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26 August 1980

USSR Report

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USSR REPORT
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BOOK EXCERPTS: SOVIET VIEWS ON U.S. MILITARY PREPARATIONS

Moscow OPASNAYA STAVKA: NAUCHNO-TEKHNICHESKAYA REVOLYUTSIYA I VOYENNYE PRIGOTOVLENIYA SShA in Russian 1979 signed to press 22 May 79 pp 1-2, 200, 5-8, 196-199

[Annotation, Table of Contents, Introduction and Conclusion of book by V. V. Borisov]

[Excerpts] Title Page:

Title: OPASNAYA STAVKA: NAUCHNO-TEKHNICHESKAYA REVOLYUTSIYA I VOYENNYE PRIGOTOVLENIYA SShA (A Dangerous Stake: The Scientific-Technological Revolution and U.S. Military Preparations)

Publisher: Voenizdat

Place and year of publication: Moscow, 1979

Signed to Press Date: 22 May 1979

Number of Copies Published: 40,000

Number of Pages: 200

Brief Description:

Employing considerable factual material, the author of this book displays U.S. imperialism in the period of the scientific and technological revolution, the influence of this revolution on development of the U.S. military-industrial complex and armed forces, utilization of the myth of the "Soviet threat" to swell military budgets and escalate the arms race, and intensification of ideological preparations for another war. This book will be of interest to the general military and civilian reader.

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Introduction

The contemporary revolution in science and technology is a gigantic global process which is affecting in one way or another the entire population of the earth, but it is occurring particularly intensively in the industrially most highly-developed countries -- both socialist and capitalist. First and foremost a radical revolution in the productive resources of society, this revolution as a process is profoundly social in nature and one of the most important factors in development of the contemporary society as a whole.

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At the same time there are many specific features in the developing scientific and technological revolution. It cannot evolve by itself, in a "social vacuum," beyond the framework of concrete production relations. It does not, however, directly affect the form of ownership of the means of production, which comprises the basis of production relations. But it is precisely the character of production relations and the nature of the societal system which determine the orientation and modes of utilization of scientific and technological advances.

There are many similar features in its development both in the socialist countries and in the capitalist world, traits which are connected first and foremost with concrete scientific and technological achievements. Cybernetics, electronics, and nuclear power engineering, for example, which have become symbols of the contemporary revolution in science and technology, have been developing rapidly in recent decades in both socialist and capitalist countries. One should not lose sight of the fact, however, that the very origination and development of these and other new branches of science were dictated by new and greatly increased requirements of society in management and control, automation of production, and energy requirements.

Much more important is the question of root differences in the thrust and direction of scientific and technological progress and the principles of its utilization in nations with differing social systems. The question of its thrust and direction has become exceptionally important in our time, since the contemporary scientific and technological revolution is one of the main "bridges" joining the present with the future. And not only the fate of the people presently inhabiting the earth but also the fate of future generations to a significant degree depends on resolution of this question.

In socialist countries scientific and technological progress is utilized for the benefit of all of society, while in the capitalist world scientific advances become a means with the aid of which the dominant exploiter classes endeavor to preserve and consolidate their position both domestically and in the international arena.

The contemporary scientific and technological revolution has become one of the main areas of historical competition between capitalism and socialism. Its influence on the development of military affairs is enormous. But this revolution as such did not produce new weapons of unprecedented power. The moribund capitalist system, which is attempting to prolong its existence with the aid of military force, is to blame for the fact that the greatest scientific and technological advances of our time have been embodied in nuclear missile weapons and other highly-effective weaponry rather than in devices which make people's lives easier and better.

Comrade L. I. Brezhnev noted that "aggressive circles in the capitalist world are responding with feverish military preparations to their defeats in social battles, to the loss of colonial possessions, to the departure of more and more countries from capitalism, to the successes of world socialism and growth of the influence of Communist parties in bourgeois countries.

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Military budgets are soaring, new weapons are being developed, military bases are being built, and shows of military force are being undertaken. Relying on this 'position of strength,' imperialism hopes to preserve the capability to command other countries and peoples, a capability which is slipping out of its hands."*

Utilization of scientific and technological advances in providing armed forces with new weapons, the most powerful and imagination-staggering of which was the atomic bomb, was interpreted by U.S. ruling classes in their own way. Placing their hopes on U.S. scientific, technological and industrial superiority, in the postwar period U.S. leaders counted on military might, based on the latest advances in science and technology. A real "addiction" to military might spread among U.S. ruling circles, an addiction which, just as a drug addiction, engendered many illusions. U.S. leaders figured that by extensively utilizing the latest scientific and technological advances for military purposes, they would acquire "new" military might as a means of establishing worldwide hegemony.

This policy perfectly corresponded to the interests of the U.S. monopolies, which had done extraordinarily profitable business on military contracts during World War II. This unity of interests of the ruling circles and monopolies producing weapons and military hardware became one of the most important factors dictating the genesis and development of the military-industrial complex, as well as an arms race on an unprecedented scale, which has continued in the period of international détente.

While giving lip service to a call for détente and undertaking certain steps in that direction, under the pressure of the conditions which have objectively developed in the world, U.S. ruling circles continue at the same time rapidly building up military strength. Direct U.S. military expenditures for the entire World War II, according to official U.S. figures, totaled 224 billion dollars, while the military budget five-year plan for the 1980-1984 fiscal years specifies expenditure of approximately 835 billion dollars. The United States has spent the astronomical sum of 1.5 trillion dollars for military purposes in the 30 years since the war. In the latter half of the 1970's the U.S. military budget swelled beyond the 100 billion dollar mark. In the 1979 fiscal year it approached 130 billion dollars, which means that at the present time the principal capitalist country spends more than 350 million dollars every day for military purposes. The Pentagon requested 138.2 billion dollars for the 1980 fiscal year.

In this book an attempt is made to show from the position of Marxist-Leninist theory and on the basis of analysis of concrete facts how the United States is utilizing the current scientific and technological revolution for military preparations, what processes are developing in the

* L. I. Brezhnev, "Leninskim kursom. Rechi i stat'i" [Following a Leninist Path. Speeches and Articles], Vol 6, Moscow, 1978, pp 168-169.

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military economy and armed forces under the influence of this revolution, and the consequences to which the buildup of U.S. military might is leading. The military preparations of an imperialist state constitute an extensive system of economic, political, ideological, military proper and certain other auxiliary measures conducted by state monopoly capital for the purpose of building up the military might essential to carry out aggression or political blackmail in the international arena.

It is quite obvious that in a book of limited size it is impossible fully to examine the entire range of questions pertaining to this topic. Therefore the author limits himself to discussion of only certain trends, which in his opinion are the most important. One should also note that in many cases it is practically impossible to isolate in "pure" form the influence of scientific and technological progress on military preparations, since the development of science and technology is inseparably linked with the economy, politics and other aspects of societal development. Therefore, in analyzing certain phenomena and processes, the author endeavors to show that they have been influenced not only by scientific and technological progress but by other factors as well.

Studies by Soviet and foreign military experts, economists and historians, materials published in the foreign press, as well as published official documents of the U.S. Department of Defense and several other government agencies served as the principal sources in preparing this book.

In connection with the fact that the majority of the factual data were borrowed from Western sources, including the U.S. press, one should approach them critically since, as we know, facts and figures appearing in foreign publications are frequently distorted for the sake of sensationalism, publicity and other considerations. At the same time one can assume that on the whole the factual data contained in this book illustrate to a sufficient degree certain general trends.

Conclusion

The entire postwar history of the United States has been dominated by the arms race, unceasing quest for a "superweapon," and the attempt to achieve military superiority over world socialism. Having amassed a vast arsenal of tools of destruction of unprecedented force, American imperialism, together with its aggressive NATO bloc partners, is pushing military preparations at a feverish pace, attempting to utilize to a maximum degree the latest scientific and technological advances for military purposes.

The hopes of U.S. imperialist circles and their military-political bloc partners to secure military superiority over the socialist world, however, have proven unattainable. They have proven unattainable primarily because in our era the balance of class forces in the world arena has tipped finally and irreversibly in favor of socialism. The increased military and economic might of the Soviet Union and the entire socialist community blocks the path of the aggressive schemes of imperialism. The international

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Communist and worker movement, the forces of national liberation, non-aligned nations, and millions upon millions of persons fighting for democracy, social progress and peace in all countries are vigorously opposing the arms race and the threat of another war.

USSR Minister of Defense Marshal D. F. Ustinov, member of the CPSU Central Committee Politburo, stated quite emphatically: "U.S. militarist circles have not yet given up their attempts to achieve military superiority over the USSR by developing new mass destruction weapons. History has demonstrated time and again the futility of such calculations, and in practice the development of new weapons has not strengthened the security of the United States. Those who are counting on achieving military superiority over the Soviet Union with the aid of such weapons should bear in mind that the economy, science and technology in our country are today at such a high level that we are capable of building in extremely short order any weapon on which the enemies of peace would place their cards. The Soviet Union has stated time and again that we have no wish to proceed along such a road. Precisely for this reason the Soviet Union proposed to the United States a mutual agreement to refrain from developing new weapons and weapons systems."¹

The Soviet Union is working vigorously to avert another war. The program of further campaign for peace and international cooperation, for freedom and independence of peoples adopted at the 25th CPSU Congress spells out concrete measures to bring a halt to the arms race and reduce existing arsenals of weaponry. The policy of the Soviet State aims at covering all channels of the arms race, that is, on the one hand bringing stockpiling to an end, and then proceeding to reduce existing arms, and on the other hand to prevent the development of new, as yet undeveloped but potential weapons.

CPSU Central Committee General Secretary Comrade L. I. Brezhnev, Chairman of the Presidium of the USSR Supreme Soviet, particularly emphasized the importance of nations, and particularly major powers, reaching an agreement to ban the development of new mass destruction weapons and delivery systems.

"The level of modern science and technology is such," stated Comrade L. I. Brezhnev, "that there is arising the serious danger of development of an even more fearsome weapon than nuclear arms. The wisdom and conscience of mankind dictate the necessity of placing an insuperable barrier in the path of development of such a weapon."²

Waging a consistent struggle for peace and for an end to the arms race, the Soviet Union at the same time sees effectively to its own defense, firmly adhering to Lenin's instructions that "we should accompany our steps toward peace by stepping up our entire military preparedness..."³

The Armed Forces of the Soviet Union, equipped with the most modern weapons and military hardware, are not only a reliable defender of the socialist

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homeland and the achievements of socialism and communism but also a powerful factor in the security of peoples, a factor in preventing another war.

In view of the growing military preparations of the imperialist nations, the Soviet Union is doing everything necessary to strengthen its defense capability, but Soviet leaders have stressed time and again that the Soviet Union does not and will not seek military superiority over the other side.

In recent years the situation in the international arena has become increasingly more complex. Alarmed by the process of détente, which has become the leading trend in today's world, imperialist circles have stepped up their activities. The militarist forces encouraged by them, particularly the U.S. military-industrial complex, are escalating the arms race, attempting to halt détente and to turn the world back to the dark times of "cold war." Endeavoring to utilize to a maximum degree for military purposes the latest achievements of science and technology and taking new leaps forward in the arms race, they entertain hopes that some "technological breakthrough" will place a new "miracle weapon" in their hands and will secure for them military superiority over the socialist countries. As is persuasively shown by the entire course of contemporary world development, these hopes are patently in vain, but seeking military and military-technological superiority is a dangerous game, and a policy which aims at developing more and more new weapons is a course which is highly dangerous for all mankind.

Western reactionary circles essentially encouraged the Chinese hegemonists, who initiated at the beginning of 1979 an aggressive criminal war against the Socialist Republic of Vietnam. In spite of protests by the world community, they are continuing to develop plans to sell modern weapons and military equipment to the Chinese aggressors.

Firmly confident in its strength, the Soviet Union, guided by the resolutions of the 25th CPSU Congress, continues even in today's complicated international situation persistently seeking, together with its friends and allies, a deepening of the process of détente and broadening of peaceful, mutually beneficial cooperation among nations, and particularly an end to the arms race and a shift to disarmament.

The deep-lying laws governing and patterns of the scientific and technological revolution are in conformity with such policy. Within the mechanism of scientific and technological progress there are no elements which would make its utilization for military purposes inevitable. Development of science and technology can be controlled and managed. There does not exist a "demon technology," just as there does not exist a fatal inevitability of another world war. Plans hatched by imperialist forces to utilize the latest scientific and technological advances for the mass destruction of human lives are in conflict with the very essence of science and technology, which embody the greatest achievements of the human intellect and which have become in our time one of the most powerful factors

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of societal development. The root interests of mankind demand that everything be done to ensure that the development of science and technology be utilized solely for peaceful purposes, to ensure economic and social progress in every country in the world.

The CPSU Central Committee decree entitled "On Further Improvement of Ideological and Political Indoctrination Work" states that it is essential resolutely to expose the imperialist advocates of 'bold war,' aggravation of international tension and the arms race, which threatens to push the world to the brink of nuclear catastrophe. It is our duty to place in opposition to the subversive political and ideological activities of the class enemy and his vicious slander against socialism unswerving solidarity, powerful ideological unity within our ranks, deep conviction and political vigilance on the part of each and every Soviet citizen, and his readiness and willingness to defend the homeland and the revolutionary achievements of socialism.

FOOTNOTES

1. D. F. Ustinov, "Izbrannyye rechi i stat'i" [Selected Speeches and Articles], Moscow, 1979, page 319.
2. L. I. Brezhnev, "Leninskim kursom" [Following a Leninist Path], Vol 5, Moscow, 1976, page 320.
3. V. I. Lenin, "Poln. Sobr. Soch." [Complete Works], Vol 40, page 248.

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BOOK EXCERPTS: OPTIMIZING ARTILLERY FIRE SUPPORT

Moscow OPTIMIZATSIYA SREDSTV OBESPECHENIYA STREL'BY ARTILLERII in Russian 1979 signed to press 27 Jul 79 pp 1-2, 111-112, 3-4, 5-10, 108-110.

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Number of Pages: 112

Brief Description:

Further increase in effectiveness of employment of artillery is closely linked with the development of highly-effective means of artillery fire support.

The authors examine the qualitative and quantitative characteristics of means ensuring a specified artillery effectiveness with minimum expenditures of manpower and resources, as well as the specific features of optimization of means of topogeodetic, meteorological and ballistic support and organic artillery reconnaissance and observation means. Methods of optimizing capabilities and examples of solving specific problems are given.

This book is intended for officers, scientific research institute and design office personnel interested in problems of efficient utilization of modern artillery.

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Introduction

Combat operations of Ground Forces equipped with high cross-country performance infantry armored vehicles with potent armament and large numbers of tanks are impossible without close support by modern artillery. Modern self-propelled guns and mortars and rocket-carrying combat vehicles possess excellent grouping performance, long range of fire, and powerful ammunition.

Modern artillery is capable of the following, under any combat situation conditions: destroying hostile offensive nuclear weapons and artillery; hitting enemy infantry, tanks and weapons in strong points, at points of concentration, in march columns and on lines of deployment for engagement; of suppressing, damaging and destroying troop command and control facilities, radio electronic and radar facilities; of hitting installations in the immediate rear areas, air defense and army aviation targets; of demolishing defensive works, breaching obstacles, laying smoke screens, and illuminating terrain at night. Finally, artillery is an indispensable weapon for gaining fire superiority over the adversary during the conduct of combat operations without employment of nuclear weapons, and especially under conditions of limited (local) wars.

Improvement of the efficiency of artillery involves not only development of weapons (guns, mortars, rocket-carrying combat vehicles and various types of ammunition for them) but also continuous and constant improvement and development of means of artillery fire support.

These means usually include the following:

- artillery reconnaissance and observation;
- topogeodetic support;
- meteorological support;
- ballistic support;
- means of technical preparation;
- means of preparation of initial firing data.

Elaboration and adoption of highly-effective means of support constitute one of the conditions for further increasing the combat capabilities of artillery.

In this book methods of optimizing means of artillery fire support are presented, means which will help efficiently distribute allocations between artillery and means of artillery fire support.

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This book consists of four sections.

Section 1 examines the general requirements on means of artillery fire support and the specific features of their optimization for each type of means of support.

Section 2 presents the theoretical principles of optimization of means of artillery fire support.

Section 3 presents methods of determining input data for optimizing means of artillery fire support, derives relations for determining the influence of time and precision of support on effectiveness of combat employment of artillery.

Section 4 contains the solution to several problems of optimization of means of artillery fire support. The examples presented are of a purely illustrative nature.

This book is intended for officer personnel of military units, staffs, scientific research organizations, military educational institutions, as well as for engineers in the defense industry and at appropriate educational institutions.

The authors would like to express thanks to professors P. P. Vyazovskiy, D. M. Komarov, and Yu. V. Chuyev, whose valuable suggestions were very helpful in preparing this book, as well as to B. N. Denisov, who was kind enough to contribute the material utilized in writing Section 1.

1. General Requirements on Means of Artillery Fire Support and Specific Features of Their Optimization

1.1. General Requirements on Artillery Fire Support Means

Effective employment of artillery in a modern combat engagement is inconceivable without appropriate means of artillery fire support. As we know, the effectiveness of combat employment of modern artillery depends not only on the performance characteristics of the artillery systems themselves, the destructive force of their ammunition, and the effectiveness of the enemy's countermeasures, but also on the time and accuracy characteristics of the means of artillery fire support (Figure 1) [figure not reproduced].

Therefore in optimizing weapons and military equipment one proceeds from the position of achieving the desired effectiveness with minimum outlays (or achieving maximum effectiveness with specified expenditures). In conformity with this, the following tasks are accomplished in optimizing means of artillery fire support:

1. Determination of optimal requirements on accuracy and time characteristics both of one and of several kinds of means of artillery

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fire support applicable to an artillery force grouping of one type and different types.

2. Selection of an efficient (from a military-economic viewpoint) variant of means of support from several possible variants.

3. Determination of a reasonable required quantity of means of support in artillery units and subunits.

4. Determination of optimal requirements on reliability indices of means of support.

5. Determination of reasonable timetables and schedules for replacement of one model of a means of support with another.

1.1.1. Requirements on Time Characteristics of Means of Artillery Fire Support

Time expended on artillery fire support measures (artillery fire support time), if it causes delay in opening fire, leads to a decrease in effectiveness of artillery, due to the following:

incomplete utilization of the artillery's potential to inflict damage on the adversary;

decrease in probability of hitting moving targets;

increase in probability of the adversary hitting friendly artillery in its firing positions (OP).

In determining requirements on artillery fire support time, it is necessary to take into account the following specific features of the influence of this factor on effectiveness of employment of artillery.

1. The influence of artillery fire support time is connected with the principles of combat employment of artillery in combat, namely: it depends on the type of engagement (attack, defense, meeting engagement, etc), the availability of reconnoitered targets, ammunition, and other factors. In other words, in the course of combat sometimes fire support measures should be carried out as rapidly as possible, while sometimes sufficient time will be allocated for this.

2. The influence of artillery fire support time depends on what type of artillery (regimental, division) is being supported. If the time for bringing into combat readiness the guns of a given type of artillery is sufficiently large, and the time required to perform fire support measures is not on a critical path, that is, does not delay initiation of fire, demands on fire support time can be broadened.

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3. Topogeodetic support time depends on the terrain on which the engagement occurs and, in particular, on the presence of natural and artificial contours on the terrain, the presence and quality of an initial geodetic base for topographic survey, as well as on time of year and day.

4. Artillery fire support time depends on the quantity of means of support in artillery units and subunits. Therefore optimization of time requirements should be performed jointly with optimization of quantity of means of support.

5. The approach to determination of requirements on fire support time depends on the principles of combat employment of means of support proper. In determining requirements on time of determination, for example, firing position (observation post) coordinates by self-contained means, two time characteristics are examined: instrument time, or equipment operating speed, and full coordinates determination time. The first characteristic should be specified during equipment design and development, while the second should be utilized for military assessment of means of support.

When determining demands on time of support with the aid of centralized radio technical systems (for example, with the aid of radio technical coordinate determination systems such as the U.S. Loran system), two time characteristics are examined: equipment operating speed, and continuity (or allowable discreteness) of operation of the system as a whole. These characteristics are specified when designing equipment.

1.1.2. Requirements on Accuracy of Means of Support

Aggregate firing errors are affected by artillery fire support errors and errors in determining target coordinates.

In determining requirements on accuracy of means of support, it is necessary to consider:

characteristics and principles of combat employment of a given type of artillery (natural dispersion, force of ammunition, time and maneuver characteristics);

errors of other means of support, if an individual type of support is examined.

1.1.3. Requirements on Reliability of Means of Support

In this case the term reliability, in addition to purely technical reliability, includes reliability of result, which is defined as an event consisting in the fact that no gross errors were committed (both through the fault of the operator and due to technical causes) in carrying out artillery fire support measures.

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A qualitative approach to determination of requirements on reliability of means of support can be presented as follows.

Reliability possesses two aspects from a military-economic viewpoint. If the fact of failure of individual components or an instrument as a whole is known to us, this leads to an increase in support time in correcting the malfunction. In this case determination of requirements on reliability can be performed according to the method of determining requirements on support time. Detected failures in turn can be divided into malfunctions which are corrected both by crew personnel and at special repair facilities. Such a division makes it possible to elaborate requirements on repairability of means of support and to determine requirements in replacement parts and special repair facilities.

Another group of failures, the origin of which is not known, is characterized by the fact that failures or malfunctions of individual components or an entire instrument lead to an increase in errors. Determination of requirements on reliability in this case can be performed according to the method of determining requirements on accuracy. Malfunctions of this group can also be divided into malfunctions caused by gradual change in equipment parameters and malfunctions of the gross error type. Gradual decrease in accuracy of equipment can be elucidated in the process of periodic inspection and adjustment procedures.

Malfunctions of the gross error type can be caused by operator errors or basic defect in equipment design or operating methods. With utilization of centralized means of support, probability of occurrence of gross errors increases. This is due to the fact that centralized systems are highly complex, and the more users of erroneous information, the greater the effect of these errors.

Analysis of gross error statistics in operation of already approved systems and operator work conditions makes it possible to elaborate reasonable requirements on degree of equipment automation and to specify an efficient equipment layout which ensures high reliability of result.

1.1.4. Requirements on Other Characteristics of Means of Artillery Fire Support

Number of operating personnel and their qualifications constitute an important factor in evaluating means of artillery fire support. In a military-economic evaluation of means of fire support, this factor functions as a limitation and should definitely be taken into account, while in certain cases it may prove to be decisive in decision-making.

Sometimes it is necessary to decide whether it is necessary to have separate means of support for each kind of artillery or one type of means of support for an entire artillery group. Military-economic analysis makes it possible to solve the problem of selection of a reasonable and efficient number of types of means of support.

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Frequently, especially when placing means of support on a special mobile base, the question of equipment weight and size is raised. Of course it is essential to require in this case that the vehicle which carries the equipment possess cross-country capability which is equal to that of artillery weapons.

1.1.5. On Cost of Means of Support

The endeavor to design and build means of support which are fast and accurate brings certain technical difficulties and in the final analysis leads to an increase in equipment complexity, and consequently cost as well. The need to take this circumstance into account is also intensified by the fact that means of artillery support are mass items. Therefore in determining requirements on means of support it is expedient extensively to apply methods of military-economic analysis.

Elaboration of requirements on means of support is usually performed in the following sequence.

Initially one elaborates the general principles of combat employment of promising artillery and preliminary operational-tactical requirements on means of support, taking account of forecast data on future combat operations.

Then scientific research is performed for the purpose of determining technical ways to implement these requirements. This work is completed with a detailed technical-economic analysis of possible variants, the results of which can be presented in the form of tables or graphs, the "input" into which will be the characteristics of interest to us (accuracy, speed, reliability, etc), and the "output" -- the cost of the given variants.

A military-economic analysis is performed taking account of the preliminary work, in order to determine optimal demands on equipment, organic affiliation of means of support, as well as for reasonable and efficient distribution of allocations between artillery and means of artillery fire support.

* * *

In this book we have examined the specific features of optimization of means of artillery fire support. We have demonstrated the possibility and expediency of solving problems of optimization of these means without detailed expansion of the function of efficiency of combat employment of artillery on the background of simplified engagement models. Principal attention has been focused on approaches to determination of the influence of time on the effectiveness of combat employment of artillery, since this question has been less thoroughly studied than that of the effect of errors of means of artillery fire support.

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This book does not examine mathematical techniques of determining the extremum (mathematical programming methods), since they are extensively discussed in the Soviet and foreign literature.

The basic principles presented in this book may prove useful in elaborating methods of optimization of a number of other items: means of support of missiles of various categories, means of navigation for sea, air, and land vehicles, etc.

This book will help more objectively substantiate the characteristics of means of artillery fire support and modes of their employment in artillery units and subunits.

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BOOK EXCERPTS: HISTORY OF SOVIET BORDER GUARDS

Moscow CHASOVYYE SOVETSKIKH GRANITS, KRATKIY OCHERK ISTORII POGRANICHNYKH VOYSK SSSR (Guards of the Soviet Borders, A Short Outline of the History of the USSR Border Troops) in Russian 1979 signed to press 28 Sep 79 pp 284-285, 265-269

[Annotation, Table of Contents, Foreward and Conclusion from book by Major General P.A. Ivanchishin (head of group of contributing authors); Colonel Yu. G. Kislovskiy, professor and doctor of historical sciences (assistant head); Colonel N.I. Afanas'yev; Major General V.K. Gaponenko; Colonel A.P. Glukhov; Colonel (Ret) V.T. Kukin; Colonel (Ret) S. Ye. Lyubimov; Lieutenant Colonel A.M. Plekhanov, docent and candidate of historical sciences; Colonel K.V. Regush, docent and candidate of historical sciences and Major General G.P. Sechkin, professor and doctor of military sciences, Izdatel'stvo Politicheskoy Literatury, 100,000 copies, 286 pages]

[Text] "Guards of the Soviet Borders" is short outline of the history of the border troops of the Soviet state. It describes the role they have played in defending the land of the soviets from the first years of its existence to the present day.

The book familiarizes the reader with life on the present-day border of the USSR, which extends 67,000 km, as well as with the military duties of the border troops. It provides an extensive description of the participation of V.I. Lenin and the Communist Party in the organization and strengthening of the border troops of the USSR.

The book is intended for the broad mass of readers.

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Foreword

The national border of the USSR is sacred and inviolable. It is the border of the motherland. And like the thoughtful and attentive owner protects the house he has put up with his own hands, our people, the master of their own country, watch over their fatherland and its borders.

The Soviet state has charged the border troops of the KGB SSSR [Committee on State Security of the USSR] with the honorable and responsible task of insuring the armed defense of its national borders.

The Soviet border troops have behind them an illustrious military history. They have been standing a vigilant watch over the boundaries of the motherland for more than 60 years. The heroic actions of our border troops have added brilliant pages to the history of the land of the soviets.

Soviet border troops take pride in the fact that the formation of the border troops and the development of the basic principles of border defense under socialism are inseparably linked with the name of Vladimir Il'ich Lenin.

V.I. Lenin saw the defense of the borders as an important function of the socialist state. "We insist upon the necessity of the state," V.I. Lenin declared, "and the state presumes borders."¹ He proceeded to substantiate his conclusion concerning the need to strengthen the Soviet borders in every possible way and to carry on a determined struggle against any attempt to weaken their security. V.I. Lenin emphasized that even "a partial, selective opening of the borders carries with it the most serious risks in the sense of permitting the penetration of Russia by all kinds of agents without our having the least chance of controlling it."²

The basic principles of border defense are based on Lenin's teaching concerning the defense of the socialist fatherland. Even before the October revolution V.I. Lenin wrote: "Socialists can and must acknowledge [the necessity of] a military defense of the fatherland /only/ after that fatherland has been restructured on a socialist basis, that is, a defense of the proletarian socialist revolution against the bourgeoisie."³

The thesis on the defense of the socialist fatherland follows naturally from Lenin's theory of the socialist revolution and his conclusion concerning the possibility of its victory in a single country taken individually. V.I. Lenin emphasized that this victory will provoke "a direct attempt on the part of the bourgeoisie of other countries to destroy the victorious proletariat of the socialist state. War on our part would under these circumstances be legitimate and justified."⁴

With the victory in our country of the Great October Socialist Revolution, the defense of the socialist fatherland became a task of immediate practical importance. "Now, from 25 October 1917," Vladimir Il'ich declared, "we are the defenders; from this day we are for the defense of the fatherland... We are for the defense of the Russian Soviet Socialist Republic."⁵

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On the basis of Lenin's direction the party defined the role of border security within the system of armed defense of the achievements of the revolution. Experience accumulated in the struggle against the numerous enemies of Soviet rule showed that reliable border security required special troops employing methods of detecting and neutralizing enemy spies and smugglers.

Steps were taken from the very beginning of the effort to set up a border service to combine military security with the activities of the VChK, and the first border troops learned revolutionary vigilance from the renowned Chekists.

Leaning on the creative experience of the masses, the party undertook a search for the most advantageous forms of border-defense-force organization until it concluded that it was necessary to include them within the state security system. This made possible a fuller demonstration of the function of the border troops maintaining the security of the country along its borders. From the moment of their establishment, the border troops were, and remain, at the same time an integral component of the Armed Forces of the Soviet state. They operate on the basis of the same Leninist principles of military organization which are the laws governing the life of the Soviet Armed Forces. The most important among them concerns the leadership to be exercised by the Communist Party as the guiding and directing force of socialist society and the core of its political system. The decree adopted in December 1918 by the Central Committee of the Russian Communist Party (Bolsheviks) upon the initiative of V.I. Lenin, "The Policy of the Military Department," was oriented toward strengthening the party's influence within the Red Army. This party aim fully applied to the border troops as well. With the aid of its commissars, political organs and unit (chast') and subunit (podrazdeleniye) party organizations, the party strengthened its leadership within the border forces and organized political party work among their personnel. The border troops became a reliable instrument of the party and its peaceful foreign and constructive and creative domestic policy.

The Communist Party carried, and carries, the class principle into practice in the organization of the border forces. The border forces were created as an instrument of the dictatorship of the proletariat and as a weapon in the struggle on behalf of the interests of the workers and peasants now liberated from capitalism. The border troops are now an integral part of the structure of a socialist state of the whole people, in which the working class plays the leading role.

V.I. Lenin and the Communist Party established on a sound basis and implemented the principle of the indestructible unity of the border troops and the people, the indissoluble ties between the border guards and the masses of working people.

The border forces are guided in all their activities by the principle of proletarian, socialist internationalism. They have always come to the aid of the working people of neighboring states. The formation of the world socialist system led to the military collaboration of the border guards of the socialist countries. The protection of their borders is a cause common to all members

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of the socialist commonwealth. V.I. Lenin's prophetic words have been realized; he wrote: "To the old world, the world of national oppression, national disputes and national isolation, the workers oppose a new world of the unity of the working people of all nations...."⁶

Devotion to communist ideals, loyalty to the great motherland, unshakable steadfastness and constant readiness to do battle with the enemy for the triumph of the cause of communism, high levels of organization and discipline and irreproachable integrity and honesty--all of these traditions of our party have found their reflection in the military activities of the troops on the border.

As an integral component of the Soviet Armed Forces, the border troops have added their contribution to the glorious traditions of the Soviet Army and Navy: heroism, valor, boldness, combat experience, deep ideological convictions, vigilance, professional skill and boundless devotion to the Soviet motherland.

As was the case with all personnel of the Soviet Armed Forces, their loyalty to their military oath, mass-scale heroism in action and great courage in protecting and defending the national borders became the border guards' greatest traditions. Examples from the Great Patriotic War provide graphic evidence of this.

And now today, in our developed socialist society, the protection of our national borders likewise remains one of the important factors involved in insuring the country's security and the armed defense of the boundaries of the socialist fatherland.

The borders with capitalist countries and with China have become lines of active enemy subversion. Enemy ideological diversionary activity has now become wide-ranging in scope. The intelligence gathering activities of the imperialist states are becoming more cunning and insidious and more sophisticated in both form and method. The enemy is striving more vigorously and effectively to utilize the expanding channel of international tourism as well as other connections.

Among the many fronts on which the ideological struggle against the USSR is waged, bourgeois propagandists have now conjured the myth of the "closed society," the essence of which comes down to the demand that the borders of the Soviet Union be opened. The border troops are the subject of attacks in this connection as well.

"No," Comrade L.I. Brezhnev emphasized at the Berlin conference of European Communist Parties, "the socialist countries are not 'closed societies.' We are open to everything truthful and honest; and we are prepared to exploit favorable opportunities in every possible way to increase contacts, which contribute to detente. But our doors will always be closed to publications propagandizing war, the use of force, racism and hatred. All the more tightly will they remain closed to the emissaries of foreign secret services and the anti-Soviet emigre organizations they set up."⁷

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Under present day conditions, in which imperialist and Maoist provocations directed toward the disruption of detente are on the rise, the border troops remain a vital component in the overall system providing for the country's national security. They function today within the framework of the new constitution, which legislatively confirms the Leninist principle of the inviolability of borders. The Communist Party is therefore striving tirelessly as always to provide reliable assurance of their security. Drawing upon the powerful productive forces of a developed socialism and the achievements of the Soviet people in the areas of economic, cultural and scientific development, the CPSU Central Committee and the Soviet Government have during recent years taken a number of steps in the direction of improving border security, strengthening the border forces and increasing the vigilance of personnel.

Important programmatic documents for the activities of the border troops are the Greeting of the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR and the Council of Ministers of the USSR to the men on the borders in connection with the 60th anniversary of the formation of the border troops and the letter from Comrade L.I. Brezhnev, general secretary of the CPSU Central Committee and Chairman of the Presidium of the Supreme Soviet of the USSR, to personnel of outstanding-rated border posts bearing the title of Hero of the Soviet Union.

L.I. Brezhnev as well as members of the Central Committee Politburo devote constant attention to the protection of the national borders. They visit border posts and vessels and interest themselves in the life, service and conditions of the border troops. Their paternal concern inspires them to the performance of new patriotic deeds.

Further expansion of the party's role in insuring the national security and protecting the borders and the strengthening of the party's influence on all aspects of the life and activity of the border guards is a natural and consistent development of the present day. Exercising its direction of the organs and troops of the KGB, the Communist Party is developing and implementing a sound, scientifically based policy directed toward the undeviating execution of decisions which have been made concerning the protection and defense of the borders of the socialist fatherland and organizing political party work, seeing it as the most important condition insuring great vigilance and skill on the part of border guard personnel. The content of this political training is enriched through creative study of the materials of the 25th Congress of the CPSU, the new constitution and the theses and conclusions contained in the speeches and reports of Comrade L.I. Brezhnev, general secretary of the CPSU Central Committee.

Implementation of the party's economic plans as outlined by the 25th Congress of the CPSU is making it possible to continue providing our troops with the latest weapons and equipment. The border troops have now become motorized, and the process of raising the level of technical equipment of the subunits directly protecting the national borders has been intensified. Troops tactics and the means and methods of operational performance are being continuously improved, the reliability of our border security ever increasing as a result of these efforts.

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The CPSU Central Committee and the Soviet Government are not failing to devote attention required to problems associated with the creative elaboration of the theory of national border defense and are taking care to insure that border troop organization measures up to the mission to be accomplished. They are outlining the main directions and courses to be followed in the further search for improved modes and methods of border defense and insuring the widespread introduction of scientific methods into the organization of border-troop command and control. The scope and direction of these current scientific efforts are governed by the decisions of the 25th Congress of the CPSU and subsequent Central Committee decrees.

Human beings, however, play the primary and decisive role in protecting our borders in an environment of sharp resistance to the aggressive forces of imperialism. Serving in the border guards are fighting men who are educated, who are well capable of handling the latest military weapons and equipment and who have been trained and indoctrinated in the military and Chekist traditions. They demonstrate high levels of political vigilance, ideological steadfastness and moral and psychological preparation.

In performing their vital tasks in connection with protecting the boundaries, defending the borders of the socialist state, the border forces view border defense as an integral element of measures taken to insure the country's national security. The amicable and harmonious relationships between the border guards and the organs and personnel of the MVD [Ministry of Internal Affairs], as well as with subunits and units of the Soviet Armed Forces, are becoming ever stronger.

The ties between the border troops and the working people of the border areas are also developing and improving with each passing year. This is an entirely natural process. The increased role played by the popular masses in insuring the security of the country, in protecting the national borders is a characteristic feature of socialist society, one which has received legislative confirmation in the Basic Law. Today as never before the words ring out firmly and resolutely: "The entire Soviet people defend the borders of the motherland." Each day sees an increase in the activity of workers, kolkhoz peasants and national intelligentsia in maintaining the necessary border state, maintaining technical apparatus along the border in its proper condition and in detaining border violators. The border troops value highly the assistance they receive from local residents in insuring the inviolability of the national boundaries of the USSR.

The border troops' more than 60 years' accumulated operational experience indicates that consistent application of Lenin's idea, "be alert," is one of the crucial conditions for insuring a reliable defense of the sacred borders of our motherland.

Our border guards today lead a tense life full of surprises. Along the border, just as in a combat situation, there may arise complex situations requiring skill, boldness, initiative and decisiveness. The men in the green service caps are fully aware of their responsibility to the motherland for the

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reliable protection of the national borders of the USSR, and they are following strictly the traditions established by the early Chekists of the world's first socialist state and enriched by the heroic heirs to their glorious legacy.

The book now offered the readers described the history of the formation and development of the border troops from the time of their organization to the present time and the difficult military service life of the men along the border, each minute, each hour of which is filled with danger, vigilantly protecting the boundaries of the socialist fatherland.

"Socialism," Comrade L.I. Brezhnev points out, "can be maintained only if the working people's authority is capable of defending the revolution against any attack by the class enemy."⁸

In defending the peaceful labors of the Soviet people, in defending socialism, the Soviet border guards are executing strictly their orders from the party and the people.

Conclusion

The book "The Guards Over the Soviet Border" is not simply a military history of the border troops. It contains the story of people, of those who continuously stand their honored watch along the frontiers of the motherland.

More than one generation of young fighting men has taken its turn on the border since the country's sacred boundaries were first placed under protection. Uniting them all as sons of a single mother, the socialist motherland, have been, and are, a passionate love for their native land, boundless devotion to the Communist Party, loyalty to the ideas of Marxism-Leninism and to military tradition, continuous contact with the people, unflagging vigilance and a deep awareness of their personal responsibility for the protection of the borders.

These noble qualities displayed by the guards over the Soviet borders are being passed on from generation to generation. They have now been passed to the Komsomol members and other youth born in the early 1960's.

Many years of experience have shown that undeviating adherence to Lenin's teachings concerning the defense of the socialist fatherland and the need to insure the inviolability of the borders of the socialist state constitutes a guarantee of successful border protection and border-troop organization.

Formed under the direction of the Communist Party at the will of V.I. Lenin, the border troops have always been an object of its attention and concern. This produces a sense of pride in our border guards, multiplies their strengths and inspires them to military achievement.

The border troops have been worthy bearers of their battle flags throughout the entire history of the Soviet state. They have executed the military missions with which they have been charged in honorable fashion at all stages in the building of socialism and communism.

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The Communist Party and the Soviet Government are consistently implementing the decision of the 25th Party Congress and the November (1978) plenum of the CPSU Central Committee concerning the achievement of continued growth in the motherland's economic strength and a higher material and spiritual level of life for the Soviet people and devoting constant attention to increasing the defensive capability of the country and to insuring reliable protection of the borders.

This has been brought about by the difficult international situation. Militarist circles in the USA and other capitalist countries are trying to destroy detente; they are intensifying their aggressive activities and supercharging the atmosphere along the borders.

As recents have shown, the Beijing clique, which with criminal lightheadedness has set its military machine in motion, is creating a serious threat to peace. China's armed aggression against the Socialist Republic of Vietnam once again lays bare the true aims of Beijing's policy of combining in a bloc with, making advances toward today's most arrantly reactionary forces.

In his speech at the pre-election meeting of voters in the Bauman electoral district, Comrade L.I. Brezhnev pointed out that, citing what they refer to as the "Soviet threat," the imperialists are calling for the allocation of more and more billions for military purposes. "They are trying to crush the peoples' movement for liberation by force and interfering in the internal affairs of other countries. The position of the Chinese leadership is tending increasingly toward this imperialist policy.

"With their unprecedentedly brazen and rapacious attack on a small neighboring country, socialist Vietnam, the present Chinese rulers have finally revealed to the entire world the insidious, aggressive nature of the hegemonistic, great-power policy they are pursuing. Everybody now sees that it is precisely this policy that is presently the most serious threat to peace in the entire world."⁹

The imperialists' and Maoists' efforts to aggravate the international situation have been accompanied by an intensification of the secret subversive activities of enemy special services and an activation of ideological diversions along the national frontier. To a great extent this is what determines the nature and orientation of the border troops' activities and underlines the political and military importance of the task of protecting our country against penetration of its borders by enemy agents and other subversive enemy actions.

From Chukotiya to Brest, from Kushka to the latitudes of the Arctic, the border guards are vigilantly protecting the borders of the Soviet state. The motherland has placed them on the front line in the struggle to thwart the schemes of the enemies of peace and socialism in the full knowledge that they can be relied upon and that they will not allow anyone to violate our border. Acquitting themselves with honor, the Soviet border troops indeed justify the great trust the motherland has reposed in them.

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The best sons of the Soviet people stand guard on the borders of this developed socialist society. Only the worthiest are assigned to the border troops.

The border guards always keep in mind and take pride in the fact that V.I. Lenin and F.E. Dzerzhinskiy stood at their cradle. "The notable traditions of former generations of border troops," Comrade L.I. Brezhnev wrote to personnel of border guard posts imeni Heroes of the Soviet Union, "their heroism and daring, their boundless devotion to the cause of the Communist Party live on in the military life of our younger troops--reliable sentinels for the motherland."¹⁰

Successful implementation of plans for communist construction outlined by the 25th Congress of the CPSU, the development of a strong national industrial base and extensive exploitation of advances resulting from progress in science and technology have made possible the achievement of qualitative changes in the equipment of our border troops and add to the resources available to them for insuring reliable protection for the border in the struggle against cunning enemy secret service agents.

Border subunits and units have now become highly technically equipped and maneuverable. Their military and other, special-purpose equipment fully measures up to present-day requirements. High-speed ships and boats, airplanes and helicopters, motor vehicles, armored personnel carriers, instruments for observation, warning and communication equipment, radar and so forth are all making possible reliable protection for our borders.

But vigilance is the border guards' main weapon. On the border one feels with special intensity why it is the party so pointedly puts the matter of the necessity of increasing ideological vigilance with a view to the aggressive intentions and ideological diversions of imperialism and Maoism.

In the developed socialist society the CPSU sees the political vigilance of the Soviet people and its military personnel as a most important public obligation as well as a patriotic and international duty.

"The increasing political, military and economic importance attaching to protection of the motherland's borders poses the task of further improving the modes and methods of border-troop operation, strengthening military discipline and raising the level of combat skill and vigilance on the part of our personnel," declared Comrade Yu. V. Andropov; "each border guard must remain continually aware of his personal responsibility for strict adherence to officially required border procedures and maintenance of border arrangements."¹¹

Soviet border guards have been entrusted with our most closely concealed affairs--the preservation of the tranquillity and security of the Soviet people in their advance toward communism. The constructive, creative labors of the steel worker and mechanical engineer, the worker in the kolkhoz field and the geologist; the productive work of the writer and the scientist; the peaceful sleep of the infant in its cradle--these would all be unthinkable without the vigilant service of our border troops.

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Proceeding on the basis of the programmatic theses of the 25th Congress of the CPSU and the decisions of the November (1978) plenum of the CPSU Central Committee, the political organs and party organizations within the border forces are continuously improving the modes and methods employed in political party work in connection with developing vigilance in border personnel. In addition to propagandizing the successes of the Soviet people in building communism, special attention is devoted to exposure of the aggressive nature of imperialism and Maoism and to shedding light upon their subversive actions along our national borders.

The great vigilance of our border personnel finds its practical expression in their adherence to communist principles; continuous combat readiness; discipline; bold and decisive action in seizing and holding border violators; knowledge of the techniques, methods and devices resorted to by enemy spies in crossing a national border and in their ability to preserve state and military secrets and personal and official documents and to remain forever alert.

Today's border guards are experts in their field, skilled in quickly and accurately "reading" a violator's trail, as well as in utilizing advanced technology and the troop's faithful friend--the border guard dog.

The factor of vigilance under present-day conditions--this is the weapon with which the border guards of all countries of the socialist commonwealth are armed, the weapon which inspires confidence in its power and helps maintain the inviolability of the borders of our motherland and of the entire socialist commonwealth. When the Soviet border guard goes on his honored duty, he knows that at that very moment the Polish and Bulgarian border troops are standing vigilantly at their borders, preserving with him the peace of the socialist world; that the troops of heroic Vietnam are repulsing the invasion of the Chinese aggressors; that Cuba's coastal guard is keeping a vigilant eye on the plots and schemes of the American imperialists; and that the border troops of the Mongolian People's Republic, Hungary, the GDR, Czechoslovakia and Rumania are reliably maintaining the security of the countries of the socialist commonwealth.

Executing the orders of the party and the Soviet people, the border troops now, just as 60 years ago, are maintaining the inviolability of the boundaries of the Soviet state through their selfless military service; they are successfully cutting off the numerous attempts to violate our borders and suppressing enemy provocations, political and economic contraband and ideological diversions.

The border of our motherland, along which the Soviet border troops stand their unchanging watch, stretches 67,000 km. Each passing day brings us new demonstrations of their steadfastness and courage and their great vigilance in protecting the national borders of the USSR.

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FOOTNOTES

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BOOK EXCERPTS: EFFECTIVENESS OF TARGET DETECTION

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Brief Description:

This book presents a classification of surveillance systems on the basis of various criteria and examines methods of evaluating the effectiveness of radar means of surveillance as sources of information for modern automated control systems. The author examines the principles of efficient placement of means of search and detection, methods of calculation and evaluation of the effectiveness of simple and multiple-component surveillance systems. The description is illustrated by examples of evaluation of effectiveness of target detection. This book is based on materials published in the foreign press. It is intended for military specialists working with observation and surveillance equipment and for readers with an interest in problems of target search and detection.

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Introduction

An important place in the aggregate of problems of ensuring defense capability against surprise attack is occupied by problems of prompt detection of offensive forces and weapons, determination of their character, position, and parameters of movement, in order to ensure prompt engagement and effective utilization of personnel and equipment against them.

In the opinion of foreign experts, under present-day conditions, these problems are solved by establishing in potential theaters of war, theater areas and zones appropriate, efficiently-operating local and global surveillance and situation display systems, with the task of effecting prompt detection and identification, determination of target coordinates and movement components, and monitoring of their position, movement and action. Efficient organization and effective functioning of diversified local and global surveillance, monitoring and display systems can provide high-quality knowledge of the situation in space and time, as well as ensuring prompt and timely deployment and utilization of strategic and operational countermeasures and defense forces. In like manner, efficient functioning of tactical and special means of search, detection and target designation can ensure prompt readiness and successful employment of combat units.

An increase in effectiveness of target detection is of great importance both on a tactical, operational, and strategic scale. This can be promoted not only by firm knowledge by personnel of the characteristics of potential detection targets and the performance capabilities of search and detection equipment, but also the ability to solve the problem of efficient organization and utilization of surveillance systems and estimate of the effectiveness of target detection by surveillance equipment and systems in different situations.

In recent years there have appeared, both here and abroad, a number of publications on problems of theory and practice of target search and detection. Study and synthesis of these publications is of great importance for elaboration and improvement of methodology of estimating effectiveness of detection of air, ground and sea targets by the corresponding surveillance equipment and systems.

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Examination of many publications [4, 6, 8, 14, 17, 24, 28, 29, 31, 34, 38, 40-43, 45, 53, 55, 57, 60, 61] indicates that the surveillance and situation display systems employed for various types of defense are becoming increasingly more integrated and interlinked. Mutual supplementation and mutual information support, utilization of certain uniform principles of organization and computation of systems and system components, and employment of sufficiently general and universal methods of estimating their effectiveness are typical directions of development of these systems. Characteristic of each system is extensive utilization of diversified types of stationary and mobile means of surveillance, correspondingly installed on various fixed and mobile platforms (ground and shore stations, surface ships).

Extensive employment of various technical means of surveillance as means of target search and detection, control and guidance of weapons to targets requires increasing adoption of quantitative methods for estimating the effectiveness of these means.

In this book an attempt has been made to substantiate certain principles of classification and methods of organization and calculation of the simplest surveillance systems employed for target search and detection on lines and in areas of potential operations, and to determine the general methodological principles of estimating effectiveness of target detection with stationary and mobile means.

In estimating the effectiveness of surveillance means and systems this book utilizes methods of probability theory, general theoretical premises and special methods of target search and detection theory.

Chapter 1. General Premises. Target Detection Criteria

Target detection effectiveness is defined as quantitatively-expressed successfulness of solving problems of target search and detection by surveillance means and systems.

A general methodological approach is employed, based on dividing the detection process into two stages:

establishment of tactical contact, connected with target entry into the surveillance facilities coverage zone;

establishment of instrument contact, connected with target detection in the surveillance facilities coverage zone.

This approach makes it possible relatively simply and sufficiently accurately to consider the sequential influence of tactical and technical factors on target detection effectiveness, the character of movement of targets, and the physical conditions determining target observability.

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1.1. Basic Terms and Definitions

We shall define several terms employed in solving target search and detection problems.

Pribor (sredstvo) nablyudeniya [surveillance instrument (means)] is any simple or complex device (from binoculars to complex radar, sonar or other electronic system), which is employed to observe or surveil the situation in a given physical environment, to detect search objects (targets) in it and to determine data on them.

Sistema nablyudeniya [surveillance system] is defined as the aggregate of homogeneous or heterogeneous means of surveillance connected functionally by a unity of target search, detection and surveillance tasks being performed, said system being characterized by a given common structure of organization and mutual location of component surveillance means.

Tsel' [target] is defined as the object of search and detection, that is, that object (ground, sea, air) which is to be found and detected in the process of surveillance (search) in space.

Nablyudatel' [observer] is defined as an individual surveillance means (instrument), including its platform, as well as their aggregate, forming a system of stationary or mobile means utilized for target search and detection, with corresponding means of control, information processing and transmission, and including operating personnel.

Poisk [search] is defined as purposeful action by an observer, consisting in inspection of space where the presence or appearance of a target is possible, with target detection the end objective.

Various modes of scanning (all-round, sector, etc) and movement (maneuver) of surveillance equipment platforms are extensively employed in examination of search space, for the purpose of moving surveillance zones.

The principal mission of search as a specific action is detection, that is, establishment of the fact of presence of a target in the surveillance space, with determination of its character and location.

Thus obnaruzheniye [detection] as a consequence of search is an event which consists primarily in establishment of the fact of the presence of a target in the search zone as a result of making contact with the target, with subsequent determination of data characterizing the target.

Target detection may subsequently advance to target tracking, performed with the same system which detected the target or by another system after it receives target designation from the detection system.

Slezheniye (soprovozhdeniye) [tracking] is defined as continuous or periodic target surveillance or observation, performed by a given

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surveillance system and consisting in monitoring the values of current target coordinates and the parameters of its movement.

Osveshcheniye obstanovki o tseli [target situation display] is defined as creation, on the basis of collection, processing and synthesis of target data obtained in the process of target detection and tracking, of a graphic presentation of information on the fact of detection, the nature of the target, its location and movement.

Detection, tracking and situation display are three characteristic functions of a surveillance system (as an information subsystem of any control system). All questions pertaining to effectiveness examined in this book apply only to the first of the above-listed functions of a control system information subsystem. In connection with this, the principal subject of the entire subsequent examination will be only questions pertaining to estimating and evaluating the effectiveness of various surveillance means and systems according to their capability to establish the fact of presence of targets in their assigned surveillance zones and areas.

Poiskovaya situatsiya [search situation] is a situation in which there exists or arises the necessity of target search and detection. It is usually characterized by the conditions of conduct of search -- for example, by the availability of information on target departure from base, on the possible or most probable target course and speed values, on the zone of its possible location in the monitored area, and on the most probable directions of its approach and penetration of the system of surveillance and protection of defended installations, etc.

A search situation may arise both before and in the course of combat actions. As a rule, each search situation involves uncertainty of information on search conditions and is often characterized by insufficiently complete data on the character, location and movement of the target. In connection with this, search is an action the purpose of which is to eliminate uncertainty or indeterminacy of information on the target.

Poiskovyie deystviya (operatsii) [search actions (operations)] are defined as actions (operations) pertaining to employment of surveillance means and systems to perform the missions of target search and detection in given areas and zones of interest to the command.

Poiskovyie usiliya [search efforts] is defined as efforts at organization and execution of search, including measures pertaining to training and preparing personnel and equipment, their distribution among search zones and areas, and pertaining to organization of surveillance and target display systems in potential theaters of war.

Primary and secondary types of search are distinguished, depending on orientation of search efforts.

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Pervichnyy poisk [primary search] is conducted for primary target detection, for situation monitoring and display in the inspected zone, for acquisition of principal orientation data on target location and movement.

Vtorichnyy poisk [secondary search] is performed for secondary target detection and bringing tracking personnel and equipment to contact, for obtaining more precise data on targets essential for utilization of forces and weapons.

1.2. General Description and Classification of Surveillance Systems

Under present-day conditions establishment of surveillance and reconnaissance systems which are continuous in frontage and dispositioned in depth is becoming increasingly important [4, 6, 9, 28, 31, 38, 45, 55, 57, 60, 61]. These systems may be called upon to perform various situation display missions and various tasks of control information support, from tasks of prompt target detection and identification, determination of target coordinates and movement components, to tasks of forming graphic situation displays and transmitting information to appropriate force command posts [8, 28, 31, 36, 40, 45, 55, 60]. The success of countermeasures against offensive weapons depends on prompt detection and identification of targets and continuous tracking of their position and movement.

Surveillance and information systems designed to perform these missions can be based on utilization both of individual high-powered facilities (for example, long-range and ultralong-range target detection stations) and aggregates of heterogeneous and homogeneous lower-powered facilities [17, 24, 28, 29, 31, 34, 38, 40, 42, 43, 45, 53, 55, 57, 60, 61]. Both fixed (stationary) and mobile (maneuverable) target search and detection equipment and systems can be extensively employed as component elements of these surveillance systems (as control system information subsystems), operating on both the active and passive principle and performing missions of target search and detection in various physical environments and conditions.

Surveillance systems can be organized on the principle of facilities located jointly or separately with the supported (protected) installations.

The great diversity of possible variants of organization and utilization of surveillance equipment and systems makes it difficult to assess their effectiveness. It is therefore essential to elaborate certain general methodological principles for a sufficiently general approach to evaluating effectiveness of target search and detection by different surveillance means and systems. Determination of the basic principles of classification of different surveillance systems is a first step in this direction.

We shall define surveillance system as an individual high-powered means of detection or an aggregate of homogeneous (heterogeneous) means of detection, linked by a unity of missions performed and a common structure of organization, that is, connected and coordinated organizationally, logically, and technically.

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To determine a common methodological approach to evaluation of target detection effectiveness, it is advisable to classify the entire diversity of simple and complex surveillance systems according to the following characteristic criteria.

1. By function:

primary search and detection systems, obtaining data for target situation display;

secondary target search and detection systems, directly supporting the functioning of special tracking and destroying forces and weapons.

2. By degree of mobility of surveillance equipment platforms:

fixed (stationary) systems;

mobile (maneuverable) systems.

3. By character of supported installation:

systems supporting activities of individual installations (defense centers, warships, aircraft);

systems supporting actions of force groupings.

4. By quantity of means employed:

systems in which individual means are employed;

systems in which aggregates of means are employed.

5. By location relative to the supported installation:

collocated systems;

non-collocated systems.

6. By character of action:

systems passively waiting for a target to enter their coverage (detection) zones;

systems which also actively seek out a target beyond the boundaries of their detection facilities coverage zones (by extending these zones in space with mobile platforms).

7. By character of operations zone (general position) of utilization of surveillance means:

systems employed in an area;

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systems employed on a line.

8. By features of structure and action:

systems operating at a specified point (individual stations);

systems operating on a specified line (line of stations; line-patrolling aircraft, ships, and trucks -- station platforms);

systems operating in a horizontal or vertical plane (surveillance fields and barriers);

systems operating in space.

9. By degree of continuity of action:

continuous-action systems;

periodic (regularly repeating) action systems;

sporadic (irregular) action systems;

one-time action systems.

10. By degree of concealment of operation:

concealed surveillance systems;

unconcealed surveillance systems.

Chapter 2. Effective Range of Surveillance Equipment

2.1. Methods of Estimating Anticipated Effective Range

One of the most important questions in laying out and calculating surveillance systems, determining quantitative characteristics of anticipated probability of establishment of instrument and tactical contacts and in estimating effectiveness of target search and detection in different situations is a question of estimating anticipated effective range of surveillance means R.

Obviously effective range of surveillance means is determined by their technical parameters, the parameters of the medium, and target characteristics.

There exist corresponding relations for all types of technical means of surveillance, which make it possible to estimate their anticipated effective range with a given accuracy in relation to the influence on target detection of the physical conditions in which search will be performed.

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The above analytical expressions for effective range of active and passive radar and sonar equipment give an idea of so-called energy range, that is, detection range determined by energy relations. We have presented here only the simplest analytical expressions for calculating anticipated effective range of equipment in so-called standard, idealized conditions. They are presented only for illustrating a direct analytical approach to determination of effective range of facilities and cannot be recommended for the concrete conditions of practical utilization of detection means.

Chapter 3. Effectiveness of Establishment of Instrument Contacts

In a methodological respect the special examination of the problem of instrument contacts conducted in Chapter 3 is of determining significance for describing the effectiveness of target detection in the coverage zones of surveillance equipment employed both in stationary and non-stationary surveillance systems in indeterminate and relatively indeterminate physical conditions of target search and detection.

The methodological approach presented here is based on utilization of techniques and methods of statistical-probability description of anticipated effective ranges (detection) and anticipated probabilities of establishment of instrument contacts, characterizing target detection capability in the coverage zones of means of surveillance under given conditions [3, 9, 18, 20, 25, 32, 39, 47].

Chapter 4. Effectiveness of Establishment of Tactical Contacts

The end result of tactical search -- observer contact with a target -- is random in nature. This stipulates employment of appropriate probability criteria for its evaluation [1, 2, 18, 22, 25, 32, 33, 39, 48-52, 59, 61]. The following, for example, constitute such criteria:

probability of encountering a target located at a specified range and angle from the observer;

probability of target entry into the coverage zone of a surveillance instrument with various ratios of target and observer speeds;

mathematical expectation of number of targets entering the coverage zone of a surveillance instrument with a known and unknown target course;

probability of obtaining a specified number of target contacts;

density of probability of targets entering the coverage zone of a surveillance instrument from various directions;

laws of distributions of contacts relative to observer's course;

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probability of targets entering a specified range of angles from the observer;

estimate of anticipated target course at encounter, and other criteria.

We shall examine some of them.

Chapter 5. Multiple-Component Surveillance Systems. Principles of Organization and Calculation. Target Detection Effectiveness in a Surveillance System

We have examined methods and models of estimating effectiveness with instrument and tactical search involving one observer, that is, for surveillance systems consisting of one element (one means of surveillance, one search unit).

We shall now examine surveillance systems consisting of two and more elements comprising a system of fixed or mobile means of search and detection and forming surveillance lines and fields, and we shall determine the basic principles of organization and calculation of such systems, and methods of estimating effectiveness in specific and indeterminate situations on the basis of the effectiveness characteristics obtained in the preceding chapters.

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BOOK EXCERPTS: INDOCTRINATION ON MILITARY TRADITIONS

Moscow TRADITSII -- V STROYU in Russian 1980 signed to press 2 Oct 79
pp 1-2, 64, 3-4, 62, 63

[Annotation, Table of Contents, Introduction, and Conclusion of book by
I. N. Petrov]

[Excerpts] Title Page:

Title: TRADITSII -- V STROYU (Put Traditions Into Service)
Publisher: Izdatel'stvo DOSAAF SSSR
Place and year of publication: Moscow, 1980

Signed to Press Date: 2 October 1979

Number of Copies Published: 50,000

Number of Pages: 64

Brief Description:

This pamphlet by Rear Adm I. N. Petrov, chief of the Political Directorate of the Navy, deals with the traditions of the Soviet Armed Forces, established in the course of the selfless struggle for the freedom and independence of the homeland. The author discusses the important job done by commanders and political workers in the area of military-patriotic indoctrination of army and navy personnel. This pamphlet is intended for the general reader and for party-Komsomol activists, especially young people.

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Introduction

"The strength of our system lies in the consciousness of the masses," proclaimed CPSU Central Committee General Secretary Comrade L. I. Brezhnev, Chairman of the Presidium of the USSR Supreme Soviet, from the speakers' platform at the 25th CPSU Congress.

Indoctrination of ideologically mature people, who possess Communist convictions, who possess thorough knowledge of revolutionary theory and who are totally dedicated to the cause of building a new society has always been one of the main concerns of the Communist Party of the Soviet Union.

A task of enormous importance faces the party in the era of all-out building of communism -- to indoctrinate a new man, who is harmoniously developed and combines in himself spiritual and intellectual wealth, moral purity, and physical perfection.

Substantiating this task in a scientific manner and determining its content, ways and methods of accomplishing it, the party also bears in mind the role of military-patriotic work -- an inseparable component part of Communist indoctrination.

Publicity and dissemination of the glorious revolutionary, labor and fighting traditions of the Communist Party, Soviet people, and USSR Armed Forces constitutes an important means of forming patriotic awareness in young people and all Soviet citizens, and instilling in them a love of the Soviet Armed Forces and our homeland's heroic past.

The CPSU Central Committee decree entitled "On the 60th Anniversary of the Great October Socialist Revolution" states that "fine socialist traditions have become established in our society in the 60 years of development along the path of October, traditions in which the wealth of experience of revolutionary struggle and creativity is consolidated. To protect and preserve these traditions means to develop them in a creative and innovative manner. The party skillfully unites and enriches the experience of all generations of fighters for victory of the revolution, for socialism and communism, united by common interests and ideals."

The revolutionary, fighting and labor traditions of party and people, and of their glorious armed defenders constitute our priceless spiritual legacy.

Thorough knowledge of glorious revolutionary, fighting and labor traditions, following these traditions, building upon them and further developing them promote indoctrination of ideologically convinced, skilled and staunch defenders of the socialist homeland.

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Conclusion

This is a far from complete list of the forms and means of work in the area of indoctrinating young people in a spirit of Soviet patriotism and constant readiness to defend the homeland. The CPSU Central Committee decree entitled "On Further Improving Ideological and Political Indoctrination Work" emphasizes the necessity of broad encompassment of all groups of young people by ideological influence, indoctrination of young people in the revolutionary, fighting and labor traditions of the party and people and in a spirit of Communist ethics. Utilizing these traditions, party, Soviet, Komsomol and defense organizations, commanders and political agencies of army and navy direct their efforts toward accomplishment of the task stated at the 25th CPSU Congress to indoctrinate toilers, and particularly the younger generation, in a spirit of constant readiness to defend the socialist homeland. It cannot be otherwise, for there is nothing dearer to us Soviet citizens than our country's happiness and security!

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BOOK EXCERPTS: ARTILLERY IN BATTLES AND OPERATIONS

Moscow ARTILLERIYA V BOYU I OPERATSII in Russian 1980 signed to press
9 Oct 79 pp 1-3, 5-9, 20-21, 83-85, 127-129

[Annotation, Table of Contents, Introduction, excerpts from chapters 1
through 3, Conclusion, and Bibliography of book by G. Ye. Peredel'skiy,
A. I. Tokmakov, and G. T. Khoroshilov]

[Excerpts] Title Page:

Title: ARTILLERIYA V BOYU I OPERATSII (PO OPYTU VELIKOY
OTECHESTVENNOY VOYNY) (Artillery in the Engagement and
Operation [Based on the Experience of the Great Patriotic
War])

Publisher: Voenizdat

Place and year of publication: Moscow, 1980

Signed to Press Date: 9 October 1979

Number of Copies Published: 15,000

Number of Pages: 136, with 25 pages of illustrations

Brief Description:

This book, on the basis of synthesis of the experience of the Great
Patriotic War and analysis of the most instructive examples of artillery ac-
tivities in engagements and operations, shows the most characteristic
features of its employment in the attack and defense which are of specific
significance for present-day conditions. This book is intended for missile
troops and artillery staff officers, commanders of combined-arms and ar-
tillery units and large units, unit artillery commanders, as well as per-
sonnel enrolled at military educational institutions.

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Folder of Diagrams, Tables and Appendices (Unit)	

Introduction

Increasing our country's defense capability is a constant and continuous concern of the Communist Party of the Soviet Union. The 24th and 25th CPSU congresses emphasized the necessity of reliable defense of everything which has been created and built by the people and improving the quality of combat training and ideological conditioning of army and navy personnel.¹

Proceeding from these demands is the task of further strengthening the Soviet Armed Forces. Successful accomplishment of this task, however, is inconceivable without taking into account the experience of World War II, and particularly the Great Patriotic War.

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Experience in combat employment of artillery in engagements and operations as well as its innovative utilization constitute an important practical foundation on which are based the conclusions and recommendations of contemporary theory of employment of artillery in the engagement and operation. One of the tasks of today is to consider the lessons of the past in the interests of the present, in the interests of development of the art of warfare.

In the course of the Great Patriotic War the Armed Forces of the Soviet Union, having recovered from initial setbacks, dealt a shattering defeat on the armies of the fascist bloc. Artillery made a major contribution to the achievement of victory over the enemy. Possessing considerable fire capabilities, it cleared a path for infantry and tanks in the attack and blocked the enemy's path in the defense.

In the very first battles of the Great Patriotic War Soviet artillerymen demonstrated excellent training and the ability to punish the advancing foe. The war, however, which began in a highly unfavorable situation, also revealed important deficiencies in the employment of artillery in various types of engagement. They included first and foremost the fact that many combined-arms (infantry) commanders, possessing poor knowledge of the combat characteristics of artillery, failed to assign it combat missions and frequently incorrectly utilized this powerful combat arm in battle. Some combined-arms commanders chose to ignore the intelligence reports and suggestions of artillery commanders pertaining to combat employment of artillery or kept their decisions secret from artillery commanders....

Combined-arms commanders did not adequately care for their artillery: during an advance they failed to assist it in performing its combat mission promptly and well, during withdrawal failed to assign cover to it, failed to provide needed combat engineer assistance during a march, and frequently left their artillery unprotected, for which reason it sustained enormous losses in personnel and equipment.

In a directive letter dated 10 January 1942, Supreme Commander I. V. Stalin noted that "our troops have not learned to penetrate an enemy defense, are unable to establish battle groups to achieve numerical superiority, and that penetration of the enemy's defense and the conduct of an offensive are impossible without substantial, protracted and continuous fire assistance by artillery concentrated in some one area."

Subsequently, as a result of continuous quantitative and qualitative growth of Soviet artillery and other weaponry, acquisition of combat experience and improvement in the skill of commanders and all personnel, the above shortcomings in combat employment of artillery were corrected.

Extensive maneuver and decisive massing of artillery ensured the success of defensive and offensive engagements and operations. During the war years this principle developed beyond the framework of tactics and was applied on an operational and even strategic scale, which enabled artillery, working in

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coordination with other combat arms, successfully to accomplish fire delivery missions and to assist in defeating the enemy's main forces.

A new, improved principle of establishment of an artillery force and artillery control was elaborated and demonstrated its viability in the course of the Great Patriotic War, due to which every combined-arms commander and operational formation commander could influence the course of combat operations with artillery fire and skillfully control events.

In offensive engagements and operations artillery was not limited to the conduct solely of carefully-planned artillery preparation for the assault, but would mount a powerful, aggressive artillery attack, which provided continuous close support of advancing infantry and tanks with concentrated or massed fire to the entire depth of combat missions of combined-arms large units.

Engagement of artillery constituted one of the most important conditions for gaining fire superiority over the adversary. In the course of the war Soviet artillery successfully performed the task of neutralizing hostile batteries and proved its total superiority over the artillery of the German-fascist forces.²

A well-balanced system of antitank defense was established to combat enemy tanks, a defense which was organized on the basis of close coordination of all antitank weapons, under the direction of the combined-arms commander. Artillery was assigned the most important role. In the defensive battle on the Kursk salient, for example, artillery fire disabled and destroyed more than 60 percent of all enemy tank and self-propelled gun losses.³

Noting the combat achievements of Soviet artillery and the battle accomplishments of our artillerymen, the Supreme Commander stated in Order No 225, dated 19 November 1944, that artillery was that force which secured for the Red Army defeat of German-fascist troops in defensive battles and which cleared a path for infantry and tanks in all offensive operations, right up to final victory.

The party and people highly praised the combat services rendered by Soviet artillery during the Great Patriotic War. The guards title was awarded to 137 artillery units and combined units. All rocket artillery units received the guards appellation. Many artillery units and combined units were awarded the name of those cities in the liberation of which they had distinguished themselves. More than 1,800 artillerymen received the coveted title Hero of the Soviet Union. Artillerymen were the first to be awarded the Order of the Patriotic War, a decoration instituted in 1942. Artillery Day, a national holiday, has been celebrated in this country since 1944.

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Leaders of industry, artillery command and engineer cadres definitely deserve a good deal of the credit for accomplishment of tasks pertaining to qualitative and quantitative growth of artillery, for providing it with everything needed for the conduct of combat operations, and growth of its fighting strength as a combat arm. In particular, we should mention People's Commissar of Armaments D. F. Ustinov, People's Commissar of Munitions B. L. Vannikov, People's Commissar of Mortar Weapons P. I. Parshin, Red Army Commander of Artillery Chief Mar Arty N. N. Voronov, and his immediate aides, Mars Arty N. D. Yakovlev, M. N. Chistyakov, and Gen F. A. Samsonov. A large contribution to the theory and practice of command and control of masses of artillery and organization of its operational-tactical employment was made by famed military commanders Chief Mar Arty M. I. Nedelin, Mars Arty V. I. Kazakov, K. P. Kazakov, P. N. Kuleshov, G. F. Odintsov, Gens N. S. Fomin, N. M. Khlebnikov, M. M. Barsukov, G. S. Kariofilli, A. K. Sivkov, N. N. Zhdanov, and others. In the postwar years many of these contributed their experience and knowledge to the cause of strengthening the might of the missile forces and artillery.

The instructive examples of combat operations contained in this book, which reveal modes of combat employment of artillery in the last war, will assist officers in solving many problems in the process of operational and combat training. The authors have endeavored to show not only how employment of artillery was planned but also how artillery actions were adjusted in response to situation change. This once again emphasizes the truism that under combat conditions things frequently do not go according to plan. A very appropriate comment in this connection is made in L. I. Brezhnev's book "Malaya zemlya" [Little Land]: "Often battles do not develop quite as they were depicted on staff maps, and sometimes the difference is considerable."⁴

One should always bear in mind, however, that a combat example cannot be viewed as a ready formula for making a concrete decision. Study of combat experience will be beneficial only if one comprehends the general law and pattern of development of a given principle of employment of artillery during the war years and, on the basis of this, if one draws correct conclusions applicable to present-day conditions. Every officer must master this skill.

The book consists of three chapters, which discuss problems of combat employment of artillery based on the experience of the last war, plus a conclusion. The first chapter presents a brief overview of the state of armament and Soviet artillery modes of gunnery; the second chapter discusses artillery actions in the attack; the third chapter discusses evolution of the employment of artillery in the defense. The conclusion presents the general direction and trends in development of artillery in the postwar period. Illustrations, in the form of tables, diagrams and charts reflecting actual combat situation conditions, broaden the reader's knowledge of these problems.

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FOOTNOTES

1. See L. I. Brezhnev, "Otchetnyy doklad Tsentral'nogo Komiteta XXIV s"yezdu Kommunisticheskoy partii Sovetskogo Soyuz" [Central Committee Report to the XXIV CPSU Congress], Moscow, Politizdat, 1971, page 100; "Materialy XXV s"yezda KPSS" [Proceedings of the 25th CPSU Congress], Moscow, Politizdat, 1976, page 83.
2. See I. Stalin, "O Velikoy Otechestvennoy voyne Sovetskogo Soyuz" [The Great Patriotic War of the Soviet Union], Moscow, 1948, page 176.
3. See "Sovetskaya artilleriya v Velikoy Otechestvennoy voyne 1941-1945" [Soviet Artillery in the Great Patriotic War, 1941-1945], Moscow, 1960, page 230.
4. L. I. Brezhnev, "Malaya zemlya" [Little Land], Moscow, 1978, page 13.

Chapter One. Artillery Weapons and Gunnery Modes

1. State of Armament

Soviet artillery demonstrated on the battlefields of the Great Patriotic War that it comprised the main fire delivery vehicle of the Ground Forces. The combat might of artillery was due to a significant degree to the qualitative state of its armament -- guns, mortars, rocket artillery vehicles, artillery ammunition, fire control instruments, means of transportation, as well as artillery quantity.

Thanks to unabating attention on the part of the party Central Committee and Government, Soviet artillery entered the Great Patriotic War possessing equipment which in performance characteristics not only was not inferior but was even superior to the majority of counterpart models in the German-fascist army, equipment which was not only modern but state-of-the-art.

As a result of the efforts of designers, engineers and workers, by the beginning of the war our artillery possessed a high degree of accuracy of fire, adequate range, and fired potent high-explosive, armor-piercing and fragmentation shells. Many artillery systems developed before the war performed successfully in combat and remained in the arsenal for many years after the war.

At the same time we should note that the combat capabilities of artillery decreased significantly at the beginning of the war due to a shortage of mechanical transport, means of communication and reconnaissance, and especially artillery reconnaissance and observation instruments.

On the basis of strengthening of the war economy and growth of the metallurgical, chemical and machine building industries during the war years, there occurred further development of artillery equipment. Through the

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heroic labor of Soviet designers, engineer-technician personnel and workers, new types of artillery were designed and built -- rocket and self-propelled, as well as new models of artillery systems, instruments, ammunition and transport. The demands imposed by the conditions of combat operations were definitely taken into account.

Chapter Two. Artillery Operations in the Attack

1. Massing of Artillery in the Attack

In the offensive engagements and operations of the Great Patriotic War, artillery was one of the most effective means of delivering punishing fire on the adversary in support of infantry and tanks.

The practical experience of World War I and postwar development strongly emphasized the importance of the principle of massing of artillery and artillery fire in the main sectors of troop operations. Implementation of this principle called for maneuver of artillery and artillery fire.

The principal combat situation conditions influencing the quantity of artillery employed to support penetration of the adversary's defense were spelled out in the Artillery Field Manual long before the Great Patriotic War.¹ Establishment of an artillery density of up to 60-80 guns per km in the breakthrough sector was prescribed, and under certain conditions as many as 100 guns or more.

Thus maneuver and massing of artillery were addressed by Soviet military theory and practice long before the war.

In the course of the Great Patriotic War, however, concentration of a maximum possible quantity of artillery weapons in the breakthrough sector, artillery preparation and support of the attack with massed fire until the enemy's defense was fully shattered, and maneuver of artillery and artillery fire acquired new qualities and reached a scale unprecedented in the history of warfare. This is due to change in the character of offensive operations as well as a substantial qualitative and quantitative growth of artillery, increased artillery firepower and mobility, as well as improvement of methods of artillery control and organization.

Extensive maneuver and massing of artillery in breakthrough sectors demanded of commanders a high degree of skill in artillery utilization. Serious deficiencies in the combat employment of artillery and in organization and conduct of an offensive by formations and combined units, however, were revealed at the end of 1941 and beginning of 1942, in the first large-scale Red Army offensive operations.

Headquarters, Supreme High Command revealed the shortcomings and errors occurring in the first offensive operations and issued the troops a number of instructions on organization and conduct of an offensive operation. One of the principal demands was decisive concentration of men and weapons

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in the proposed breakthrough sector. This particularly applied to artillery. In the course of defensive operations in the initial period of the war, when the enemy held the strategic initiative, was numerically superior to the Soviet forces and possessed greater mobility and maneuverability, while our operational reconnaissance frequently failed to obtain requisite information on the adversary, commanders displayed uncertainty about the stability of their combat dispositions and cautiousness which grew into fear of weakening a given sector in order to achieve a preponderance of forces in the decisive sector of an engagement or battle.

The ingrained habit of uniform distribution of men and weapons, artillery in particular, impeded swift accomplishment of missions by troops in the offensive engagement and operation, did not permit achievement of fire superiority over the adversary, and led to protracted fighting to shatter the defense in the breakthrough sector and a slowed rate of attack and advance as a whole. It was necessary to master the art of executing maneuver of artillery at the disposal of the combined units and formations, concentration of artillery efforts on the main axis, and massing of artillery and artillery fire in accomplishing the principal missions in the offensive engagement and operation. For quite some time, however, efforts to establish a decisive superiority in artillery on the main axis were unsuccessful as a consequence of insufficient quantity of artillery, and it was not until the latter half of 1942 that one observed an increase in the quantity of artillery in the breakthrough sectors of formations (combined units) and the degree of its massing (see Appendix 1).

Beginning in December 1942, pursuant to the instructions of the Red Army Commander of Artillery, in calculating artillery density not only its quantity was considered, but also the qualitative aspect.² Density of guns and mortars of 76 mm and larger became the principal indicator, and in penetrating fortified areas -- density of guns and mortars of 122 mm and larger.

We shall examine in concrete combat examples how massing of artillery in breakthrough sectors was accomplished.

FOOTNOTES

1. See "Boyevoy Ustav artillerii RKKA" [Workers' and Peasants' Red Army Artillery Field Manual], Part 2, 1937, pp 83-84.
2. Central Archives of the USSR Ministry of Defense, Fund 217, List 1227, File 45, sheets 1-2.

Chapter Three. Artillery in the Defense

1. Artillery Grouping and Fire Plan

The purpose of defense is to repulse an attack by superior enemy forces, to inflict substantial losses on the enemy, to hold occupied positions, and to create conditions for a shift to a decisive offensive.

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Emphasizing the law governing defense, V. I. Lenin wrote: "Never in the history of the world have there been wars which began and ended with a single continuous victorious advance or, if such wars did occur, they were an exception."¹

Prior to the Great Patriotic War views on combat employment of Soviet artillery in the defense were formed under the influence of the experience of World War I and the Civil War. The 1936 Field Service Regulations defined the missions of artillery in the defense as follows: "Artillery impedes the path of the advancing enemy, hits his infantry and tanks, engages his artillery, aircraft and other weapons, and supports counterattacks by friendly infantry and tanks."

At a military conference in December 1940² the People's Commissar of Defense emphasized that defense should be anti-artillery, antitank, anti-aircraft, as well as multiple-echelon, stubborn and vigorous. These demands on defense increased to an even greater degree the role of artillery, which was assigned the brunt of the effort against hostile artillery and tanks.

The Artillery Field Manual (Part 2, 1937) contained recommendations on artillery control in the defense: establishment of artillery groups in direct support of infantry (PP) and long-range groups (DD). PP groups were formed of division artillery, one for each regimental defensive sector, each containing from one to three battalions. DD groups could be formed of corps artillery in forward-echelon rifle divisions and were designated to engage hostile artillery, neutralize enemy reserves and control facilities. When a rifle corps was defending on a wide frontage, its artillery would be distributed between divisions and reinforce the fire of PP groups.

This form of artillery control experienced further development in the course of the Great Patriotic War in conformity with change in organization of troops, the character of conduct of defensive operations, and reinforcement of defending combined-arms formations and large units by Supreme High Command Reserve artillery.

Typical at the beginning of the Great Patriotic War was a relatively uniform distribution of artillery units (subunits) among combined-arms large units (units). PP artillery groups would be established in forward-echelon defending combined units (these groups containing from a battalion to a regiment), and if artillery was available -- long-range groups (up to an artillery regiment). Subsequently, in connection with substantial artillery losses, it was not always possible to establish the requisite group. Only in the defense of Moscow at Stalingrad, and especially in the Kursk defensive battle, was it possible to establish sufficiently strong artillery groups in the rifle regiments, divisions, and combined-arms armies.

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Combat experience in employment of artillery in the defense, just as in the attack, demonstrated the expediency of establishing artillery groups not on the basis of specific purpose (close support of infantry, long-range bombardment) but according to an organizational-tactical principle (regimental, division, corps, and army).

The character of artillery groups established in the defense exerts direct influence on organization of the fire plan. According to prewar views, in the defense artillery readied fire for delivery against enemy concentration areas, routes of advance, ahead of the forward edge of the battle area, and deep in friendly defenses. It prepared long-range fire onslaughts (DON), concentrated fire (SO), standing and antitank barrage (NZO, PTOZ). Also specified were preparation and delivery of massed artillery fire in repulsing enemy attack, conduct of artillery counterbombardment, and close support of counterthrusts. Article 23 of the 1940 Draft Field Service Regulations, for example, stated that "the most decisive and swiftest results in combat are secured by massed, surprise and precision-controlled artillery fire."

At the beginning of the war the fire plan in the defense was set up primarily in the rifle regiments and divisions. Due to a shortage of long-range artillery directly under the army commander, it was impossible to mass fire to combat hostile artillery, conduct counterbombardment, close support of an army counterthrust, as well as performance of other missions. Stability of the defense suffered with such a fire plan. Efforts to correct this shortcoming were begun at the end of 1941 during the defense of Leningrad, and subsequently in the armies of the Western Front during the defense of Moscow. The artillery fire plan became the most sophisticated in the defensive battles at Kursk and subsequently at Lake Balaton.

We shall examine the character of establishment of the artillery group and fire plan in the defense with concrete examples from combat.

FOOTNOTES

1. V. I. Lenin, "Poln. Sobr. Soch." [Complete Works], Vol 44, page 209.
2. "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II, 1939-1945], Vol 3, Moscow, 1975, page 409.

Conclusion

In the postwar period an evolution in views on the role and place of artillery in the contemporary engagement and operation and on the paths of its future development took place in the armies of the majority of nations. This is connected on the one hand with improvement of old and development of new weapons (especially nuclear missile weapons), delivery of more sophisticated combat equipment to the Ground Forces and assimilation

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of the experience amassed during World War II, and on the other hand with appraisal of the potential adversary, his artillery weapons and military equipment, as well as modes of conduct of the engagement and operation.

When nuclear missile weapons were first developed it was initially assumed that they would accomplish all the missions which formerly had been performed by artillery. Therefore beginning in the mid-1950's there was noted in many countries a certain depreciation of the role of conventional artillery, which was reflected in a decrease in the numerical strength of artillery units and subunits and in the troop table of organization. It was particularly vividly manifested in the U.S. Army, in which operational-tactical nuclear weapons were adopted on a large scale.

By the beginning of the 1960's, however, on the basis of synthesis of the experience of field exercises as well as the results of a large number of nuclear missile weapons tests, foreign military experts reached the conclusion that under conditions of high-mobility combat operations and a rapidly changing situation, it is often inexpedient and sometimes outright impossible to utilize these weapons, due to the relatively greater amount of time expended on preparing for and delivering a nuclear missile attack. In addition, the enormous potential destructive force of nuclear weapons sometimes becomes excessive for the targets to be struck and dangerous for friendly troops. At the same time conventional artillery firing conventional rounds is capable of successfully taking out individual small targets remaining undamaged following a nuclear strike, of delivering counter-battery fire, barrage fire, and of performing a number of other characteristic fire missions connected with close artillery support of ground troops.

The opinion was expressed that the role of conventional artillery had become greater for hitting targets (installations) in the immediate vicinity of friendly troops, since it is not always possible to employ nuclear weapons for this purpose for reasons of safety. At the same time foreign military experts believe that decreasing the yield and size of nuclear warheads to that of artillery rounds will make it possible to transform conventional artillery into a versatile weapon capable of accomplishing diversified missions, both with nuclear and conventional ammunition.

Foreign military experts, comparing the capabilities of tactical missiles and artillery pieces, noted a number of advantages of the latter: the comparatively low cost of artillery pieces makes it possible to furnish them to troops in significantly larger numbers, while simplicity of operation facilitates and accelerates the process of training gun crew personnel; it takes much less time to ready artillery to open fire than to prepare to fire missiles, and greater accuracy of fire is achieved.

Enhancement of the role of artillery in the armies of the United States and other NATO countries was also promoted by a shift to the so-called

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strategy of "flexible response." As a result greater attention began to be devoted to conventional weapons suited for the conduct both of a nuclear and nonnuclear war.

Artillery, an inseparable component of the Ground Forces, is called upon to perform its specific missions in close coordination with other combat arms.

Soviet military science, taking into consideration the achievements of military technological thought, recommends that the various combat arms be utilized not in an uncoordinated manner but comprehensively, in conformity with their function and combat capabilities, on the basis of a concrete operational-tactical plan. Coordination in time and points of attack by all personnel and weapons participating in an operation, which comprises the essence of coordinated action, is one of the decisive conditions for achieving victory over the enemy.

The victorious Soviet artillery salvos which boomed out in 1945 should constantly remind any aggressor what awaits him if he starts a war. All artillerymen must continue in the future improving their combat skills in order to carry out all tasks pertaining to defense of our homeland and the nations of the socialist community.

Commanders and staffs should skillfully utilize the experience of the last war in the process of combat and operational training. The USSR Minister of Defense emphasized in his address at the Third Armed Forces Conference of Party Organization Secretaries that combat training should be organized with an eye to the future, and "at the same time the combat experience of the past, especially the experience of the Great Patriotic War, should be skillfully utilized in training the troops and naval forces. It constitutes our priceless wealth."¹

FOOTNOTE

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SOVIET STRATEGY: FRENCH RESEARCH GROUP OVERVIEW

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[Article by Soviet Strategy Study and Research Group: "Soviet Strategy"]

[Text] A combined research group and think tank were established under the sponsorship of the Foundation for National Defense Studies to look into the field of Soviet strategy. Its members were gathered on account of their diversified education and competence but also for their common knowledge of the Russian language and other Slavic languages. The group consists of Alain Coutrot, Henry Cuny, Henri Palacio, Henri Paris, Alain Prechac, Lydia Rolland, and Jean-Christophe Romer. This article is the result of their first effort.

A study of Soviet strategy poses redoubtable problems. The originality of the vocabulary is no mere coincidence; words express different and sometimes even opposing concepts when compared to those that constitute the foundation of Western strategies. Permeated with the concepts of the strategy of deterrence, Westerners are having trouble grasping the main thrust of Soviet military thinking and therefore all of its facets.

Soviet military strategy is part of a vast and very coherent complex which encompasses all questions relative to armed force; military doctrine and science. Current doctrine is based on the one hand on "peaceful coexistence," which is aimed at replacing war with negotiations in settling the struggle between socialism and capitalism, but which does not rule out ideological conflict, nor the possibility of local confrontations; on the other hand, it is based on "socialist solidarity," as expressed in the Warsaw Pact and on Soviet military power. This power is the guarantor of the maintenance of peace but must also be capable of wiping out the adversary in case of a general conflict which always remains possible; this is why Soviet military strategy is based on a concept of employment of forces and rejects the Western concept of deterrence. The dogma behind this complex is the dogma of the offensive which is not considered incompatible with a general defensive theory. While admitting and stressing the revolutionary aspect of nuclear weapons and technological innovation, the Soviets have not "sanctified" the military atom, like the Westerners.

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The study that follows is not intended as an exhaustive analysis of Soviet military strategy which will be undertaken afterward; it only presents some reflections on certain manifestations of this strategy.

Soviet Armed Forces and Strategy--Attempt at Looking Forward to Horizon 1985

The implementation of a policy and a strategy demands resources and determination. Resources are not lacking in the USSR. It has pursued an armament effort which has raised it to the rank of a military superpower. Now, the next several years will bring a turning point: the USSR will even more definitely achieve parity with the United States, if not superiority over it. What will the Soviet determination be then--in other words, what will the strategy be then?

This means that we must go beyond the merely numerical terms of the armed forces in existence now and try to define their real power and ask ourselves whether there is not in fact an imbalance here. We must also analyse the possibilities of military and political actions presented by this situation as far as the Soviet leaders are concerned.

Soviet Technical and Operational Potential by 1985

Regardless of what the dominant ideology or the political system of a country may be, the factors influencing the development of armaments encompass the perception of the foreign threat which orients the technology and doctrine of weapons employment; foreign policy, which involves a certain notion of force, be it a deterrent or aggressive force; the industrial and scientific resources which can be allocated to defense as a function of domestic restrictions.

For the Soviet Union, the analysis of the foreign threat is made easier by virtue of the open character of the society which until now it considers to be the society of the chief enemy--the United States of America. In technological terms, although the USSR has the means for facing the American threat, one can credit it with the same capacity in dealing with other powers, such as, for example, China.

The second category of variables depends on political and military considerations. For the USSR, this produces a military doctrine based, on the one hand, on the capacity to fight a general nuclear war under the most unfavorable conditions: surprise attack by the Westerners, followed by a prolonged conflict, in a nuclear environment, aimed at the total destruction of the enemy social system; on the other hand, it is based on the limited action possibilities aimed at repelling counterrevolutionary actions and providing military support for "client" countries.

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Finally, depending upon the particular epoch, the military sector received the benefit of more or less great priority: here we might mention the way in which Khrushchev diverted the fleet construction programs to the benefit of the merchant marine. These problems are closely tied to the balance which developed between the various tendencies, all the way to the very highest levels of power. Military budget estimates are difficult to come up with on account of the nature of the economic system used in the Soviet Union: depending upon the sources involved, they would seem to vary between \$90¹ and \$160² billion!

Can one then, with the help of these factors, draft realistic scenarios for the development of Soviet armaments until 1985? In the field of "strategy," things are relatively clear: on the one hand, due to the publicity given to the SALT negotiations and, on the other hand, by reason of the weight and significance of each choice in the strategic game. In the area of "conventional" forces, problems are much vaster and much more diffuse. But we will see that there is no clear dividing line between this and "strategy" since certain decisions concerning conventional forces result from the strategic force situation estimate.

Strategic Forces

Land-Based ICBMs³

Soviet military doctrine assigns a capital role to the land-based inter-continental missile forces⁴ during the first phase of a general nuclear war: from the very first hours of the conflict on, firing these missiles must make it possible to crush the enemy forces as much as possible, first of all those included in the strategic nuclear forces as well as the industrial and urban centers. Until recent years, one could easily doubt the antisilo capability of the Soviet ICBMs against the 1,000 American Minuteman missiles but the situation has now tilted in their favor. Progress made involves the introduction of missiles with multiple warheads (SS-11, Model 3) as well as multiple independent warheads (SS-9, Model 4) which make it possible to hit a larger number of targets. But the important thing is the development, since 1974, of several ICBM systems capable of constituting a real threat against the Minuteman force: the SS-17, SS-18, and SS-19.

Their deployment rate has been rapid: since the first flight tests in 1974, 100 SS-17, 200 SS-18, and 300 SS-19 missiles have been placed in service. This missile generation combines several critical advantages: multiple independent warheads, in the megaton range, a cold-launch technique⁵, and accuracy comparable to the Minuteman 3 (CEP=300 m)⁶.

Under these conditions, a small proportion of the Soviet ICBMs can wipe out the majority of the American Minuteman system. Besides, the "cold"

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launch makes it possible to reduce the silo diameter, thus facilitating its hardening and permitting rapid reloading; in case of a prolonged conflict, the USSR could reload a portion of its ICBM batteries and could thus maintain deterrence in time of war.

What are the reactions of the United States to this threat?

The vulnerability of the Minuteman missiles is recognized and there is no improvement that can essentially reduce it: hardening the silos is illusory, considering the anticipated improvements in missile accuracy⁷.

The solution is to trigger the response barrage upon the detection of enemy attack, prior to the arrival of Soviet warheads on American territory but that is not flexible enough for the political establishment: causes of error are not entirely zero and their consequences are unacceptable.

In technical terms, the remedy to this vulnerability resides in the adoption of a system of mobile ICBMs⁸ considering the limitation in the number of enemy missiles provided for under the SALT agreements. This solution would make it possible to safeguard a significant portion of the ICBM force or, at worst, it would force the enemy to use all of his warheads during the first phase of the attack. But the development of this mobile force is only in the blueprint stage and flight tests would seem to be out of the question for the next 3 years under the SALT II accord. Assuming in-flight development lasting 2 years and placement in service at a high rate⁹ of 100 per year, this solution would not permit the United States to terminate Soviet superiority before 1987.

To prevent a challenge to a strategic situation acquired at the cost of a tremendous economic effort, the USSR will use two methods:

The diplomatic method, seeking to preserve its advantage, until 1990, through various deals in the course of the SALT negotiations;

The technical method, which would mean that it would continue its efforts to improve missile accuracy. One may think that the gap in this field between the United States and the Soviet Union will not be significantly accentuated any further: toward the end of the eighties, the accuracies anticipated are on the order of 100 m¹⁰.

It will continue research on mobile deployment to counter similar American systems. Mobility is conceivable only for missiles using solid fuel; so far, Soviet ICBMs have been using liquid propulsion, something which is worthwhile in terms of performance but disadvantageous with respect to force availability. The solid propulsion technique nevertheless is rather advanced since, as of now, several tens of SS-16 missiles with solid fuel

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have been included in the Soviet strategic arsenal. On the other hand, for the intermediate ranges (4,000 km), mobile deployment has been adopted for some 1,000 SS-20 missiles, a system which, for the propulsion part, uses the first two stages of the SS-16.

One may thus say that the technical potential does exist for a mobile force and that only economic and especially political reasons postpone the commissioning of such a force. Aware of its present superiority, the Soviet Union does not feel the need for increasing it at the risk of tarnishing the image of a peaceful country which its leaders want to present and precipitating American efforts.

Strategic Submarine Forces

The first Polaris submarine left on patrol in November 1960, carrying a threat which at that time looked difficult to stop and which brought about the evolution of the entire Soviet navy¹¹; the Soviet navy, on the one hand, tried to find the means for defending the country against the submarine threat; on the other hand, it worked very hard to adapt the advantages of the nuclear, missile-firing submarine to the needs of Soviet strategy. We will now examine these two aspects--the defensive and offensive aspect of the Soviet response--although they are broken up into a number of areas.

Defensive Aspect

Soviet antisubmarine defense distinguishes two zones--the close-in zone and the remote zone.

In the close-in zone, defense is provided by special surface vessels, supported by a shore-based naval air arm and, to a lesser degree, by a carrier-based air arm (for example, the helicopter carrier Moskva). This concept is perfectly in line with the Polaris system which--with missiles, initially, having a range of 2,300 km and 4,600 km at this time--is forced to operate close to the Soviet coastline to hit continental targets.

In the remote zone, the objective is the destruction of submarines on the way to their firing zones. The weapon which looked the most effective to the Soviets for this type of combat is a nuclear submarine whose qualities in terms of "maneuverability, fire power, and speed" are underscored as follows by Admiral Gorshkov¹²: "Submarines are becoming pursuit vessels by themselves, capable of detecting and wiping out the enemy's missile-firing submarines."

These tasks are thus assigned to attack submarines, mostly nuclear-powered, and with torpedoes and cruise or ballistic missiles. The development of

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these systems was accomplished with more or less good luck: success for the Class-C submarines, armed with ASM SS-N7 cruise missiles with a range of about 50 km, deployed primarily in the Mediterranean, where acoustic wave propagation conditions permit close-in combat; a half-failure for those of Class Y, designed to destroy enemy submarines on the high seas with the help of a long-range ballistic missile automatically guided toward its mobile target--the SS NX 13. The failure of this operation was expressed by the replacement of the SS NX 13 by the SS N 6, having the same size and a longer range but devoid of any target designation means.

Right now, there are two factors that contribute to increasing the submarine menace: the introduction of the American Trident 1 system, whose range of 7,500 km makes it possible to increase the submarine's patrol area by a factor of 10 and a highly accurate cruise missile (about 30 m), launched from a submarine, whose range of 2,700 km can be increased up to 4,600 km.

Against the cruise missile, the first move is diplomatic: in SALT II, the Soviets tried to limit its range¹³ in order not to have to solve an ASW problem more severe than the one posed by Polaris. The close-in zone concept would not be threatened here although improvements could be made in the field of surveillance. Thus, among the original research, we might mention the ground-effect aircraft (Ekranoplan)¹⁴ whose characteristics include great endurance, enabling it to operate from land bases, with a long-lasting mission capacity (3 days), a broad speed range enabling it rapidly to reach the search zone and to effect low-altitude detection (about a dozen meters). Besides, the commissioning of the Kiev-class vessels¹⁵ offers a mobile search platform for naval aviation.

The second way involved AA defense: new detection systems will have to be designed to take into account the small radar surface of the cruise missile.

In view of the range of the Trident I, it is unthinkable that ASW vessels, in reasonable numbers, such as the Kiev, could hold the American submarines in check or even track them the moment they leave their bases. The solution would be to increase the range of the missiles carried by the attack submarines and to base surveillance and detection on a satellite system. The moment the detection problems have been solved, several means of destruction would be available: in addition to conventional ASW means or the adaptation, on the Y-class submarines, of a ballistic missile meeting the specifications of the former SS NX 13, one might envision the use of the Backfire bomber and ICBMs, such as the SS 18, whose ten MIRVs would make it possible to cover the zone of uncertainty regarding detection. These latter methods would be in keeping with the doctrine of unified employment of all components of the armed forces.

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One last way would consist in developing an AEM. A system which would be technically ready for deployment in a short time (2 months, for example) would constitute an ace during a period of crisis if one of the parties were to decide to break the treaty outlawing such weapons. This problem will be examined later.

Offensive Aspect

For their "strategic" submarine forces, the Soviets have employment concepts which are different from the Western concepts, strictly oriented toward the destruction of ground targets. Even before the commissioning of the Polaris, the first series of nuclear-powered, missile-firing submarines, the H series, was operational; armed with three SS N 4 missiles, characterized by a rather short range (550 km), a powerful warhead, and poor accuracy, the H was designed for action against the enemy surface fleet. Similarly, this mission was extended with less success to ASW with the Y series, as we saw earlier.

The conventional missions of destroying ground targets fell primarily to the Delta series, equipped with the SS N 8 whose range (7,500 km) makes it possible to fire nuclear strikes at almost all of American territory from Soviet territorial waters while, because of the short range of the SS N 6 (3,000 km), the Y series is kept in reserve, protected against the Western ASW forces. This reserve could be thrown into the balance in course of a prolonged conflict, after a first exchange involving the partial or total destruction of enemy detection systems. The improvement of these weapons is being continued with the development of two new missiles: the SS N 17, the first solid-fuel on-board missile (4,500 km), destined to replace the SS N 6, will provide more flexibility in the employment of the Y class; the SS N 18 (8,500 km), which will have a sophisticated guidance system, containing two stellar setting instruments, will replace the SS N 8.

Geography forces the USSR to keep most of its strategic submarine fleet in inland seas (Barents Sea, Sea of Japan) in order to avoid being detected upon passing key points. Besides, the modest performances of a portion of its equipment necessitate aiming at the destruction or disorganization of the enemy system before that force can be used. In spite of this relative weakness--which will continue to exist so long as the old submarines have not been replaced--the score of Delta submarines constitutes a sufficient counter-city force to threaten the big American cities.

Strategic Bomber Forces

The third aspect of the American strategic threat consists of a force of 390 bombers whose long-range action component, the B-52, was placed in service in 1956 and upgraded by the addition of SRAM (a short-range air-to-ground system with a range of 250 km). In view of this, the Soviet

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Union has lined up a defense system, the PVO¹⁶ which consists of 55,000 men--as many as in the entire U.S. Air Force [as published]--and which is equipped with some 12,000 ground-to-air missiles (SA-5), distributed over 1,650 sites, plus 2,500 interceptors. To complete its air defense, the Soviet Union is studying an airborne, look-down radar system, capable of detecting an enemy aircraft flying at low altitude and launching an intercept missile straight down. Will such a system be sufficiently effective to stop an attack by cruise missiles which will be installed on the B-52 bombers? There seems little probability of that by 1985: the equivalent radar surface of the target vehicle used in the first test is reportedly 20 times greater than that of the cruise missile.

In view of this technological challenge, the Soviets tried to gain time by demanding--during the SALT negotiations--the limitation of the range of these missiles and the number of their carriers. Within the limitations of 2,500 km¹⁷ and 120 B-52 aircraft thus equipped, at most 60 could survive a surprise attack by reason of their vulnerability on the bases; they would then have to cross the AA defense lines in order to deliver their missiles to the targets in the very heart of the continent.

Modifying the old Khrushchevian positions on the efficiency of the strategic bomber¹⁸, the Soviets in recent years commissioned the Backfire with an action radius of 3,800 km, carrying a payload of 10 t. The Soviet SALT negotiators deny the strategic capability of this aircraft. However, it must be noted that in-flight resupply, corresponding to a modest increase in the range by 20 percent, would make it possible to assign counter-city missions to that aircraft covering a good portion of American territory. The tanker aircraft could be an adaptation of the new IL-76 transport aircraft. A second improvement of the Backfire is the cruise missile: already equipped with AS-6 (250-700 km range, depending on altitude), it could acquire a strategic character after the development of a missile with a range of 1,200 km, called the ASX; few of its characteristics are known but one may well think that the handicap in guidance technique can be partly made up with the adoption of supersonic speed. In 1985, the USSR would thus have a fleet of 250 Backfire bombers having a strong intercontinental action capability but not accounted for in the SALT accords.

ABM Defense

Recently, certain observers have credited the Soviets with the ability to put up a radiation-based antimissile weapon. To what extent is ABM defense a conceivable option for Soviet strategy?

The 1972 treaty, outlawing the large-scale deployment of an antimissile defense sprang from the desire of the Big Two not to become entangled in huge

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expenditures which would have been in vain because of the easy way in which antimissile technology could have been blocked. In addition to the technical difficulties in detecting a military warhead, connected with the use of jamming or lures¹⁹, the number of antimissiles necessary would become unacceptable with the development of multiple warheads: for one offensive missile, it would have been necessary to have more than ten defensive missiles. Besides, it would have been easy for the enemy to destroy the acquisition radars by saturating the defenses.

Now, at this time, research on the possibilities of developing an ABM system are again arousing interest:

Detection techniques have been improved and diversified: optical, electromagnetic, etc. The Americans recently experimented, using a rocket probe, with an IR mosaic detector to track the ballistic phase of a Minuteman shot;

Real-time, small-volume computers make it possible to process the detection data to guide the interceptor toward its target;

The interceptor vehicle could be a missile or a projectile launched by cannon;

The launch platform could be on the ground, in the air, or in space;

For destruction, one might visualize--in addition to chemical or nuclear explosives--other solutions, such as the dispersion of a cloud of flechettes made of a high-density alloy, on which the re-entry bodies would be impaled;

One phase of the flight which is of interest to antimissile defense is the propulsion phase; it is short but rather little discreet and eliminates the problem of multiple warheads;

The radiation weapon in turn imposes severe specifications upon the detection system: the objective must be located just a few meters away so that the detection ray may be effective whereas the explosive takes effect within a radius of about 100 m. Besides, the generation of energy for a weapon based on a satellite or the transmission of the ray into the atmosphere remain serious problems.

Finally it must be admitted that, regardless of which solution might turn out to be the best, it will be easier to tackle the problem by finding methods based on lures, countermeasures, maneuvering warheads, rather than have the defender perfect his system. Thus there is little likelihood that ABM defense would during the decade of the eighties acquire a destabilizing strategic level in either of the Big Two.

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It is easier to analyze the significance of the development of conventional equipment on account of a less apparent political implication and due to their diversity. But, more important than the individual performances of the various equipment items, are the characteristics of their missions which define the main efforts in the development of the equipment necessary for their accomplishment.

Soviet military doctrine assigns an important place to conventional forces even within a general nuclear conflict²⁰. Their mission would be to accomplish the destruction of the enemy armed forces, after the first strategic exchanges, and to exploit the latter; it would take place in a chaotic nuclear environment and must be conducted at a fast rate to benefit from the enemy's disorganization. Nevertheless, other scenarios for the employment of forces could be visualized by Soviet strategists, implying more flexibility in their implementation and a diversified panoply of armaments.

Airborne Forces

The predominant element among conventional forces consists of the airborne forces. They have been modified both quantitatively and qualitatively since 1965.

An increase of 800,000 men has made it possible to move up from 148 to 170 divisions, about 30 of which are stationed in Eastern Europe. The numerical ratio with NATO is undoubtedly in favor of the Warsaw Pact, that is to say, 3:1 in armored units and 2.5:1 in combat aviation.

Mobility has been increased by an augmentation in the number of armored vehicles in the mechanized infantry divisions (an increase in their potential corresponding to about 1,000 men) through the introduction of new equipment items, such as the BMP²¹ infantry combat vehicle, the SP 122-mm amphibious howitzer, and the 152-mm SP howitzer. The heavy and medium tank production rate is 2,000 per year and a tremendous effort is under way involving crossing equipment. The airborne forces as such comprise seven divisions provided with considerable fire power (howitzers, multiple rocket launchers) and two new transport aircraft with an action radius of 5,000 km, the IL 76 and 86, have been placed in service. Numerical superiority and the emphasis placed on the improvement in mobility could permit the USSR to conduct a conventional war without having to take the initiative in using tactical nuclear strikes which it very probably would consider the beginning of an escalation toward a general nuclear conflict²². But the assumption developed by Soviet military doctrine remains the assumption relating to the employment of tactical nuclear weapons like some kind of superartillery²³.

For this purpose, the ground forces have a tactical nuclear arsenal consisting of three ground-to-ground missiles: the Frog 7 (range 80 km), of which 900 are currently issued to the divisions and which are being replaced

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by the SS-21 system (with a range of 120 km), the Scud (280 km), and the Scaleboard (900 km) of which about 600 are reported to be operational. No nuclear tube artillery is as yet in service but a charge is supposed to be developed for the 152-mm SP howitzer. Besides, the latest in the line of attack aircraft, the SU-19-Fencer, could be used for tactical nuclear support.

Although one can detect an inferiority of Soviet tactical nuclear weapons, compared to the American forces, both in number and in quality, one must not forget that military doctrine rejects the concept of limited nuclear conflict: in all logic, the moment the tactical nuclear threshold has been crossed by NATO, the Soviet Union could use its medium-range missiles (1,000 SS-20 missiles in a mobile deployment mode, equipped with three warheads, each) for the destruction of military targets²⁴ (troop concentrations, airfields, port facilities). In a situation of superiority--both in nuclear strategic terms and in regard to conventional forces--there is, in the expressed doctrine, no pressure toward the acquisition of techniques, such as the one of the "neutron" bomb aimed at lowering the nuclear engagement threshold. But that does not mean that research in this field is not being continued, at least for the purpose of closing a technological gap which would place the USSR in a situation of inferiority during negotiations aimed at banning the deployment of such arms.

The Navy

What should we think of the Soviet Navy? The recent commissioning of three aircraft carriers triggered alarmist reactions among certain Western observers. Are these justified? Has there been a significant transformation of the capacities of the Soviet fleet or has there simply been an improvement in handling traditional missions of defending the territory against the submarine and naval-air threats?

Three kinds of considerations provide elements of response: the production rates for new vessels; the characteristics of these vessels²⁵; the weaknesses and strong points of the Navy with regard to the various missions that could be assigned to it.

While, during the period of 1958-1976, the rate of delivery of new vessels was 34 per year, it was only 17 per year in 1969-1976, although the increase in tonnage for 1969-1976 represented 38 percent of the increase for 1958-1976.

One can thus conclude from this that the Soviets built less vessels but that the increase in tonnage remains constant; this tallies with the appearance of the aircraft carriers of the Kiev class in 1976. Besides, the approximate distribution of construction costs, according to Western criteria, between the submarine and surface fleets, would seem to be 60 percent as against

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40 percent in favor of the submarines.

Overall, Soviet naval shipbuilding primarily emphasizes armament, after which come propulsion, electronics, endurance, and finally habitability. This gives us the profile of a ship with heavy and diversified firepower but with a low or zero re-supply margin, an average speed superior to those of Western vessels but reduced endurance. Let us also note the absence of nuclear power in the surface fleet and the kind of crew comfort which is in line with living standards in the USSR. Logistic support on the high seas remains poor; one support vessel for every 42 fighting vessels whereas the proportion is one for every 15 in the U.S. Navy.

From this analysis one can deduce that the Soviet Navy's capacities would be satisfactory for the following:

Strategic missions aimed at the destruction of ground targets (see the section on strategic submarine forces);

Close-in ASW and antisurface defense missions, with numerous powerfully armed vessels, supported by a numerically strong shore-based naval air arm;

Combat missions against enemy fleets on land-locked seas (the Baltic, the Barents Sea, the Black Sea, the Sea of Japan, and, to a lesser degree, the Mediterranean). But the weakness of logistic support would constitute a serious handicap to winning supremacy on the oceans.

The new vessels of the Kiev class were designed to close this gap; their endurance and their armament enable them to operate far from their home ports, to protect certain obligatory passage points along lines of communication, such as the sealane between the Mediterranean and the Pacific which is vital in case of a conflict in the Far East.

However one can doubt the capacity of these aircraft carriers properly to conduct a support operation for a client country. In times of crisis, however, their presence could deter or perhaps even harass Western naval-air operations.

In the years to come, it is probable that the Navy's development will continue qualitatively in order to extend the zone of action involving defense and protection of lines of communication; the Kiev series will probably be increased to a total of six units and a similar ship, but with greater capacity, could also turn up. There is little likelihood of the creation of naval strike forces capable of competing with the American fleet. On the one hand this is so because this would not be in keeping with the practice of indirect strategies developed by the Kremlin: this attitude however depends on the way in which the United States judges the rigor with which it must defend its international interests. On the other hand, in view of

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the fact that the Navy holds second place in the Soviet military establishment and the huge costs involved in the development of a powerful fleet of aircraft carriers or the modernization of presently available amphibious equipment²⁶, the transformation of the Navy should continue with a constant budget. This would imply the definition of priorities among the traditional missions and the desires for naval superiority expressed by certain circles in the Navy, whose advocate is its chief, Admiral Gorshkov. This arbitration will undoubtedly be within the purview of the political leaders.

One can extract several main ideas from this brief review of current Soviet forces and their possible evolution over the next 5 years.

The USSR is fully assuming its role as a superpower by not leaving the United States the possibility of deriving the hypothetical benefits from strategic superiority in the strict sense of the term. On paper, a comparison of the Big Two evidences a significant probability of success on the part of the USSR from certain viewpoints and, in any case, its ability to keep similar enemy forces in check.

However, the role of a superpower does not stop there. Nor does that of its armies. In this sense, Marshal Grechko declared in 1974²⁷: "In our time, the historical role of the Soviet Armed Forces is not limited to missions in defense of the fatherland and the other socialist countries. In its foreign policy, the Soviet state opposes the designs for exporting the counter-revolution and the policy of oppression, it gives its support to national liberation struggles and resolutely resists imperialist aggression in whatever corner of the world it may turn up."

Does this policy imply powerful military means oriented toward overseas intervention? It is not certain that the political leaders are unanimous on that conclusion. What in effect were the most important benefits of the strategy of direct military commitment in Egypt, prior to 1973, or the "surrogate" strategy developed in Angola? In spite of the insistence of renowned military leaders, such as Admiral Gorshkov, CNO since 1956, it seems that the portion of the budget allocated for a military machinery intended to seek superiority in "any corner of our globe" will remain moderate. For example, we saw that, within the Navy budget, priority continues to be on the modernization of the submarine fleet. In the area of traditional defense missions, efforts are necessary before technology will catch up to the level of stated doctrine. It will not be negotiations on disarmament or strategic arms limitations which will stop the incessant demand for new techniques; they instead have the consequence of regulating it and controlling its burden resulting for the national economy.

Finally, after 1985, will the technological level of China be sufficiently increased to give its leaders "possibilities of threat" which could influence

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Soviet policy in the development of armaments, both qualitatively and quantitatively? This aspect remains entirely too imprecise to enable us to visualize--for the period of 1980-1985--scenarios of the type of those which were presented in this article.

Conflict Hypotheses

The main question arising here--as we advance the assumption of military superiority of the USSR in 1985--is to find out what it will do with that superiority, where and how and why it will do it. Even if this assumption were not to come true, the simple fact of parity undeniably acquired does not in any way modify the problem.

It is quite evident that, before trying to answer such a question, one must consider that, while forecasts are relatively difficult in a quantitative field such as the field of armaments, a forecast, even in medium-range terms, in a field as fluctuating as that of international politics can be very hazardous. However, knowing a certain number of the constant factors involved here, it is possible to envisage several hypotheses.

We will thus consider the present world's geopolitical structures to be constants: the existence of two Germanies and the pursuit of East-oriented policies in the FRG (even in case of a change in the government majority); the continuation of the French policy of deterrence; the continuation of a preferred dialogue between the United States and the USSR; the maintenance of a moderate policy by Mr Brezhnev's successors; finally, a slight variation in American foreign policy by Mr Carter's successors in 1980 or 1984, even in case of a cyclic crisis in detente.

Having stated these prior points, the object of this study is not to enumerate and describe the various ways in which a possible Soviet aggression might take place²⁸ but rather to try to derive the political, economic, and social, national and international motivations and consequences of such an operation. In other words, triggering a war is tied not only to a quantitative ratio of military forces but also and perhaps above all springs from political, economic, and social objectives. One would also need a social-economic consensus not only on the part of the system of the aggressor country but also on the part of its alliance system.

Objectives of Soviet Military Aggression

The European Front

In the current situation there is little likelihood that the Soviet Union--even assuming its military superiority--is seriously contemplating direct aggression against the United States.

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The USSR as a matter of fact has no interest in breaking up the constant and preferred dialogue which it is maintaining with the United States; at least, so long as the multipolarization of international relations, which is in the process of developing, does not challenge the political-military joint rule of the two superpowers.

For the Soviets, as a matter of fact, the principle of the flexible response²⁹ necessarily increases the possibility of a nuclear conflict which is contrary to the very principle of detente because it contains the germ of a concept of using forces on the lowest rung of the scale. Now, a lesser possibility of conflict is found in the principle of massive retaliation, that is to say, the balance of terror. Apart from these divergences, which are essentially of a theoretical nature, the Soviets and the Americans seem ready to recognize the principle of turning their respective territories into sanctuaries. Under these conditions, if there has to be a confrontation between East and West, it would most likely take place in the European theater.

The possibility of a limited armed conflict in Europe is strengthened by the fact that--in the spirit of American public opinion and American leaders--there is developing the idea of "uncoupling" (see especially Mr Kissinger's interview in THE ECONOMIST, 3 February 1979); this has been confirmed by the plan for installing Pershing II missiles and cruise missiles in response to the Soviet SS-20 missiles.

Beyond simple military policy objectives which could only be dangerous poker gambles, what would be the social-political objectives of the USSR?

To compensate for uncoupling, the Americans could envisage strengthening the NATO array, going so far as to give nuclear arms to the FRG. Under these conditions, the USSR would be forced to envisage an "aggressive defense" of its territory. This eventuality in effect corresponds to one of the preferred assumptions for the triggering of a conflict in Europe.

The installation of pro-Soviet governments in Western Europe, instituting a dictatorship of the proletariat, is not seriously conceivable. It is out of the question for the Soviet Union once again to embark upon the process which it adopted in the countries of Central Europe in 1945-1948. The risks of failure and triggering a conflict are much too great for that. Besides, the Soviets cannot totally rule out the assumption of an American response in whatever form. Did not Mr Cyrus Vance say in Chicago on 1 May 1979: "Nobody should doubt that we would use (our) forces if our vital interests or those of our allies were threatened." Without excluding uncoupling, this speech by Mr Vance could relativize its application.

But the Soviet objective could be the "Finlandization" of Europe through a short and limited operation. This intervention would then be designed as a simple demonstration of force and a warning as to possible massive reprisals

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which could dissuade the Europeans from benefitting from a conflict with China which in turn would intervene against the socialist countries, that is, the USSR. The objective thus would not be to export the revolution--an idea abandoned back in 1920--but preventively to stop what the Soviets call "the exporting of counterrevolution" in the countries of Central Europe.

It seems in fact that the USSR would embark upon a conflict only if it felt cornered.

Finally, looking at the economic significance of limited intervention, especially from its technological aspect, one may ask oneself whether the Soviet Union would not derive the same advantages--if not at lesser cost, then at least at lesser risk--by signing bilateral or multilateral economic cooperation agreements with the Western countries. Thus, the pursuit of the policy of detente and cooperation with the West would be more profitable to the USSR than an attempt at armed intervention.

However, we will see later on that strictly economic problems--especially the problem of raw material supplies for the socialist countries--can be a source of conflict between the East and West and degenerate into an armed conflict.

The Chinese Front

Politically speaking, the assumption of the unleashing of a conflict against the PRC is certainly more likely, in this assumption, of course, if we imagine that the USSR might wish to exploit its military superiority.

It has been just about established to be true in effect that any modern conflict was preceded by a political discourse and sustained by an aggressive ideology.

Now, on the European front, such a discourse does not appear on either side--except for a few marginal cases which do not represent political forces liable to direct a country. On the other hand, this discourse does exist on the Chinese front. Chinese literature is full of texts describing the Soviet threat and the inevitability of a war with Moscow. These texts are widely reproduced in the Soviet press. The ideological premises are thus present on this front.

The aggressive policy of the Chinese Communist Party, the development of relations between the PRC and Japan and the United States, and the new economic policy, the so-called policy of "four modernizations," aimed at drawing China out of its condition of underdevelopment are perceived in Moscow as a threat that is all the greater and all the more real since it is not exclusively verbal.

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Soviet leaders might conceive a counterforce and countereconomy destruction operation aimed at slowing down the development of Chinese power, as they had already envisaged in 1969. Such an intervention would also constitute a warning to the Western powers who might be tempted to help China rearm, in order thereafter or simultaneously to turn against the Europeans.

The question coming up now is what kind of intervention that would be: conventional or nuclear? There is little likelihood that the Soviets might engage in a conventional conflict against China which would entail the risk of dragging out and degenerating into a more generalized conflict, the objective being only to destroy the military potential and possibly a part of the economic potential. The solution then would be to fire missiles against Chinese nuclear missile sites, without in any way excluding the intervention of airborne forces, for example, against industrialized Manchuria.

But under these conditions they would have to keep in mind any possible American reactions to the extent that China represents for the United States a strategic ace-in-the-hole which is all the more worthwhile since it forces Moscow to think in terms of two fronts which right away reduces its military superiority.

Besides, would the USSR break with the taboo on using nuclear weapons? It did not do so in 1969³⁰, nor in 1979, at moments when it was in a particularly favorable situation, both in military and diplomatic terms, which it will only recover with great difficulty.

Finally, the theory of turning the nuclear powers into sanctuaries seems to be gaining ground in the West and East. There would therefore seem to be more political and economic reasons for intervention in China rather than Europe. On the other hand, objections of a military nature to such intervention are at least as important in China as they are in Europe.

It would thus seem that, under conditions of constant geopolitical structures, the military, political, and economic advantages which the Soviet Union could derive from its military superiority on the European and Asian fronts would be considerably less than the risks which it might incur: general nuclear war or prolongation and bogging down in a commitment which initially was supposed to be limited in terms of time and space.

But, by virtue of its military superiority, the Soviet Union could prove to be all the more demanding in its discussions as the leeway of the United States is increasingly reduced.

The haggling could then involve peripheral zones and, more particularly, the raw-material-producing countries. Iran, and the area of the Persian Gulf

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could be the object of a struggle of influence between the United States and the USSR for petroleum supply.

Besides, if we look at recent Soviet-Cuban experiences in Africa, one might ask oneself whether, in view of their mediocre results, both political and economic, the Soviets will seek confrontation in a field where--even though they have the possibility of winning militarily--the social-political benefits prove to be extremely meager.

Finally, on the European front, it is possible that the Soviets might raise their demands during a crisis which they could provoke, for example, on the question of Berlin. By virtue of their superiority, they could exert pressure in their favor without having any need for opening hostilities and they could recall that, in nuclear matters, they do not recognize the principle of the gradual response.

Domestic Support and Consequences

The start of a conflict is not only the result of foreign policy considerations. In other words, war is not only the continuation of foreign policy by other means but also the continuation of domestic policy³¹. In the present case, we will consider as domestic factors not only the domestic policy of the Soviet Union in the strict sense of the word but also the factors inside the socialist camp and, more particularly, in the Warsaw Pact member countries.

Internal Factors in the Soviet Union

These factors--which must serve as support for the government--are of three kinds. The first one is the capacity of the Soviet economy and especially the light industry and agriculture to meet the needs of the population if priority were to be given to war industry. To that we must add that a portion of the cereals consumed in the USSR comes from the West.

The second question is the question of the integration of the USSR into the worldwide economic system. In view of the dependence of the USSR on Western technology, both on the domestic and the foreign markets³², a conflict could break up the process of modernization of the Soviet economy.

Finally, the third point involves social consensus. It must be noted above all that, while the Soviet population, always and especially since 1945, has been conditioned by the existence of the "imperialist threat," and it was also conditioned by the horror of war and by the basically peaceful nature of the USSR. Thus, only a particularly skillful propaganda, in the eyes of the people, would justify the idea of Soviet aggression against East or West.

Difficulties could then come up in the various Soviet republics, especially the Asian ones and the Baltic ones which would be added to the problems

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arising from dissidence. As a matter of fact, one may visualize that--at the moment the government needs the broadest possible social consensus--all of Soviet society, swept along by a growing malaise, would oppose the government and force it to reconsider its practice of "real socialism"³³.

Thus, the opening of hostilities by the USSR would entail the risk of producing a challenge to its leaders or perhaps even bring about their downfall and there is little likelihood that these leaders are not aware of that. Besides, they must take into account the reactions of their allies in the socialist community in such a situation.

Conversely, if the Westerners emphasized the defense of human rights too much, the Soviets could perceive it as entirely too flagrant interference in their domestic affairs and think in terms of a forward thrust against the West, regardless of the risks involved.

Support of Socialist Camp

If the Soviet Union were to open hostilities on one front or another, the question comes up as to whether this would be a strictly Soviet operation or a joint operation involving the Warsaw Pact forces. In either case, one might wonder about the reaction of the countries in the socialist community.

Even though the USSR is always present when the leaders of the countries of the East make their decisions, especially in the matter of foreign policy, one cannot consider these countries to be a homogeneous whole. While Romania and Yugoslavia are by now classical examples, other countries also manifest a certain originality in the conduct of their foreign policy. Some countries, such as Poland or Hungary, in effect are looking to the creation of a European union from which the Big Two would be excluded. Regardless of the material possibilities of implementing such a project, it is nevertheless representative of a state of mind which the Soviet leaders cannot ignore.

Now, what would be the reaction of those countries in case of a conflict in Europe? If it were to involve a joint operation by the Warsaw Pact forces, there is little likelihood that the armies of the satellite countries could refuse to join in, if only by reason of the presence of Soviet forces on their territories.

But, on the other hand, the Soviets could not attempt anything without the accord of at least some of the leaders of the socialist countries. Thus, in 1968, it was entirely likely that, without the support--if not the pressure--of Messrs Ulbricht and Gomulka, the Soviet Union would not have intervened in Czechoslovakia. Likewise, while the leaders of the socialist countries do not have the material means for opposing a firmly determined Moscow, it is possible that the Soviet leaders might hesitate to embark upon a foreign operation without the support and accord of the leaders of the brother countries.

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Now, at this very moment, public opinion in these countries is quite a bit better informed than Soviet public opinion, particularly on the real situation in the West. The leaders of the socialist countries know perfectly well that the majority of their people would not allow themselves to be duped by any kind of slogan, even if it came down to fighting against the "German revengemongers," which undoubtedly would be the strongest slogan.

Along with these essentially political considerations, one must look at a more specifically economic question which could generate intrasocialist conflict: the question of petroleum supply for the socialist countries through the Soviet Union. Its hydrocarbon output going down, the Soviet Union would no longer be able to supply its allies with a sufficient volume of petroleum, in very short-range terms. This would result in a reduced dependence of the countries of the East on the USSR and their greater dependence on the noncommunist world. The countries of the East would in effect be forced to supply themselves on foreign markets and consequently to pay in hard foreign currency which would further increase the deficit in their foreign trade balance. There is a risk that the USSR would not want to tolerate this growing dependence; especially since the countries of the East could profit from this decline of Soviet influence in order to turn more and more toward Western Europe. Now, the Soviet Union has let it be known more than once that it would like to close its frontiers by means of "strong and effective locks."

Under these conditions, it is possible that the USSR--feeling that its satellites are too much characterized by their independence from "big brother"--might visualize an intervention of the "Czechoslovakia 1968" type in the socialist countries. And if it judges that the "exporting of the counterrevolution" has gone too far and constitutes a danger to its own security, it could pursue this intervention beyond the Iron Curtain as a warning to the Western powers.

However, the petroleum shortage could be partly made up through supply with nuclear energy where the USSR would continue to hold a monopoly. But it might also be compensated for through pressures or even military threats against the petroleum producing countries; another advantage of this would be to strengthen the cohesion of the socialist camp.

Finally, one might wonder about the participation of the Warsaw Pact forces in intervention in China. In case of a conflict between the USSR and China, would not the tendencies toward independence, which are becoming manifest in the countries of the East, run the risk of going beyond the limits tolerated by Moscow?

Aware of all these problems, would the Soviet Union easily venture into an

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operation which, in the final analysis, would inevitably create tensions with its own allies? To do that, the Soviet Union would really have to be cornered.

Conclusions

After studying a certain number of conflict assumptions, we find that there are more unfavorable arguments than favorable arguments regarding the triggering of a conflict by the USSR on any front whatsoever.

One might therefore ask oneself whether the Soviet desire for military superiority, on the one hand, and the publicity given to that superiority, on the other hand, is not rather in line with the domestic functions of foreign policy inherent in each country.

Thus, the USSR could show itself to be firm toward its allies and especially Yugoslavia. It is possible in effect that the death of Marshal Tito might cause troubles in Yugoslavia. The USSR might consider it to be in its own interest to restore order there in order to bring that country completely back into the socialist camp. From that viewpoint, the resurgence of national rivalries in the Balkans is perhaps not due to mere chance and undoubtedly it is not displeasing to Moscow. The Soviet Union would then be in a position of strength in order to advance its rights to that part of Europe and it could counteract any attempt at Western interference in this zone.

On the American side, the perception of Soviet supremacy could be exaggerated for the needs of the cause. In effect, it could only push the congressmen into accepting an increase in the military budget at the very moment when the SALT II accord should persuade them to reduce it. Besides, the Americans would not accept enemy supremacy without partly losing political control over NATO. As for the European states--in the face of the danger of isolation following uncoupling--they would be placed before an alternative: either to step up their defense efforts and revise that difference within a purely Community-oriented framework, or to demand the strengthening of NATO and, by the same token, an increase in American political control over the Organization. This alternative does not rule out a combination of both of these terms.

In any case, the political influence of the USSR in international relations could only be increased as is shown by its intervention in Afghanistan and the nature of the arguments advanced by the Westerners in condemning it³⁴.

FOOTNOTES

1. Evaluation taking into account the equivalent of the ruble representative of the Soviet military industrial sector alone.

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2. This evaluation, prepared by the CIA for 1979, represents the costs of Soviet equipment at American industry rates.
3. ICBM--Intercontinental Ballistic Missile.
4. These forces are organized within the Strategic Rocket Troops which constitute one of the five armed forces components on the same level as the Army, the Air Force, Air Defense, and the Navy.
5. Cold-launch consists in firing the missile from the silo while it is held in the casing and not starting its engines until it is outside; this prevents damage to the silo from the hot engine gases. The SS-17 and SS-18 missiles would be launched cold.
6. The CEP is the radius of the circle within which a projectile has a 50 percent chance of falling.
7. When the explosion on the ground approaches the silo, the pressure in effect is no longer predominant; the silo is then in the crater caused by the explosion and it is somehow "uprooted" in it.
8. This system, called MX, could be based on land (one missile would be placed at random in a park of 13 medium-hardened and sufficiently scattered shelters) where it would be placed on board of aircraft some of which would remain airborne. The MX system is supposed to consist of 300 missiles.
9. Here is the assumption behind the development plan: 1980-1982, development on the ground; 1983-1984, development in flight; 1985-1987, deployment in place; this assumption corresponds to a fast rate which does not reflect the political desire of the present American administration.
10. The CEP visualized for the MX is 100 m. For intercontinental ballistic systems, the technological limit would be around 30 m.
11. Admiral Gorshkov, in MORSKOY SBORNIK, February 1973, p 19: "The Communist Party and the Soviet government correctly evaluated the threat arising from the oceans against our country and concluded that it was necessary to counter the efforts made by the aggressors by building a new blue-water navy."
12. Gorshkov, in MORSKOY SBORNIK, February 1973, p 20.
13. Their range is limited to 600 km for the first 3 years covered by the SALT II accord.

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14. This aircraft exploits the phenomenon of lift increase of a wing flying several meters off the ground; the power necessary for aircraft propulsion is then reduced. The principle is applicable only for a purposely flat surface--and the ocean is such a surface.
15. This vessel, classed by the Soviets as an AS cruiser, as a matter of fact is a 39,000-t aircraft carrier with 36 aircraft on board; these are VTOL aircraft and ASW helicopters. The Kiev was commissioned in 1976; two other vessels were launched thereafter.
16. PVO--Protivovozdushnaya Oborona (AA Defense Army)
17. This limitation in the end was not retained in the SALT II accords.
18. Khrushchev, PRAVDA, 15 January 1960: "The Air Force and the Navy have lost their past importance in view of contemporary developments in military technology. This type of armament is not being reduced but is rather being replaced. Almost all aviation has been replaced by rockets. We have reduced considerably and we will continue considerably to reduce it and perhaps we will stop the production of bombers and other obsolescent equipment."
19. A lure is an object having the same radar signature as a nuclear warhead.
20. V. Sokolovskiy, STRATEGIE MILITAIRE, 3rd edition, 1968, Chapter IV: "Soviet military strategy concludes that, in spite of the extensive introduction of nuclear arms, as well as the latest types of military equipment, a world war will require massed armed forces." A. Grechko, "Les forces armees de l'Etat sovietique," Moscow, 1975.
21. BMP--Boyevaya Mashina pehoty (infantry combat vehicle).
22. V. Sokolovskiy, op. cit., Chapter II, criticizes the "flexible response" doctrine, saying: "It is extremely difficult to anticipate how the enemy will react to the employment of tactical nuclear arms, even on a small scale. The adversary may make different decisions: he may decline a limited repressive strike, which will lead to a loss of prestige and perhaps a capitulation; he may conduct a repressive action with nuclear arms on the same scale or on a larger scale; finally, one cannot rule out the risk of a mistake: the launch of a strike with strategic or tactical operational means would trigger a general war with all of its consequences."
23. A. Sidorenko, "L'offensive," Moscow, 1970--A. Grechko, "Les forces armees de l'Etat sovietique," Moscow, 1975, p 91.

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24. V. Sokolovskiy, op. cit.: "The basic means, in the ground combat of a future world war, will be nuclear arms delivered primarily by means of tactical operational missiles as well as front-line aviation. Besides, the strategic rocket troops and long-range aviation will deliver nuclear strikes against important targets in the frontal zone of the offensive."
25. Information of a technical nature is taken mostly from a book published by Mr Mc Gwire and Mr J. Mc Donnell, "Soviet Naval influence."
26. Amphibious resources presently are made up as follows: 15,000 Marines distributed equally over the four fleets; 65 Polnotsny [troop carrier barges] with a capacity of about one company; 14 Alligators with a capacity of carrying one battalion. These two types of vessels are slow; they have a cruising speed of less than 18 kn. These forces are instead intended for supporting ground operations in Europe or along the Chinese border.
27. See A. Grechko, "The Predominant Role of the CPSU in the Construction of the Army of a Developed Socialist Society," VOPROSY ISTORII, CPSU, May 1974.
28. See especially J. Klein, "Strategy of Non-War and Assumption of Nuclear Conflict," DEFENSE NATIONALE, May 1979, pp 17-46.
29. See V. Petrovskiy, "Concepts of Shape and Their Evolution," MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA, April 1979, pp 39-40.
30. The risk of a Western reaction would decline since, according to certain sources, this operation would have been performed if not jointly then at least in accord with the United States.
31. See V. I. Lenin, "Poln. Sobr. Soch." OEUVRES COMPLETES, Volume 26, pp 224-225.
32. This especially involves Western investments in the Soviet economy, the Japanese investment project for the exploitation of Siberian petroleum, and, abroad, joint East-West operations on the Western or Third World markets.
33. On that point it is possible to take as reference the revolt of the Polish workers in the Baltic in December 1970 which, although it did bring about the downfall of the Gomulka administration, did not at any time challenge the principles of socialism but only a certain manner of applying them.

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34. See the study by the GERSS entitled "L'intervention sovietique en Afghanistan: bavure? changement de cap? esquisse d'une troisieme reponse. Politique Etrangere" [Soviet Intervention in Afghanistan-- A Dirty Trick? A Change in Direction? Outline of a Third Response. Foreign Policy], 1980.

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