



**THE
LAND
WARFARE
PAPERS**

No. 1 OCTOBER 1989

**Soviet Theater Forces
At The Crossroads**

By Edward B. Atkeson

A National Security Affairs Paper
Published on Occasion by

**THE INSTITUTE OF
LAND WARFARE**

ASSOCIATION OF THE
UNITED STATES ARMY
Arlington, Virginia

SOVIET THEATER FORCES AT THE CROSSROADS

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FORWARD

This is the first in a planned series of Land Warfare Papers to be published by the Association of the United States Army's Institute of Land Warfare. It is timely and appropriate that in this inaugural paper the subject of the Soviet Union's ongoing program of perestroika is addressed along with its announced intentions to pursue a military strategy that is defensive in nature - in contrast to the offensive strategy which has been in being for some 60 years. This highly publicized revolution in Soviet military doctrine is not yet compelling. Nonetheless, the prospect has not only destabilized fundamental Soviet military thinking, but U.S. military thinking as well. Soviet military leaders, like their U.S. counterparts, are confronted with new political circumstances, force reductions and changing military challenges. This is a period for clear thinking and analysis of the Soviet military character as a necessary precursor to any U.S. military adjustments.



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Soviet Theater Forces at the Crossroads

by Edward B. Atkeson

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AN AUSA INSTITUTE OF LAND WARFARE PAPER

In 1988 the Association of the United States Army (AUSA) established within its existing organization a new entity known as the Institute of Land Warfare. Its purpose is to extend the educational work of AUSA by sponsoring scholarly publications, to include books, monographs and essays on key defense issues, as well as workshops and symposia. A work selected for publication as a Land Warfare Paper represents research by the author which, in the opinion of the editorial board, will contribute to a better understanding of a particular defense or national security issue. Publication as an AUSA Institute of Land Warfare Paper does not indicate that the Association of the United States Army agrees with everything in the Paper, but does suggest that the AUSA believes this Paper will stimulate the thinking of AUSA members and others concerned about important defense issues.

SOVIET THEATER FORCES AT THE CROSSROADS

by Edward B. Atkeson

At the turn of the decade Soviet theater forces stand at the summit of a long period of growth, expansion and organizational refinement. Since the departure of Khrushchev, a quarter of a century ago, they have undergone structural enhancement, equipment modernization and experimentation with new operational concepts. Under the new regime in Moscow, however, the future of the forces has become clouded by an abrupt change in military doctrine in concert with the national program for perestroika (restructuring). The change is such a complete reversal of previous trends that the military leadership is unsure of its bearings and apprehensive of the ramifications of the new course. Considerable time may be required for the armed forces to fully define and to adjust to their new course and to regain intellectual and operational equilibrium.^{1/}

Soviet military doctrine is composed of two principal branches, one political, the other military-technical. The former has traditionally had a defensive bias and has served the declaratory policy of the state. Its principal thrust has been to avoid open conflict with the West while permitting exploitation of promising politico-military opportunities as they have emerged. The latter, which has served as the basic guidance for the development of the forces, has been highly offensive. It has held that in case of conflict, the forces would rapidly seize the initiative and carry the battle forward into the opponent's territory to victory.^{2/} The new doctrine reverses that guidance, mandating a defensive posture for the forces. If the military leadership is to fulfill its instructions, changes must be made, not only in force structure, but in strategy, operational thinking, plans and practices, some dating back almost half a century.

Soviet professional military thought draws guidance from both branches of doctrine, but it relies far more upon the military-technical than the political. This paper briefly reviews the evolution of mainstream military thinking about theater warfare, including nuclear war, and assesses the likely impact of the new doctrine.

The Soviets define a theater of war as a continental area, together with its contiguous waters and airspace, upon which hostilities may develop. They may designate one or more theaters of military operations (teatr voyennykh deystviy - TVD) within the theater to bound strategic operations ensuing from war plans. They have established five such TVDs along their

national borders: three in Europe, one in the south, stretching roughly from the Caucasus to the Chinese frontier, and another extending across China and Mongolia to the North Pacific. When the Soviets speak or write about theater warfare, these are the principal areas they have in mind. Of course, the central European region is of such importance, that it often serves as the model for all.3/

Soviet military theory divides plans and operations within a TVD among three branches of military art: strategy, operational art and tactics. The highest level, strategy, defines the manner in which armed forces are to be prepared for war, sets the goals in event of conflict, and determines the plan for fulfilling those goals. Operational art governs the direction of large bodies of forces in support of the strategy and specifies the missions for tactical units. Tactics govern the activities of military units in accordance with operational directives. As with most aspects of their theory, the Soviets attach great importance to the classification of weapons systems, troop organizations and command responsibilities in conformance with the three branches.4/

It should be particularly noted that, within this framework, the Soviets consider major concepts for the prosecution of war, together with associated weapons systems and troop formations, as belonging to the strategic branch, even though they may relate to but one theater of operations. This is in marked contrast to common American practice which often associates "strategic" matters with intercontinental. Such differences in terminology can cause considerable misunderstanding.

Soviet thinking about theater warfare is an amalgam of decades of intellectual ferment, with rare jettisoning of older concepts as newer ones have evolved. A classic saying about Soviet military practice is that the Soviets never throw anything away. While the proverb gained currency with respect to weapons, it applies quite serviceably to the development of operational doctrine as well. Nuclear operations have been considered less likely in the 1980s than they were in the 1950s and '60s, but the specter of nuclear war continues to haunt Soviet battlefield planners. Concepts derived in earlier days for nuclear battles continue to find supportive voices in doctrinal debates today.

One concept which has shown remarkable resiliency in Soviet thinking in both a nuclear and non-nuclear context is that of surprise. While neglected during Stalin's years, it has figured prominently in Soviet writings ever since. The Soviets attach considerable importance to the initial period of war, and

surprise, at whatever level it may be achieved, is invariably cast as a key ingredient. It is actually, of course, a reward to the side initiating action. Undoubtedly it will be a continuing focus of concern to Soviet military leaders as they adjust to the new doctrine.^{5/}

The Gorbachev initiative governing the military-technical side of Soviet doctrine is a reversal of the basic premise underpinning almost everything that has gone before. It is no minor adjustment. It is high voltage shock therapy to a patient whose mind has been trained to work in a different way, practically since birth. Assuming the Secretary General remains in office and persists with his military programs, the magnitude and abruptness of the change is likely to cause an extended period of confusion while the military leadership redefines its missions in terms which translate into some sort of operational coherence. Even then, the task will not be complete. New operational concepts must be formulated, tested, adjusted and rehearsed, and then they must be embedded in the training literature and process for officers and troops alike. Any ramifications for new equipment designs springing from the new concepts must be translated into new instructions for the defense industries. If sincerely pursued, the magnitude of the task is daunting.

To appreciate the intellectual distance which most Soviet officers will have to travel to pull abreast of the new thinking, one must recall the principal lessons they have learned in the post-war era. While the nuclear and non-nuclear dimensions may be addressed individually, it should be borne in mind that the lessons have been refracted through the prism of Soviet military science and digested over time as a coherent whole, with historic foundation and sound logic.

The Nuclear Dimension

After Stalin's death in 1953, Soviet military thinking focused on "the revolution in military affairs," the introduction and proliferation of nuclear weapons. Great debates raged throughout the late 1950s and early '60s as to the likely nature of nuclear war and the best ways to prepare for it. Clearly the United States had a significant lead in the field, and there was enormous pressure on the Soviets to catch up, and, if possible, to overtake the apparent adversary. Initial ideas about conflict at the high end of the spectrum were published in 1962 by a team of military theoreticians under the former Chief of the General Staff, Marshal V.D. Sokolovsky, under the title, Military Strategy. The team reflected the view that nuclear weapons constituted the preeminent "objective

reality" with which governments and their military establishments would henceforth have to deal.

The first edition of the book depicted war as likely to be of short duration because of the extreme destructive power of the nuclear weapon. Opportunities for falling back under attack, regrouping, mobilizing and then going over to a counteroffensive, on the model of the "Great Patriotic War," were deemed unrealistic. Moreover, conventional forces were considered unlikely to play a determining role. Instead, the new Strategic Rocket Forces (SRF) were placed on center stage and assigned first place in order of precedence among the services.

However, this heavy emphasis on SRF did not sit well with many senior officers, and after Khrushchev's departure from office, subsequent editions of the book reflected a more even balance of roles among the services. It was recognized, for instance, that prolonged conflict was a possibility and that ground forces would be needed to secure the victory. The time-honored concept of combined arms operations survived as a key tenet of Soviet military thinking.6/

The anticipated speed of events on the nuclear battlefield and the danger of radiation, mandated that ground forces be highly mechanized, armored and trained for rapid operations. Airborne and heliborne forces would also be necessary for speed, surprise and depth of penetration into enemy territory. Further, Soviet planners recognized that command and control complexities on a highly dynamic battlefield meant that tactical units could conduct only very simple maneuvers. The more sophisticated techniques of operational art would be exercised at higher levels of command by senior, experienced officers.7/

The destructive power of nuclear weapons made it imperative that battles be waged on foreign soil. Preemptive offensive action was considered the best way to insure this. All theater forces should be designed for immediate attack and to maintain a high rate of advance so as to provide minimum opportunity for coherent reaction by the opposition, either with nuclear strikes or maneuvering forces.8/

The possibility of nuclear counterstrikes against Soviet forces mandated that significant distances be maintained between principal force elements, both across the front and in depth. Wherever it might be necessary to mass, such as in preparation for a breakthrough, it must be done quickly, and then the troops must rapidly disperse again. In some cases, and increasingly as new, longer range artillery and missile systems became available, "massing" might be accomplished by fire rather than

by maneuver. Division of the forces into echelons and spacing them in depth provided dispersion without necessarily permitting a remission in the tempo of the offensive. In theory, a fresh second echelon could be timed to arrive just before the first echelon might become spent. Momentum, in the new thinking, would be all important.9/

The new ideas about nuclear war tended to reinforce the instincts of leaders for greater mechanization. Soviet armor, especially the superb T-34, had performed well in the "Great Patriotic War," and the notion of greater reliance on armored vehicles made sense. Even before the great theoretical debates had subsided, Defense Minister Marshal Georgi K. Zhukov, a champion of armored blitzkrieg tactics, had begun the long process of transforming the Red Army into the highly mobile, armored fleet for which it has become famous.10/

Infantry troops, renamed motorized riflemen, were mounted for rapid offense, and expected to fight on the move. Under conditions of nuclear battle, maneuver units were coached to follow closely the initial rocket attacks, and to mop up enemy pockets which might escape destruction. Mounted in high-speed armored vehicles, it was argued, these troops could survive and win under mushroom clouds, while traditional forces on foot or in trucks would be destroyed by the blast, heat and radiation of atomic weapons. Soviet soldiers were taught to line the floors of their vehicles with sandbags to enhance protection from radiation as they trained for quick transit across contaminated terrain.11/

New types of vehicles were needed for the new role envisioned for the Army; the infantry had to fight while mounted, and the tanks required heavier armor and internal atmospheric overpressure to keep radioactive dust out of the crew spaces. From these early specifications came the excellent families of modern tanks and infantry fighting vehicles which now constitute the cutting edge of the Soviet Army. In view of NATO's formidable nuclear capabilities it also became apparent that there should be specially trained decontamination teams to wash down equipment which might become covered with nuclear fall-out or poisonous chemicals (the products of "weapons of mass destruction").

NATO's nuclear capabilities also had a strong influence on the shape of Soviet theater aviation. Throughout the 1950's and '60s the Soviets emphasized air defense over the battle area rather than ground attack. Their aircraft designs were most notable for their speed and maneuverability (especially at higher altitudes) at the expense of range and payload. Bombing missions within the theater, and strikes against hostile

airfields, were primarily the responsibility of Long Range Aviation and the Strategic Rocket Forces.^{12/} By the mid-1970s, however, the Soviets had introduced new aircraft of greater versatility. Two models in particular, the SU-24 FENCER and MiG-27 FLOGGER-D, have demonstrated excellent capacity for deep interdiction strikes in support of ground forces. Both aircraft are credited with either nuclear or non-nuclear attack capabilities.^{13/}

Due in large measure to continued U.S. emphasis on long range bombers, the Soviets attained general nuclear missile superiority at the theater-strategic level on the Eurasian Continent early in their force development program. The principal shortcomings of the forces stemmed from their low survivability and the proliferation of targets, primarily in China. These were gradually overcome, largely through deployment of missiles in large numbers in underground silos, but later through deployment of the road-mobile SS-20, with its three, independently targeted warheads.

At the operational level the Soviets developed other mobile missile systems to provide support to commanders of fronts and armies: the SCUD-B (in recent years undergoing replacement by the SCUD-23) and the SS-12 SCALEBOARD. The INF treaty halted deployment of the SS-23s, perhaps obliging Soviet planners to consider an alternative replacement for the SCUD-Bs. In the meanwhile, some unguided FROG rockets in Soviet divisions were replaced by the longer-range, more accurate SS-21. However, the Soviets insist that all their theater nuclear modernization programs are frozen in hopes that the West may be persuaded to follow suit.^{14/}

Throughout the 1960s and '70s NATO enjoyed a substantial lead in tactical nuclear weaponry over the Warsaw Pact. Not until the 1980s were the Soviets able to engineer the miniaturization of nuclear explosives so that they could fire nuclear weapons from the standard divisional 152mm howitzer. With this development they attained a significant leap ahead of the West, considering the much larger number of artillery tubes in their forces.

Thus, by the early 1980s, the Soviets achieved at least parity with NATO at each level of the theater nuclear spectrum, and substantial superiority at some. Considering their superiority in conventional weapons, they managed to build a capability for fighting successfully at any level of conflict. An opponent contemplating raising the intensity of battle (as NATO might, under its strategy of flexible response) would have to deal with either equivalent or superior Soviet capabilities. In 1982, with obvious reference to NATO's doctrine of deliberate

escalation, Defense Minister Ustinov announced the Soviet response:

...in the training of the armed forces ever greater attention will now be paid to the tasks of preventing a military conflict from developing into a nuclear one.15/

The Non-Nuclear Dimension

In fulfillment of Ustinov's pronouncement, the Soviets also developed a remarkable set of operational concepts. One of the most notable is the operational maneuver group, or OMG. The OMG is a high-speed, tailored raiding and exploitation force designed to operate deep in enemy rear areas. It is rich in armor, mobile air defense, assault helicopters, and self-propelled artillery and rocket launchers. At the army level it may consist of a reinforced division. At front level it may be an independent corps or perhaps an entire army. At least two corps, composed of combined arms brigades rather than single branch dominated regiments, as is the norm in Soviet divisions, were formed, and there appeared to be a high correlation between these organizations and the model of force deemed most suitable for OMG operations.16/

In Soviet exercises the OMG was often introduced early in an offensive operation, usually about the second or third day of the attack. Unlike a second echelon, which would normally be restrained until the first echelon was spent or had achieved specific objectives, or like a reserve which would be committed when an opportunity or an emergency arose, the OMG would seek to pass around enemy units with as little contact as possible. Engagement of enemy combat units was not the purpose; the objectives were deep penetration and attack of enemy nuclear delivery systems (including tactical aircraft on bases in the rear) as well as command and control nodes and other high value targets. It was envisioned that as many as four large OMGs might be committed in a conflict in the Central Region at any one time.17/

The OMG added great depth to the battlefield and contributed in strong measure toward Soviet efforts to deny the enemy a capability to resort to nuclear fires. Not only did it attack nuclear delivery systems themselves, but it interfered with the control system governing targeting, fire planning and nuclear requests and authorizations. But the OMG proved a demanding concept. Difficult problems in its own command and control, logistical arrangements and air defense persisted.

Recent information indicates that the Soviets may have identified a number of tank divisions specifically for the OMG role. Soviet officers have acknowledged that requirements for special training, equipment and leadership created strong pressures for predesignation of the best units available for such independent missions. A number of tank divisions in East Germany and Czechoslovakia appear to have been so designated.^{18/} Nevertheless, the OMG probably continues to be as much of a way to use selected assets in advance of the main body as a predetermined organizational entity. While all such offensive concepts may lose currency under the new doctrine, it appears that many OMGs - particularly the larger ones - could be assembled to meet particular requirements on a case-by-case basis. The Soviets may have a "package" concept for additions of units which would facilitate last minute changes.

Another area the Soviets developed for denying an adversary his option of nuclear escalation was vertical envelopment, using both airborne and helicopter assault transport. As with the OMG, air delivered forces add depth and a continuing potential for surprise to the offensive. As the Soviets devoted greater thought to the possibilities of conventional conflict, the term "troop strikes" (udary voysk) gained currency in many instances where "nuclear strikes" (yadernye udary) had previously been common. Sudden, overwhelming attacks by agile airborne or air assault forces might accomplish many of the objectives previously expected of nuclear weapons.^{19/} Such force substitution would suggest a far more central and crucial role for airborne and airmobile troops than they have played in the past.

The Soviets have seven airborne divisions in high states of readiness under the control of the defense ministry. Further, the Soviets have recently formed at least eight air assault brigades, of about 1,700 men each, designed for parachute, helicopter assault or air-landed operations for front level support. They also have a large number of independent air assault battalions for army level operations.^{20/}

Soviet airborne divisions are small (about 6,500 men), but, unlike their Western counterparts, have high tactical, as well as strategic, mobility. Each is equipped with some 330 BMD airborne armored combat vehicles (mounting 73mm smooth bore cannon and ATGM "sagger" missile launchers) and about thirty ASU-85 assault guns. By 1986 a new model amphibious armored vehicle mounting a 120mm gun (2S9) was added to the force. Fire support is provided by 30 organic 122mm howitzers, six 140mm multiple rocket launchers and 18 120mm mortars.^{21/}

With so many armored vehicles, however, the weight of the airborne division has presented a problem for the Soviet Military Transport Aviation (Voенно transportnaya aviatsiya - VTA). While lift requirements for a full division might not arise frequently, the capabilities of the entire airlift force are limited to the transport of a single division to a distance of some 1610 km, or of two divisions simultaneously to a distance of about 480 km.22/ Using aircraft of the state airline, Aeroflot, would permit more extensive airborne operations. Virtually all Aeroflot pilots hold reserve Air Force commissions, and many of the aircraft can be readily adapted to military use.23/

The Soviets have also counted upon the deployment of large numbers of special airborne operations teams into enemy rear areas for intelligence and small strike operations. Termed "spetsnaz," the teams operate under the direction of Soviet Military Intelligence (GRU) to seek out enemy nuclear facilities, airfields, command and control centers and other critical targets. They may direct strikes by Soviet aircraft or missile systems, or they may conduct small raids on their own. A 115 man spetsnaz company is normally attached to each army; a brigade of 1000 - 1300 men may support front or fleet level operations. In addition, there are three spetnaz regiments directly subordinate to the GRU Fifth Directorate in Moscow.24/

The Soviets have also experimented with combined arms fire-power effects through integration and centralization of fire planning. As with "troop strikes," the Soviets use the term "fire strike" (ognevoy udar), to describe very heavy massing of fire on selected enemy targets. Again we find the application of a term to conventional operations which had previously implied the use of nuclear weapons. In this case, however, the reference is to combined employment of aircraft, missiles and artillery to achieve similar effects.

The Soviets hope, through this device, to accomplish "integrated fire destruction" of great magnitude, approaching that which might otherwise be done by the nuclear weapons. In the last ten years Soviet artillery and multiple rocket launcher units have also been substantially increased in size and number. There have also been qualitative enhancements of tactical and operational level missile systems. These changes would appear to make the concept of substitution of conventional fires for some nuclear fires feasible. Warsaw Pact planners have expected to achieve 50-60 percent destruction of major enemy weapons systems (tanks, artillery, ATGM, etc.) in the sectors in which principal attacks are to be launched before the ground assault begins.25/

The delivery of "strikes" by vertical troop attack or by integrated conventional fires on targets which in earlier years might have been prime candidates for nuclear strikes, reveals remarkable operational ingenuity on the part of the Soviet military leadership. The emphasis is clearly on the effect desired on the target, rather than on the means of accomplishment.

While not well understood in the West, the long period of Western tactical nuclear superiority had an important influence on the Soviet chemical warfare (CW) posture. Soviet interest in CW in conjunction with conventional operations has been considerably less well documented than many Western estimates would indicate. Chemical weapons, along with nuclear and bacteriological, are considered "weapons of mass destruction" (oruzhiye massovogo porazheniya) in Soviet councils and are rarely addressed outside that context.

The Soviet Union is a signatory of the 1925 Geneva protocol outlawing the use of chemical munitions, and current Soviet policy is opposed to their employment. The Soviets deny maintaining any chemical munitions beyond their national borders, although the U.S. Government believes that they have had such weapons in Eastern Europe for a number of years.^{26/} In early 1989, the Soviets announced a unilateral program to begin destroying their chemical weapons stockpile, variously estimated at 50,000 - 300,000 tons.^{27/}

Otherwise, little has been said about chemical weapons in available Soviet military writings. Marshall Sokolovsky's text dealt with offensive chemical warfare as of little more than historical interest. All references to current or future issues are cast as requirements for troop protection and provisions for decontamination.

Soviet force posture, however, reflects a keen awareness of environmental threats by unconventional weapons, presumably chemical. Some 80,000 officers and enlisted chemical specialists (45,000 in the ground forces) are trained in the uses and defenses against chemical munitions. Some 20,000 reconnaissance and decontamination vehicles are specially equipped to contribute to defensive operations. In 1982, while the Western tactical nuclear threat was still keenly felt, most ready divisions included small (225 man) chemical defense battalions.^{28/} Significantly, however, as the Soviets later achieved parity, or possibly marginal tactical nuclear superiority, the defense units were reduced to company size.^{29/}

Sokolovsky offered a possible explanation for the deployment of these units when he wrote, "New weapons have

caused appearance of new specific methods of conducting combat action, for example: ...anti-chemical defense."30/ The Soviets use the term "chemical troops" (khimcheskiye voyska) to describe the reconnaissance and decontamination units found at division level and above, but the term is defined as "special troops whose role is to implement measures for protection against weapons of mass destruction" - not specifically chemical weapons.31/ Considering NATO's traditional strategy of reserving the right to resort to nuclear weapons - particularly tactical nuclear weapons in which it has enjoyed a long-standing superiority - the prevalence of reconnaissance and decontamination ("chemical") units throughout the Soviet field structure would seem only prudent.

Looking further, however, we note inconsistencies. First, Soviet equipment and protective clothing is maximized for effective protection from nuclear hazards - not chemical.32/ And, contrary to a number of reports, the early air filtration (PAZ) system on Soviet T-55 and T-62 tanks was designed to filter radioactive particles out of the air supply, but provided no protection against the flow of toxic gases into crew spaces.33/ Second, Soviet doctrine, training and force posture have increasingly appeared to be tailored for the conduct of a rapid conventional offensive campaign. The complexities of simultaneous deep offensive air, missile and ground initiatives at the outset of the battle would appear to make the use of a novel ingredient, which has apparently not been thoroughly thought out, tested, or imbedded in the daily training and exercises of all forces, extremely difficult. The absence of any discussion of offensive CW in Soviet literature would appear to seriously degrade the expected level of effectiveness of its employment if the Soviets were to attempt to integrate chemical agents into their fire and maneuver plans without having been thoroughly grounded in their use and function.34/

The Soviets identify the nuclear weapon as "the most powerful and effective means for destruction of the enemy when conducting all types of operations and war as a whole."35/ It would seem that they would do much better to strike the first nuclear blow themselves and to reap the tactical or strategic rewards, rather than to adopt the half-measure of tactical or theater use of chemicals alone, which would incur the risk of a nuclear response.36/

The March of Technology

The second major technological innovation after the nuclear weapon to impact Soviet force structure was the precision guided munition (PGM). "Smart" weapons, with high probabilities of target hits have been a major factor in materiel design and

operational developments since the 1970s. The cost per round has been much higher than that of conventional free-flight shells and bombs, but the gain in overall combat effectiveness has been substantial. A significant point, not missed by the Soviets, is the particular suitability which these weapons have had for the defender.37/

The Soviets have adopted vigorous developmental programs to adapt PGM technology to their own defensive needs, particularly anti-aircraft and anti-tank defenses. Further, they have embraced a concept of massive suppressive fire tactics on an opponent's anti-tank guided missiles (ATGM) through increases in artillery. And, finally, they have sought to protect the linchpin of their offensive machine, the tank, with greatly improved passive armor, explosive reactive armor, on-board smoke obscurants and increased rates of fire of the main armament.38/ Most existing ATGM's require the crewmen to guide the weapon all the way to the target. With a high rate of fire from its own gun, the tank has an opportunity to interrupt fatally the ATGM gunner's concentration before the impact of the missile.

The Soviets have developed eight different ATGM systems, including second and third generation weapons. Some of the later models are highly resistant to countermeasures, and one, dubbed AT-6 "SPIRAL" by NATO, has a range of 8,000 meters.39/

Reliance on artillery for the counter-ATGM role has been apparent in Soviet writings for over a decade. Between 1968 and 1978 the Soviets doubled the artillery in their maneuver divisions. By 1988 they had increased the overall artillery inventory of their forces by another 45% (to 29,000 weapons).40/ Current Western estimates of the artillery balance between NATO and the Warsaw Pact from the Atlantic Ocean to the Ural Mountains favor the Pact by about 3:1.41/

Beginning in 1974, the Soviets fielded their first tank built with the ATGM threat clearly in mind, the T-64. This was followed later in the decade by the T-72, and still later by the T-80. All three have automatic loading 125mm guns and improved armor, incorporating laminates and composites. The T-80 and variant of the T-64 fire the AT-8 "SONGSTER" missile through the main tube, greatly improving their effectiveness at longer ranges. The AT-8, with either laser or radio guidance, has both anti-tank and anti-helicopter ammunition.42/

Still another response to PGM technology was the creation of large attack helicopter formations armed with ATGM as well as rockets, cannon and machine guns. By the early 1980s the Soviets had fielded an assault helicopter regiment (60 machines) with each forward deployed army, and a squadron (18 machines)

with each division. These developments led to new concepts for tactical aviation support to the ground forces, with greater responsibilities being assumed by rotary wing aircraft, releasing many fixed wing units for deeper strike missions.43/

The Soviets experimented throughout the 1980s with various command arrangements for their air and air defense forces (including homeland defense). It appears, however, that by the end of the decade they have returned to their traditional pattern of division of responsibilities according to the various requirements of theater frontal forces, homeland defense, and high level control of long-range aviation.44/

Current Trends and the Future

The future direction of Soviet theater force development has been obscured by disclosures of economic difficulties in the country, societal stagnation and promulgation of the new "defensive" military doctrine. It is apparent that the overall size and the offensive punch of the forward deployed forces are being reduced. Many other qualitative changes, however, remain unclear. The Soviets still have much work to do in theoretical areas to integrate the specific changes they are making in their forces into a coherent whole. As Army General M.A. Moiseyev, Chief of the General Staff, has pointed out:

Nearly all the tenets of strategy, operational art, and tactics are undergoing radical changes, under the influence of both military-technical and military-political factors. Basically a new theory of military art is being created.45/

An example of how far ranging the effort to create a new military science has become is a novel responsibility placed upon the armed forces to avoid war. Whereby Soviet military leaders have traditionally assumed avoidance of war to be a diplomatic or political function, they now find it a charge of their own as well. And, although they may not be completely comfortable with it, they have devised a working list of specific measures for the forces:

- maintenance of parity with the West in both nuclear and non-nuclear spheres,
- participation by military officials in the verification of arms control and confidence building accords,
- greater military participation in diplomatic meetings and discussions,
- improved planning for military participation in disaster relief,
- reorientation of operational and tactical concepts for

defensive operations.46/

In the final days of 1988 General Secretary Gorbachev announced at the U.N. that by 1991 the Soviet Union would unilaterally reduce its forces by a half million men and large quantities of materiel. In addition, it would withdraw six tank divisions and unspecified numbers of "landing assault" (airborne/air assault) and "crossing assault" (engineer bridging) troops from the forward area (East Germany, Czechoslovakia and Hungary). The reductions in Eastern Europe would include 50,000 men and 5,000 tanks. Total reductions in Europe, including European USSR, would amount to 10,000 tanks, 8,500 artillery systems and 800 combat aircraft. In the Far East Gorbachev pledged the withdrawal of "a large number" (subsequently identified as 75% of the troops) from Mongolia.47/

There was significance in both the types and numbers of forces involved. Tanks, assault bridging and airborne/air assault forces have exceptionally high offensive value. The withdrawal of 5,000 tanks from these countries amounts to approximately half of the tanks known to be deployed in the forward area. Further, it amounts to more than double the number of such vehicles normally found in six tank divisions.

The aircraft to be removed are the equivalent of about 40 squadrons, and, according to Lieutenant General of Aviation Aleksandr Yevgen'yevich Pozdnyakov, deputy chief of Air Force Main Staff, will be dominantly machines designed for ground attack. These could include MiG-27 FLOGGERS, Su-17 FITTERS, and possibly Su-24 FENCERS.48/

Gorbachev also mentioned a reorganization of the remaining forces, indicating a likelihood that the remaining tanks will be redistributed. Defense Minister D.T. Yazov, explained that the Soviet motorized rifle divisions (MRDs) stationed in East Germany and Czechoslovakia would be stripped of their tank regiments and that the remaining tank divisions (TDs) would each lose one of their three tank regiments. These reductions, he said, would represent a 40% decrease in tanks for the MRDs and a 20% cut for the TDs. To off-set the loss of tank-killing power in the divisions, they would be allocated additional infantry and anti-tank weapons. Also, their air defense and engineer mining and entrenching capabilities would be enhanced.49/

In addition to these changes, but without indicating any specific time table for the change, General Yazov has indicated that as many as half of the Soviet MRDs would be converted to "machine gun/artillery" divisions for positional and area defense missions. Information from other sources indicates that these units may be located in border districts in the Soviet

Union and that they may have no more than a single battalion of tanks, greatly restricting their offensive potential.50/

If Soviet leaders persist with these unilateral programs, they will have made a significant change in the nature of the threat to NATO. Taking both the Soviet reductions and those of the other Warsaw Pact members into account, the feasibility of a zero-preparation "bolt from the blue" attack on the West will be very low. While many Western analysts have doubted the capability of the Eastern Bloc to successfully mount such an attack in any event, these reductions reduce the credibility of the threat still further.

The magnitude of the overall residual threat to NATO after the scheduled changes, however, will depend upon the manner and extent to which the modification of MRDs is carried out. Certainly, if the conversion to the machine gun/artillery pattern in the interior is as extensive as the defense minister has indicated, the historic threat posed to the West in the form of a second strategic echelon will be substantially alleviated. Almost three-quarters of all Soviet divisions (approximately 150) are of the MRD type. General Yazov's program would severely affect the tactical mobility, and hence the utility, of as many as 75 of the divisions for offensive operations.

Other changes announced for Soviet theater forces include a reduction in the number of military districts and armies. While military districts serve primarily as administrative structures, many have wartime responsibilities for providing front level commands. Depending upon which districts are involved, and to what extent, the reductions could affect not only the Soviets' mobilization capabilities, but their wartime operational command and control as well.

As prominently as the announced reductions have been featured in the Soviet press, it should not be overlooked that many Soviet military leaders consider the reductions to be but one facet of a new defensive strategy. Other facets include reciprocal force reductions in the West, in context with arms control agreements, and retention on the Soviet side of an effective counteroffensive capability. The leaders believe it essential to maintain an ability to halt and to reverse a foreign attack, and to carry the conflict to a successful conclusion against any aggressor. As General Yazov has pointed out, "...it is impossible to destroy an aggressor by defense alone."51/

In this connection, a number of Soviet authors have resurrected accounts of battles of the Great Patriotic War to undergird their theses. Army General E.F. Ivanovskii,

Commander-in-Chief of Ground Forces, has cited the battle of Stalingrad as an example of how victory can be achieved through a massive counteroffensive after the enemy has become bogged down in the defenses.52/ Similarly, prominent academics, A. Kokoshin and V. Larionov, have cited the battle of Kursk as a model of advantageous use of the counteroffensive for decisive defeat of an attacking enemy force.53/

The Soviets have provided a rough outline of their longer-range theater force goals in the forward area. This reveals a desire to withdraw all operational forces from Eastern Europe, with the exception of small command, control and logistic units which would be required in an emergency. Presumably, however, these changes would be undertaken in context with the general denuclearization of all Europe, supposedly by the year 2000.54/

With regard to the Soviet arms and military equipment procurement budget, Gorbachev mentioned a planned 19.5% reduction in his December 1988 U.N. speech, and in April 1989 announced a halt in production of weapons grade uranium. Earlier, Army General Vitaly Shabanov, the principal deputy minister of defense for armaments, stated that weapons procurement had already been declining since the start of the five year economic plan in 1986. This assertion is somewhat dubious. U.S. Defense Intelligence Agency (DIA) and CIA estimates indicate that the Soviet arms procurement budget continued to grow at a rate of about 3% in 1987.55/ Some military equipment and aircraft production may have fallen slightly, but DIA estimates indicate an increase in tank production from 1986 to 1987 of over 13% and almost a doubling of ICBM production in the same period.56/

Further, there have been many reports of a continued high pace of naval ship construction. The long lead time in ship building may make that aspect of arms investment a particularly difficult one to curtail in the short run.

Assuming the Soviets do reduce their weapons procurement budget, they are likely to encounter substantial back pressures in order to fulfill requirements for modernization based upon high technology. While the new doctrine envisions a quantitative paring down of forces to achieve a balance of strategic sufficiency with the West and other potential opponents (e.g.: China), the Soviets are likely to feel impelled to maintain and enhance the technological quality of their forces. U.S. armor experts, for example, anticipate deployment of a second generation "future Soviet tank" (FST-2) equipped with active armor capable of detecting approaching missiles and exploding outward to intercept them by the late 1990s.57/

Shortly before his departure from the General Staff in 1984, Marshal Ogarkov provided a vision of where his brand of professional military thinking would lead. Qualitative changes in conventional munitions, he said - longer ranges, greater accuracy, greater lethality - are bringing these weapons closer in effectiveness to nuclear systems. He argued that the changes will inevitably alter the nature of war. He clearly believed that the most dynamic areas of military development lie in the realm of high-technology conventional arms. Adherence to the old nuclear path, in his view, was neither sensible nor legal.

One must bear in mind, of course, that Marshal Ogarkov was speaking as the principal officer of a large land force with heavy investment in conventional armaments. There was no indication in 1984 that the Soviets would reduce unilaterally the size or offensive capability of their forces, and promotion of concepts steering matters away from the old nuclear regime would make sense to a man in his position. As we have noted, the nuclear sword of Damocles has persistently confounded Soviet calculations of the effectiveness of their forces, and reduced confidence in their security posture in Europe.

On the other hand, the Marshal could have been sincere in reflecting an increasingly urgent theme among Soviet military and political leaders regarding the dangers of nuclear war. They claim that the Chernobyl incident of 1986 had impressed them with the virtual unmanageability of widespread nuclear contamination that would likely ensue from a nuclear conflict. Further, they point out, nuclear power stations have become familiar features of the European landscape. Even a conventional conflict in such a delicately balanced environment could result in damage to many plants and extensive contamination of the countryside. This, they insist, has lent further impetus to their decision to modify their doctrine.58/

However, Marshal Ogarkov's view of future warfare in the realm of non-nuclear high technology may have carried with it the seeds of its own frustration. For one thing, the devices envisioned are enormously costly and some may be beyond the capabilities of the Soviet Union to produce in the foreseeable future. Further, Gorbachev identified "the stresses created by scientific and technological advancement" as a primary stimulus for the perestroika initiative in the first place. Clearly he hoped that by reducing Western perceptions of the Warsaw Pact threat through unilateral reductions he could slow the pace of arms competition to more manageable proportions. He as much as said so when he identified a need for "normal international conditions for internal progress" and "new political thinking" with an emphasis on disarmament. The Ogarkov formula would have placed the emphasis on expansion and competition with the West

in the area of high technology where the USSR enjoys no relative advantage.

But perhaps more important, the path which Ogarkov favored would have placed increasing emphasis on tactical and operational ballistic and cruise missile systems. Given the difficulty in discerning the differences between missiles with nuclear warheads and those with conventional charges, his case ran afoul of Soviet desires for elimination of short range nuclear delivery systems from the European theater. Paradoxically, Ogarkov's formula could have led to a perpetuation of reliance on nuclear weapons rather than a curtailment. As long as missile systems maintain a range and payload great enough to be considered potential nuclear weapons carriers, there is bound to be a reluctance on both sides to move entirely away from a nuclear posture.

Nevertheless, as the Soviets move further into the realm of defensively oriented forces they may find that they are stuck with the Ogarkov thesis. A recent Warsaw Pact analysis of the implications of high technology weaponry indicates that new, longer range and more lethal conventional weapons could afford a defender opportunities to strike the attacker before the battle is joined. While in the past, it said, a defender might select only the locale of the engagement, the new technologies afford him options as to the timing of the action as well.^{59/} Further, with his longer range systems, the defender may no longer have to occupy all of the areas to be defended, but might deny the attacker access by fire. As much as the Soviets may wish to do away with short range missiles on the battlefield because of their nuclear implications, the study indicates that the Soviets and their Pact allies may be forced to retain them for conventional defensive purposes.

It must be considered that effective defensive operations are likely to require enhanced reconnaissance capabilities to avoid surprise. The Soviets may also find that they need additional air defense, anti-tank and long-range strike capabilities to offset the loss of advantages they surrendered when they renounced their offensive doctrine. The demands for investment in high technology weaponry are not unlike those suggested by Marshal Ogarkov, only the specifics and rationale may change. Thus, with or without perestroika, it appears the Soviet military must come to terms with the new technology and pay the price of admission. Whether or not Marshal Ogarkov will ever be seen as a prophet, the lighter, less offensive military structure (if it is to become that) proposed by Gorbachev will have to be more technology-intensive.

Already it appears that the Soviets have begun to divert some resources from their conventional programs to develop wide-area surveillance and attack systems comparable to the Joint Surveillance and Target Acquisition System (JSTARS) being developed by the U.S. Army and Air Force. The new Soviet systems, referred to as "reconnaissance strike complexes," are envisioned as linking long-range weapons with ground, air, or space-based sensors through computers to permit rapid reaction to tactical or operational intelligence. Some American analysts believe that the Soviets may even be ahead of the West in understanding the potential impact of these systems on the battlefield. While Western technology commands a substantial edge over that available to the Soviets, particularly in computers, the better appreciation of the new developments may reside in Moscow.60/ In any event, the greatest test of Soviet skills is likely to come as they attempt to raise the technological quality of their forces while dealing with the needs to energize their overall economy.

Professional Military Misgivings

There was immediate evidence of professional military uneasiness about Gorbachev's unilateral reduction policies. Many officers exhibited natural concern for the impact of the changes on their and their colleagues' personal careers and finances.61/ Many of the senior officers remembered the plight of their predecessors under Khrushchev reductions in the early 1960s. Moreover, there were ample objections to the Gorbachev moves on strategic grounds. It was not surprising that there would be "furious debates" in both the Politburo and the Central Committee, with both the defense minister, General Yazov, and the former chief of the General Staff, Marshal Ahkromeyev, opposed to the cuts.62/

A number of senior Soviet officials went on public record opposing unilateral Soviet force reductions before Gorbachev's UN announcement. Colonel General M.A. Gareyev, a deputy chief of the General Staff, for example, roundly condemned all talk of unilateral disarmament.63/ And as late as mid-1988 Foreign Ministry spokesman Vadim Perfilyev said that Moscow did not "see any need for unilateral steps."64/

As we have noted, Khrushchev's argument for reductions in the 1960s was based largely on the belief that nuclear weapons made large conventional armies and navies obsolete. Unfortunately, that thesis ran directly against the traditional Soviet concept of combined arms operations. With the emergence of the Western notion of flexible response at about the same time, and increased Soviet interest in non-nuclear operations, Khrushchev's views were discredited on the practical grounds of

the day as well as for their rather cavalier disregard of established military theory.

Nevertheless, unlike Khrushchev's critics who could point to his overreliance on nuclear weapons and his disregard for combined arms operations, those opposing the Gorbachev initiative could not fault the General Secretary for neglecting Soviet military "science." As an official text for the guidance of Soviet officers points out:

Marx and Engels...considered economic conditions most important to...the causes of victories and defeats, since they, in the final analysis, determine the military aspect.65/

Gorbachev was able to persuade his opponents that the military and economic factors of Soviet state power were out of balance, and he had ample evidence that his argument had been foreseen and addressed by prominent figures in the Soviet pantheon. An analysis by Raymond Garthoff of confidential Soviet military writings indicates that the mainstream of professional thinking made a gradual, if cautious, adjustment to Gorbachev's initiative from 1986 to 1987.66/

By the end of the 1980s, Gorbachev's force reduction proposals conveyed a sense of serious intent to the West. The Soviets have demonstrated a surprising sensitivity for Western security concerns with their unilateral initiatives, and it is clear that they look for yet more extensive savings through negotiated arms reductions accords. They are well aware of the burdens which their previous policies and doctrine have imposed upon their society and evidence a willingness to undertake extraordinary political - and some military - risk in order to overcome them.

The Soviets have laid out their intentions for unilateral reductions with sufficient specificity that their performance can be readily monitored and assessed by the West. However poor the record for negotiated conventional arms accords in Europe in the past, the ground is ripe for agreements covering forces in Central Europe in the 1990s. Whether such agreements may in the long-run prove beneficial for Western security in all respects will have to await the judgement of history.

ENDNOTES

1. From private discussions by the author with Soviet general officers in Moscow on January 23 and 24, 1989.
2. S.N. Kozlov (ed.), The Officer's Handbook (Moscow: Voenizdat, 1971), translated by DGIS Multilingual Section, Translation Bureau, Secretary of State Department, Ottawa, Canada, and published under the auspices of the U.S. Air Force, pp. 61-66.
3. U.S. Department of Defense, Soviet Military Power 1987 (Washington, DC: US Government Printing Office, 1987), pp. 16-21. Hereafter referred to as "DoD, SMP Date."
4. Kozlov, pp. 47-61.
5. See for example S.P. Ivanov, The Initial Period of War (Moscow: USSR Defense Ministry, 1974), translated and published under the auspices of the U.S. Air Force.
6. Typical of Soviet combined arms thinking is the following: "It cannot be imagined that in a nuclear war, even in the main theaters of military actions, all the missions will be carried out with just nuclear missile weapons. It is advisable and advantageous to carry out a whole series of missions with conventional weapons (for example, neutralizing many military targets on the battlefield, capturing enemy territory, and so forth)." N.A. Lomov (ed.), Scientific-Technical Progress and the Revolution in Military Affairs (Moscow: Military Publishing House, 1973), translated and published under the auspices of the US Air Force, p. 73.
7. (On mounted warfare.) "An offensive should be mounted primarily on tanks, armored personnel carriers, and helicopters. Dismounted attack would be a rare phenomenon. (On speed.) "Offensive operations of a future war will be distinguished by high tempos." (On the role of higher echelons of command.) "Thus, strategy, which in the past was nourished by the achievements of tactics and operational art, now is given the possibility to attain, by its own independent means, the war aims regardless of the outcomes of battles and operations in the various areas of armed conflict. Consequently, over-all victory in war is no longer the culmination, nor the sum of partial successes, but the result of a one-time application of the might of a state accumulated before the war." Ibid., pp. 293 and 12.
8. "... (the theater force) main task will be to utilize the results of nuclear attacks by rocket troops and aviation for the final defeat of enemy units in theaters of military operation;

the rapid capture (occupation) of enemy territory, and the victorious end of war on the continent." Ibid., p. 284.

9. For an interesting description of the origins and applications of Soviet echeloning see Christopher Donnelly, The Development of the Soviet Concept of Echeloning, unpublished manuscript, Soviet Studies Research Center, Sandhurst, November 1984, p. 10.

10. "Blitzkrieg" is used in this paper in a general sense to mean very high tempo offensive operations based upon the integration of fire, maneuver and shock action. For an excellent discussion of Soviet thinking along these lines, see Richard E. Simpkin, Race to the Swift, (London: Brassey's Defence Publishers, 1985), chapter 3, "Deep Operation Theory," pp. 37-53.

11. V.D. Sokolovsky, Military Strategy; originally published in Russian in Moscow in three editions between 1962 and 1968. An annotated compendium of all three, edited by Harriet Fast Scott, was published in English under the auspices of Stanford Research Institute in 1975 by Crane, Russak & Co., Inc., New York, under the title Soviet Military Strategy, p. 295.

12. Matthew A. Evangelista, "The Evolution of Soviet Tactical Air Forces," in David R. Jones (ed.), Soviet Armed Forces Review Annual Vol. 7, 1982-83 (Gulf Breeze, FL: Academic International Press, 1984) (hereafter called SAFRA (date)), pp. 452-461.

13. Harriet Fast Scott and William F. Scott, The Armed Forces of the USSR (Boulder, CO: Westview Press, 1979), p. 158; and John W. Taylor, "Gallery of Soviet Aerospace Weapons," Air Force Magazine, March 1987, pp. 90-91.

14. DoD, SMP 1988, pp. 54-55. Viktor Karpov, deputy foreign minister of the USSR, stated on Moscow radio (TASS) on March 10, 1989, "The Soviet Union is not modernizing its tactical nuclear missiles." See FBIS-SOV-89-046, March 10, 1989.

15. Dmitri R. Ustinov, To Avert the Threat of Nuclear War, (Moscow: Novosty Press Agency, 1982), p. 8.

16. For a discussion of OMG's see DoD SMP 1986, pp. 71-72; C.N. Donnelly, "The Soviet Operational Maneuver Group: A New Challenge for NATO," International Defense Review (IDR), Vol. 15, No. 9, 1982, pp. 1177-1186; C.J. Dick, "Soviet Operational Maneuver Groups: A Closer Look," IDR, Vol. 16, No. 6, 1983, pp. 769-776; John Hines and Phillip Peterson, "The Warsaw Pact Strategic Offensive: The Operational Maneuver Group in Context," IDR, Vol. 16, No. 10, 1983, pp. 1391-1395; and C.N. Donnelly,

"The Soviet Helicopter on the Battlefield," IDR, Vol. 17, No. 5, 1984, p. 566.

17. Peter Millar, "The Central Region Layer Cake - An Essential Ingredient," in Maj Gen JJG Mackenzie and Brian Holden Reid (eds.) The British Army & the Operational Level of War (London: Tri-Service Press, 1989), p. 28.

18. John J. Fialka, "Soviets Outline Troop-Cut Plan in East Germany," The Wall Street Journal, March 14, 1989, p. 21.

19. I. Vorobyev, "Weapons and Tactics: The Commander and Modern Combat," Krasnaya zvezdza, Jan. 12, 1982, p. 2, cited in Phillip A. Petersen and John G. Hines, "The Conventional Offensive in Soviet Theater Strategy," Orbis, Fall 1983, p. 714.

20. DoD, SMP 1985, pp. 63-64, and Richard A. Woff, "Ground Forces," in SAFRA 1981, p. 72.

21. Defense Intelligence Agency, Soviet Divisional Organizational Guide pp. 82-88; and DOD SMP 1986, p. 69.

22. David C. Isby, Weapons and Tactics of the Soviet Army (London: Jane's Publishing Co., 1981), p. 291.

23. Christopher Donnelly, Red Banner: The Soviet Military System in Peace and War (Coulson, England: Jane's Information Group, 1988), p. 27.

24. Viktor Suvorov, Spetsnaz: The Inside Story of the Soviet Special Forces (New York: W.W. Norton & Co., 1987), Appendices A-D, and DoD SMP 1986, p. 72.

25. Petersen and Hines, Orbis, p. 714.

26. Viktor Karpov: "The Soviet Union has no chemical weapons abroad." (FBIS-SOV-89-046, March 10, 1989). However, SMP 1986 depicted Warsaw Pact chemical munitions stored in forward areas in 32 different locations, p. 75.

27. On April 22, 1989, a spokesman for the Soviet Foreign Ministry offered a possible explanation of the discrepancy: "On average, the weight of the toxins amounts to between 1/5 and 1/6 of the weight of armed ammunition. I wish to repeat that, as we have announced, the USSR's chemical weapons stock does not exceed 50,000 tonnes by weight of toxins." Krasnaya zvezdza, first edition, p. 5., FBIS-SOV-89-079, April 26, 1989, p. 4.

28. DoD, SMP 1985, p. 71, and Defense Intelligence Agency, Soviet Divisional Organizational Guide, p. 70.

29. U.S. Defense Intelligence Agency, Force Structure Summary-USSR, Eastern Europe, Mongolia, and Afghanistan (DDB-2680-170-89), February 1989, p. 46.
30. Sokolovsky, p. 227.
31. USSR Ministry of Defense, Dictionary of Basic Military Terms, p. 232.
32. Donnelly, Red Banner, p. 277.
33. U.S. Defense Intelligence Agency, Warsaw Pact Ground Forces Equipment Handbook: Armored Fighting Vehicles, DDB-1100-241-80, April 1980, p. 2-26.
34. Typical of the Soviet studied avoidance of any reference to the possibility of their own use of chemical or biological weapons is the Soviet manual, Zashchita ot oruzhiya massovogo porazheniya (Protection Against Weapons of Mass Destruction), edited by Colonel General of Technical Troops V.V. Myasnikov, (Moscow: Voenizdat, 1984). Under the section on "Aims and Measures of Protection of Troops Against Weapons of Mass Destruction" appears the sentence, "The measures for protecting troops against weapons of mass destruction include: ...warning the troops of an imminent threat of use by the enemy of weapons of mass destruction, and also of one's own nuclear strikes..." (emphasis added), pp. 144-145. (Excerpts cited by Goure and Deane, "The Soviet Strategic View," Strategic Review, Summer 1985, p. 86.)
35. Sokolovsky, p. 192.
36. Christopher Donnelly has expressed views similar to those of the author. Donnelly concludes, "On purely practical ground there would appear to be more good reasons for not using chemical weapons than for using them." See Donnelly, Heirs of Clausewitz: Change and Continuity in the Soviet War Machine, (London: Alliance Publishers Ltd. for the Institute for European Defence and Strategic Studies, 1985), p. 33; also Red Banner, p. 281.
37. For a discussion of the impact of PGM on the Soviet Army and the advantages to a defender, see Edward B. Atkeson, "Is the Soviet Army Obsolete?" Army, May 1974, pp. 10-16; and Edward B. Atkeson, Precision Guided Munitions: Implications for Detente, U.S. Army War College Military Issues Research Memorandum, September 16, 1975, pp. 14-18.
38. The Soviets followed Israeli initiatives very closely in the explosive reactive armor field. They began production

within six years of the Arab-Israeli War of 1973, which demonstrated the need (see note 33). They began deployment of reactive armor on their tanks in 1984. (See C.N. Donnelly, Future Soviet Military Policy, Part I: Doctrine and Economics," International Defense Review, January 1989, p. 20.

39. International Institute of Strategic Studies, The Military Balance 1987-88 (hereafter called IISS (date)), p. 35; and Isby, pp. 144-154.

40. IISS, 1978-1979, p. 9, and 1987-1988, p. 35.

41. "Survey Reviews NATO and WP Forces," Janes's Defense Weekly, March 5, 1988, p. 413.

42. DoD, SMP 1987, P. 73, and Jane's Weapons Systems 1987-88 (London: Jane's Publishing Co. Ltd), May 1983, p. 16.

43. U.S. Defense Intelligence Agency, The Soviet Conventional Offensive in Europe (DDB-2622-4-83), May 1983, p. 16.

44. "Organization of the Soviet Armed Forces," Air Force Magazine, March 1989, p. 72.

45. "From Defensive Doctrine Positions. Colonel General M.A. Moiseyev, Candidate USSR People's Deputy, Meets Communists From the USSR Armed Forces General Staff," Krasnaya zvezda, February 10, 1989, translated in FBIS-SOV-028, February 13, 1989, p. 80.

46. From author's discussions with Soviet officers, January 1989.

47. "Speech by Mikhail Gorbachev at the UN General Assembly," Pravda, December 8, 1988, English translation No. 93, p. 21; and Bill Keller, "Gorbachev Promises Big Cut in Military Spending," The New York Times, January 19, 1989, p. A6. The first actual troop reductions began in East Germany and Czechoslovakia on March 10, 1989 with the withdrawal of "assault landing" battalions. This was followed on April 25th with the withdrawal of a tank battalion from Hungary. (Moscow Domestic News Service, April 24, 1989, FBIS-SOV-89-078, April 25, 1989, p. 3.)

48. William A. burhans, "Red Hot News," Armed Forces Journal International, April 1989, p. 28.

49. "USSR Defense Minister Army General D.T. Yazov Answers Questions by an Izvestiya Correspondent: 'In the Interests of Universal Security and Peace'," Izvestiya, February 28, 1989, p. 3, translated in FBIS-89-038, February 28, 1989, p. 3.

50. Ibid. and testimony by Mr. Phillip A. Karber before the U.S. House Armed Services Committee, March 14, 1989. Mr. Karber quoted Soviet Major General Batenin speaking to FRG parliamentarians in February 1989: "In the Soviet border defense districts - the Baltic, the Carpathian, and the Belorussian defense districts, most districts would be restructured on the model of the machine gun/artillery divisions which the Soviet Union once had. These divisions are good for the defense of fortified regions or bastions. They will have lower mobility, and hence are more oriented for defense." On the face of the descriptions of the new divisions thus far, however, the Southern and Far Eastern TVDs would seem to offer the best opportunities for their employment.

51. D.T. Yazov, Na strazhe sotsializma i mira (Moscow: Voenizdat, 1987), pp. 32-33, cited in Jacob W. Kipp, "Soviet Military Doctrine & Conventional Arms Control," Military Review, December 1988, p. 18.

52. E.F. Ivanovskii, "The Outstanding Victory of the Soviet Army," Voенно-istoricheskiy Zhurnal, November 1987, pp. 44-53, cited in Herspring.

53. A. Kokoshin and V. Larionov, "The Battle of Kursk in Light of Today's Defensive Doctrine," Mirovaya ekonomika i mezhdunarodnye otnosheniya, August 1987, pp. 32-33, cited in Dale R. Herspring, "The Soviet High Command Looks at Gorbachev," International Institute for Strategic Studies Adelphi Papers, No. 235, Spring 1989, p. 55.

54. "USSR Defense Minister Army General D.T. Yazov Answers Questions by an Izvestiya Correspondent: 'In the Interest of Universal Security and Peace'," Izvestiya, and Karber.

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56. U.S. Defense Intelligence Agency, Force Structure Summary - USSR, Eastern Europe, Mongolia, and Afghanistan, Defense Research Reference Series (DDB-2680-170-89), February 1989, pp. 40-41.

57. "Defense Trends," Army Times, April 10, 1989, p. 28.

58. Author's discussions with Soviet officers.

59. Stanislaw Koziej, "Anticipated Directions for Change in Tactics of Ground Troops," Ground Forces Review (Poland), September 1986, p. 4, cited in Phillip A. Petersen and Notra Trulaoc III, "A 'New' Soviet Military Doctrine: Origins and

Implications," Soviet Studies Research Center, RMA Sandhurst, document C68, Summer 1988, p. 20.

60. Neil Munro, "Soviets Divert Money for Surveillance Systems," Defense News, July 10, 1989.

61. Michael Dobbs, "Soviet Officers Vent Unease at Cutbacks," The Washington Post, December 16, 1988, p. A37. While there is circumstantial evidence that Marshal Ahkromeyev's retirement was related to the debate, the Chairman of the U.S. Joint Chiefs of Staff, who has spent considerable time with him, commented that the marshal had planned to retire in any event. See: "Of War and Politics," interview with Admiral William Crowe, Time, December 26, 1988, p. 72.

62. David Remnick, "Gorbachev: One Leader Can Make a Difference," The Washington Post, December 31, 1988, p. A14.

63. M.A. Gareyev, "Soviet Military Science," Zashchita Otechestva, No. 11, 1987, cited in Leon Goure, "The Soviet Strategic View," Strategic Review, Spring 1988.

64. Reuter, "Soviets: No Unilateral Cuts," The Washington Post, July 13, 1988, p. A16.

65. Marxism-Leninism on War and the Army, p. 218.

66. Raymond L. Garthoff, "New Thinking in Soviet Military Doctrine," The Washington Quarterly, Summer 1988, p. 134.