, VA
Interviewer: John G. Hines
Date/Time: November 12, 1991, 3:30 p.m.
Duration: 2 hours
Prepared: Based on notes

Mr. McDaniel was involved in a strategic planning project for the Navy in 1983-85. He later served on the NSC Staff, enjoying in 1986 much personal access to President Reagan.

President Reagan did not spend much time thinking about the Soviet military threat. He simply wanted to rebuild U.S. strength and to stand firm until the Soviet leaders were ready to negotiate. Defense Secretary Weinberger had no strong views aside from caution in using the U.S. Armed Forces. Mr. McDaniel described the views prevalent among the Joint Chiefs.

The Soviet military was risk averse. It was eager not to fight but also not to lose if war broke out. President Reagan felt that the USSR accepted his view that nuclear war cannot be won and should not be fought. By the NSC's assessment, the Soviets made mischief in the Third World but did not seriously contemplate the use of force against the U.S. or NATO. They were, however, dangerous when pushed into a corner.

The Soviet Union believed in deterrence. In fact, the United States was deterred by Soviet nuclear forces. The USSR did not consider nuclear weapons militarily useful.

President Reagan thought that the Soviet Union rejected strategic parity, but after meeting Gorbachev, he changed his mind. He believed that the Soviet leadership wanted a first-strike potential, not to use militarily but instead to surpass American capabilities. Soviet force building was influenced by U.S. weapons programs.

No one expected the USSR to absorb a large U.S. nuclear strike without response. The Soviets were worried about being trapped by their lack of response time. They would probably launch on tactical warning and they might even preempt strategically.

The Soviet Union clearly preferred to keep a central war conventional. The U.S. military always assumed that if nuclear war broke out, NATO would be the side to go first. The USSR probably did not have limited nuclear options. In the view of the Joint Chiefs, the Soviets probably would retaliate against NATO's first use with 100s of nuclear weapons, and they would escalate rapidly from theater nuclear exchanges to global nuclear war.

Given the large Soviet stockpiles of chemical weapons and the frequent Soviet exercises with CW, the USSR was likely to employ CW and to have no particular restraints on CW use.

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 (INOBS), Moscow

Date: April 1993³⁸⁷

Duration: Approx. 1.5 hrs. total

Language: Russian

Prepared: 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.

³⁸⁷ INOBIS carried out the interviews resulting in this narrative at various times during the month of April 1993.

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,³⁸⁸ 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

³⁸⁸ MIRV — Multiple Independently Targetable Reentry Vehicle — Each warhead on a MIRV is guided independently to a specific target once released by its missile "bus."

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 fifteen 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: 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,³⁸⁹ 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?

³⁸⁹ EMP — Electro-Magnetic Pulse.

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?

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 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.

SUMMARY OF INTERVIEW

Subject: Vladimir Rubanov

Position: Special adviser to the President of the Russian Federation; former head of directorate in the Aviation Ministry

Location: Moscow

Interviewer: John G. Hines

Date: May 6, 1991

Prepared: Based on notes

The military-industrial complex (VPK)³⁹⁰ had three parts:

1. Defense industry and design bureaus.
2. Military-academic complex (e.g., Institute of Main Designers) that integrated civilians fully into the military system.
3. Military-ideological complex made up of political workers who drove the analyses, scenarios and assessments.

If any testing demonstrated military potential then it fell under the military sphere, was stamped secret, and any resulting products would be controlled by the military. Intellectual property tended to get classified if it had any military application. There was no sense of intellectual property that did not belong to the state. Information was trading material. Military industries used secrecy to control all possible technologies. GosPlan planned force development from what the design bureaus came up with. The Finance Ministry set up payments, and the MoD took delivery. The Defense Council was a purely military organization with no support structure. It was an instrument of the VPK, not of the President. The MoD had no real money or influence.

Though political reforms in 1985-90 were deep, actual force building processes did not change much. The VPK could protect itself from the President, Shevardnadze, and others who wanted to cut force building.

The ideal organization for center-republic relations would consist of (1) a Federal Security Council; (2) a College of MoDs of the republics; (3) each republic has its own concept of security. All spheres (military-technological, military-economic

³⁹⁰ VPK (*Voенно-promышлennyi kompleks* - Military Industrial Complex) is used here to refer to the entire Soviet military-industrial community. VPK (*Voенно-promышлennaia komissia* - Military Industrial Commission) also referred to a Soviet state organ officially responsible for military industry.

and military-political) should be controlled by political leaders. The military should only control troops. Decisions should be based on consensus among all of the republics. Basing and housing should be responsibilities of the republics. The Ukraine should be a nuclear-free zone. The center needs a single security system and economy. Military power should not exceed but should reflect economic power.

RECORD OF INTERVIEW

Subject: James R. Schlesinger

Position: Former CIA Director (1973); Secretary of Defense (1973-1975)

Location: Shearson Lehman Hutton, 1627 Eye Street, NW, Washington, D.C.

Interviewer: John G. Hines

Date/Time: October 29, 1991, 11:30 a.m.

Duration: 1.5 hours

Prepared: Based on notes

Schlesinger had formed his ideas about the Soviet Union while at RAND and especially in connection with his work when he was running the NU-OPTS³⁹¹ project at RAND in the 1960s. He criticized the analysts at Langley for working from documents and believing Soviet pronouncements. In their relatively uncritical overreliance on Soviet writings and statements, they failed to consider adequately the motivation driving much of what was written and said about warfare in the USSR.

Soviet leaders did believe in deterrence. They believed that the U.S. would not attack without provocation, and they hoped to deter any use of U.S. nuclear arms. In Schlesinger's view, Soviet talk of winning a nuclear war was pep talk that Soviet leaders may or may not have believed. There was a need to communicate to Brezhnev that a nuclear war would hurt both his country's and his personal interests.

Schlesinger did not expect the Soviet Union to escalate from a small-scale American use of tactical nuclear weapons (TNW) along the flanks (for instance, in Iran) to a global nuclear war, but he thought that the USSR might expand a total theater war (in Europe) into a global nuclear war. He hoped that if the U.S. reacted to a conventional Soviet attack with selective nuclear strikes, then the USSR would have refrained from escalating to global use.

Under a certain set of circumstances, the Soviet Union might strike preemptively, according to Schlesinger. The Soviets would not start a conventional war if they

³⁹¹ Nuclear Options.

were convinced that we would go nuclear. However, if the Soviets miscalculated and thought that we would not respond with nuclear weapons to a "Soviet conventional probe," and if they subsequently learned that we were about to go nuclear, they probably would preempt against our nuclear stockpile in Europe but probably not against the continental U.S. The USSR would have used chemical weapons in a total war and would have employed CW (chemical weapons) before resorting to nuclear arms.

Schlesinger became convinced, in the course of his work of several years at RAND, that the Soviets' strategic objective with respect to the West was to weaken and, ultimately, to separate U.S. strategic nuclear systems from the defense of Europe. The objective was delinkage of U.S. central systems from Europe-based nuclear weapons and, from Europe altogether. He devoted a great deal of time to thinking about how to counter and defeat achievement of that objective and settled on the approach that the U.S. should adopt an explicit and credible declaratory policy of limited nuclear options (LNO). The essence of LNO lay in U.S. declaratory commitment to the employment of selected nuclear strikes against a Soviet/Warsaw Pact conventional attack on Western Europe. It was at the time, above all, a deterrence strategy whose success depended primarily on the degree to which Soviet leaders believed the U.S. was willing and able to respond with selective nuclear strikes to conventional attack. There was a need to communicate to Brezhnev that nuclear war was possible and that such a war would hurt both his country's and his personal interests.

In the 1960s, Secretary of Defense McNamara's "body language" told the Soviets that our tactical nuclear forces in Europe were separate from our strategic arsenal, that TNW would be used to defend Western Europe but U.S. strategic systems would not. The Soviets reacted to LNO with horror and shock. LNO was designed to blow away the idea of MAD (Mutually Assured Destruction *and* mutually assured deterrence) and to reestablish the linkage of the U.S. deterrent in Europe to the strategic arsenal.

The Soviets began to think, after the Berlin crisis, that a conventional phase was possible. They later had come to hope that in practice we would not initiate a nuclear war. LNO diminished Soviet confidence in the possibility of avoiding U.S. first use.

The Soviets had great doubts about the possibility of limiting a nuclear war. Schlesinger did not care whether the Soviets believed in LNO, so long as they

believed that the U.S. was convinced of the feasibility of LNO. Even if the Soviets refused to believe that a nuclear war could be limited, they would still be deterred because in their view, a limited U.S. strike would lead to an all-out nuclear war, a very self-detering prospect. In this connection, Schlesinger volunteered that he never passed up an opportunity to announce and clarify the LNO doctrine—before Congress, to the press, in official and informal speeches. He explained that the *way* in which the concept was presented—that is the body language, tone of voice, general seriousness of manner—was almost more important than what was said. He observed that [President Carter's Secretary of Defense] Harold Brown refined the LNO idea with PD-59 but was less convincing in his public presentations and discussions of the concept and thereby may have given the Soviets reason to doubt that the U.S. was serious about LNO.

He explained that war plans, hardware and declaratory policy—the three components of nuclear strategy—are not always consistent. McNamara announced the countervalue doctrine of MAD but had a counterforce plan (without counterforce weapons). Since Schlesinger could not immediately change the forces, he presented a new declaratory policy that was designed to create desired psychological reactions in the USSR *and* Europe, and he then worried about pushing SAC [Strategic Air Command] war plans in the appropriate direction. He also began to modernize hardware to develop a credible counterforce capability, a process that would require at least a decade to complete.

If the need arose, Schlesinger would have been willing to consider launching a small strike against real targets, such as Henhouse radars in the Soviet Arctic, avoiding cities and other targets that would produce large casualties (such as Soviet army divisions), and keeping the number of weapons low (well under 200) in hopes that the Soviet military would not mistake a limited strike for an all-out American attack.

Counterforce was one of the options but was not the entire doctrine of LNO. The essence of LNO was selectivity. LNO was absolutely not targeted at the Soviet political leadership because, in the event of nuclear exchanges, the U.S. would need someone in the USSR with whom to negotiate termination of hostilities. Schlesinger commented that he didn't understand [Secretary of Defense Harold] Brown's targeting priorities under PD-59. Specifically, PD-59 seemed to call for targeting of Soviet political and military leaders early in any exchange because early elimination of the leadership would interfere with any negotiated war termination.

The USSR, in Schlesinger's view, had more than parity because it was acquiring counterforce capabilities through deployment of SS-18s and SS-19s.

The Soviets did not imitate American weapons modernization. They did not tailor their forces to meet ours, and they probably would not have cut back if we had. However, we did stimulate their arms programs. We gave a shove to their buildup through the Cuban Missile Crisis.

When asked about forecasting, Schlesinger replied that both sides lacked imagination. Changes in the nature of warfare may have been acknowledged but did not fully register. We had separate offensive and defensive commands. SAC did not think about what Soviet strikes would do to us. The stimulus for change had to come from the civilian leadership.

In U.S. assessments into the policy process, evidence was selected to support prevalent interpretations. Presentations of "empirical analysis" could be totally wrong but totally sincere. For instance, the CIA was grossly underestimating Soviet military spending until Schlesinger insisted on a correction.

In 1973, we put our forces in Europe on alert to signal to the Soviet Union that we were not paralyzed by the Watergate scandal.

SUMMARY OF INTERVIEW

Subject: Vitalii V. Shlykov
Position: Deputy Chairman, Russian Soviet Federated Socialist Republic State Committee on Defense
Location: Moscow
Interviewer: John G. Hines
Date: April 29, 1991
Language: Russian
Prepared: Based on notes

- The republics control revenue flows to the center.
- The 1991 defense budget was originally 65 billion rubles but was increased in December to R96 billion to offset inflation (estimated at 54 percent).
- The RSFSR (Russian Soviet Federated Socialist Republic) seeks to separate military from civilian production.
- The RSFSR State Committee on Defense and Security had 250 military officers (working for Kobets) plus 50 civilians (handling KGB matters).
- Kobets is still serving in the Armed Forces.

The VPK [military-industrial complex in this case] gets special treatment: subsidies for heat and raw materials; and guaranteed deliveries (the biggest form of subsidy). The guaranteed deliveries and subsidies will be cut off.

The RSFSR will not pay for a single additional weapon. Minister of Defense Iazov himself said "no more tanks, no more weapons of the current generation, but we can't destroy the ones we have."

Iazov is ready to cancel the Buran and Energia space programs because they do not help the military. Subsidies to both military and civilian space programs will end.

The republics gave only R200 billion of the R600 billion they owe the center. They are holding out until the Union Treaty is settled and control over military production is transferred to the MoD. Ideally the MoD should act as a consumer by ordering weapons, and design bureaus should compete for orders.

Currently there is a major fight over the budget to develop an industrial mobilization base. [Soviet Deputy Minister of Defense General-Colonel Krivosheev] claims that the U.S. has long had a huge industrial mobilization capacity and can produce 50,000 tanks and 50 SSBNs per year within a few months of starting mobilization. The Federal Emergency Management Agency (FEMA) is supposedly in charge of U.S. industrial mobilization plans. Most Soviets really believe this.

SUMMARY OF NARRATIVE

Subject: Boris Aleksandrovich Strogonov

Position: 1955-1987 in Defense Industrial Department of Central Committee apparatus; 20 years experience in production facilities and research institutes in production and development of missile and space technology.

Location: Institute for Defense Studies (INOBS), Moscow

Interviewer: INOBIS

Date: March 1993³⁹²

Duration: Approx. 1 hour total

Language: Russian

Prepared: Based on audio cassette tape

Ustinov was a proponent of a survivable missile arsenal, while most of the Ministry of Defense, including Grechko personally, were opposed to missile protection.

At first silos began to be protected from 2 to 50 kg/cm² [28 to 711 psi], and protection increased as U.S. missile accuracy increased, until very high protection became economically unfeasible. At that point mobile missiles were proposed, and were championed by Ustinov. Here, as with silo protection, Grechko and the Ministry of Defense were opposed. For example, the mobile missile designs produced by the Iangel' KB [design bureau] were chronically underfunded and development stages took a very long time. However, eventually the military understood the value of mobility and development was substantially speeded up. More funding was made available and the Nadiradze KB and the KB in Dnepropetrovsk headed by V. F. Utkin began their own development of mobiles.

Brezhnev was personally involved in the development of military and civilian missile technology. He headed a commission on the development of missile technology, known as the Politburo Commission [*Kommissiia pri Politburo*], even though Brezhnev was the only Politburo member on it [sic]. This commission, of which Ustinov was a deputy, included Grechko, Riabikov (the deputy head of GosPlan for defense), all of the ministers of defense-related industries, General Designers, and academicians involved in defense work. Strogonov served as a

³⁹² INOBIS carried out the interviews resulting in this narrative at various times during the month of March 1993.

secretary of this commission. The commission discussed technological, political, military, economic, and other issues related to defense production. Decisions were passed on to approval *pro forma* by the Defense Council, but were never amended by it. Issues were always debated in the commission and decisions made by a few individuals.

Ustinov was very close to Andropov. The two supported each other in the Defense Council. Both kept a careful watch over technological developments in the West, especially the U.S. Ustinov was personally devoted to scrupulously monitoring American technological developments, and continued to do so until his death.

The Central Committee relied very heavily on the VPK.³⁹³ The VPK consisted of technical specialists and scientists, and conducted preliminary studies on weapons systems and coordinated systems production and development. The greatest flaw in the VPK was that it had too much power and influence and meddled in policy questions instead of focusing strictly on technical questions. As a result of its undue influence too many obsolete weapons systems were kept in production and the development of advanced systems was retarded. Many obsolete missiles, for example, were not taken out of production or deployment. Questions regarding the reduction of such systems were never discussed in the VPK. The shortsightedness of the Soviet leadership and the decision-making structure of the Soviet Union ensured that the military industrial complex constantly grew in size.

³⁹³ VPK — *Voенно-promышленнаia kommissiia* — (Military Industrial Commission).

SUMMARY OF INTERVIEW

Subject: Viktor M. Surikov

Position: President of the Institute for Defense Studies (INO BIS), former Deputy Director of the Central Scientific Research Institute for General Machine Building (TsNIIMash) 1976-1992. Over 30 years experience in building, testing and analyzing military and civilian missiles and related systems (C³I, satellites, space flight control, etc.)

Location: INOBIS, Moscow

Interviewer: John G. Hines

Language: Russian

Date: September 11, 1993

Prepared: Based on notes

I raised with Dr. Surikov the issue of first strike versus retaliatory meeting strikes [*otvetno-vstrechnye udary*] and pure retaliation (ride out). He responded with a challenge that the U.S. strategy and posture was to strike first in a crisis in order to minimize damage to the U.S. He added that U.S. analysts had concluded that there were tremendous differences in levels of damage to the U.S. under conditions where the U.S. succeeded in successfully preemptively striking Soviet missiles and control systems before they launched versus under conditions of a simultaneous exchange or U.S. retaliation. He said, "John, if you deny that, then either you're ignorant about your own posture or you're lying to me." I acknowledged that the U.S. certainly had done such analysis.

Dr. Surikov continued with the assertion that the basic Soviet position and posture also was preemption—primarily because truly knowledgeable military and civilian leaders simply did not believe Soviet systems had the reliability [*ustoiчивost'*] to ride out an attack and respond effectively, if at all. He made it clear that he was referring to the *whole* system—communications and control, launch systems, and the missiles themselves. Retaliatory-meeting strikes [essentially what U.S. strategists would call "launch-under-attack—LUA"] represented a far less attractive fall-back given the consequences to the USSR of allowing the U.S. to launch its arsenal.

I asked Dr. Surikov if submarine-launched ballistic missiles (SLBMs) were relegated to the role of strategic reserve or could they be included, in whole or in part, in any

preemptive first strike. He stated that SLBMs were sufficiently accurate by the late 1980s to have been included in a preemptive strike. SSBNs³⁹⁴ tied to the pier and not under repair would be more likely to be involved.

I then asked Dr. Surikov about the “Dead Hand” [*Mertvaia Ruka*] automatic launch system. Dr. Surikov responded that he and his subordinates had designed the system—to include the various sensors—seismic, light and radiation—to launch the command missiles in the event the leadership were dead or unable to communicate. He continued that he briefed the concept and design to his chief, then Institute Director Mozzhorin, and to Baklanov, then the Central Committee Secretary responsible for military industry [Ustinov’s former party position]. Both accepted and approved the concept. The design finally was rejected by Marshal of the Soviet Union Akhromeev [evidently when he was Chief of the General Staff, i.e., after September 6, 1984] on the recommendation of a trusted advisor and general officer, General-Colonel Korobushin [the officer who “revealed” the existence of the system to me months earlier]. As a result of this rejection, the “Dead Hand” trigger mechanism “was never realized.”

³⁹⁴ SSBN — Submarine, Ballistic Missile equipped, Nuclear powered — a submarine designed to launch strategic nuclear ballistic missiles (SLBMs).

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko

Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR;
Director, Center for National Security and Strategic Stability Studies

Location: Room 716, VNIISI Building, 9 Prospekt 60-let Oktiabria, Moscow

Interviewer: John G. Hines

Date/Time: December 13, 1990, 11:00 a.m.

Duration: 1.5 hours

Language: Russian

Prepared: Based on notes

“Purpose of Interview”

To review with Dr. Tsygichko his views on the product and process of Soviet military assessments in the 1970s and 1980s. Of special interest was the Soviets' thinking about military competition, assessments of Western capabilities and intentions relative to their own, and expectations of the nature of war should it occur. The role and expected efforts of strategic and theater weapons of mass destruction was of central concern as was conventional war.

“General”

Vitalii Tsygichko is a former artillery colonel who joined the Soviet General Staff in 1964 where he was involved in some of the early efforts to subject force structure and operations to systematic analysis using mathematically based methodologies and models. Between 1967 and 1977 he was head of the Theater Force Modeling Department within the Scientific Research Institute [*Nauchno-Issledovatel'skii Institut*] Number 6 (NII-6) of the Main Intelligence Directorate (GRU) that provided quantitative analytical support to the Ministry of Defense. (There are five such purely military institutes that support the Ministry of Defense in various areas). He left the institute and the Army in 1977 because he felt that the best work of his division was being suppressed or ignored. He became a senior analyst at VNIISI of the Soviet Academy of Sciences at that time.

His reputation as an analyst and an officer is very positive among both former and serving General Staff generals and officers who seem eager to associate themselves with him and his work. One senior General Staff colonel, Kabysh, who continues to work as a General Staff analyst knew of Tsygichko by reputation, identifying him as one of the principal architects of the General Staff's approach to quantitative analysis of force operations. General-Major Luzianin, a department head within the Center for Operational Strategic Studies (TsOSI) of the General Staff (and a colleague of Tsygichko's on the General Staff in the 1970s), called Dr. Tsygichko to the General Staff on December 10, 1990, to offer him a contract to support the center's analysis. Dr. Tsygichko accepted and will be providing support over the next several months. (I learned indirectly from Andrei Kokoshin, who is fairly well connected to parts of the General Staff, that much of the work done in TsOSI is designed to meet the needs of General Ladygin's General Staff Directorate for Legal and Treaty Affairs.)

Some of Dr. Tsygichko's colleagues who had been present at an interview given by Minister of Defense Iazov to deputies of the RSFSR on November 5, 1990, reported that Tsygichko's name was brought up by Iazov during the discussion. Specifically, Marshal Iazov was complaining that self-described civilian defense analysts were demonstrating their incompetence whenever they attempted to deal with military analytical or operation questions. He specifically cited the work of Vitalii Tsygichko and his center as an exception to this general rule, stating that the center was doing very good work.

This is one of a series of interviews that I have conducted with Dr. Tsygichko. There is some duplication among interviews because I have revisited some themes to clarify points from previous discussions and I have tried to provide enough information to establish the context for his answers. This particular interview brings out the differences in understanding and attitudes about theater nuclear use among three groups of officers: the General Staff analysts and general officers routinely exposed to serious analysis of the operational and collateral effects of nuclear use; the "army" generals, those field generals who commanded armies, Fronts, military districts, and High Commands of Forces in TVDs;³⁹⁵ and the top military leadership, the Ministry of Defense, the Chief of the General Staff and his deputies all of whom were exposed to the product of the analysis being done within

³⁹⁵ TVD — *Teatr voennykh deistvii* — Theater of (Strategic) Military Action, for example, Central Europe from Ukraine to the western shore of Ireland.

the General Staff but whose attitudes were shaped by other than purely military analytical considerations.

“Three Views on Nuclear Warfare”

General Staff officers in the 1970s were very knowledgeable about the tremendous difficulties and uncertainties that would be involved in use of nuclear weapons at the strategic, operational and tactical levels. In the 1960s and 1970s many of the best and brightest minds in the Soviet scientific community were working in uniform within the General Staff in the areas of analysis and planning. Several models had been developed and applied to test the operational and general collateral effects of nuclear use at various levels and on various scales of employment (some of these models are discussed below as well as in other interviews). The conclusions of the General Staff analysts and other officers involved was essentially that nuclear use was operationally counter-productive and generally self-destructive. Even these officers, to include Tsygichko, carried out their work without any systematic consideration of the social or economic implications of their findings. As a result, they were unable to gauge the importance of their research in any but a purely military context.

Senior General Staff generals were routinely exposed to this analytical work and *understood* the consequences of nuclear use. Thus, Marshals Grechko and Kulikov (Minister of Defense and Chief of the General Staff respectively in the early to mid-1970s) knew, understood and believed that nuclear use at any level by either side would be catastrophic for the Soviet Armed Forces and the Soviet state they were required to protect. These senior Minister of Defense and General Staff generals nevertheless formally rejected the analysis to which they were exposed and typically suppressed it by assigning to the analytical products extremely high classifications and by denying further dissemination and discussion. The reasons for such denial and willful adherence to nuclear thinking [*iadernoe myshlenie*] were ideological, bureaucratic and economic.

Dr. Tsygichko asserted that the Brezhnev Politburo delegated all military matters to the Ministry of Defense to include all force procurement decisions. Threat definition was also a military function carried out within the General Staff by the Main Political Directorate. There was essentially no political oversight over the force building process and no serious challenge from the Politburo to what was clearly a decision situation in which there were serious conflicts of interest. This

“hands-off” attitude of the Brezhnev Politburo and the mindless nuclear force-building that resulted was strongly confirmed by General-Colonel Danilevich.

To officially acknowledge that nuclear use was senseless and basically catastrophic would require several changes in the entire Soviet political-military-economic system that were completely unacceptable to the senior officers who were the products and beneficiaries of that system. These changes would include:

- Acknowledgment that victory would be impossible in nuclear war—a violation of basic Marxist-Leninist dogma.
- Deep reductions in military spending.
- The nuclear weapons and weapons delivery [missiles, aircraft, submarines] industry was massive and important to the [already very distorted] economy. The logic of the General Staff analysis would undermine directly the program of quantitative competition with the U.S. that was being pushed by the senior military leadership and military industrialists at that time.
- Conventional armaments production was expanding as was the size of the Armed Forces based on expectations of high [but somehow acceptable] losses of conventional forces in the event of nuclear war.

The implications of deep reductions in nuclear and perhaps conventional forces and formal acknowledgment by the Soviet leadership that they were deterred by the prospect of an unwinnable nuclear war would have affected profoundly Soviet society in general and the military role in that system in particular:

- The Soviet economy would be forced to undergo radical adjustments which few were able or willing to contemplate.
- Forty percent of the Soviet GDP was being spent on the military. The MoD was spending 20 billion rubles per year on personnel costs alone. [An impressive number considering that the Soviet Armed Forces were comprised of very-low-paid conscripts.]
- The role of the military in general probably would be diminished.
- The dominant position of the military as an institution would be threatened.
- Reduction in the size of nuclear and conventional forces would eliminate 1,000s of officer and general officer positions.

The third group, to which Dr. Tsygichko frequently refers as the army generals [*armeiskie generaly*], could not, according to Tsygichko, imagine war without nuclear weapons. Unlike the General Staff generals, however, who understood the consequences of nuclear use, the Ground Forces operational commanders and CINCs were basically uninformed and generally did not know or understand what would happen in the event of nuclear use. They routinely used expressions such as the need to be prepared “to attack to the thunder of nuclear strikes.” [While it was clear that Tsygichko held them in low regard because of their ignorance and misplaced macho enthusiasm for self-destructive behavior, it is clear that these officers were kept in ignorance by the senior General Staff generals for the reasons cited above. As will be clear when some of the models are discussed, the real findings on nuclear effects and contamination never made it to the field in the 1970s, leaving the “army generals” with exercise scenarios that reinforced their impression that nuclear use in theater would be somehow manageable.]

“General Staff Modeling of Nuclear War in Europe”

Between 1972 and 1979 a tremendous amount of work was done in Tsygichko’s institute and elsewhere in the General Staff’s analytical support apparatus to analyze possible war in Europe, including nuclear war. In the course of doing this analysis, the General Staff constructed several different models designed to test various outcomes and effects. The overall purpose of the analysis was to determine what war might be like and, in particular, to determine the effects of losses on the conduct of operations and on the continuity of the availability of reserves and rear services. Some of the modeling work accomplished in this period and the manner in which the findings were received by the General Staff leadership are discussed below:

Modeling of Atmospheric and Other Effects from a Nuclear Exchange in Europe and on a Global Scale

In 1971 and 1972 the General Staff studied the climatic and contamination effects from a global exchange and concluded that there would be serious negative consequences for the USSR and for the northern hemisphere in general.

Dr. Tsygichko wanted to point out that “nuclear winter” was not discovered by Aleksandrov or Sagan in 1987 [sic].³⁹⁶ The General Staff did not use the expression “nuclear winter,” but the analysts considered many of the effects that received so much public attention almost 20 years later. These findings were summarized in a memo to the MoD and the Central Committee and were ignored because of the implications discussed earlier.

In 1972 and 1973, Dr. Tsygichko’s institute did a great deal of work modeling nuclear war in Europe. In this work, which included the development of a model, the institute studied the operational effects of the expected high loss levels and disruption of the rear (discussed in detail in an earlier interview) but also calculated nuclear contamination given prevailing (eastward) wind patterns in Europe. The study found that, in executing even the basic plan to place a nuclear strike on every NATO airfield, the Soviet side would create extremely high levels of contamination in Europe. The worst effects would be upon Warsaw Pact forces, and upon the Pact’s strategic military rear in Eastern Europe and the European USSR. Within a relatively short period of time, contamination would have a severely negative effect on the Warsaw Pact’s ability to continue the war and would have mid- to long-term health consequences for the civilian populations of all members of the Pact.

This study was of sufficient importance that the institute and the Main Operations Directorate of the General Staff devoted an additional 6 months to an independent validation of the model and its findings. The validation process resulted in the considered confirmation of the analytical results achieved by the institute.

Dr. Tsygichko briefed the findings of the model to Marshal Kulikov, the Chief of the General Staff, in 1973. Kulikov ordered Tsygichko (then a lieutenant colonel) to modify the conclusions or face forced retirement. Tsygichko said he felt sufficiently secure to refuse (since he already had his doctorate). The director of his institute met with Tsygichko later on the same day he had his confrontation with Kulikov and asked him to be more flexible. Tsygichko refused. The findings were suppressed by means of overclassification and severe restrictions on dissemination. Tsygichko was not forced to retire.

³⁹⁶ American scientist Carl Sagan, together with his colleagues, popularized the notion during the early 1980s that a global nuclear war would induce an artificial winter across the northern hemisphere. Aleksandrov conducted similar work in the Soviet Union in the early 1980s. Academician Anatolii Petrovich Aleksandrov was President of the Soviet Academy of Sciences. He had previously served as director of the Kurchatov Institute in Moscow.

Tsygichko pointed out that one of the consequences of this suppression was that the findings were never incorporated into routine Soviet exercises. As a consequence, exercise maps typically depicted neat, manageable balloon-shaped contamination patterns that could be circumvented easily by army commanders. Hence the exercise nuclear effects did not seriously affect operations, much less impose severe disruptions on the strategic rear and populations of the Warsaw Pact.

Vitalii Tsygichko stressed that, in his confrontation with Kulikov and his generals, it was clear to him that they all understood the correctness of his findings but were unwilling to accept and disseminate them because of what those findings implied for the General Staff in the areas of force development, doctrine, military investment, etc.

“The Competence of General Staff Modelers and Quantitative Analysts”

Dr. Tsygichko had commented earlier on the unfavorable impression he had of serving General Staff modelers and analysts when he participated by invitation, in a General-Staff hosted analytical seminar in June 1990. In earlier conversations, he made it clear that he was commenting specifically on the work of the analysts from the TsOSI when he said that the quality of the modeling work had reverted to what it had been 20 years ago, before major advances in sophistication had been made. In a conversation we had on the 12th of December 1990 he clarified and expanded on his earlier comment. The June 1990 seminar included participants from TsOSI but also analysts from the Main Directorate for Organization and Mobilization (headed by General-Colonel Krivosheev) and the Main Operations Directorate (headed by General Omelichev). Dr. Tsygichko made it clear that Krivosheev's people were equivalent in their low level of competence to the TsOSI analysts. He added that the only *real* analysts that appear to be left on the General Staff are working for General Omelichev in the Main Operations Directorate which is concerned with doing the assessments of the correlation of forces globally and by region and which support directly General Staff decisions on force deployments and changes in readiness status. This must be considered in the context of the steady “brain drain” of top analysts who have left the General Staff and supporting analytical institutes for the Soviet Academy of Sciences since the mid-1970s.

General-Major Medvedev, Deputy Director for Science of the TsOSI, confirmed to me in Germany in November 1990, that this trend is continuing. He volunteered that they have over sixty slots in the General Staff institutes for civilian analysts and that few, if any, were filled.

Tsygichko's comments suggest that the remaining qualified analysts are being pulled out of the more theoretical or arms-control support positions to keep alive the operational core of the General Staff, the Main Operations Directorate, which is much more concerned with applications and exploitation of mathematical models than with their development or improvement.

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko

Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR;
Director, Center for National Security and Strategic Stability Studies

Location: Moscow

Interviewer: John G. Hines

Date: December 17, 1990

Prepared: Based on notes

Brezhnev and the Politburo left military doctrine to the professionals and gave the military great reign in determining resource allocation and threat definition.

General Staff officers understood that nuclear use would be operationally counterproductive, but Front and TVD commanders [*armeiskie generaly*] expected to fight with nuclear weapons.

Models showed that global nuclear war would have drastic effects on climate and that nuclear strikes against all NATO airfields would contaminate the atmosphere in Eastern Europe and the USSR. Memos about this were sent to MoD and the Central Committee but were ignored.

In the early 1970s, modeling predicted that use at the front level of 15 - 20% of nuclear arsenals on both sides would cause enough destruction to end war at this level. Moreover, models were used to conduct sensitivity analysis on nuclear use at Front level to determine at what percentage of use the nuclear arsenal available to both sides would the operational impact be acceptable. That is, how much of the arsenal could each side absorb and have losses sufficiently low to allow the Soviet Front to continue military operations. The analysis was begun at 20% of the arsenals available to both sides and the exercise was halted when the modelers had exercised strikes comprised of two percent of the arsenal. The losses, even at an exchange of 2%, were so great that all operations and movement ceased for 2 days while surviving commanders and staff assessed the potential for regrouping and resuming operations. Even then, resumption of Front operations was problematical, depending upon assumption about losses of key command and control personnel and facilities.

- The main Operations Directorate spent 6 months to validate the model.
- Gareev challenged the findings (Gareev's work on the correlation of forces predicted losses [from nuclear strikes] that were small enough to permit the continuation of operations after each phase).
- Kulikov understood that the findings were true but suppressed them because their implications for defense spending were unacceptable.
- In exercises Soviet troops continued simply to move around areas contaminated by nuclear use.

Iazov in *Red Star* [*Krasnaia zvezda*] praised the work of Tsygichko's institute. In the 1960s and 1970s excellent analysts worked in General Staff planning and analysis but they had no serious reality reference (they did not know how to measure the social or economic value of their work).

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko

Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR;
Director, Center for National Security and Strategic Stability Studies

Location: Room 716, VNIISI Building, 9 Prospekt 60-let Oktiabria, Moscow

Interviewer: John G. Hines

Date/Time: December 20, 1990, 11:00 a.m.

Duration: 1 hour

Language: Russian

Prepared: Based on notes

“Purpose of Interview”

To review with Dr. Tsygichko his views on the product and process of Soviet military assessments in the 1970s and 1980s. Of special interest was the Soviets' thinking about military competition, assessments of Western capabilities and intentions relative to their own, and expectations of the nature of war should it occur. The role and expected efforts of strategic and theater weapons of mass destruction was of central concern as was the Soviet perceptions of the effect of qualitative improvements on the nature of conventional war. (Questions are given in greater detail in the section General Questions for OSD Net Assessment General Staff Assessment Validation Project.)

This is one of a series of interviews that I have conducted with Dr. Tsygichko. There is some duplication among interviews because I have revisited some themes to clarify points from previous discussions and I have tried to provide enough information to establish the context for his answers. This interview expands on issues raised in the interview of December 13, 1990.

“Thinking About Nuclear War - Issues of Policy, Theory and Practice”

Until 1980, Soviet policy on nuclear retaliation as expressed in the General Staff Academy lectures called for a full nuclear response against the homeland of any

state launching even tactical (battlefield) nuclear strikes on the territory of the Warsaw Pact (of any member, not only the USSR). This Dr. Tsygichko identified as the political approach to military doctrine in this area. In practice, no real planning was done for a massive nuclear response to the use of tactical nuclear weapons on a less than massive scale on the territory of a member of the Warsaw Pact. Tsygichko volunteered that he believed personally that the USSR would definitely lose the war if Soviet forces did not respond quickly to initial NATO nuclear use with all available nuclear capabilities. This is a statement from someone who personally believed that victory in such a war would be meaningless.

We revisited the question of who in the General Staff fully understood the consequences of a nuclear exchange. He responded that the effects were really well understood "at the Danilevich level." When asked he added that, in the mid-to-late 1970s, General Danilevich served as Deputy Director of the Main Operations Directorate. The Chief of the General Staff had some idea of the consequences but Ustinov, the Minister of Defense, did not really comprehend the level of destruction involved.

According to Marxist-Leninist theory, victory was possible, even in nuclear war. In practice, the General Staff did not have any real working definition of victory in a nuclear war and the operation simply was not discussed in those terms. It was well understood on the General Staff that the Soviet Union would not come out of such a war in anywhere near the same state in which it began the war. The general hope was that some undestroyed pocket of civilization would survive, perhaps in Siberia that might form the basis for rebuilding the state. Dr. Tsygichko explained that General Staff thinking did not focus on the consequences of a nuclear exchange for the Soviet Union but concentrated instead on the amount of destruction the USSR could impose on the enemy.

Soviet published military doctrine called for continuous operations in a theater of strategic military action (TVD) regardless of whether or not nuclear weapons were used, as if such use would do little to change the battlefield environment. In practice, the General Staff did no actual planning beyond the initial exchange of nuclear weapons on a tactical or operational scale.

Soviet declaratory policy, at the Politburo level, rejected deterrence as a fallacious and even immoral concept. In fact, according to Dr. Tsygichko, the Politburo accepted deterrence in 1965 when the USSR first acquired ICBMs. This acceptance was evident in some speeches and in the lectures at the General Staff Academy. I

raised with Tsygichko the distinction made in Soviet political discussions between *sderzhivanie* (restraint, or morally correct, Soviet deterrence) and *ustrashenie* (terrorizing, or immoral, Western deterrence). He replied that even on a theoretical level the distinction was meaningless. The *concept* adopted by the Politburo and hence by the General Staff was that war would not be initiated by either side because both sides were held at risk of highly destructive retaliation even after initial surprise use of nuclear weapons. Deterrence was based on mutual fear or terror. Rejection of *ustrashenie* in the press was propaganda.

Tsygichko offered the opinion that, even in the 1960s and 1970s, the Soviet political leadership would have supported negotiations to prevent the initiation of nuclear war. The General Staff, he believes, would have supported this approach. This is consistent with General Danilevich's assessment of Brezhnev's visceral fear of nuclear use.

Finally, Dr. Tsygichko explained that he and several others in the General Staff viewed the "U.S. policy of arms racing" as an indirect attempt to undermine and bleed white the Soviet economy. He acknowledged that the strategy worked because the Soviet leadership did not know how to deal with it effectively. He indicated that the effects of such economic warfare are evident today.

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko

Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR;
Director, Center for National Security and Strategic Stability Studies

Location: Washington, D.C.

Interviewer: John G. Hines

Date/Time: March 21, 1991, 1:00 p.m.

Language: Russian

Prepared: Based on notes

In 1974, Gen. Shabanov asked Tsygichko's Institute (NII-6)³⁹⁷ at the General Staff to use modeling to analyze the benefits of various kinds of technologies and weapons. Shabanov wanted an analytical basis for placing orders for different types of weapons in various quantities. The models included weapons with various theoretical sets of technical characteristics (precision, range, destructiveness, and possibly control). Tsygichko reprogrammed existing models (which were designed primarily to test operational concepts) in order to build fictional forces that were changed in different runs of the model and thus to establish criteria for selecting and investing in weapons systems. The cost of weapons was also a serious consideration. The objective was to get the most combat effectiveness for the smallest investment.

Tsygichko and his colleagues made the models, prepared a set of recommendations, and briefed Shabanov. Shabanov found the recommendations sound and scientifically based but could not use them because they would seriously run afoul of the prerogatives of the Services and the VPK [military-industrial complex in this case] leaders responsible for production of armaments, missiles and air defense systems.

Based upon his positive impression of Tsygichko's work, in 1976 Shabanov formed his own institute [*Institut Shabanova*] out of some of Tsygichko's best people for the specific purpose of doing force-development analysis. Dr. Tsygichko continued to work with his former subordinates in Shabanov's institute.

³⁹⁷ NII — *Nauchno-issledovatel'skii institut* — Scientific Research Institute.

Although the Directorate for Armaments was not created until the late 1970s, Shabanov was responsible for armaments in MoD since the late 1960s. Shabanov had the authority to work on general criteria for weapons development.

The Union of VPK [military-industrial complex] Directors of Heavy Industry, [*Soiuz Direktorov VPKa Krupnykh Predpriatii*], was organized to lobby the USSR Supreme Soviet to liberalize export constraints on products from the heavy industry sector. As of March 1991, trade in finished (technical) products was still constrained by concerns about military secrecy, but firms were already carrying out a fairly large business in exchanging half-finished products and raw materials for hard currency. Much of the hard currency earnings were stored overseas.

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko
Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR; Director, Center for National Security and Strategic Stability Studies
Location: Washington, D.C.
Interviewer: John G. Hines
Date: March 30, 1991
Language: Russian
Prepared: Based on notes

After he formally retired from the General Staff in 1977, and moved to All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Tsygichko continued to work part-time until 1982 for the General Staff Institute of Operations Research and kept his high-level clearances because people at the Institute did not know enough about the models Tsygichko had developed to keep them working.

The General Staff prepared a report on Russian and British imperial experiences in Afghanistan. The report concluded that an invasion was a very bad idea in terms of fulfilling possible strategic objectives, getting bogged down, and being compromised by involvement in the region. Ogarkov strongly endorsed the findings and forwarded them through the MoD to the Central Committee.

After Ustinov became Defense Minister, the influence of the General Staff's analysis on future forces development weakened appreciably over time relative to the Services working with the VPK.³⁹⁸

The main consumer of the General Staff's Institute for Operations Research (NII-6)³⁹⁹ was the General Staff's Main Operations Directorate, and within it, the Subdirectorate for Operational Planning [*Napravlenie Strategicheskogo Planirovaniia*].

- Col. Oleg Ponomarev, [later General-Colonel, who retired in 1987] Director for Operational Planning until 1987, supported modeling as an approach to decision making.

³⁹⁸ VPK — *Voенно-promyshlennaia kommissiia* — (Military Industrial Commission).

³⁹⁹ NII — *Nauchno-issledovatel'skii institut* — Scientific Research Institute.

- Capt. Volosatov, who was assigned to Ponomarev by Tsygichko, really wrote the two articles (published in 1976 and 1977, respectively) that were signed by Ponomarev.
- Gen.-Col. Kozlov and others also supported the modeling effort.
- Col. Terekhov, an analyst at the Frunze Academy, took part in the 1987-89 debate on a new role for modeling. His models were designed to run in real time in order to validate or invalidate tactical-level decisions (by captains through colonels, platoon to regiment levels) as those decisions were being made during training and exercises. Terekhov's work addressed a different level of problem solving from that which was the subject of the work of Tsygichko and the General Staff Institute of Operations Research. Terekhov created tactical models, Tsygichko theater strategic and Front-level models.
- Marshal Nikolai Ogarkov - When asked about the issues that might have led to the removal of Marshal Ogarkov as Chief of the General Staff in September 1984, Tsygichko volunteered that Marshal Ogarkov authorized a study on the structure of the Armed Forces that was highly critical of their organization as well as manning practices. The study, circulated in the summer of 1984 among senior MoD military leaders as well as senior analysts advocated, among other changes, the following measures:
 - Deep reductions in the size of the Armed Forces, as much as 50%.
 - Professionalization of the Armed Forces. The paper cited among other justifications, the high maintenance costs associated with abuse of sophisticated weapons and equipment by inexperienced conscripts. The central control radar for an SA-2 surface-to-air missile system, for example, historically required capital repair after only 2 years of operations by a conscript crew. The same system would operate for 6 years before capital repair when crewed by professional soldiers.
 - Reassignment of Air Defense Forces Command assets to other commands—PVO air assets to the Air Forces, SAMs and AAA to the Ground Forces.

In general, the paper took the position that the Armed Forces required more rapid modernization to be competitive and that modern forces required relatively fewer personnel with much better skills.

SUMMARY OF INTERVIEW

Subject: Dr. Vitalii Nikolaevich Tsygichko

Position: Senior Analyst, All-Union Scientific-Technical Institute For Systems Studies (VNIISI), Academy of Sciences, USSR;
Director, Center for National Security and Strategic Stability Studies

Location: Washington, D.C.

Interviewer: John G. Hines

Date/Time: December 21, 1991, 8:00 p.m. and December 23, 1991, 11:00 a.m.

Duration: 3 hours

Language: Russian

Subjects discussed: ICBM Silo Vulnerability, Vulnerability of Personnel to Blast Overpressure, Modeling Comparisons of Soviet with Western Economies, the Role and Power of the Military Department of the Central Committee vis-à-vis the General Staff, Central Committee Independent Assessment of the Chinese Threat, Mobilization Modeling, Effect of Medical Support on Rate of Advance in Theater Operations, Stopping the War for 2 Weeks to Resupply, Persian Gulf Mobilization Modeling Applications for U.S., Review of Weapons Programs by the General Staff, Remarks on Previous Interviews

Prepared: Based on notes

ICBM Silo Vulnerability

In the context of a discussion about modeling strategic nuclear warfare Dr. Vitalii Tsygichko explained that he was personally involved in a series of tests, carried out by the General Staff on an annual basis between 1964 and 1966, to test the vulnerability of silo-based ICBMs to ground-burst attack. The tests were conducted at Semipalatinsk. Each test in the series required months of preparation, including engineer preparation of an overhead screen (perhaps as large as one square kilometer) to conceal the test activities from U.S. satellite observation. Missiles identical to those in operation were put in silos designed to actual operational specifications. Charges were placed in the ground at various distances from 20 meters to over one kilometer) from the silos, and the effects of the blasts were measured. The charges used did not exceed the blast energy effect of a 500 KT

nuclear warhead. The tests took geological conditions into account and tried to approximate the impact of an actual U.S. nuclear attack on Soviet ICBM silos.

The measure of effectiveness (MOE) for a missile kill was the post-strike ability of the entire missile system to be reliably launched in the prescribed time (measured in hours at that time) and to effectively destroy its target. A jammed silo door, a ruptured fuel system, a disoriented missile guidance system, or disruption of the launch control system would constitute a missile kill. (The damage was normally much more extensive and required days, weeks, and even months to repair.) In general, the test data showed that ground bursts were extremely effective in destroying silo-based ICBM systems. (As a minimum, even with distant strikes, silo doors often jammed.) Under certain geological conditions, a ground wave from a strike as far away as 1 km was powerful enough to drive the entire silo 3 meters out of the ground, rendering *completely* inoperable the missile system inside. Any ground burst closer than 1 km away was highly likely to “kill” a silo-based missile system. If two silos were less than 2 km apart, typically both would be disabled by one incoming strike.

Dr. Tsygichko was given the task of creating models to compare the effects of ground bursts and air bursts. He used the masses of data collected in 1963 and earlier (before implementation of the nuclear test ban treaty) from tests at Semipalatinsk on the impact of nuclear explosions on structures and silos. According to analysis performed with the help of his models, an air burst (80 plus meters above ground) was 15 - 25% as effective in killing an ICBM as a ground burst of the same yield going off at an equal distance from the target.⁴⁰⁰

In 1966, Dr. Tsygichko took part in briefing the General Staff on the tests and modeling of silo vulnerability. Because Soviet silo-based systems were shown to be extremely vulnerable to ground-burst strikes in empirical testing, the Soviet military leadership took a series of decisions to deal with the direct and indirect implications of the findings. First, they initiated a major program to rebuild silos, when feasible, at distances of greater than 2 km from each other. Second, they initiated a program for the development and deployment of mobile ICBMs. Third, scientists assumed that U.S. analysts “were not stupid” and had conducted similar

⁴⁰⁰ This was the first comprehensive application of mathematical modeling to a major area of Soviet military planning. The success of the modeling of silo-vulnerability and of strategic exchanges in general created considerable enthusiasm in the General Staff for application of modeling to other problems, such as analysis of outcomes of theater war. According to Dr. Tsygichko, experience with modeling of strategic warfare and silo-vulnerability were of little or no help in modeling theater warfare but it did build considerable credibility for modeling as an analytical tool.

experiments and reached similar conclusions regarding the relative effectiveness of ground bursts and air bursts. On the basis of satellite photography, Soviet planners observed that U.S. missiles were not very well protected by overhead cover and were grouped relatively close to each other as well as to the launch control center. These observations convinced the General Staff that U.S. land-based ICBMs were not intended to ride out an attack but instead were first-strike weapons [*vooruzheniia pervogo udara*] and were routinely referred to as such by Soviet military planners in all subsequent discussions and internal writings. Based on these conclusions, the Soviets took two initiatives, one operational and the other programmatic. First, they adopted a launch-under-attack doctrine, that is, to launch when it was clear that U.S. missiles had been launched. The doctrine could not be effectively executed, however, because Soviet missiles required a considerable time to launch. The Soviet Union's programmatic response was the initiation of a large-scale program in Ministry of General Machine Building to develop both solid- and liquid-fueled missile systems that could be launched within five minutes of a launch order. To describe the expected scenario, the USSR defined a new kind of strike, a retaliatory-meeting strike [*otvetno-vstrechnyi udar*] whereby Soviet missiles were expected to pass American missiles in mid-air on the way to targets on U.S. territory. Dr. Tsygichko explained that, to his knowledge, Soviet missiles were to strike at military targets other than silos and at U.S. infrastructure because of the assumption that U.S. silos would be empty under all launch scenarios.⁴⁰¹

Vulnerability of Personnel to Blast Overpressure

Dr. Tsygichko was aware of tests, conducted in the late 1950s and early 1960s, on the effects on animals of overpressure from both conventional and nuclear weapons. Based upon exploitation of pre-1946 German data and other testing, Soviet scientists concluded that a dog's response to overpressure was closest to that of humans. Based on this finding, the tests showed that 7 psi overpressure was

⁴⁰¹ Some U.S. analysts regard the SS-18 as too powerful for employment against infrastructure and soft military targets. Likewise suspected Soviet missile-reload capability would be of little use in launching a retaliatory strike if all Soviet silos were expected to be destroyed under all considered scenarios. The strategic forces directorate within the Main Operations Directorate of the General Staff, at a decision level perhaps not accessible to Dr. Tsygichko, might have targeted U.S. silos with the most capable (highest yield) part of the arsenal and might have planned for the possibility of Politburo authorization to launch early enough to limit damage to the USSR. Other interviews with Marshal of the Soviet Union Akhromeev and Marshal Ogarkov's special assistant, General-Colonel Danilevich, strongly suggest, however, that General Staff planners assumed that they would *not* get authorization to launch in time to limit damage. Other interview subjects, such as Vitalii Kataev of the Soviet Central Committee, and General Illarionov, seemed to believe that Minister of Defense Grechko and others in the senior military leadership showed little interest in reducing the vulnerability of Soviet missiles because they expected to strike preemptively against U.S. launch preparations.

sufficient to kill a person. (In contrast, U.S. experts calculated that 36 - 38 psi would be needed to kill personnel. As a result, U.S. analysts predicted much lower rates of attrition on the battlefield in response to nuclear and conventional bombardment than did their USSR counterparts. This directly affected rate-of-advance expectations and assessments of the operational impact of battlefield nuclear use.)

Modeling Comparisons of Soviet with Western Economies

Around 1978, an American economist published a book⁴⁰² assessing the intersector-balance [*mezhotraslevoi balans*] within the Soviet economy and comparing the U.S. and Soviet economies. The book forecast a bleak future for the Soviet economy because of significant distortions, maldistribution of investment, and excessive nonproductive expenditures such as those devoted to defense. A Soviet policy or economics expert, Dr. Tsygichko believes, must have brought the book to the Politburo's attention. In 1979, General Chervov, then head of the Information Directorate [*upravlenie*] with the Main Intelligence Directorate (GRU), asked Dr. Tsygichko to determine whether the book's analysis was based upon open sources or on intelligence. Dr. Tsygichko examined the documentation over several weeks and concluded that the book was based upon openly-available sources.³⁰⁶

The Central Committee then commissioned a study in 1979 to test the book's conclusions. Dr. Tsygichko is absolutely convinced the work was inspired by at least one influential member of the Politburo itself. The study went on at least until 1984. It was run by the Director of the Institute of Economics of the Soviet Academy of Sciences and carried out by several experts from several institutes to include the Institute of Economics, the Institute of Mathematics and Physics, and the VNIISI (the all-Union Institute for Systems Research) to which Dr. Tsygichko was assigned. The project commanded support from the Main Intelligence Directorate (GRU) of the General Staff, to include large amounts of data on Soviet military production, despite the fact that the military was suspicious of and even hostile, to the effort. Dr. Tsygichko played the role of *systemnik* in the effort, which means that he helped to structure the analysis and models to conduct the analysis. The study began with an assessment of the intersector balance within the Soviet economy and then compared the Soviet economy to the advanced industrial economies of the U.S., Japan, and Western Europe. The findings essentially confirmed the conclusions of the American economist. The Soviet GNP was

⁴⁰² Subsequent research did not serve to further identify the book in question.

estimated to be at around 40 percent the size of U.S. GNP, and the gap between U.S. and Soviet output was widening at a nonlinear rate. Dr. Tsygichko was unaware of exactly what impact, if any, the study might have had on Soviet policy.⁴⁰³

The Role and Power of the Military Department of the Central Committee vis-à-vis the General Staff

Dr. Tsygichko believes that U.S. analysts generally overestimated the General Staff's influence on military planning and force development and grossly underestimated the importance of the Central Committee (CC) and its Military Department [*voennyi otdel*]. At least 60 percent of the membership of the Central Committee's Military Department were defense industrialists, both ministers responsible for arms production and chief designers [*glavnye konstruktory*], and the remaining 40 percent were political officers [*politicheskie ofitsery*] who were very much the *party's* officers within the military. The officers within the Military Department of the CC wielded influence that far transcended their military rank. The Defense Minister and all chief designers (who virtually controlled military production) were members of the Central Committee and its Military Department. The Chief of the General Staff and the service chiefs were not members and, therefore, held a fraction of the authority and influence enjoyed by the Military Department of the CC, especially in the areas of military policy [*voennaia politika*] and force development [*voennoe stroitel'stvo*]. As Dr. Tsygichko explained it, the Military Department of the CC functioned as the *de facto* sitting Defense Council, setting military policy [*voennaia politika*] which governed military doctrine and force development, and supported the formal Defense Council comprised of the General Secretary and MoD, the chiefs of the KGB and MVD [internal troops], the Minister of Foreign Affairs, and several major military industrialists.

Central Committee Independent Assessment of the Chinese Threat

In late 1979, the Central Committee initiated an independent evaluation of the General Staff's assessment of the Chinese threat. Colonel Malashenko, then a member of the Central Committee's Military Department,⁴⁰⁴ placed Dr. Tsygichko in charge of a major reevaluation and forecast of China's military potential and

⁴⁰³ The nature and results of this work were probably known to Gorbachev and his supporters in the mid-1980s and could have provided "scientifically developed" analytical support to bolster Gorbachev's push against Party conservatives for radical change.

⁴⁰⁴ Later a special assistant to President Gorbachev until the end of the latter's presidency.

even tried unsuccessfully to convince Dr. Tsygichko to return to active duty to run the study. Dr. Tsygichko, then a senior analyst at VNIISI, ran the study out of the Institute of the Main Intelligence Directorate (GRU) [or NII-6, a GRU Operations Research Institute that primarily supported the Main Operations Directorate—GOU]. Backed by the authority of the Central Committee's Military Department, Dr. Tsygichko was able to collect all the information he needed from the military and to enlist analysts from the entire Academy of Sciences. At the GRU Institute, 20 analysts most from VNIISI, the GRU, and the General Staff worked on the project directly under Tsygichko's supervision. (Dr. Tsygichko said that the General Staff and GRU supported the work at Central Committee direction despite the essentially "hostile" purpose of the study.) Another 39 analysts from various institutes of the Academy of Sciences participated in the study and contributed data and analytical support at Dr. Tsygichko's direction. Dr. Tsygichko and his colleagues were excited by their power to command resources for the study and his enthusiasm was evident even as he discussed the effort in the interview. Work began in early 1980 and went on for 5 years. There was substantial high-level interest in the study. Dr. Tsygichko conducted yearly briefings to senior officials of the Defense Ministry and the Military Department of the Central Committee. [He recalled that 1983 was the first year in which the work was sufficiently well-developed to provide a coherent story to the leadership.]

The study resulted in the development of four separate models that analyzed China's economic, mobilization and deployment, transportation, and TVD-scale warfare capabilities. Nuclear weapons were excluded from the study and might have been considered separately by other analysts. The models indicated that China did not pose a serious threat. Over the 15-year period projected by the analysis, China was found to lack the military-industrial capacity and the infrastructure to threaten the USSR. For example, China would need weeks to move its forces because of a lack of transportation networks. Moreover, Dr. Tsygichko and his colleagues did not detect any Chinese intention to attack the Soviet Far East. The General Staff and the GRU, whose assessments of China tended to be alarmist, did not support the findings of Dr. Tsygichko's study. Despite these disagreements, the Chief of the GRU and the General Staff signed off with approval on the study's findings without written reservations because of the authority of the Central Committee.

Mobilization Modeling

In analytical work they did in the 1970s at the General Staff's NII-6. Dr. Tsygichko and his colleagues made a distinction between logistics support (including resupply and attrition fills) during the course of combat operations, on the one hand, and strategic nationwide mobilization and deployment on the other. The model for war in the TVD encompassed a module to assess the second echelon and reserve commitments and logistics support. A separate model analyzed strategic mobilization and deployment [*strategicheskoe razvertyvanie*] in the USSR preceding, and more often following, the outbreak of war.

The strategic mobilization and deployment model estimated the time needed to make divisions combat-ready and to move them to the front lines. A number of factors were considered: the level of a given division's readiness at the moment that the mobilization order is issued; the time required to assign people to divisions, to get divisions up to strength, to prepare the equipment and to train troops and make them combat-ready (this consisted of individual and small-unit training as well as combined training [*slozhnaia ucheba*] at the division level); and the time spent transporting (through points of embarkation and disembarkation) and deploying troops. The model accounted for the delays expected in moving supplies through transshipment points (such as those at the Soviet-Polish border), and it assumed destruction of transshipment and disembarkation points as well as damage or destruction to downloading facilities on a wide scale, that varied in detail in modeled scenarios depending upon when and where the war began.

In the model, a division was not deployed until it was fully trained up to the division level and rated combat-ready [*boesposobnaia*]. Dr. Tsygichko expressed the conviction that deployment of noncombat-ready units (as defined) was not considered to make sense and was not seriously considered in the planning he was aware of.

Effect of Medical Support on Rate of Advance in Theater Operations

The TVD model showed that high levels of losses would quickly decrease combat readiness. Medical studies from the 1970s predicted substantial numbers of casualties in a war in Central Europe, which would require extensive mobile medical support. The TVD model, using the medical data, exposed a serious deficiency in Soviet mobile-hospital capabilities (including grossly inadequate numbers of doctors and medical technicians) and thus anticipated very high serious

injury and fatality rates. Units whose losses exceeded 50 percent in a matter of hours were rated noncombat-ready and withdrawn. Their replacement by new units put a severe strain on a transport network already under attack. The declining combat readiness of first-echelon divisions due to unreplaced losses, combined with the time spent replacing first-echelon divisions with operational reserves and the shrinking availability of large-scale replacements in a war of high attrition, was expected to slow the Soviet advance dramatically. Dr. Tsygichko said that the work of medical services analysts and even the modeling applications of their findings did not influence the General Staff to correct deficiencies in field medical support because, ultimately, it was not as “interesting” as investment in military hardware. He sensed a reluctance on the part of senior General Staff generals to really deal with the reality of warfare and its consequences, and the inattention of the generals to the critical shortcoming in medical support was indicative of their indifference.

Stopping the War for 2 Weeks To Resupply

According to Dr. Tsygichko’s modeling, an initial operation would last 9 to 12 days (this might put them at the French border in some locations and at the Rhine River in others) and *then come to a complete halt for 10-14 days* to permit resupply and troop replacement. The pause would be an unavoidable constraint on the offensive because the resupply would be too slow to maintain the momentum of the first echelon beyond the advance expected in the initial TVD operation.

When asked about the concept that second-echelon Fronts would simply pick up the offensive from exhausted first-echelon Fronts at the end of the initial operation, Tsygichko explained that there were basic real-world physical constraints and, to a lesser extent, organizational constraints that would make the “second-echelon Front” solution impossible to execute. The “commitment of second-echelon Fronts” was actually an assumption of command by second-echelon Fronts of first-echelon armies and divisions already in place, supplemented by some fresh divisions and perhaps armies. The functioning of the logistics support system in the TVD was, in most respects, insensitive to the identity of the Front or Fronts to which the logistics command structure was subordinated. In other words, fuel, ammunition and food supplies were or were not available and transportable regardless of the identity of the command superstructure. Moreover, General Staff modeling and analysis conducted by Dr. Tsygichko’s department indicated that basic supplies would *not* be available to sustain operations beyond approximately 2

weeks because of expected high losses and protracted transport times exacerbated by extensive destruction of the transportation infrastructure. Under these conditions, the number of Fronts did not matter.

Persian Gulf Mobilization Modeling Applications

In 1984, the General Staff asked Dr. Tsygichko to estimate how rapidly the United States could deploy 500,000 troops to the Persian Gulf (!). The General Staff had assumed that a half-million U.S. troops could reach the Gulf and be prepared to fight in 1 month. In contrast, Dr. Tsygichko's modeling indicated that the U.S. would need at least 4-1/2 months to carry out such a deployment. The U.S. would be constrained primarily by the transportation networks inside the U.S. and by the number of bottoms and aircraft available to carry the forces forward and to bring in the requisite logistics support. Combat readiness of U.S. units was rated fairly high at the unit and division levels when mobilization began.

Review of Weapons Programs by the General Staff

In the late 1960s and early 1970s, Dr. Tsygichko participated in an analytical support role in two separate weapons system program review board meetings. The purpose of such meetings was to develop a final recommendation on production, non-production or modification on a weapons system that was presented by its sponsoring design bureau as ready for series production. All participants were expected to have reviewed and evaluated all relevant materials and to have developed organizational positions before attending the decision meeting. Such meetings usually were chaired by a three-star general from the General Staff, often from the prestigious Main Operations Directorate (GOU) and attended by representatives of the "buying" service, the General Staff and the military industrial commission.

The meetings Tsygichko attended were chaired by the Deputy Director of the General Staff's Main Operations Directorate. One system review meeting easily developed a consensus to support series production of the weapons system under review. The other just as clearly disapproved series production. In the second instance, the meeting chairman himself presented volumes of documentary evidence to establish the inability of the weapons system to meet operational requirements. His view reflected the consensus which recommended against production.

On the basis of his experience at the meetings, Dr. Tsygichko expected the supported system to be produced and the negatively evaluated system to be canceled. In fact, both systems went into production on schedule, leading Tsygichko to conclude that the review board meetings were an empty formality designed to mollify the General Staff and other players outside the military industrial commission (VPK)⁴⁰⁵ but which had no real effect on program development.

Remarks on Previous Interviews

Dr. Tsygichko commented further on a paper he had prepared earlier, *Kommentarii k interv'iu V. N. Tsygichko v 1990-1991 godu*:⁴⁰⁶ In the 1960s and 1970s, Vitalii Tsygichko explained, the Soviet Union had a comprehensive plan for retaliation against nuclear attack. The plan, which was updated every 6 months, called for a Soviet launch-under-attack⁴⁰⁷ [*otvetno-vstrechnyi udar*] using *all* Soviet silo-based systems. This annihilating retaliatory nuclear strike [*unichtozhaiushchii otvetno-iadernyi udar*] would be directed not against U.S. silos, which Soviet planners assumed would be empty, but rather against military targets (such as airfields, ports, and C³ facilities) and against the U.S. political and economic infrastructure (including transportation grids and fuel supply lines). Soviet doctrine relied on the threat of a massive response as the best way to prevent nuclear use.

Soviet analysis and modeling demonstrated that escalation to nuclear exchanges at the theater level was extremely disruptive to conventional defensive and certainly offensive operations (the war stopped for 2 days and strategic operations had to be replanned) and further escalation to global use was highly probable and counterproductive. Soviet planning assumed NATO initiation of nuclear use, so to control escalation the General Staff began to examine limited options. Nevertheless, the General Staff never planned in any detail actual extended combat on a nuclear battlefield. The Soviet buildup of theater nuclear forces in Europe was intended, in large part, to reduce the probability of NATO's first use and thereby to keep the war conventional where outcomes were relatively more predictable and where the USSR might enjoy a relative advantage.

⁴⁰⁵ VPK — *Voенно-promyshlennaia kommissiia* — (Military Industrial Commission).

⁴⁰⁶ Remarks, in Russian, on the Interviews of V.N. Tsygichko given in 1990-1991 are included in Vo.II, Item III.B..

⁴⁰⁷ An analogous U.S. usage of the term under discussion is "launch-on-tactical-warning." Launch-under-attack refers to a condition in which missiles already have been fired by the enemy.

Dr. Tsygichko was not aware of any Soviet notional employment of chemical weapons in military exercises after 1964. He attributes the existence of Soviet CW stockpiles to the VPK's interest in keeping the chemical industry healthy.

SUMMARY OF INTERVIEW

Subject: Gen.-Col. Dmitrii Volkogonov
Position: Director, Institute of Military History
Location: Moscow, USSR
Interviewer: John G. Hines
Date: March 5, 1990
Language: Russian
Prepared: Based on notes

The present situation is unprecedented. The 1920s and 1930s are not really analogous to the present situation, because today numbers of weapons are far less indicative of real military power. Today, political approaches are more important than military ones. The 1917-19 period was analogous because the Soviet state was simply trying to survive and at Brest-Litovsk huge concessions were made to achieve peace.

New thinking began with the 1941 U.S.-Soviet coalition. Stalin in 1951 decided that China and North Korea should not win because this would lead to U.S. nuclear use. In the Cuban Missiles Crisis, partnership was stronger than confrontation. U.S.-Soviet relations were destined to be cooperative.

The U.S. is emerging much stronger than the USSR because of its military capabilities and scientific-technological potential. If the U.S. tries to exploit its advantage, then both sides will lose (the USSR will have an electorate that would respond with rearmament). Shrinking strategic forces and possible BMD (ballistic missile defense) deployments might make the U.S. completely invulnerable, but the USSR can never achieve complete invulnerability because of the small, potentially nuclear states along the Soviet periphery. The USSR will have less influence than the U.S. in the development of a new European security system because the USSR is preoccupied with its economy, nationalism, shrinking army, and the dissolution of its alliance in Eastern Europe.

As advisor to the Supreme Soviet Defense Committee, Volkogonov has recommended the establishment of a purely professional army and advocated a 33 - 40% reduction in the size of the Armed Forces. Professional armies tend not to fight major wars (in part because of the mobilization needed for reserves).

I. APPENDIX A: A CHRONOLOGY OF SOVIET STRATEGY

A. Full Mechanization: 1945 - 1950

The immediate post-WWII period was devoted to completing the mechanization and modernization of all branches of the Armed Forces, absorbing the lessons of the war and consolidating them into a doctrine. Soviet strategy emphasized the use of massive conventional armored land forces to gain a three-fold to six-fold advantage over the opposing forces and to defeat them with fast, decisive offensive ground actions. Air and naval forces were modernized and strengthened through the introduction of jet aviation and modern air defenses but continued to play a supporting role.

B. Acquisition of Nuclear Weapons: 1950 - 1960

By 1950, the Soviet Union had acquired the atomic bomb. At first, nuclear weapons were seen primarily as anti-city weapons, but their strategic and tactical importance was quickly recognized. By 1955, nuclear weapons had supplanted the tank as the central strategic weapon.

Despite the central role of nuclear weapons, their acquisition did not immediately lead to a revolution in military thought. Rather, at first nuclear weapons were absorbed into the existing structure of WWII strategic and operational thinking. Like the tank before it, nuclear weapons would be used to achieve a strategic breakthrough on the battlefield, which would be exploited by a massive conventional steamroller advancing at 20 - 30 km per day. The new doctrine was even more clearly offensive in nature. Strategic defensive plans were non-existent.

C. "Nuclear Euphoria": 1960 - 1965

The revolution promised by nuclear weapons arrived with Khrushchev. A strategy emerged based on global and theater preemptive nuclear use. Nuclear weapons gained in importance almost to the point that all other weapons were seen as superfluous. The Strategic Rocket Forces (SRF) were created as a separate military

branch. Aviation, especially the massive fighter force, was sacrificed, as was artillery, which was replaced by tactical nuclear forces. Khrushchev even considered reducing the armored forces, because they were deemed unnecessary. Defensive actions, including front- and army- level defense, were now totally and explicitly rejected. Defense was seen to be possible only on the level of tactical maneuvers.

The new thinking found its most vocal advocate in Marshall V. D. Sokolovskii, who lectured on the new strategy at the General Staff Academy in 1962 and edited the influential book, Military Strategy. These ideas were embraced as doctrine at a Ministry of Defense conference in the same year and were put into practice during exercises in 1962 and 1963. The core of the strategy was an attack in two phases.

The first phase involved an intercontinental preemptive strike against the U.S. The plan to use Cuba as a base for intermediate range missile attacks on the U.S. had backfired during the "Caribbean Crisis." However, the new R-16 missiles gave the U.S.S.R. a limited ability to strike U.S. territory.

The second phase involved a single, strategic offensive along the entire front, with the use of preemptive nuclear strikes, followed by a decisive, uninterrupted land advance. R-12 and R-14 medium range stationary missiles would be used to attack strongpoints in Europe. Although their numbers were relatively small, these missiles carried powerful 1.8 and 2.4 megaton warheads. Following the nuclear strikes, land armies would sweep west, using envelopment, cleanup and other offensive operations. The rate of advance was now planned to be 40 - 100 km/day and the entire strategic operation was expected to take no more than 10 days.

Such optimistic forecasts were made based on the assumption that the opponent would be preempted in his use of nuclear weapons. Missile technology of that era put a heavy premium on preemption because the long time required to fuel the missiles and attach their warheads made a "retaliatory-meeting strike" impossible and a purely retaliatory strike highly unlikely.

D. "Descent to Earth" and ICBMs : 1965 - 1975

With the ouster of Khrushchev, conservatism and realism returned to military thought. Their return was marked by the realization that the usefulness of nuclear

weapons had been overestimated, and by the acknowledgment that the enemy had a large number of nuclear weapons which could cause "unrecoverable losses." The new thinking proclaimed that a single type of weapon cannot be relied upon to achieve victory and that each type of weapon, including conventional weapons, has an appropriate role in war. Conventional forces, decimated during the Khrushchev period, began to be restored. Greater attention began to be paid to strategic theater operations, which were broken down among several fronts and included expanded naval and air operations, as well as strategic anti-air operations. It was no longer thought possible to conduct a one-stage strategic operation. The strategic advance was divided into two operations —the advance to Germany's western border, and the advance to the English Channel. The rate of advance was scaled back, with the projected time for the conquest of Europe pushed back to one month. Defense was gradually revived, first on the level of army, then front, and finally, around 1972 - 1975, on the strategic level.

Despite the changes, war was still seen to be ultimately nuclear. A purely conventional war was not seen as a realistic possibility. However, technology and experience bred a greater sophistication of thinking regarding the use of nuclear weapons. The growth in the strategic arsenal and the beginnings of a secure second-strike capability on SLBMs, made possible options for Strategic Forces operations. Instead of a single massive salvo, multiple nuclear strikes were now planned.

Also during this period, a clearer appreciation of the devastating consequences of a full-scale nuclear exchange began to emerge. At a nuclear exercise in 1972, Brezhnev, Podgornyi, and other high-ranking Politburo members were presented with the results of a simulated U.S. first strike using ground bursts against the Soviet Union. The simulated damage shocked the leadership: 100 percent of non-strategic aviation wiped out; 100 percent of ground forces wiped out; 80 percent of strategic aviation destroyed; 100 percent of naval forces destroyed; the European part of Russia suffers radiation contamination from fallout with levels of 400 - 3000 Roentgens.

Meanwhile, ferment in strategic thought in the U.S. yielded new theories of escalation, flexible response, limited use, etc. At first the Soviets considered these theories to be unrealistic and strongly rejected any notion of a limited nuclear war. Officially, Soviet policy was to respond with a full nuclear attack to even a single hit. However, from 1970 to 1975 the position shifted away from rejection toward

the necessity of a “controllable conduct of nuclear war.” In concrete terms, this shift manifested itself in three doctrinal changes.

A preemptive strike was no longer the only option. Retaliatory-meeting and retaliatory strikes became valid options.

Multiple-scenario strikes were developed: either global, or regional, depending on military situation.

A “New Periodization of War” was developed. The course of the war was expanded to four stages: a non-nuclear phase, a nuclear phase, follow-up actions, and concluding actions. Of these, the most important addition was the non-nuclear phase, which gradually grew in length from several hours to 7-8 days. Still later, it was planned that the first frontal operations would remain non-nuclear up through the advance to the Rhine. Intercontinental strategic operations, however, remained nuclear.

E. Strategic Balance: 1975 - 1991

This long period was characterized by rough parity in strategic systems between the two superpowers, rapid growth in both sides' nuclear arsenals and bitter technological competition. Although the Soviets still lagged behind in C³ and silo protection, a series of technological advances greatly expanded Soviet strategic capabilities. A new, more efficient method of “direct drilling” was developed, which allowed 200 silos to be built every year. Missiles with self-contained fuel tanks [*ampulizirovannyye rakety*] and, later on, solid fuel missiles reduced ready times to 1 - 2 minutes. Strategic bomber aviation was advanced with the deployment of the Tu-16 and Tu - 22 bombers. The Soviets very quickly matched and surpassed U.S. MIRV technology. By the end of the 1970s the development of the R-18 and R-36 gave the Soviets a throw-weight of over 20 tons, surpassing the U.S. capability.

The period can be broken down further into three parts, each of which saw profound changes in the Soviet military doctrine as a result of technological and political developments:

At first, limited nuclear war was still officially rejected, but it was now considered possible to conduct the war at the conventional level from beginning to end.

Later, limited nuclear war was now accepted in documents and planning for options presented to the political leadership. Different options became available for use of nuclear weapons during the new limited phase: only on the battlefield; only against military targets; limited strategic strikes; proportional retaliation to limited strikes (either with escalation or de-escalation). Gradually, the projected length of the limited phase was expanded from hours to several days.

Finally, there was adoption of a defensive doctrine and realization that a nuclear war cannot be won. Preemptive strike was ruled out—only retaliatory strike remained. The new foundations of doctrine becomes: deterrence, war prevention, and limited war, if war must be fought.

II. APPENDIX B: PARTIAL LIST OF DECISION MAKERS AND ANALYSTS CITED OR REFERRED TO IN THE TESTIMONIAL EVIDENCE

- Alekseev, Nikolai N. — Marshal of Communications Troops, then Chairman of the Scientific Technical Committee (NTK) of the General Staff in the late 1960s and early 1970s.
- Bakatin — A member of Gorbachev's Security Council and a deputy of the Supreme Soviet.
- Chelomei, Vladimir Nikolaevich — One of the chief designers responsible for development of missile and space systems, to include the SS-19 ICBM and the Proton and Polet space satellite systems.
- Epishev, General of the Army Aleksei A. — The Chief of the Main Political Directorate of the Soviet Army and Fleet throughout the Brezhnev era.
- Glushko, Valentin Petrovich — Missile pioneer, designer of first Soviet liquid-fueled rocket motors and basic technology for most Soviet liquid-fueled missiles, and chief of his own design bureau.
- Grechko, Andrei Antonovich — Minister of Defense of the USSR from 1967 until his death in 1976.
- Gromyko, Andrei Andreevich — Minister of Foreign Affairs of the USSR from 1957 to the Gorbachev era, and full Politburo member from 1973 until that same period.
- Iangel', Mikhail Kuz'mich — Chief of a missile design bureau from 1954 until his death in 1971.
- Keldysh, Mstislav V. — President of the Soviet Academy of Sciences, 1961-1975; director of various Soviet space programs and special advisor to the Soviet General Secretary. He became ill in the mid-1970s and died in 1978.
- Kobets, General — Boris El'tsin's RSFSR "shadow" defense minister in the last year before disintegration of the Soviet Union.
- Kosygin, Aleksei Nikolaevich — Chairman of the Council of Ministers from 1960 to 1980.
- Kozlov, General of the Army Mikhail M. — Deputy Chief of the Main Operations Directorate of the General Staff during the first half of the Brezhnev era.

- Kulikov, Victor G. — Marshal of the Soviet Union, Chief of the Soviet General Staff from 1971 to 1977, and Commander of the Joint Armed Forces of the Warsaw Pact from 1977 to 1989.
- Malinovskii, Rodien Ya. — Marshal of the Soviet Union and Minister of Defense of the USSR from 1957 until his death in 1967.
- Nazarbaev, Nursultan — Influential Kazakh deputy to the USSR Supreme Soviet, Politburo member and later first president of Kazakhstan after the disintegration of the USSR.
- Piliugin, N. A. — A chief designer in the strategic missile sector, who under Korolev, was a major contributor to the development of solid-fuel intercontinental ballistic missiles, beginning with the SS-13 (Soviet designation—RS-12).
- Podgorny, Nikolai V. — Chairman of the Presidium of the Supreme Soviet of the USSR and a key member of the ruling Politburo during the first half of the Brezhnev era.
- Riabikov, Gen. Col. Vasilii M. — Engineer and First Deputy Chairman of the GosPlan (State Planning Committee) for Military-Industrial Production from 1965 until his death in 1974.
- Serbin, Ivan — Chairman of the Defense Industrial Department of the Central Committee of the Communist Party of the Soviet Union in the 1960s and early 1970s.
- Shevardnadze, Eduard A. — Minister of Foreign Affairs under Soviet President Mikail Gorbachev and later President of the Independent Republic of Georgia.
- Suslov, Mikhail A. — Senior Member of the Politburo, CPSU, responsible for ideology.
- Tolubko, Vladimir F. — Chief Marshal of Artillery. Marshal Tolubko commanded the Soviet Strategic Rocket Forces from 1972 to 1985 serving simultaneously as a deputy minister of defense.
- Ustinov, Dmitrii Fedorovich — Minister of Defense of the USSR from 1976 to 1984.
- Volski, Arkadii — A deputy in the last Soviet Supreme Soviet. He enjoyed considerable influence at the time among military industrialists.

Yakovlev, Aleksandr Nikolaevich — Ambassador to Canada from 1973 to 1982 and Director of IMEMO from 1983 to 1985. Yakovlev became a Politburo member of the Communist Part of the Soviet Union (CPSU) in 1987.

III. APPENDIX C: RESEARCH QUESTIONS FOR SOVIET INTERVIEW RESPONDENTS

The following questions were prepared as a guide for the conduct of research. Largely because of residual distrust and security constraints, not all interview subjects were willing to answer all questions. In addition, on occasion, there arose informal interview opportunities with key subjects where the interviewer could not reasonably refer to a set of questions even if he were to have such questions on his person. Nor could the interviewer, in all instances, presume to impose on every interview subject an exhaustive review of the questions because of limitations imposed by time, or the patience or health of the interview subject. Some interview subjects reacted very strongly to certain questions and launched into "stream-of-consciousness" responses of almost free association which the interviewer was reluctant to interrupt lest he lose the opportunity to acquire important information and insights for which he had not formulated questions.

In summary, the attached questions provide the reader with a sense of the approach taken in the research phase and a more detailed understanding of the information and insights that the project was designed to reveal.

Research questions for serving and former soviet officials and analysts

Research Project: "Soviet Strategic Intentions 1965-1985: An Analytical Comparison of U.S. Cold-War Interpretations and Soviet Post-Cold-War Testimonial Evidence."

February 8, 1990

Please keep in mind two aspects of all of the questions that follow:

First, almost all questions might be answered differently depending upon the period of the Cold War to which they refer. The U.S. or NATO threat looked different in 1968 from how it looked in 1981. Each answer, therefore, may actually be a series of answers depending upon the time period in question.

Second, the questions often refer to "the Soviet view" or "the Soviets." Clearly, the General Staff's view would not always be the same as that of the Ministry of

Foreign Affairs or the International Department of the Central Committee of the CPSU. Respondents, therefore, should try to specify what organization or individuals held which particular views, who held major opposing views and which approach prevailed. Such answers would help to strengthen the scientific and analytical value of the overall analytical history of the Cold War.

Research Questions

- I. Research and conceptual development underlying Soviet thinking on deterrence, strategies for war, the use of nuclear weapons, approaches to nuclear targeting, escalation, etc.
 1. In the Soviet view, could the USSR increase its chances for survival by gaining an advantage in nuclear capabilities?
 2. Did the Politburo and Defense Ministry ever conclude that nuclear weapons were not militarily useful?
 3. Did the Soviet Union come to accept the concept of mutually assured destruction? Was the strategic balance considered stable?
 4. In your opinion, was nuclear war best prevented through mutual deterrence or by developing Soviet nuclear warfighting capabilities?
 5. If nuclear deterrence had failed, were the Soviet Armed Forces prepared to fight:
 - With conventional weapons?
 - With nuclear weapons?
 6. Did the Politburo and MoD ever explore the possibility of launching a first strike?
 7. In 1971 and 1972, the Ministry of Defense conducted high-level exercises that considered the effects of a strategic nuclear strike by the U.S. against the USSR. What led to the organization of the exercises? What happened at the exercises and what major conclusions were made as a result?
 8. When and how did the Soviet Union adopt a launch-under-attack doctrine leading to the expectation of meeting-retaliatory strikes [*otvetno-ustrechnye udary*] by Soviet missile forces?
 9. Were Soviet retaliatory strikes aimed at U.S. missile silos or only at soft military targets, cities and economic infrastructure?
 10. Did targeting vary depending on assumptions about first or second strike?
 11. How would Soviet forces have responded to a small-scale U.S. strike using tactical nuclear weapons based in Europe? Based on submarines?

12. What would have been the response to a limited (in terms of numbers of warheads) strategic strike launched from the territory of the U.S. on the Soviet Union?

13. Did the USSR have plans to escalate from theater to global nuclear use?

14. Why did the USSR build up its SS-20 and other theater nuclear forces in the late 1970s and early 1980s?

15. Was the Soviet Union striving to achieve strategic nuclear superiority or merely strategic parity?

16. What was the aim of the Soviet arms buildup? Was the USSR trying to acquire a first-strike potential (for political reasons) or the capability to destroy the United States in a retaliatory strike?

17. In your view, did Pershing-II and cruise missiles give U.S. forces the capability to launch a surprise attack on Soviet territory? How did these deployments affect Soviet strategic planning and doctrine?

18. Did special preparations in the early 1980s by the Soviet-VRIaN government against a surprise missile nuclear attack [*Vnezapnoe Raketno-Iadernoe Napadenie*] from the U.S. and NATO represent real concern or did other, internal factors affect the government's actions?

II. Bureaucratic politics within Soviet political-military circles

1. Which organizations exerted the greatest influence over the process of force development [*stroitel'stvo vooruzhenii*] and major weapons procurement programs [*programmi zakupok*]:

- Ministry of Defense?
- General Staff?
- Various departments of the Central Committee? If so, which departments?
- Chiefs of Design Bureaus?
- The Chiefs of the Services [*vidy vooruzhennykh sil*]?
- Others?

2. To whom if anyone did the Politburo inner circle of Brezhnev, Ustinov, Gromyko, Smirnov and Andropov listen for advice on issues affecting state security? The General Staff? Industrialists? KGB? Specialists from the Central Committee?

III. Process of force structure planning and weapons systems development and production

1. Were particular nuclear weapons developed and deployed in order to fulfill specific military missions? Was there a rational strategy behind Soviet force structure development?

2. Which organizations or institutes did the most useful and influential analysis?
 - General Staff Institutes?
 - Military-Industrial Institutes?
 - Academy of Sciences Institutes?
 3. Were decisions on force development and deployment based on expert analysis, particularly on quantitative analysis?
 4. Did Ustinov and the chief designers consider there to be a need for rapid technological improvement in Soviet weaponry and command and control? How did this assessment change in the 1970s and 1980s?
 5. What was the Soviet attitude regarding arms control talks, such as SALT and SALT II? What advantages did the Soviet leadership see in these talks? What role did they play in Soviet calculations regarding the overall balance of forces?
 6. What were the major organization differences over arms reduction issues?
- IV. The course of a general war in Europe and the consequences of nuclear war
1. What consequences did Brezhnev, Ustinov, and other Politburo members expect from nuclear war? Did they think that they could survive a nuclear war?
 2. Did key organizations or individuals believe that the Soviet Union was capable of winning a war in Europe with only conventional arms?
 3. Under what circumstances was the Soviet Union likely to employ chemical weapons?
- V. Soviet assessments of the U.S./NATO threat
1. How did the USSR gauge its vulnerability to U.S. nuclear forces? Strategic? Tactical?
 2. Which, if any, weapons programs, technological developments and doctrinal statements appear most threatening to Soviet security?
 3. Which developments, if any, led you to believe the U.S. might attack the USSR or the Warsaw Pact?
 4. What were the perceptions of the U.S. threat and intentions based on force structure and technological developments?
 - Specifically, were there periods in the history of the Cold War when U.S. or NATO behavior were much more threatening than others

IV. APPENDIX D: RESEARCH QUESTIONS FOR U.S. INTERVIEW RESPONDENTS

The following questions served as a guide for the interviewer in gathering the views of senior U.S. national security officials and of analysts who were regularly exposed to senior decision makers. The interviewer asked the respondents to attempt to recall beliefs and attitudes they held at the time they occupied their official positions and to try not to contaminate their views with information and changed attitudes that may have come with exposure to more or different information after they had left office.

Research Questions for Former U.S. National Security Officials

Research Project: "Soviet Strategic Intentions 1965-1985; An Analytical Comparison of U.S. Cold-War Interpretations and Soviet Post-Cold-War Testimonial Evidence."

September 9, 1991

1. Did the Soviet leadership believe they could fight and win: a conventional war? A nuclear war? Were they prepared or interested in initiating warfare? Conventional? Nuclear?
2. Did the Soviet leadership accept or support the concept of deterrence?
3. Were the Soviets prepared to initiate the use of nuclear weapons or to preempt nuclear use by the U.S. or NATO?
4. What was the Soviet attitude toward nuclear use in theater warfare? Were they prepared or very willing to use nuclear weapons? First? In retaliation?
5. Were the Soviets prepared (willing, eager) to expand a theater nuclear war to a global nuclear war? What was the Soviet policy or doctrine with respect to escalation from conventional to nuclear war and toward escalation once nuclear weapons had been used?
6. Did the Soviet leadership accept or plan for use of selected or limited nuclear strikes? In theater? Intercontinentally?
7. Did the Soviets accept strategic parity or were they striving for strategic superiority? If striving for strategic superiority, then to what purpose? Political coercion? A preemptive, unanswerable first strike against the U.S. and NATO in the event of war?

8. What do you believe explains the massive Soviet arms buildup over several decades? U.S. and NATO competition? Other factors?
9. Were the Soviets prepared to make use of offensive chemical weapons? Under what conditions?
10. Did the U.S. engage in economic warfare with the Soviet Union by forcing accelerated Soviet investment in armaments through continuous, technology-based competition?
11. What sources did you rely on for information and analysis about Soviet military capabilities and intentions? Your own experience? Non-government sources? The intelligence community? Did you rely on the intelligence community primarily for data or for both data and interpretive analysis?

V. APPENDIX E: LIST OF ACRONYMS AND ABBREVIATIONS

CW — Chemical Weapons.

DOSAAF — *Dobrovol'noe obshchestvo sodeistviia armii, aviatsiia, i flotu SSSR* — The Voluntary Society for Cooperation with the Army, Aviation, and Navy of the USSR. DOSAAF was a quasi-military organization embedded in the Soviet educational system for the purpose of preparing Soviet youth for military service or for support of those who did serve in the military. It was not generally regarded as voluntary by Soviet youth.

EMP — *Elektronomagnitnii impul's* (EMI)— Electro-magnetic pulse — An effect of a nuclear explosion that tends to disable electronic and electrical devices and systems—normally beyond the range of the heat and blast effects of a given weapon. Solid state electronics are more susceptible to neutralization than are older, tube-type technologies.

EWS — Early warning systems (Russian acronym, SPRN probable expansion — *sistemy preduprezhdeniia raketnoro napadeniia*) Missile attack warning systems.

GosPlan — The State Planning Agency — GosPlan under the supervision of the Council of Ministers set "binding" production targets for all ministries and enterprises throughout the former USSR.

GosSnab — State Agency in the former USSR that oversaw supply in order to meet production targets set by GosPlan.

GS — General Staff (of the Ministry of Defense).

KB — *Konstruktorskoe buro* — Design Bureau. The complete designation is *opytno-konstruktorskoe buro* (experimental design bureau). See OKB below.

LNO — Limited Nuclear Option(s).

MGB — *Ministerstvo gosudarstvennogo bezopasnosti*— Ministry of State Security, a predecessor to the KGB.

MoD — Ministry of Defense.

MR-100 — The MR-100 is probably the manufacturer's number for the SS-17, Iangel's four-warhead missile proposed in July 1969. The Strategic Rocket Forces (SRF) designation for the same missile was the RS-16 (missiles often were known under two or three designations; the manufacturer's number, the SRF number and, for some systems, a number for general space applications).

MRVs — Multiple reentry vehicles as distinct from Multiple Independently Targetable Reentry Vehicles (MIRVs) which were developed later. MRVs fall in a "footprint" determined by ballistic momentum once released over the target area by the last stage of a missile. Each warhead on a MIRV, on the other hand, is guided independently to a specific target once released by its missile "bus."

MVD — *Ministerstvo vnutrennykh del* — Ministry of Internal Affairs.

NII — *Nauchno-issledovatel'nii institut* — Scientific Research Institute. Mozhgorin's institute, TsNIIMash, employed over 40,000 scientists and engineers.

NPO — *Nauchno-proizvodstvennoe ob"edinenie*—Scientific-production conglomerate.

OKB — *Opytno-konstruktorskoe buro* — [Experimental] Design Bureaus. These were R&D facilities in the military-industrial sector that originated major weapons designs (aircraft, missiles, etc.) and followed their development through to mass production and deployment.

OMG — *Operativnaia manevrennaia gruppa* — Operational Maneuver Group. OMGs were highly mobile division-to-army-sized formations subordinated to first-echelon Warsaw Pact armies and Fronts and were designed to disrupt and destroy preemptively the enemy's rear-area control, lines of communications and nuclear capabilities very early in any theater conflict.

PD-59 — Presidential Directive 59 — A key 1979 White House directive, on U.S. nuclear strategy. The contents of the directive were discussed openly and deliberately by knowledgeable U.S. government officials in the U.S. press. Published accounts reinforced the concept of selective use of nuclear strikes under various scenarios and suggested early targeting of Soviet leadership and command and control in the event of Soviet aggression.

PRO — *Protivoraketnaia oborona* — Anti-Missile Defense (Ballistic Missile Defense - BMD, in the West). Anti-missile defense was a responsibility of the commander-in-chief of the Air Defense Forces (Voiska PVO).

PSI — Pounds per square inch.

PVO — *Protivovozdushnaia oborona* — Air Defense.

RIaN — *Raketno-iadernoe napadenie* — An acronym that the Soviets used to describe a special period of tension between 1980 and 1984 when they reported greatly heightened expectations of a nuclear attack from the U.S. See Christopher Andrew and Oleg Gordievsky, *KGB: The Inside Story*. (London: Hodder and Stoughton, 1990), pp. 501-507.

RN systems — Possible abbreviation of *razvedivatel'no-nabliudatel'nye* (reconnaissance-observation) systems.

SLBM — Submarine Launched Ballistic Missile.

SSBN — Submarine, Ballistic Missile equipped, Nuclear powered (SSBN) — A submarine designed to launch strategic nuclear ballistic missiles (SLBMs).

SRF — Strategic Rocket Forces.

TNW — Theater Nuclear Weapons.

TVD — *Teatr voennykh deistvii* — Theater of (Strategic) Military Action, for example, Central Europe from Ukraine to the Western shore of Ireland.

Voennaia Politika KPSS — The most authoritative, high-level expression of the will of the Communist Party with respect to issues of defense and state security.

VPK — *Voенno-promyshlennaia kommissiia* — Military-Industrial Commission. A Soviet state commission responsible for coordinating military-industrial procurement policy. Its authority was inferior to that of the Military-Industrial Department of the Communist Party of the Soviet Union.

VPK — *Voенno-promyshlennyi kompleks* — Military-Industrial Complex. The expression was used in Soviet propaganda to criticize Western military industry's relationship with the political leadership and with the operational

military. The operational Soviet military also used the expression as a pejorative way of describing the powerful alliance between the military industrialists (considered to be civilians) and leadership of the Party and state of the Soviet Union.

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⁴⁰⁸This selection of military thought articles is from the author's collection of declassified official U.S. Government translations. As a consequence, page numbers within any specific issue of *Military Thought* are not provided because they typically were not provided by government translators. For the same reason, the author was unable to provide precise transliterations of the original Russian titles.

Toward the end of the Cold War the editors of the journal, *Military Thought*, began to share back issues of the journal with selected Western analysts and, ultimately, with a general readership through a U.S. distributor. Raymond Garthoff of the Brookings Institution in Washington D.C. was among the first Western analysts to accumulate, with the help of Soviet colleagues, an almost complete collection of the journal, *Military Thought*, from the 1950s through 1990. He made responsible use of his early access to the journal as well as to the *Voroshilov General Staff Academy Lectures* (see below) in his research and examination of many of the issues reviewed in this study. In all those areas where Garthoff's findings depended for corroboration on *Military Thought*, and the *Voroshilov Lectures*, they are supported by the findings of this study. In the most important area of disagreement, Soviet acceptance or rejection of vulnerability as embodied in the concept of mutually assured destruction (MAD), Garthoff relied primarily on open-source material and on his conversations with Soviet diplomats in the course of his participation in the negotiations leading up to the Salt I and Anti-ballistic Missile (ABM) treaties in the late 1960s and early 1970s. Mr. Garthoff's findings are published in Raymond L. Garthoff, *Deterrence and the Revolution in Soviet Military Affairs* (Washington, D.C.: The Brookings Institution, 1990).

Although an acquaintance of Mr. Garthoff's, the author did not consult with him in preparation of this study nor did the author review Mr. Garthoff's findings until he had recorded his own conclusions based primarily upon interview evidence. A reader, therefore, can review both sets of findings with confidence that they represent similar conclusions based on largely different types of evidence.

It is worth noting that while more sensitive, less voluminous General Staff material was available to the U.S. government analytical community, a large sample of confidential *Military Thought* was generally not accessible to systematic research by community analysts during most of the Cold War. The material was collected but was never systematically reorganized from numbered "reports" into articles, issues and annual journal collections by any center within the community. As a result, important articles and issues were buried under almost meaningless report numbers that usually bore no relationship to the source journal, issue or author.

The absence of any effective corrective action despite repeated complaints by analysts and project leaders is indicative, in the author's view, of two prejudices within the community. One was "classification arrogance." Material of low classification (*Military Thought* was only confidential) was believed to be less credible and therefore would not add to the force and prestige of the intelligence product it supported. The second was an almost anti-intellectual bias against those materials that helped to explain *why* forces were being built or operations were being rehearsed. "Hard" evidence about *what* was happening merited billions of dollars in investment but Soviet military scientists' analytical discussions of their objectives and uncertainties was not worth the tens of thousands of dollars that would have been required to organize, track and make available many issues of *Military Thought* buried around the community. As we have seen on the basis of this study and Ray Garthoff's work with the *Military Thought* materials, in the absence of explanations from the *Soviets* for their behavior, American analysts drew their own conclusions based on "hard" evidence and very often were seriously mistaken

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⁴⁰⁹ The Voroshilov lectures were in large part copied verbatim by an Afgan Colonel who attended the Voroshilov General Staff Academy in the period 1973-1975. He provided the lectures to the U.S. government in 1981 in the aftermath of the events surrounding the 1979 Soviet invasion of Afganistan. The information presented in the lectures, declassified by the U.S. government in the mid-1980s, was made available for publication in an effort to share highly credible information on Soviet military thought and strategy with a larger audience. The basic doctrine laid out in the Voroshilov lectures remained relevant into the mid-1980s, according to Raymond L. Garthoff. The author is likewise confident in the basic authenticity of the *Lectures* and their faithfulness to Soviet military doctrine at the level of the General Staff.

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