SOVIET MILITARY POWER

1985

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The illustrations of Soviet weapons systems introducing each chapter and elsewhere are derived from various US sources; while not precise in every detail, they are as authentic as possible.

CONTENTS

PREFACE

A valuable starting point from which to measure the current and projected strength, trends, and global military capabilities of the Armed Forces of the Soviet Union, as well as the forces of its Warsaw Pact allies, is the following assessment presented in the introduction to the North Atlantic Treaty Organization's 1984 official publication, *NATO and the Warsaw Pact—Force Comparisons:*

> The Warsaw Pact maintains large-scale strategic nuclear forces, intermediate- and short-range nuclear forces, and massive conventional forces. Moreover, Warsaw Pact military strategy as shown by its literature and military exercises calls for large-scale penetration into enemy territory in order to secure strategic objectives; it continues to emphasize the element of surprise and the necessity of rapid offensive operations.

The forces of the USSR and its allies continue to expand, modernize, and deploy with increasingly capable weapons systems designed for the entire spectrum of strategic, theater-nuclear, and conventional conflict. The Soviet Union has made no secret of certain of these advances. For example, in the autumn of 1984, the Soviet Defense Ministry announced that the USSR was beginning to deploy a new generation of nuclear-armed, air-launched and sea-launched cruise missiles. The Soviets also revealed that nuclear-armed, short-range ballistic missiles had been forward-deployed from the USSR to operational sites in Eastern Europe and that additional ballistic missile submarines were on patrol in the Atlantic and the Pacific. In a speech before the Politburo, General Secretary Chernenko said that further actions would be taken to strengthen the Soviet Union's military capability. These announcements serve notice of the increasingly ambitious Soviet procurement and deployment of major categories of new armaments. The success that the Soviets have achieved in both quantity and quality of systems is based on combining an aggressive R&D program with a systematic effort to target and obtain advanced Western technologies.

Some of the more significant developments reported in this, the fourth edition of *Soviet Military Power,* are:

- Test firings continue for the SS-X-24 and SS-X-25 ICBMs, the new, fifth-generation intercontinental ballistic missiles. The SS-X-25 violates Soviet obligations under SALT II. The level of deployed MIRVed ICBM warheads continues to rise with overall modernization of the Soviet strategic missile force.
- Two units of a new DELTA IV-Class of strategic ballistic missile submarine have been launched; they are the likely platform for the USSR's newest, most accurate submarine-launched ballistic missile (SLBM), the SS-NX-23.
- A third 25,000-ton TYPHOON-Class strategic ballistic missile submarine has completed sea trials, joining the two TYPHOON units already operational, each fitted with 20 SS-N-20 SLBMs, with each missile capable of delivering six to nine MIRVed warheads to ranges of 8,300 kilometers.
- The new supersonic, swing-wing BLACKJACK bomber continues in advanced test and development. New strategic BACKFIRE bombers continue to join

operational Soviet forces at a rate of at least 30 a year. New BEAR-H strategic bombers are emerging from Soviet aircraft plants and deploying with the 3,000-kilometer-range, air-launched, nuclear-armed AS-15 cruise missile.

- The USSR is continuing to devote extremely high priority to its military-related space program. A major emphasis is on space systems for long-duration, manned missions engaged in military research. They are developing new heavy-lift launch vehicles, capable of launching 150-ton payloads, for the space shuttle and manned space station programs. The USSR is continuing research on ground-based and space-based high-energy lasers for use in antisatellite roles. The Soviets currently have the world's only deployed antisatellite weapons system that can attack satellites in near-earth orbit.
- The USSR continues to upgrade its heavily layered strategic defenses with expansion of ballistic missile detection and tracking systems and the development of new early warning and air surveillance radars. Silo-based high-acceleration interceptor missiles are replacing older above-ground launchers in the antiballistic missile system ringing Moscow, bringing increased capabilities to the world's only deployed ABM system. A new, large, phased-array radar under construction at Krasnoyarsk violates the ABM Treaty. The USSR may be preparing an ABM defense of its national territory. In addition, the Soviets are actively engaged in extensive research on advanced defenses against ballistic missiles.

Modernization of Soviet forces at the strategic level is mirrored by force improvements at theater-nuclear and conventional levels:

- The Soviets have pressed ahead with construction of new SS-20 missile bases in both the western and eastern USSR, enabling a substantial increase from the 378 MIRVed 5,000-kilometer-range nuclear missiles reported last year to a new total of about 400. In parallel, new SS-21 short-range ballistic missiles are now deployed with Soviet divisions in East Germany, and more accurate 900-kilometer-range SS-22/SCALEBOARD missiles have been forward-deployed to East Germany and Czechoslovakia.
- Soviet Ground Forces, which in 1981 numbered 181 divisions, have now grown to 199 motorized rifle, tank, and airborne divisions. New main battle tanks continue to flow from Soviet factories—some 3,200 in 1984—upgrading tank division capabilities, which are equipped from an USSR inventory of 52,000 tanks.
- The fourth 37,000-ton KIEV-Class aircraft carrier is fitting out, preparing to join the already operational carriers *Novorossiysk*, *Minsk*, and *Kiev*. Construction continues on the lead unit of an entirely new class of aircraft carrier that will be about 65,000 tons displacement.
- The second unit of the 28,000-ton nuclear-powered KIROV-Class cruisers has joined the Soviet fleet. A third unit of these heavily armed guided-missile cruisers is on the building ways.

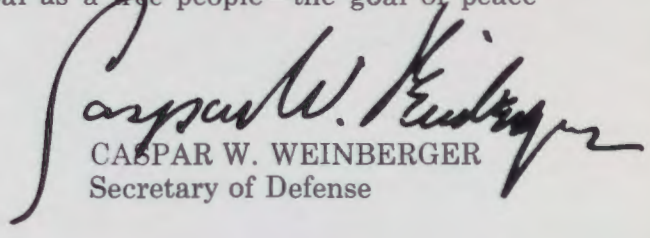
- Nine separate classes of Soviet submarines are in production; these classes include four nuclear-powered attack submarines capable of carrying the new SS-NX-21 land-attack sea-launched cruise missile.
- The Su-27/FLANKER all-weather, air-superiority fighter will soon be deployed, further adding to the capability of Soviet tactical aircraft.

The Soviet military is not a home-based garrison force as attested by the more than 30 ready divisions forward-deployed throughout Eastern Europe, the divisions in combat in Afghanistan, the brigade in Cuba, and military advisers throughout the Third World. The Soviet Navy is the most visible element of the USSR's growing global reach. In Vietnam, for example, the Soviets have transformed Cam Ranh Bay into their largest forward deployment naval base in the world, adding more Tu-16/BADGERs and a squadron of MiG-23/FLOGGER fighters. As the Navy adds to the capabilities of its submarine, surface, and air units, the USSR continues to press for greater access to overseas facilities for its Armed Forces and continues to support the establishment and strengthening of regimes sympathetic to and supportive of Soviet purposes. The continuing flow of increasingly advanced weapons to the Sandinista regime in Nicaragua is a prime example.

Soviet Military Power 1985 examines the unceasing introduction of new nuclear and conventional Soviet military capabilities. It examines the doctrine guiding the organization, control, and employment of Soviet forces, and it chronicles key developments in each element of the Soviet Armed Forces, highlighting the continuing increases in Soviet military power.

To contribute to a clearer understanding of these forces and their capabilities, this year's edition of *Soviet Military Power* not only draws on the 1984 NATO force comparisons study, but also provides comparative data on developments in US forces. These comparative data serve to highlight even more vividly the magnitude and the dimensions of the threatening challenge posed by Soviet force developments. As I have noted, comprehensive information on the forces of the US is regularly made available to the public in such publications as the Secretary of Defense's *Annual Report to the Congress* and the *Military Posture Statement* of the Chairman of the Joint Chiefs of Staff.

It is incumbent upon the United States and its allies to have a full and precise understanding of the Soviet challenge as we take the steps necessary to preserve our freedom, to ensure an effective deterrent to the threat and use of force, and, at the same time, to seek genuine and equitable arms reductions, contributing to global stability and to our transcending goal as a free people—the goal of peace and security.



CASPAR W. WEINBERGER
Secretary of Defense

Chapter I

Soviet Military Power

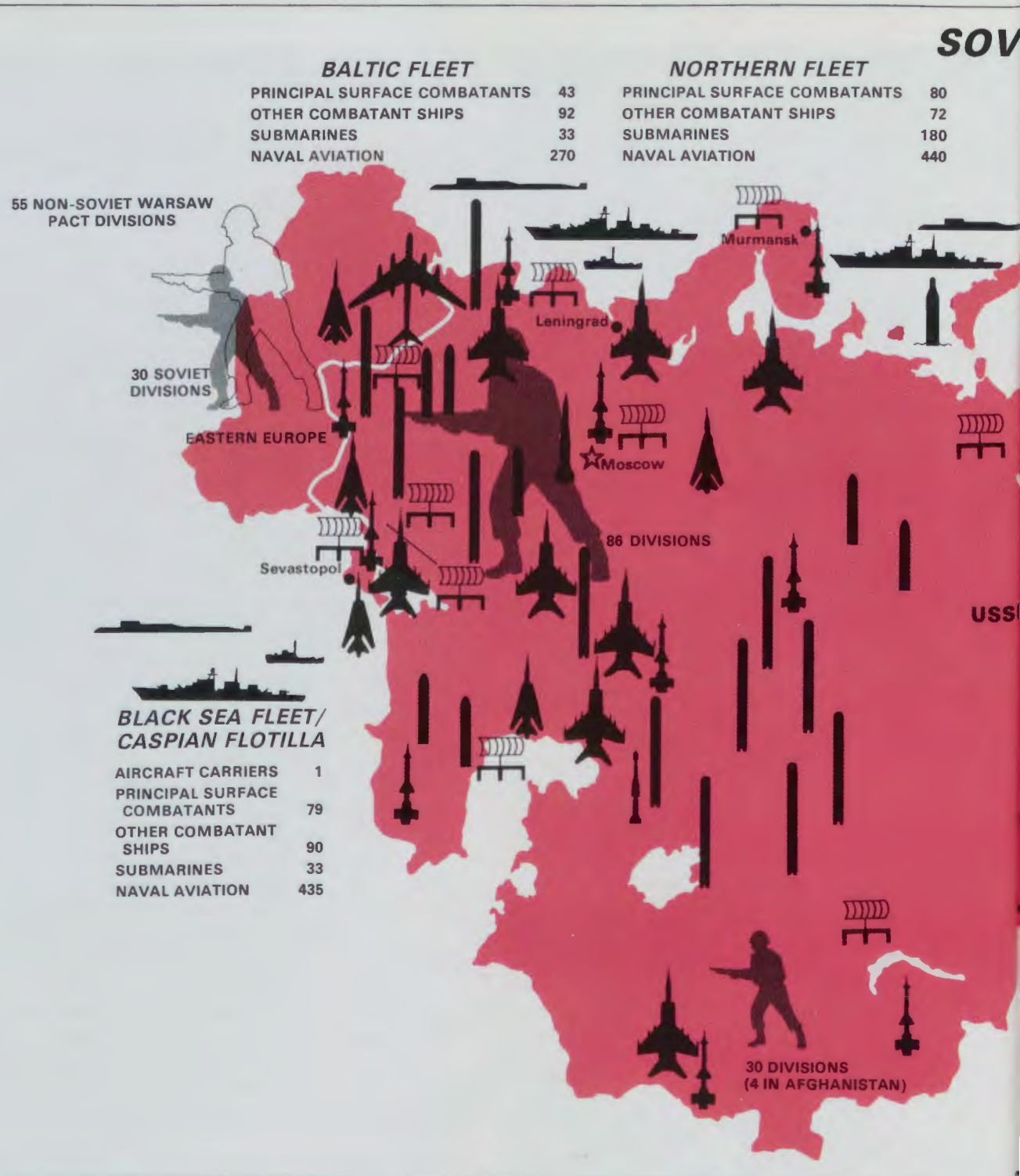
The Soviet Union has long relied on military power as the principal instrument of expansionist policies aimed at the extension of Soviet control and influence throughout the world. Soviet Armed Forces are equipped, trained, and readied for employment to further these aims. The threat posed by these forces is manifested in the mounting arsenal of nuclear and conventional weapons systems as well as the coercive leverage, short of actual use of force, that the USSR's Armed Forces are able to exert.

The USSR's willingness to threaten and use military force under certain conditions to achieve external State objectives is documented by a lengthy, stark record of invasion and military suppression of other nations. Recall, for example, that the Red Army partitioned Poland with the Nazis in 1939 and attacked Finland later that winter. In 1940, Finland was forced to cede territory to the Soviets, and the Red Army occupied Latvia, Lithuania, Estonia, and the Romanian province of Bessarabia.

In 1950, the North Korean invasion of South Korea was made possible by Soviet material support. The Soviets moved 20,000 to 25,000 troops to border areas of North Korea, and Soviet pilots defended the Yalu River bridges until the Chinese entered the conflict.

In 1953, the Soviets assisted the East German regime in putting down a popular uprising. In October 1956, Khrushchev threatened to use Soviet military force in Poland, and in October-November 1956, Soviet tanks crushed

With the operational deployment of the new, 3,000-kilometer-range, nuclear-armed AS-15 cruise missile aboard new BEAR H strategic bombers in 1984, the Soviet Union has again underscored its commitment to field increasingly capable weapons systems designed for the entire spectrum of strategic, theater-nuclear and conventional warfare, as part of the upgrading of Soviet military power.



NUCLEAR FORCES

TACTICAL AIRCRAF

ICBMs

SS-11	520
SS-13	60
SS-17	150
SS-18	308
SS-19	360

LRINF

SS-4	120
SS-20	About 400

SLBMs

SS-N-5	42
SS-N-6	336
SS-N-8	292
SS-N-17	12
SS-N-18	224
SS-N-20	60
SS-NX-23	16

BOMBERS

BACKFIRE	250*
BISON	48
BEAR	125
BADGER	287
BLINDER	136

* Including 120 in Soviet Naval Aviation.

TACTICAL AIRCRAFT 6,135

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LITARY FORCES

PACIFIC OCEAN FLEET

AIRCRAFT CARRIERS	2
PRINCIPAL SURFACE COMBATANTS	85
OTHER COMBATANT SHIPS	114
SUBMARINES	134
NAVAL AVIATION	500

GROUND FORCES*

ORIZED RIFLE DIVISIONS	140
DIVISIONS	51
ORNE DIVISIONS	7
TAL DEFENSE DIVISIONS	1

*s exclude 14
ilization divisions and
w Army Corps

STRATEGIC DEFENSE FORCES

ABM RADAR

INTERCEPTORS 1,200

ASAT

SAM** LAUNCHERS 10,000

ABM LAUNCHERS 100

**In USSR only — does not include Soviet Strategic SAMs (SA-2/3/5) in Mongolia, or with Groups of Forces.

NAVAL FORCES

AIRCRAFT CARRIERS	3
PRINCIPAL SURFACE COMBATANTS	287
OTHER COMBATANT SHIPS	368
COMBATANT CRAFT	765
AUXILIARIES	780
SUBMARINES	380
NAVAL AVIATION	1,645

the Hungarian revolution. In August 1968, Soviet and other Warsaw Pact forces occupied Czechoslovakia to destroy a socialist regime "with a human face." In 1979, the Soviets invaded Afghanistan and executed one Communist prime minister to install a more tractable one. In 1980-81, the threat of Soviet military intervention was used several times to pressure Polish authorities to crack down on the Solidarity Labor Movement. Polish officials imposed martial law to avert a Soviet invasion.

The role of military power in the Soviet Union can be best comprehended by understanding the State's full commitment to developing, supporting, and sustaining armed forces for internal, regional, and global use. This examination begins with a review of the extraordinarily great resources the USSR devotes to its military, the resulting overall nuclear and conventional force capabilities, and the nature of the Soviet political and military command structure overseeing the development of Soviet military doctrine and strategy.

Chapters II - VII of *Soviet Military Power 1985* examine the organization and capabilities of Forces for Nuclear Attack, Strategic Defense and Space Forces, Ground Forces, Air Forces, Naval Forces, and Soviet Global Ambitions. The Western response to the Soviet Union's military challenge is discussed in Chapter VIII.

Military Expenditures

The cumulative cost of the Soviet military program during 1974-83 exceeds that of the US by a large margin, despite a slowdown in the rate of overall Soviet economic growth. For this decade, the estimated dollar cost of the total Soviet military program is 35 percent more than the comparably defined US defense outlays, while the cost of Soviet weapons procurement is 50 percent greater. Although the dollar cost differences have narrowed with the recent growth in US defense spending, the magnitude of the Soviet military effort in important specific categories, such as R&D, still surpasses that of the US. Moreover, there is clear evidence of an upturn in Soviet weapons procurement beginning in 1983.

The rate of increase in spending does not give an appreciation of the large stocks of strategic and conventional weapons systems deployed by the Soviets during the past decade. Despite the procurement plateau of the late 1970s, when the Soviets emphasized R&D for next-generation systems, spending was so high that during the period 1977 through 1983, Soviet forces acquired 1,500 ICBMs, more than 1,300 submarine-launched ballistic missiles (SLBMs), 250 bombers, 5,000 fighters, some 15,000 new tanks, and substantial numbers of new additional major surface combatants, nuclear-powered ballistic missile submarines, and attack submarines. During the same period, the US added to its inventory 135 ICBMs, 390 SLBMs, no bombers, 3,000 fighters, 5,000 tanks, and 106 major warships.

Soviet efforts to develop advanced weapons systems continue in the 1980s, at least at the rapid pace of the previous two decades. Among these weapons are fighter and airborne control aircraft, ballistic and cruise missiles, space systems, and submarines. The new systems cover the full range of technologically advanced weaponry the Soviets will need to modernize all their forces. New, complex, and increasingly expensive weapon systems—such as the new, fifth-generation ICBMs, air-superiority fighters such as the MiG-29/FULCRUM, and new, nuclear attack submarines such as the MIKE, SIERRA, and AKULA-Classes—are all contributing to the upturn in procurement costs.

The sustained Soviet economic commitment to the military is further revealed by the flow of resources to and growth of the machinery industry. This key sector of the economy, broadly divided into military and civilian machinery production, is the source of the Soviet Union's military weapons, civilian investment goods, and consumer durables. The machinery sector continues to experience the most rapid growth in the economy; and, in 1984, when overall industrial growth was 4 percent, the machinery sector expanded by some 7 percent. The military machinery portion of this sector now accounts for 60 percent of total machinery output and has been receiving nearly all the additions to the machinery sector's labor force, leaving little or no labor growth for the civilian sector.

Current estimates of Soviet military spending, in rubles from the early 1970s through the early 1980s, show a significant increase at a rate faster than overall economic growth. As a result, throughout the last decade, the Soviet military has absorbed an increasing share of the nation's estimated gross national product (GNP), a share now estimated at 15-17 percent. Even in a period of slowing economic growth, the Soviet military sector continues to maintain its priority claim on the Soviet Union's economic resources.

Full-scale production of the new BACKJACK manned strategic bomber, now in development, is expected to take place in the new complex being added to the USSR's Kazan Airframe Plant.

Industrial Base and Production

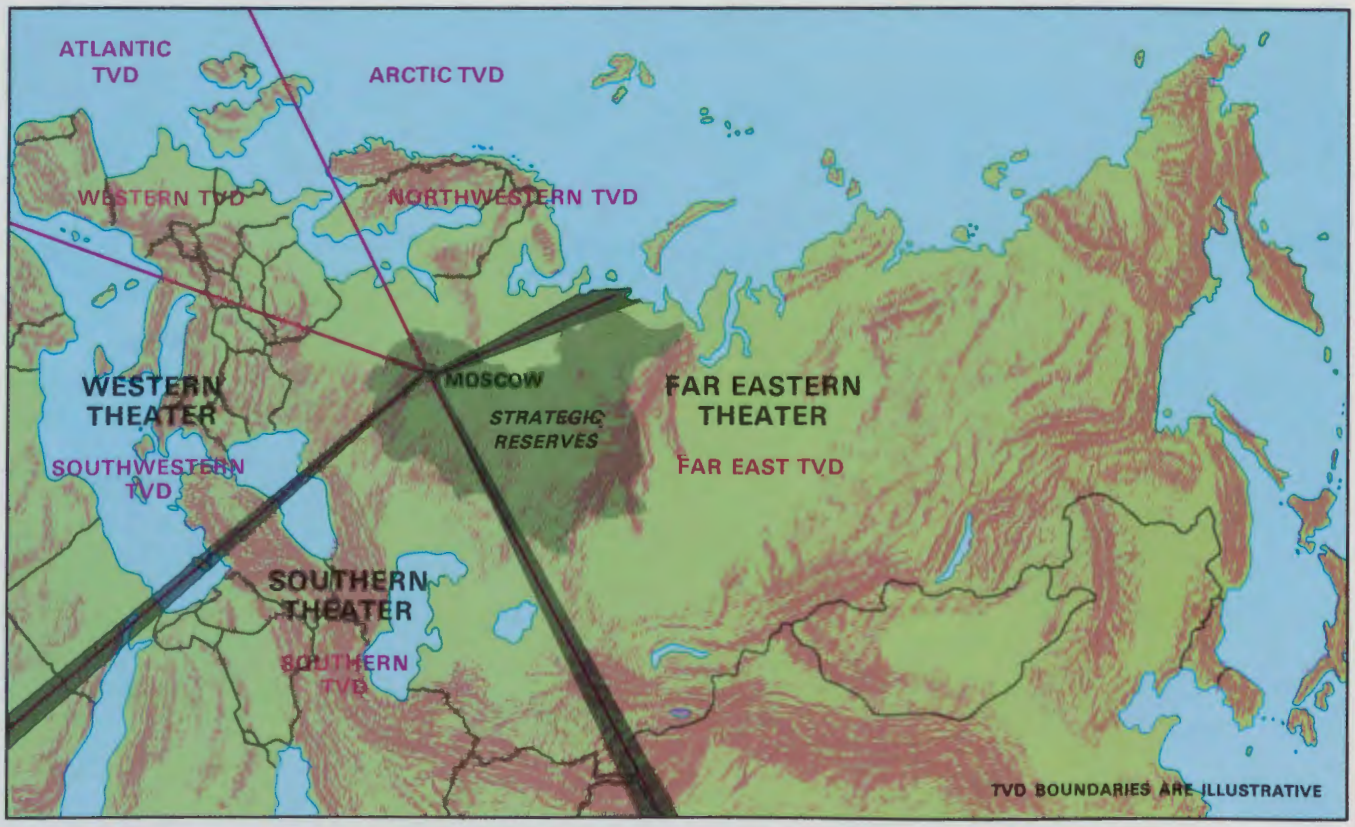
The large economic investment in military programs has enabled the Soviet military industrial base to expand to become the world's largest weapons producer. During the past decade, industry supporting the Soviet military is estimated to have grown more than 30 percent. The USSR's ability to produce large quantities of armaments in all categories has enabled them to equip and modernize their forces and those of their allies and still export large quantities of weapons to proxy and Third World nations.

As the West has turned increasingly to automated production methods, the Soviet Union has also been introducing computers and automation into its military production process. The use of such production methods was a Soviet goal first articulated in the 1960s. Through both legal and illegal acquisition of modern Western production techniques, the Soviets are establishing more efficient, integrated, and technologically advanced capabilities for the production of highly sophisticated weapons.

Soviet Doctrine and Strategy

According to the Soviet definition, military doctrine is concerned with the essence, purpose, and character of a possible future war and the preparation of the country and its Armed Forces for conducting such a war. Soviet military strategy, operational art, and tactics are components of Soviet military art. These three encompass the actual practice of preparing the country and its Armed Forces for war as well as planning and conducting strategic operations. Specifically, military strategy is concerned with defining the strategic tasks of the Armed Forces; carrying out measures to prepare the Armed Forces, the economy, and the population for war; determining potential adversaries; and determining the size and composition of military forces necessary to wage war. According to the Soviets, strategy and politics are closely interrelated.

Concerning the character of a possible future war, Soviet military writings state that such a conflict would be a decisive clash between two diametrically opposed socio-econo-



mic systems—socialism and capitalism. Most of the world's nations would be involved and the conflict would be global. The division of the world into two distinct and opposing camps means that a future world war would be a coalition war, fought by two major groupings of nations, each pursuing specific political and military objectives. The Soviets believe that an outcome favorable to their interests depends on complete unification of the political, economic, and military forces of all countries of the socialist coalition. To this end, the Soviets have concentrated on developing and implementing a single strategic policy for the entire Warsaw Pact forces. Marshal Kulikov, Commander in Chief (CINC) of the Warsaw Pact, has referred to his command as a unified combat formation.

The Soviets believe that a world war might begin and be waged for a particular period of time with conventional weapons only. Although general nuclear war is not considered to be inevitable, the Soviets believe it is possible that a conventional war will escalate to a nuclear conflict. Despite the fact that strategic nuclear forces would play the dominant role in such a war, the Soviets recognize the crucial function of ground armies in seizing and occupying their ultimate objectives. They also believe that a world war could be relatively brief—several weeks—or that it could develop into a protracted conflict. Great importance is attached to the initial phase of a war because to a large degree it would determine the course of all subsequent actions. This accounts for the extraordinary attention the Soviets pay to their overall mobilization capability and their perceived requirement to effect the transition of high-level political-military control organs rapidly from peacetime to wartime to take maximum advantage of the initial period of war.

Soviet doctrine envisions a future world war of wide scope waged over vast territories. Such a war would be characterized by an absence of continuous fronts, rapid and sharp changes in the strategic situation, and deep penetrations into rear areas of the forces involved. Forces would rely on mobility and maneuver to wage an intense struggle to seize and maintain the initiative. The Soviets emphasize the primacy of the offensive, stating that military and political objectives are ultimately achieved only through aggressive and continuous offensive actions. Although defensive actions occasionally would be necessary, they would be active and innovative operations undertaken with the purpose of either supporting nearby offensive

operations or creating favorable conditions for resuming the offensive.

The Soviets believe that victory in war is possible only through the combined and coordinated efforts of all services and troop branches. As a result, Soviet military strategy, which views warfare as a series of interdependent large-scale operations, is the same for all the services. The Soviet concept of combined arms warfare specifies that the various services and independent units must be brought together under a single unified commander at the army, front, and theater of military operations (TVD) levels. This permits the most effective use of all forces and weapons and ensures their united and coordinated employment in achieving overall strategic objectives.

The major Soviet strategic goal in a war in Europe would be the defeat of NATO military forces, the frustration of NATO's overall warfighting capability through the destruction of crucial command and control elements located in the NATO rear area, and the eventual dismantlement of the Alliance itself. Priority targets would be nuclear delivery systems and weapons; command, control, and communications centers; air defense weapons and control points; and government control centers.

Specific Soviet aims in a global war would be to:

- defeat NATO forces at any level of conflict, occupy NATO countries, and use Europe's economic assets to assist Soviet recovery;
- separately neutralize the United States and China by disorganizing and destroying their military forces; and
- dominate the post-war world in which "socialism" would replace "capitalism" as the basic politico-economic system in all nations.

From an internal viewpoint, the Communist Party of the Soviet Union (CPSU) leadership would seek to maintain its control over the Soviet government, military, police and internal security organs, and the civilian population. Efforts would be made to minimize losses to the Soviet leadership, scientific-technical elites and other essential personnel, to the general population, and to the economy. Repair and recovery operations would be organized to limit war-related damage.

Soviet Force Capabilities

During peacetime the five Soviet forces function as administrative service entities for the

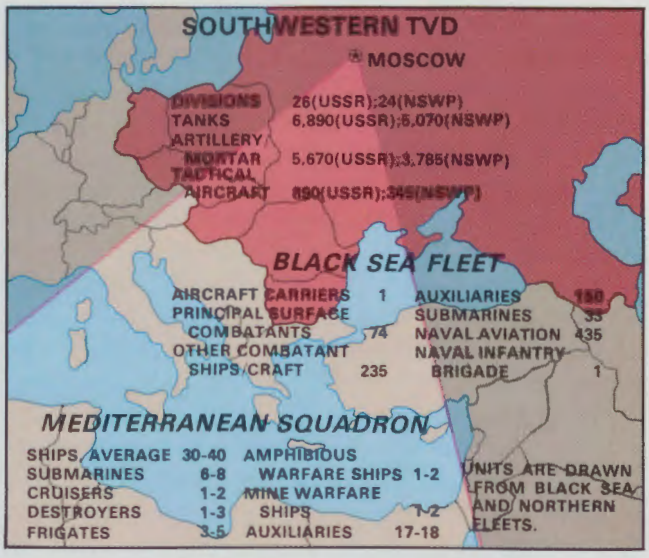
purpose of equipping, training, and maintaining their respective force components. During wartime, however, all Soviet forces would be combined under the executive leadership of the General Staff to form the Armed Forces of the Soviet Union. The Soviet forces would be formed into a single war machine that would bring to bear all systems and forces as needed in a unified and effective manner. This combined arms concept is not simply the joint use of weapons systems and forces; rather, it is the unified application of all military assets to achieve strategic, operational, and tactical objectives.

The following discussion of Soviet force capabilities addresses the Soviet command structure, wartime command and control, and combined arms warfare. As part of their combined arms concept, the Soviet Armed Forces are prepared to fight any type of war, nuclear or conventional, at any level. To the Soviets, the level and intensity of conflict—rather than being compartmented by operational plans—are influenced both by political objectives and enemy operations. Moreover, a nuclear exchange could occur in a limited or large-scale manner at the tactical, operational, strategic, or intercontinental level—or all simultaneously. Should the Soviets execute a nuclear attack, they would expect to continue conventional operations to exploit the results.

Combined Arms Warfare

Over the past two decades, Soviet forces have steadily expanded and upgraded every category of weapons systems. Soviet ground force divisions have been reorganized, enlarged, and equipped with increasingly modern tanks, artillery, and helicopters. Soviet naval forces continue to receive larger and more capable ships and submarines. Soviet air forces are being modernized with high-performance aircraft. In addition to these force enhancements, Soviet military planners are adapting operations to the capabilities of new systems and changing political objectives as part of the dynamics of combined arms warfare.

The Soviets envision as many as three theaters of war: Western, Southern, and Far Eastern, each with a set of political objectives affecting military operations within the theater. More importantly, in planning for such military operations, the Soviets could divide a theater, for operational command and strategic planning purposes, into theaters of military



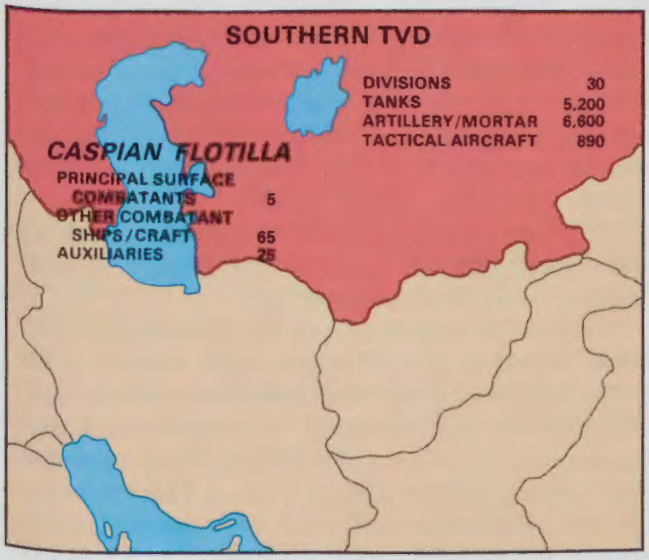
operations (TVDs). Soviet planning for the Western Theater, encompassing all of Europe, envisions three continental TVDs—Northwestern, Western, and Southwestern—and two oceanic TVDs, Arctic and Atlantic. This organizational concept enables military planners to formulate military strategy and tactics to achieve political objectives in the geographic region, taking into consideration the capabilities of the missiles, aircraft, ships, and ground forces at their disposal. The same planning process occurs for Soviet objectives in the Southern and Far Eastern Theaters. While a strategic operation within the various TVDs may be conventional only, nuclear strikes are also planned within the operational concept down to the division level.

Soviet forces for conventional warfare consist of the assets of ground, air, naval, and air defense forces. Each of these services is discussed in more detail in the following chapters. In wartime these services would form the combined arms forces of the Soviet Union.

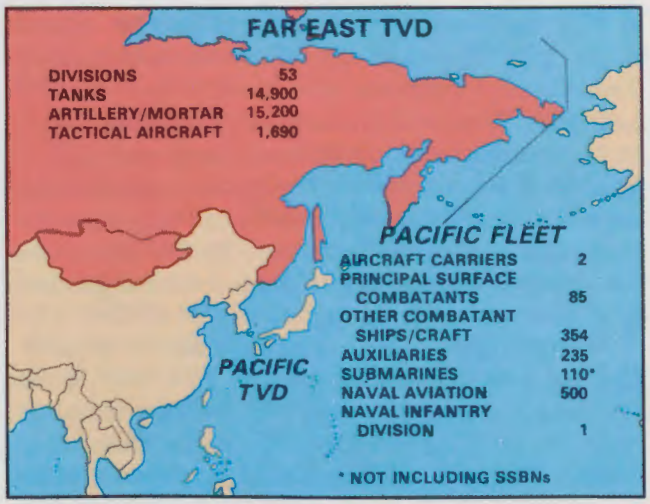
With the reorganization of Soviet Air Forces, the growth in the number of longer-range intermediate-range nuclear force (LRINF) missiles, and the high state of readiness of forward-deployed forces, the USSR is capable of executing the initial phase of an attack without mobilization of additional forces. However, if the order should be given to go to war, the Soviets would implement their national mobilization plan, drawing upon some nine million recently trained reservists. These reservists would be used to bring understrength units, cadre units, and mobilization bases to full manning in a matter of days. While mobilizing

and moving over 200 divisions is an extremely large task, the Soviets can assimilate the reservists, train them for combat, and be ready to conduct offensive operations in less than 60 days. To the Soviets, a combined arms battle would be fought by a highly integrated formation of ground, air, and air defense forces, with attached units of other service branches. In maritime sectors these formations would include naval forces as well. The use of nuclear weapons and the participation of the various service branches or forces, in conjunction with great troop mobility, would impart an especially decisive and maneuver-oriented character to combined arms warfare.

With the advent of longer range and more capable aircraft and missiles, coupled with increased troop mobility and maneuverability, Soviet concepts for employment of combined arms units and formations are evolving accordingly. The Soviets believe that modern warfare would substantially exceed the framework of front operations. As a result, they envision a larger scale military operation, which they refer to as a theater strategic operation. In such an operation, the front commander would be responsible for the conduct of two or more front operations in succession. While the Soviet concept of the front as a large combat formation in the field remains essentially intact, the Soviets are now focusing on operations by groups of fronts.



The contemporary Soviet concept of the theater strategic operation has expanded in scope and complexity. The Soviets now plan for a theater operation to consist of several fronts



conducting dynamic, fast-moving operations to seize strategic ground objectives located 600-800 kilometers away. These land offensive operations would be conducted in coordination and mutual support with air, antiair, assault (airborne, amphibious, or joint), and naval operations to attain the Soviets' strategic goals within the TVD. The air operation is a massive offensive campaign designed to gain air superiority and disrupt and destroy an enemy's command and control and nuclear capability. Front forces would contribute to the air operation by attacking enemy air and air defense facilities with rocket, artillery, and ground forces. In turn, the air operation, by degrading and disrupting enemy command, control, and comunication, as well as its aviation and nuclear capabilities, would create favorable conditions for the fronts to accomplish their objectives quickly.

A theater-wide antiair defense operation involving tactical and strategic air defense assets coordinated at the theater level would be conducted to defend Warsaw Pact forces from residual enemy aircraft. In addition, naval forces would operate in the waters off a coastal flank to destroy enemy naval forces, secure the coastal flank of the theater, participate in amphibious operations, and thwart the enemy's attempt to employ amphibious forces.

If the war escalated to the nuclear level, the Soviets could employ a massive theater-wide nuclear strike involving the coordinated use of ground, Strategic Rocket Force (SRF), naval, and aviation systems. This strike would be exploited by the rapid advance of front forces, taking advantage of the shock and disruption produced by massive nuclear employment.

The development of these complex operations has required the Soviets to develop theater-level commands to exert proper coordination and control. To support high commands in theaters, the Soviets have deployed an extensive fixed and mobile communications structure and constructed numerous hardened or bunkered command facilities. In addition, the Soviets may have established peacetime permanent theater commands for several TVDs.

As many as five fronts could exist in a TVD. The highest commander in a TVD would be at least a three-star general who is directly responsible to the Supreme High Command (VGK). The commander would be supported by a combined arms staff with the responsibility of overseeing and coordinating the activities of the various operational formations.

In wartime the General Staff would operate as the executor of the VGK and would develop plans for control of the forces. As stated earlier, the Soviets have organizationally structured their forces to form a unified command structure under the VGK. This provides the Soviets with the command structure to apply the totality of their military power in warfare so that the whole of the operation would be greater than the sum of its parts.

Soviet Command Structure

Supreme leadership of the USSR's Armed Forces is vested by the Soviet Constitution in the CPSU and the higher bodies of Soviet State power—the Presidium of the Supreme Soviet and the Council of Ministers. Party control of the military, however, is facilitated by the existence of the Defense Council, an organization that is chaired by the CPSU General Secretary and consists of top Party, government, and military leaders. The Defense Council is the most senior decisionmaking body for all aspects of national security policy. It also forms the nucleus of what would be expanded in wartime to the highest Party-state body responsible for establishing unified strategic leadership of the USSR and providing centralized direction to the national economy and the entire war effort. In this regard, it would perform functions similar to the USSR's World War II State Defense Committee.

Party dominance of the Soviet Armed Forces is assured through the Party's role in determining military doctrine and strategy and its control of budgetary resources and senior personnel assignments. The top Party leadership establishes military doctrine and approves military strategy as developed by the General Staff. The Defense Council, dominated by the Party leadership, controls the defense budget and makes the decision to develop and deploy each new major weapons system. Senior military officers are selected from a Central Committee list, and all major organizational changes in the Soviet military must be approved by the Defense Council. Party control of the military is also underscored by the fact that the Party General Secretary, in addition to being Defense Council Chairman, is also Supreme Commander in Chief of the Armed Forces.

Direct control and administration of the daily activities of the Soviet Armed Forces is entrusted to the Ministry of Defense (MOD), headed since 1976 by Marshal of the Soviet Union (MSU) Dmitriy Ustinov, until his death in December 1984. His replacement, MSU Sergey Sokolov, is expected to continue the policies initiated by Ustinov. As Minister of Defense, Sokolov is charged with maintaining the condition and overseeing the development of the Armed Forces, including officer recruitment and conscription of enlisted personnel; equipping the forces with weapons systems and military materiel; developing military strategy, operational art, and tactics; training the forces; and ensuring high standards of military discipline and political loyalty. The Ministry of Defense is also responsible, in coordination with local Soviet government organizations, for the Civil Defense program.

Within the hierarchy of the Ministry of Defense there is a Collegium that functions as a consultative body and policy review board. Chaired by the Minister, the Collegium discusses and resolves issues connected with the development of the Armed Forces, their combat and mobilization readiness, and the effectiveness of military and political training. Membership includes the Deputy Ministers of Defense, the Chief of the Main Political Directorate, and other top military leaders. Collegium decisions normally are implemented as orders of the Minister of Defense.

Minister of Defense Sokolov exercises control of the Armed Forces through First Deputy Ministers and Deputy Ministers of Defense. The First Deputy Ministers are: Marshal of the Soviet Union Sergey Akhromeyev, Chief of the General Staff since September 1984; MSU Viktor Kulikov, Commander in Chief of the Warsaw Pact Forces since 1977, and former

CINC of the Ground Forces, Vasiliy Petrov. Five of the 11 Deputy Ministers are CINCs of the Services—Strategic Rocket Forces, Ground Forces, Navy, Air Defense Forces, and Air Forces. The five service CINCs are responsible for the peacetime administrative management, including combat and political training of the forces. Operational control of the forces rests with a peacetime variation of the VGK and is administered by the General Staff. Six other Deputy Defense Ministers are in charge of civil defense, rear services, the main inspectorate, construction and billeting, personnel, and armaments.

The most important element in the Soviet Ministry of Defense for peacetime forces management, as well as wartime control of operational formations, is the General Staff headed by Marshal Akhromeyev. As the central military staff organ, the General Staff exercises operational control over the Armed Forces and is responsible for coordinating the activity of the main staffs of the five services, the staffs of 16 military districts, four groups of forces, four fleets, rear services, civil defense forces, and the main directorates of the Ministry of Defense. The General Staff coordinates military planning, advises the Defense Council on matters of military policy, develops military strategy for approval by the Defense Council, and directs functions common to all of the services. The major responsibilities of the General Staff in peacetime are to ensure that military forces reach and sustain a high level of combat readiness, and to prepare strategic operation plans in the event of war. During wartime, the General Staff would be the primary organization to implement operational orders of the Supreme High Command.

Territorially, the Soviet Armed Forces located within the USSR are organized into 16 military districts (MDs). An MD is a high-level administrative command element that contains military units up to army level, training institutions, recruitment and mobilization offices or military commissariats, and other military establishments. The primary mission of a military district is to train military units and ensure their high level of combat readiness. Other important responsibilities include registration and induction of draftees, mobilization, civil defense, and premilitary and reserve training. In the event of war, certain military districts, such as those on the periphery of the USSR, could generate fronts or other operational field forces, either singly or in combination. Soviet units stationed in East Europe are organized into four Groups of Forces located in Poland, East Germany, Czechoslovakia, and Hungary.

Military districts and Groups of Forces are subordinated to the Ministry of Defense and General Staff. They contain their own organic staff elements responsible for political affairs, personnel administration, training, rear services, construction and billeting, and civil defense. Each MD and Group of Forces command staff has officers who serve as chiefs of their respective service components. Soviet naval forces are assigned to four fleets, all of which have command and staff organizations and relationships similar to those of military districts. Naval fleets are also operationally subordinated to the General Staff.

Command and Control

The Soviets believe in a rapid and efficient transformation of their peacetime national security organization into an operational command capable of successfully achieving all major political and military objectives in the event of general war. To this end, they have established a peacetime control system that closely approximates the anticipated wartime structure. The Soviets have created peacetime national security and high-level military organizations. These organizations are headed by the Defense Council and can function as the strategic command element in wartime with very little change. This wartime management structure would provide a unified system of command for the Armed Forces, the Soviet Government, and the national economy capable of exerting centralized direction but designed to permit a degree of autonomous operations required by modern warfare.

The current Defense Council probably would be expanded to include representatives of the highest Party, state, and military leadership. It would function in a manner similar to the World War II State Defense Committee, ensuring centralized political direction of the entire war effort. Soviet military writings state that concentration of the leadership of the country and its Armed Forces in the hands of the highest political agency of government control is a necessary condition for attaining victory in war. The creation of single organs of military and political leadership underscores the Soviet emphasis on the interdependence of politics and military strategy. In addition to directing

Stavka of the Soviet Supreme High Command

C-in-C Soviet Armed Forces
K. U. Chernenko

Wartime Defense Council

Chairman, KGB

Chairman, USSR Council of Ministers

Chairman, GOSPLAN

Other Party and State Figures as Required

Supreme High Command (VGK)

First Deputy Ministers of Defense

Chief, Main Political Directorate

C-in-Cs of Soviet Forces

General Secretary CPSU

Minister of Defense

Chief of the General Staff

General Staff (Executive Agent of VGK)

Minister of Defense
S. L. Sokolov

Chief of Main Political Directorate
A. A. Yepishev

First Deputy Minister of Defense
S. F. Akhromeyev (Chief of the General Staff)

First Deputy Minister of Defense
V. G. Kulikov (C-in-C Warsaw Pact Forces)

First Deputy Minister of Defense
V. I. Petrov

Deputy Minister of Defense
Y.F. Ivanovskiy (C-in-C Ground Forces)

Deputy Minister of Defense
V. F. Tolubko (C-in-C Strategic Rocket Forces)

Deputy Minister of Defense
A. I. Koldunov (C-in-C Air Defense Forces)

Deputy Minister of Defense
A. N. Yefimov (C-in-C Air Forces)

Deputy Minister of Defense
S. G. Gorshkov (C-in-C Naval Forces)

the conduct of military operations, the Defense Council would supervise the nation's economy and its support of the war effort through control of the vast ministerial structure of the Soviet Government.

Direct leadership of the Armed Forces would be the responsibility of the Supreme High Command (VGK), headed by the Party General Secretary as Supreme Commander in Chief. Former Defense Minister Ustinov provided public confirmation during an awards ceremony in late September 1984 that Chernenko occupies such a position even in peacetime. The Party General Secretary would also head the General Headquarters (Stavka) of the VGK. The Stavka would be responsible for the preparation and conduct of military campaigns and strategic operations. It would also resolve issues concerned with the overall wartime situation of the country.

The MOD Collegium would probably provide the foundation for the wartime Stavka VGK, which would include, in addition to the CPSU General Secretary, the Minister of Defense, the Chief of the General Staff and other First Deputy Ministers of Defense, the Chief of the Main Political Directorate, and the five Armed Forces Commanders in Chief. Supreme Party control of the entire war effort is confirmed by the fact that, in addition to being Party General Secretary and the senior Politburo member, the Party General Secretary would also function as wartime Defense Council Chairman, Supreme Commander in Chief, and head of the Stavka VGK.

The General Staff would serve as operational staff and executive agent for the Stavka VGK. Working in conjunction with the main staffs of the five services, the main Operations Directorate of the General Staff would draft plans for strategic operations for consideration by the Stavka VGK. Once approved, these plans would be issued to operational commanders as orders of the VGK. The General Staff would be responsible for ensuring compliance with all VGK orders and directives, including timely and precise execution of the VGK military campaign plans by the operational commands.

In order to ensure both centralized control of strategic planning and decentralized battle management of the Armed Forces, the Soviets in wartime would employ intermediate High Commands in TVDs that would be subordinate to the VGK and would be responsible for directing the efforts of subordinate formations. Commanders for four of the probable TVD High Commands are: Marshal of the Soviet Union N.V. Ogarkov; Army General I.A. Gerasimov; Army General Y.P. Maksimov; and General I.M. Tret'yak. In certain circumstances the VGK might create High Commands for specific strategic directions, i.e., a major axis or avenue of attack not already under the control of a High Command in a TVD.

The Soviets also have created an elaborate system of emergency relocation facilities, many of which are bunkered, designed to ensure the survival of Party and State control through the protection of high-level Party, government, and military leaders. These facilities are equipped with hardened communications equipment and would serve as alternate command and control posts for the top leadership in wartime. In addition, managers and factory personnel of critical industries would be evacuated with critical machinery out of urban areas and away from immediate battle areas to emergency locations to facilitate their continued operation. All these measures are designed to provide uninterrupted functioning of the various elements of Soviet strategic leadership and the national economy in wartime, including nuclear war.

The Soviets have carefully thought out and continue to develop the details of their system of strategic leadership. To a large extent, the system designed for war fighting and war survival is already in place. The nucleus of critical Party-State control organs and high-level military command elements that would be needed in wartime exists during peacetime in the form of top political and military organizations. These peacetime organizations could shift their activities to wartime operations with minimal organizational disruption and little augmentation in membership. The peacetime Soviet national security apparatus and its likely wartime counterpart are structured with the sole purpose of ensuring the continued survival of the CPSU through the successful conduct of military operations and consequent achievement of overall political objectives.

Technology Transfer

The Soviet Union continues an intensive, carefully executed program—both legal and illegal—to acquire advanced Western technology. The Soviets have been forced to turn increasingly to illegal technology acquisition efforts in response to US Government tighten-

The MiG-25/FOXBAT E interceptor, above, has a limited look-down/shoot-down capability. Acquisition of Western technology enabled the USSR to fit the MiG-31/FOXHOUND interceptor with a true look-down/shoot-down radar system.

ing of export control laws and procedures. The illegal business of technology acquisition is an expensive proposition for the Soviets and often involves rings of professional thieves who work through networks of phony companies in various countries.

Acquisition of sophisticated technology, essential to many Soviet military advances, involves operations not only against the United States but also, increasingly, against other world technological leaders, including Western Europe and Japan. For example, in October of 1984, the Soviets tried to divert a photomicrodensitometer from West Germany to East Germany, having failed in two previous attempts to obtain the equipment through legal means from the US. The equipment—militarily useful for analysis of streak camera photography—was bound for the Lebedev Institute in Moscow when it was detained at the East German border by West German authorities at US request.

Soviet industrial modernization programs are supported by an elaborate network for the collection of foreign scientific and technological information. Guidelines for introduction of advanced manufacturing systems, involving computer-aided design and automated manufacturing systems, include a constant monitoring of available Western technology.

No areas of Western technology are given higher priority than computers and electronics. KGB and Main Intelligence Directorate (GRU) agents are targeted against Western sources for these critical technologies in order to determine exactly where and how the hardware and software can be acquired. Collection requirements are coordinated with the USSR weapons development and production system. Weapons designers and technologists submit their requests directly through the KGB departments located at each facility. The turnaround time for the receipt of the desired design information or "hardware" can be a matter of weeks. Standing science and technology (S&T) requirements are continually updated by the S&T elements of the KGB and GRU, as well as by the State Committee for Science and Technology, many of whose staff members are KGB and GRU officers. In addition, the USSR Academy of Sciences and several of its institutes follow Western S&T, even tapping into Western data bases through a growing number of transnational computerized networks dedicated to S&T collection and dissemination.

It is estimated that Western military-related technology acquired by Soviet intelligence has

saved the Soviet defense industry billions of dollars; for example, classified reports were obtained on advanced US weapons systems still under development. The classified reports included information on the F-15 look-down/shoot-down radar system, the B-1 bomber radar system, PHOENIX air-to-air missiles, PATRIOT surface-to-air missiles, the improved HAWK surface-to-air missiles, and a NATO air-defense system. The effect on the Soviets of illegal diversion attempts has been quantified for the first time in a Department of Defense pilot study. Surveying a sample of denied export license applications in 1983-84, it was determined that had these exports been approved, the Soviets would have saved between $6.6 and $13.3 billion in primary military research costs during the 1990s and beyond. The Soviets stand to save hundreds of millions, if not billions, of dollars by now being able to utilize proven US designs to field counterpart systems—as well as effective defense and countermeasure systems—in a much shorter time and with less risk. Protection of Western technology is an integral part of our total defense posture.

Arms Control Compliance

In considering the totality of Soviet military power it is essential to monitor closely the Soviet Union's performance, or lack thereof, in honoring formal international obligations bearing on that power.

As President Reagan stated in his January 1984 Report to the Congress on Soviet Noncompliance with Arms Control Agreements, "If the concept of arms control is to have meaning and credibility as a contribution to global and regional stability, it is essential that all parties to agreements comply with them." However, the Soviet Union has violated many of its major arms control obligations and political commitments when it was in its interest to do so. Some of these violations and probable violations were documented in two official US reports and in an independently produced advisory study on arms control com-

In 1984, the new AKULA-Class submarine joined the Soviet Navy's growing number of modern, nuclear-powered attack submarines capable of carrying the new SS-NX-21 land-attack sea-launched long-range cruise missiles.

pliance that were forwarded by the President to the Congress at its request.

The first report, submitted on 23 January 1984, presented seven cases in which the Soviet Union has violated or probably violated its arms control obligations. The advisory study was prepared independently by the General Advisory Committee on Arms Control and Disarmament and sent to the Congress on 10 October 1984. This more comprehensive study covered Soviet compliance practices under arms control commitments from 1958 to 1983. The conclusions of both reports give cause for serious concern regarding the Soviet Union's conduct with respect to observance of arms control agreements.

The second US report on Soviet noncompliance, forwarded to Congress on 1 February 1985, addressed 13 compliance issues and stated that other compliance issues remained under review. It reaffirmed the conclusions of the January 1984 report that the Soviet Union has violated the Helsinki Final Act, specifically the requirement of advance notification of certain military exercises; has violated the Biological and Toxin Weapons Convention by maintaining an offensive biological warfare program and capability; has violated the Geneva Protocol on Chemical Weapons and the Biological and Toxin Weapons Convention by the production, transfer, and use of chemical agents and toxin weapons in Afghanistan and Southeast Asia; and has violated two provisions of SALT II—telemetry encryption and ICBM

With testing of the SS-X-25 ICBM, the USSR is violating the SALT II provision prohibiting more than one new type of ICBM.

modernization—by encrypting telemetry deliberately to impede verification and by testing an ICBM with a single reentry vehicle whose weight is less than 50 percent of the ICBM throwweight, if we were to accept the Soviet argument that the SS-X-25 is not a prohibited second new type. The 1985 report also reaffirmed that the Soviet Union has probably violated the SS-16 deployment prohibition of SALT II and has likely violated the yield limit of the Threshold Test Ban Treaty by conducting some tests that exceeded 150 kilotons.

In the 1985 report, the US Government also concluded that the Soviet Union has violated the Antiballistic Missile (ABM) Treaty by constructing the Krasnoyarsk radar; has violated the Limited Test Ban Treaty by causing radioactive matter to be present outside its territorial limits; and has violated the SALT II prohibition against more than one new ICBM by developing and testing both the SS-X-24 and the SS-X-25. With respect to the ABM Treaty, the 1985 report concluded that the Soviet Union potentially violated the prohibition on the development of a mobile land-based ABM system, or components for such a system, by the development of components of a new ABM system that apparently are designed to be deployable at sites requiring relatively little or no preparation. It also concluded that the Soviet Union has probably violated the prohibition on testing surface-to-air missile (SAM) components in the ABM mode by conducting tests that have involved SAM air defense radars in ABM-related activities. The US Government judges that the aggregate of the Soviet Union's ABM and ABM-related actions suggest that the USSR may be preparing an ABM defense of its national territory, which is prohibited.

With regard to these compliance issues, the United States has tried through appropriate diplomatic channels, including the Standing Consultative Commission (SCC), to persuade the Soviet Union to explain its actions and to take corrective measures. Unfortunately, thus far, the Soviet Union has not provided satisfactory explanations nor undertaken corrective actions that would alleviate our concerns.

President Reagan stated in both reports, "Soviet noncompliance is a serious matter. It calls into question important security benefits from arms control and could create new security risks. It undermines the confidence essential to an effective arms control process in the future. It increases doubts about the reliability of the USSR as a negotiating partner and thus damages the chances for establishing a more constructive US-Soviet relationship." Moreover, Soviet violations cast serious doubt on some of the key assumptions about arms control that have guided US policy and Western public opinion for 30 years. Specifically, they call into question that the risk of detection would generally deter the Soviets from violating their arms control obligations, or in the rare instances when the Soviets would not be deterred, they would suffer serious penalties.

Our verification capabilities have not deterred the Soviet Union from violating arms control agreements. Moreover, if the Soviets are not made to account for their actions, it is unlikely that they will be deterred from more serious violations. We must approach arms control today more carefully than we have in the past.

We must fully consider the Soviet compliance record as we develop arms control policy and defense policy in the future. We must seek better means of detection, more comprehensive treaty provisions for verification, and more careful treaty drafting that might help deter cheating. However, by themselves these measures are not enough; alone, they cannot enforce compliance. Most fundamentally, the USSR must adopt a more responsible policy toward compliance. The traditional Soviet effort to achieve unilateral advantage through arms control treaties demonstrates that the West's determination to maintain a military balance is crucial to significant, equitable arms reductions. The Soviet Union will have no incentive to accept such reductions unless it is convinced that the West will not allow it to achieve unilateral advantage within or outside the arms control framework.


112

Chapter II

Forces for Nuclear Attack

In the year since the publication of *Soviet Military Power 1984,* the Soviet Union has pressed ahead with the development and deployment of new generations of increasingly capable land, sea, and air forces for nuclear attack. As modernization of the fourth generation of intercontinental ballistic missiles (ICBMs) has neared completion—ICBMs with greater accuracy and survivability—the USSR has moved with great speed in the development and test firing of a fifth generation of ICBM, with a new dimension of capability—mobility that increases its survivability.

As the USSR's strategic nuclear-powered ballistic missile submarine (SSBN) force has increased its capability with the introduction of each new TYPHOON-Class SSBN, the Soviets have launched a new SSBN—the DELTA IV—as the platform for their most capable long-range multiple independently targetable reentry vehicle (MIRVed) submarine-launched ballistic missile (SLBM), the SS-NX-23.

The USSR now has three manned strategic bombers in production and development—the BACKFIRE, the BEAR H, and the BLACKJACK. With the reopening of the BEAR production line, the Soviets are producing a new, upgraded variant of the BEAR turboprop bomber, thereby increasing their long-range bomber force. Newly built BEAR H bombers have become the launch platform for the now-operational long-range AS-15 air-launched cruise missile.

The modernization and upgrading of these

The introduction of new generations of Soviet forces for offensive nuclear warfare — forces ranging from intercontinental ballistic missiles to nuclear-tipped artillery — is a dynamic process that includes both increased accuracy for the weapons of those forces and increased mobility for survivability. The fifth-generation SS-X-24 ICBM will probably be silo-deployed at first; rail-mobile deployment could follow.

strategic forces have been paralleled by growth and increased capabilities of the Soviets' longer range intermediate-range nuclear force (LRINF) and short-range ballistic missile (SRBM) systems deployed with Soviet combat forces. Significant improvements in nuclear-capable aircraft, as well as increases in tactical missiles and nuclear artillery, have also occurred.

Soviet leaders since Khrushchev have followed a consistent and relentless policy for the development of forces for nuclear attack. The Soviet leadership, however, recognizes the catastrophic consequences of nuclear war. The grand strategy of the USSR, therefore, is to attain its objectives, if possible, by means short of war—exploiting the coercive leverage inherent in superior forces, particularly nuclear forces, to instill fear, to erode the West's collective security arrangements, and to support subversion. Thus, the primary role of Soviet military power is to provide the essential underpinning for the step-by-step extension of Soviet influence and control.

In a global conflict, Soviet strategic policy would be to destroy Western nuclear forces before launch or in flight to their targets; to ensure national survival should nuclear weapons reach the Soviet homeland; and to support and sustain combined arms combat in several theaters of military operations. From these policy directives come several overarching strategic wartime missions:

- eliminate Western nuclear capabilities and related supporting facilities;
- seize and occupy vital areas on the Eurasian landmass; and
- defend the Soviet State against attack.

These missions would involve:

- disruption and destruction of the West's essential command, control, and communications capabilities;
- destruction or neutralization of the West's nuclear forces on the ground or at sea before they could be launched; and

Nuclear Forces-ICBMs

SS-11	520	SS-18	308
SS-13	60	SS-19	360
SS-17	150	ICBM Base	●
Test Center	▲		

Nuclear Forces-SLBMs

SS-N-5	42	SS-N-18	224
SS-N-6	336	SS-N-20	60
SS-N-8	292	SS-NX-23	16
SS-N-17	12		
Test Center	▲	SLBM/SSBN Port	●

Nuclear Forces-Bombers

BACKFIRE	250*	BADGER	287
BISON	48	BLINDER	136
BEAR	125		
Test Center	▲	Bomber Base	●

*Including 120 in Soviet Naval Aviation.

- protection of the Soviet leadership and cadres, military forces, and military and economic assets necessary to sustain the war.

The Soviets believe that a conventional war in Europe might escalate to the nuclear level. Despite their oft-repeated commitment to no first-use of nuclear weapons, the Soviets have developed extensive plans either to preempt a NATO nuclear strike by launching a massive attack, or to launch a massive first strike against prime NATO targets should their conventional operations falter.

Strategic and theater forces and programs in place or under active development designed to accomplish these objectives include:

- hard-target-capable ICBMs, LRINF ballistic missiles, and land-based cruise missiles;
- short-range ballistic missiles (SRBMs) and free rocket over ground (FROG) systems deployed with combat troops;
- bombers and air-launched cruise missiles (ALCMs) designed to penetrate US and Allied defensive systems;
- submarine-launched ballistic missiles and cruise missiles (SLCMs) on various platforms;
- antisubmarine warfare (ASW) forces to attack Western nuclear-powered ballistic missile submarines;
- air and missile defenses, including early warning satellites and radars, interceptor

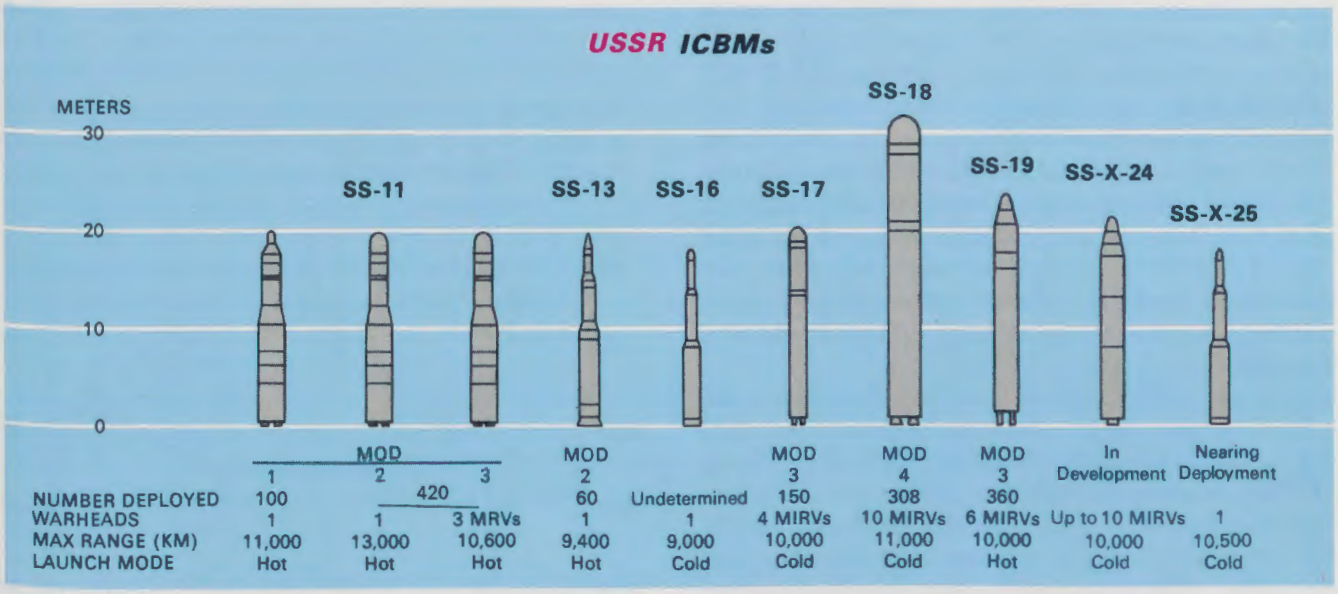
The submarine-launched SS-NX-21 cruise missile has a range of 3,000 kilometers and can be fired from standard size Soviet submarine torpedo tubes.

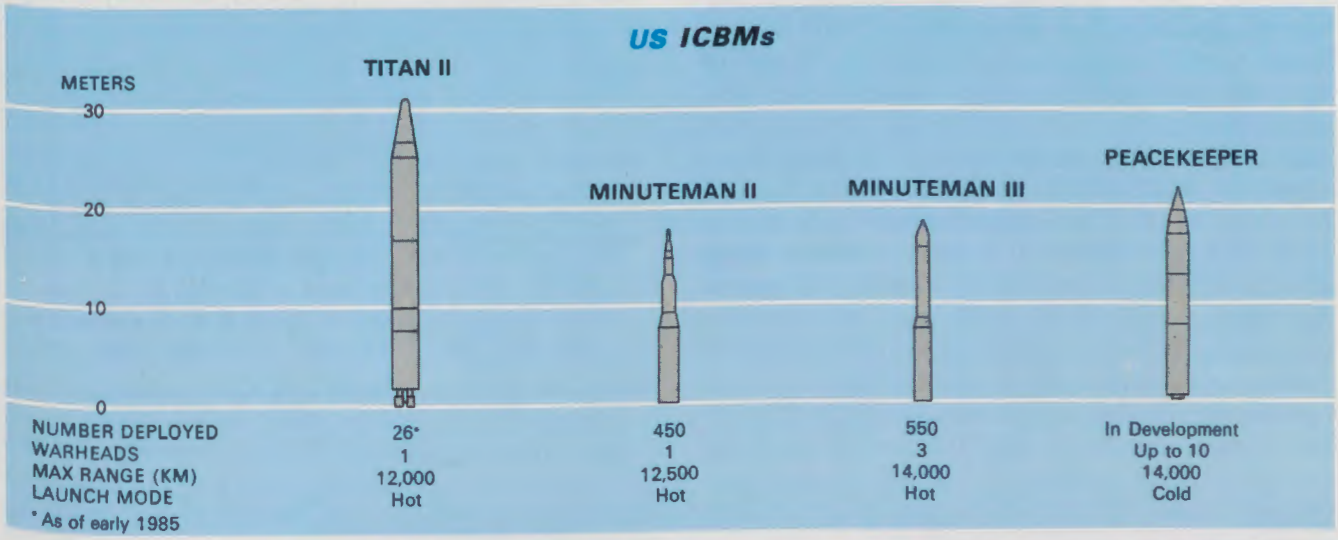
aircraft, surface-to-air missiles (SAMs), antiballistic missile (ABM) radars and interceptors, and some antiaircraft artillery;
- antisatellite weapons;
- passive defense forces, including civil defense forces and countermeasures troops and equipment devoted to confusing incoming aircraft; and
- hardened facilities numbering in the thousands, command vehicles, and evacuation plans designed to protect Party, military, governmental and industrial staffs, essential workers, and to the extent possible, the general population.

Supporting a land war in Eurasia and eliminating the US capacity to fight and support a conflict would require the capability to employ theater and strategic forces over a variety of ranges and the destruction of:
- other military-associated command and control;
- war-supporting industries, arsenals, and major military facilities;
- ports and airfields in the United States and those along sea and air routes to European and Asian theaters of war; and
- satellite surveillance sensors, ground-based surveillance sensors, related facilities, and communications.

Offensive forces (ICBMs, LRINF, SLBMs, SRBMs, cruise missiles, and bombers) and antisatellite weapons would generally be assigned these tasks. In some cases, special purpose forces could be used for these missions, especially in Eurasia. These tasks would be generally less demanding than those in the prime category.

Soviet nuclear forces are designed and personnel trained to fulfill their missions under all circumstances. In a nuclear exchange, the Soviets believe the most favorable circumstance would be a preemptive strike; the least favorable would be a follow-on strike after nuclear weapons hit the USSR. The Soviets have training programs intended to enable nuclear forces to operate under all circumstances. Moreover, the Soviets appear to believe that nuclear war might last weeks or even months and have factored that into their force planning.
- The key to success in preemption would be effective coordination of the strike and sound intelligence on Western intentions. During wartime, the main mission of Soviet intelligence would be to determine the West's intended courses of action. Meeting these demands in war requires reliable command, control, and communications under all conditions.
- A launch-under-attack circumstance would place a great stress on attack warning systems and launch coordination. To meet this demand the Soviets have established a satellite-based ICBM launch-detection system, built an over-the-horizon radar missile launch-detection system to back up the satellites, and have large phased-array radars ringing the USSR. These warning systems could give the Soviets time to launch their forces very quickly.
- Follow-on strikes would require the survivability of the command, control, and communications systems as well as the weapons themselves. The Soviets have invested heavily in providing this survivability. The SS-17, SS-18, and SS-19 ICBMs are housed in the world's hardest silos. Silo deployment has been adopted for ABMs as well. To increase survivability, the SS-20 LRINF missile is mobile. Mobile ICBMs are nearing deployment, and a mobile strategic surface-to-air missile is almost operational. The launch-control facilities for offensive missiles are housed in very hard silos or on off-road vehicles. Communications are redundant and hardened. Higher commands have multiple mobile alternate command posts available for their use, including land vehicles, trains, aircraft, and ships. Bombers are assigned dispersal airfields. Ballistic missile submarines could be submerged in deep fjords just off their piers or dispersed while being protected by Soviet surface and submarine forces.
- The belief that a nuclear war might be protracted has led to the USSR's emphasis on survivability along with war reserves, protection for essential personnel and equipment, and the capacity to reload launchers. For their ICBM, LRINF, SRBM, and air defense forces, the Soviets have stocked extra missiles, propellants, and warheads throughout the USSR. Some ICBM silo launchers could be reloaded, and provisions have been made for the decontamination of those launchers. Plans for the survival of necessary equipment and personnel have been developed and practiced. Resupply systems are available to reload SSBNs in protected waters.





Even with these ambitious development and deployment programs, the Soviets continue to modernize all elements of their nuclear attack forces. At the same time, the Soviet leadership has been directing a campaign to support and amplify ongoing antinuclear movements in the West to influence, delay, or frustrate Western nuclear force programs. Using this two-pronged approach, Moscow seeks new gains in relative capability despite the drive of Western governments to redress the imbalance that has developed over the past decade.

Forces for Intercontinental Attack

Intercontinental Ballistic Missiles

The operational Soviet ICBM force consists of some 1,400 silo launchers, aside from those at test sites. Some 818 of these launchers have been rebuilt since 1972. Nearly half of these silos are new versions of the original designs and have been reconstructed or modified in the past six years. All 818 silos have been hardened better to withstand attack by currently operational US ICBMs. These silos contain the world's most modern deployed ICBMs—the SS-17 Mod 3 (150 silos), the SS-18 Mod 4 (308), and the SS-19 Mod 3 (360). Deployment of these ICBMs began just six years ago.

The highly accurate SS-18 and SS-19 ICBMs carry more and larger Multiple Independently Targetable Reentry Vehicles (MIRVs) than the MINUTEMAN III, the most modern US ICBM. The SS-18 Mod 4 carries ten MIRVs, and the SS-19 Mod 3 carries six, whereas the MINUTEMAN III carries only three. The SS-18 Mod 4 was specifically designed to attack and destroy ICBM silos and other hardened targets

in the United States. Each of its 10 warheads has more than 20 times the destructive power of the nuclear devices developed during World War II. The SS-18 Mod 4 force currently deployed has the capability to destroy more than 80 percent of US ICBM silos using two nuclear warheads against each. The SS-19 Mod 3 ICBM could be assigned similar missions and, in addition, could be used against targets in Eurasia. Although the SS-17 Mod 3 is somewhat less capable than the SS-19, it has similar targeting flexibility.

The remaining 580 Soviet ICBM silos are fitted with the SS-11—420 SS-11 Mod 2/3s, 100 SS-11 Mod 1s—and 60 SS-13 Mod 2s. These ICBMs of older vintage—1966 and 1973 initial deployment, respectively—are housed in less-survivable silos and are considerably less capable. Nevertheless, their destructive potential against softer area targets in the United States and Eurasia is significant in terms of many of the Soviet nuclear requirements outlined above.

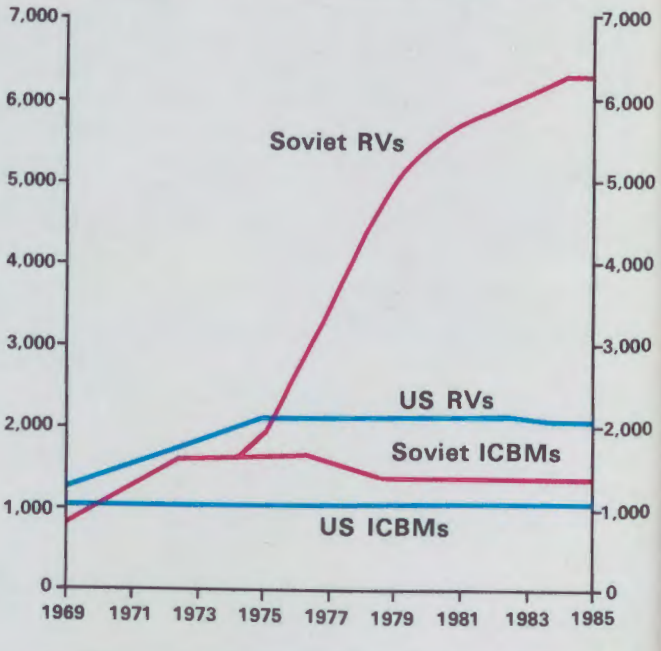
The SS-16 is a three-stage, solid-propellant, single-RV ICBM that the Soviets claim has not been deployed. The system was first tested in 1972; the last known test took place in 1976. The SS-20 LRINF missile is closely related to the SS-16. The SS-16 probably was intended originally for both silo and mobile deployment, using equipment and a basing arrangement comparable to that used with the SS-20. The Soviet Union agreed in SALT II not to produce, test, or deploy ICBMs of the SS-16 type and, in particular, not to produce the SS-16 third stage, the RV, or the appropriate device for targeting the RV of that missile. While the evidence is somewhat ambiguous, it indicates that the SS-16 activities at Plesetsk are a probable violation of SALT II, which banned SS-16 deployment.

Deployment programs for all of the currently operational Soviet ICBM systems are complete. The command, control, and communications system that supports the Soviet ICBM force is modern and highly survivable, and the reliability of the ICBMs themselves is regularly tested by live firings from operational complexes.

Those ICBMs in the current force that the Soviets decide not to replace with modified or new ICBMs will, in accord with past practice, be refurbished to increase their useful lifetime. During this process, some system modifications could also be made. Through this capacity for refurbishment, the Soviets can sustain a higher level of confidence in system reliability over a longer term than would otherwise be possible.

Force Developments. Soviet research and development on ICBMs is a dynamic process involving many programs. The completion of current deployment programs probably marks

US and Soviet ICBM Launcher and Reentry Vehicle (RV) Deployment 1969–1985



the end of significant Soviet investment in the development of entirely new liquid-propellant ICBMs. Modified versions of the SS-18, however, are likely to be produced and deployed in existing silos in the future.

The Soviets appear to be planning on new solid-propellant ICBMs to meet future mission requirements, including a counterforce capability and ICBM force survivability. Two new solid-propellant ICBMs, the medium-size SS-X-24 and the smaller SS-X-25, are well along in their flight test programs from the range head at Plesetsk in the Soviet north. A mobile version of each of these systems will be deployed.

The SS-X-24 will probably be silo-deployed at first, with initial deployment expected in 1986. Rail-mobile deployment could follow by one to two years. Early preparations for the deployment of the SS-X-24 are already underway.

The SS-X-25 is approximately the same size as the US MINUTEMAN ICBM. It will carry a single reentry vehicle. The SS-X-25 has apparently been designed for road-mobile deploy-

ment similar to that of the SS-20; as such it will be highly survivable with an inherent refire capability. Two bases, probably for the SS-X-25, are nearing operational capability. They consist of launcher garages equipped with sliding roofs and several support buildings to house the necessary mobile support equipment.

Recent activity at the Soviet ICBM test ranges indicates that two additional new ICBMs are under development. A new ICBM to replace the SS-18 is nearing the flight test stage of development. Additionally, a solid-propellant missile that may be larger than the SS-X-24 will begin flight testing in the next few years. Both of these missiles are likely to have better accuracy and greater throwweights than their predecessors.

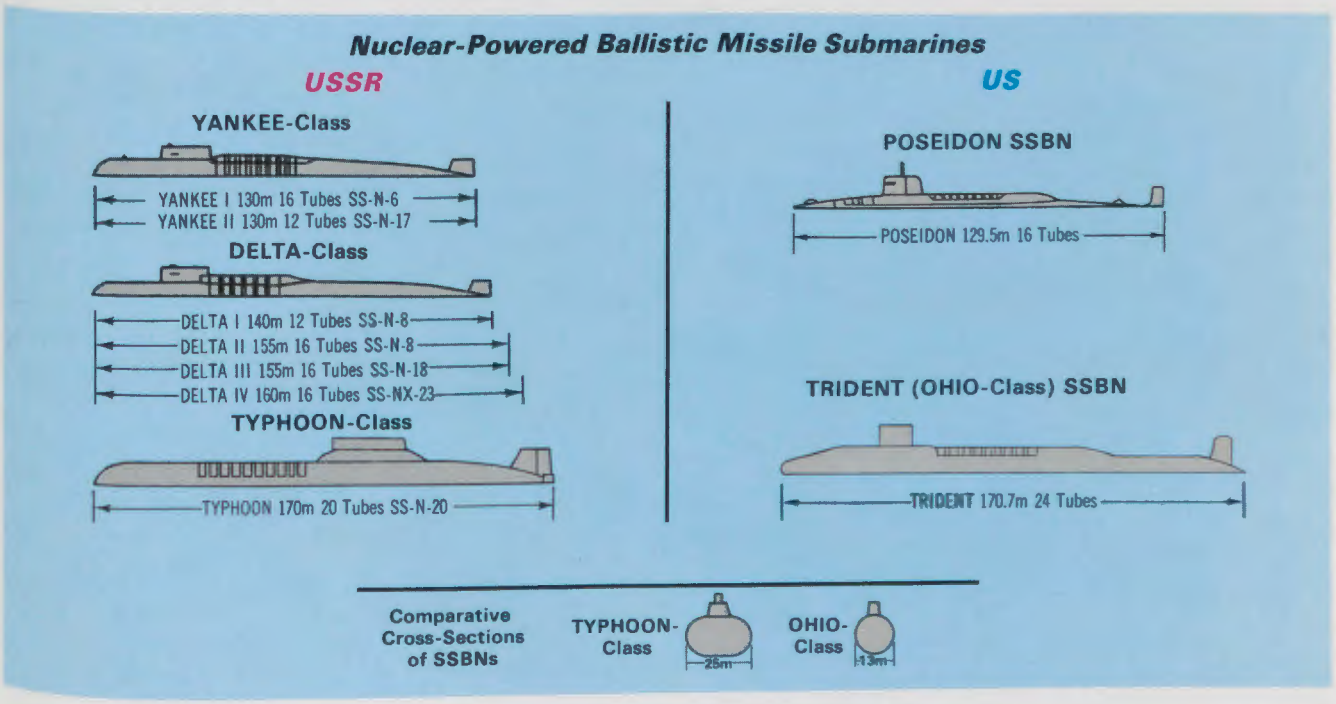
Submarine-Launched Ballistic Missiles

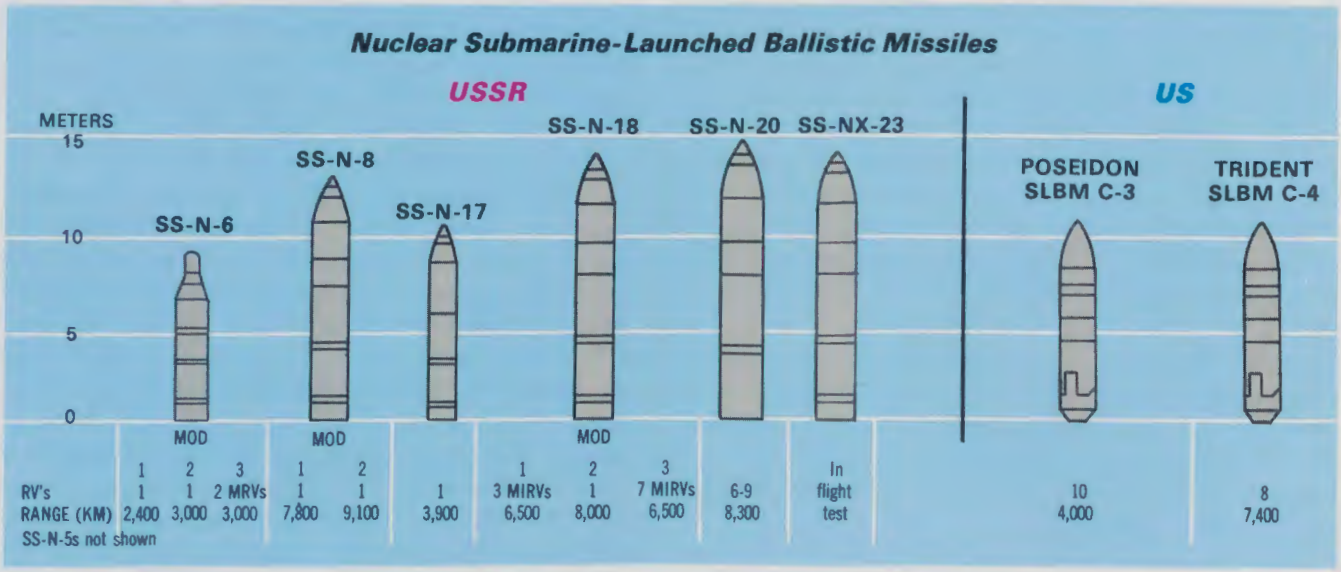
The Soviets maintain the world's largest ballistic missile submarine force. As of early 1985, the force numbered 62 modern SSBNs carrying 928 nuclear-tipped missiles. These totals do not include 13 older submarines with 39 missiles currently assigned theater missions. Eighteen SSBNs are fitted with 300 MIRVed submarine-launched ballistic missiles (SLBMs). These 18 units have been built and deployed within the past 8 years. Over two-thirds of the ballistic missile submarines, including those equipped with MIRVed missiles are fitted with long-range SLBMs that enable the submarines to patrol in waters close to the Soviet Union. This affords protection from NATO antisubmarine warfare operations. Moreover, the long-range missiles allow the Soviets to fire from home ports, if necessary, and still strike targets in the United States.

Three units of one of the most modern Soviet ballistic missile submarine, the TYPHOON, have already been built. Each TYPHOON carries 20 SS-N-20 solid-propellant MIRVed SLBMs. The TYPHOON is the world's largest submarine, with a displacement of 25,000 tons, one-third greater than the US OHIO-Class. The submarine can operate under the Arctic Ocean icecap, adding further to the protection afforded by the 8,300-kilometer range of the SS-N-20 SLBM. Three or four additional TYPHOONs are probably now under construction, and, by the early 1990s, the Soviets could have as many as eight of these potent weapons systems in their operational force.

In accordance with the SALT I Interim Agreement, the Soviets have, since 1978, removed 12 YANKEE I units from service as ballistic missile submarines. These units had to be removed as newer submarines were produced in order for the overall Soviet SSBN force to stay within 62 modern SSBN/950 SLBM limits established in 1972. These YANKEEs, however, have not been scrapped. Some have been reconfigured as attack or cruise missile submarines.

The Soviets may have begun to assign

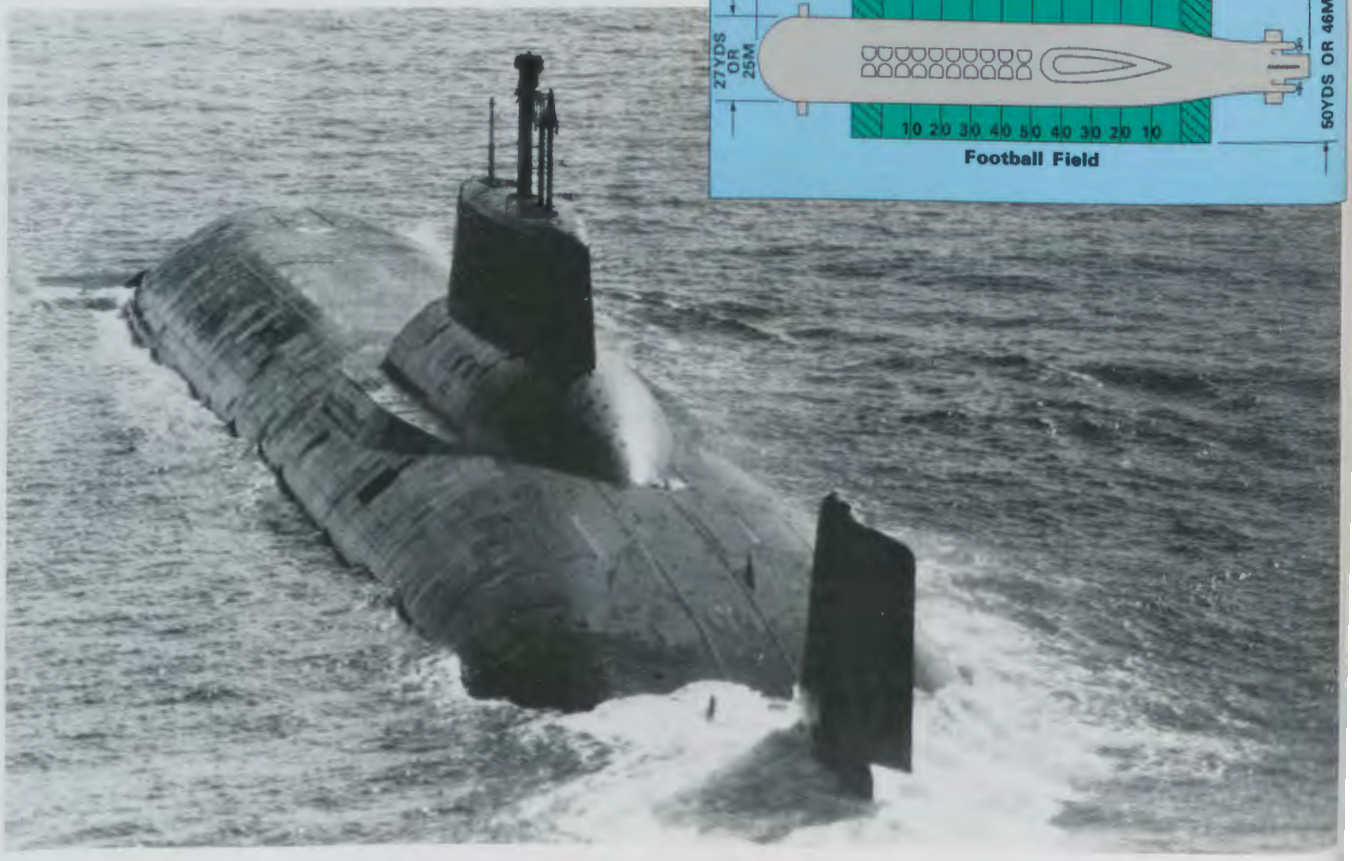




theater attack missions to some of the 21 remaining YANKEE I submarines. However, YANKEE patrols targeted against the United States continue.

Force Developments. The Soviets have launched two units of a new class of SSBN, the DELTA IV, which will be fitted with the SS-NX-23 SLBM, now being flight tested. This large, liquid-propelled SLBM will have greater throwweight, carry more warheads, and be more accurate than the SS-N-18, which is carried on the DELTA III SSBN. The SS-NX-23 is

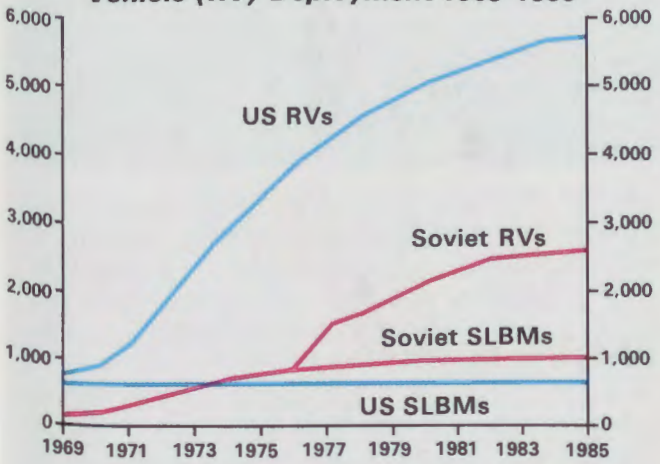
The drawing at right helps to place the enormous hull size of the TYPHOON-Class SSBN in perspective.



likely to be deployed on DELTA IIIs as a replacement for the SS-N-18 as well as on the new DELTA IVs.

The Soviets will probably begin flight testing a modified version of the SS-N-20. Additionally, based on past Soviet practice, they may initiate testing of a modified version of the SS-NX-23 before the end of the 1980s. Both modified versions of the SS-N-20 and SS-NX-23 are likely to be more accurate than their predecessors.

US and Soviet SLBM Launcher and Reentry Vehicle (RV) Deployment 1969-1985



To ensure communication reliability, the Soviets emphasize redundant and timely command and control for their military forces, especially those for intercontinental attack. The Soviets are expected to deploy an extremely low frequency (ELF) communications system that will enable them to contact SSBNs under most operating conditions.

Strategic Aviation

Soviet strategic bombers and strike aircraft have been restructured to form five air armies subordinate to the Supreme High Command (VGK). The five armies are:

- Smolensk Air Army;
- Legnica Air Army;
- Venitza Air Army;
- Irkutsk Air Army; and
- Moscow Air Army.

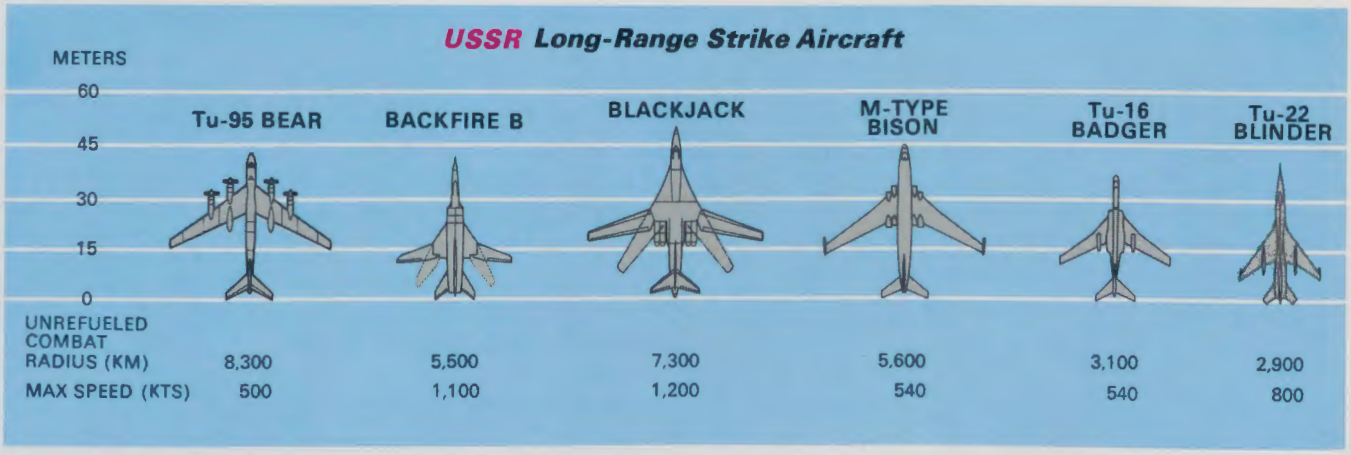
These armies were established to place Soviet strategic aircraft on a footing in peacetime that would facilitate the transition to wartime. The armies are focused on potential conflicts in Europe, Asia, and the United States.

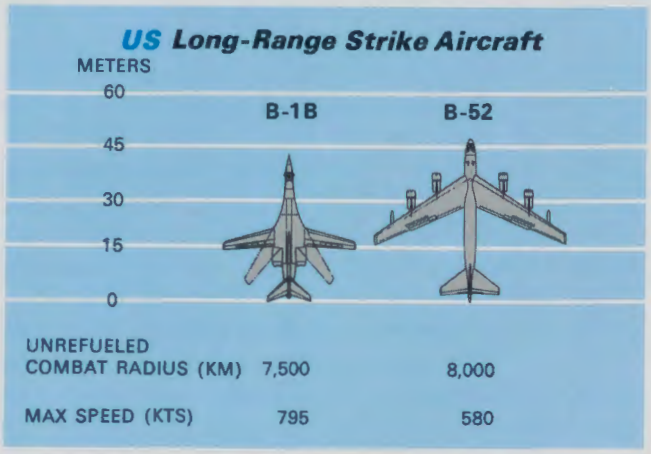
Strategic aviation assets include some 170 BEAR and BISON bombers and about 250 BACKFIRE bombers (including 120 BACKFIRE bombers in Soviet Naval Aviation). The Soviets also have 360 medium-range BLINDER and BADGER bombers; 450 shorter range FENCER strike aircraft; and 530 tanker, reconnaissance, and electronic warfare aircraft. The Soviets have allocated these aircraft among the five air armies to provide support for specific theaters of military operations and to assure the flexibility to reallocate aircraft as necessary during wartime. The intercontinental BEAR and BISON bombers are available for maritime and Eurasian missions, and the BACKFIRE can be used against the United States. This flexibility allows the Soviets to focus their strategic air assets as circumstances require.

The Soviets have taken recent steps that indicate greatly increased interest in their long-range strategic bomber force. An entirely new variant of the BEAR bomber—the BEAR H—is now operational with the AS-15 long-range cruise missile. This is the first new production of a strike version of the BEAR airframe in over 15 years. In addition, older BEAR aircraft configured to carry air-to-surface missiles (ASMs) are being reconfigured to carry the newer, supersonic AS-4 missile in place of the subsonic AS-3. Several of these reconfigurations (BEAR G) have been completed. With the BEAR H in series production, the decline in the inventory of BEAR aircraft, characteristic of recent years, has been reversed.

The BACKFIRE is the most modern operational Soviet bomber. The Soviets continue to produce this aircraft at a rate of at least 30 per year; this production rate is likely to be maintained at least through the end of the decade. The original design has been modified several times, and further modifications are likely to be made to upgrade aircraft per-

Modern SSBN Force Levels



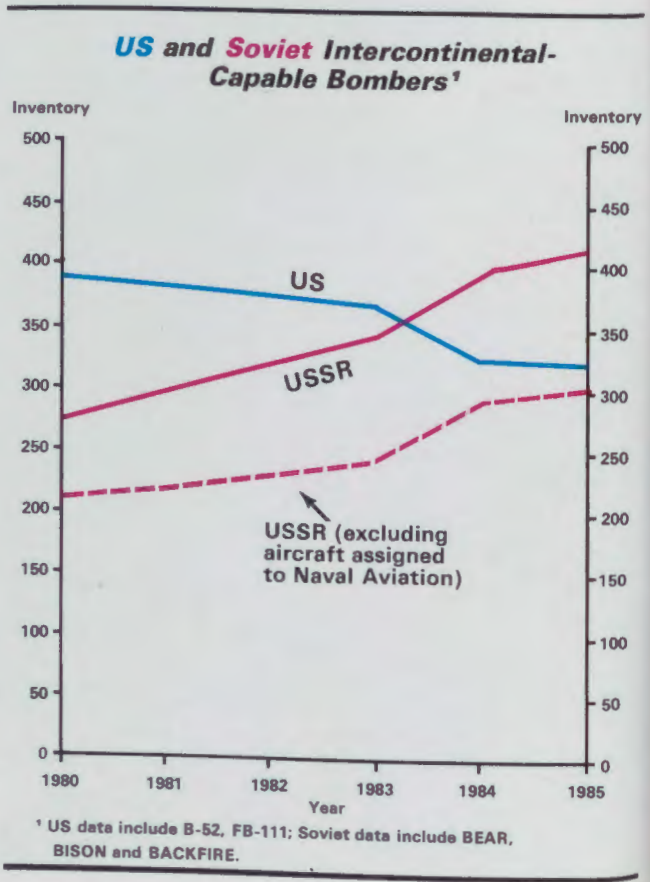


formance. The BACKFIRE is a long-range aircraft capable of performing nuclear strike, conventional attack, antiship, and reconnaissance missions. The BACKFIRE can be equipped with a probe to permit in-flight refueling to increase its range and radius capabilities. It could be used against the contiguous United States on high-altitude subsonic missions. Its low-altitude supersonic dash capabilities make it a formidable weapon to support military operations in Europe and Asia as well.

The Soviets have some FENCER strike aircraft assigned to strategic aviation. The FENCER is a supersonic, variable-geometry-wing, all-weather fighter-bomber that first reached operational status in 1974. Three variants have been developed, the most recent introduced in 1981. The aircraft is still in production, and the number assigned to strategic aviation is likely to increase over the next few years.

Force Developments. The new Soviet long-range bomber, the BLACKJACK, is in the flight test stage of development. The BLACKJACK is larger than the US B-1B, probably will be faster, and may have about the same combat radius. This new bomber could be operational by 1988. The BLACKJACK will be capable of carrying cruise missiles, bombs, or a combination of both. It probably will first replace the much less capable BISON bomber and then the BEAR A bomber.

A new aerial-refueling tanker aircraft, based on the Il-76/CANDID, has been under development for several years. When deployed in the near future, the new tanker will support tactical and strategic aircraft and will significantly improve the ability of Soviet aircraft to conduct longer range operations.



Long-Range Cruise Missiles

Current Systems and Force Levels. The AS-15, a small, air-launched, subsonic, low-altitude cruise missile, similar in design to the US TOMAHAWK, reached initial operational capability with the BEAR H in 1984. The AS-15 has a range of about 3,000 kilometers. The system could also be deployed on BLACKJACK bombers when that aircraft becomes operational. The combination of the AS-15 and the new BEAR H and BLACKJACK bombers will increase Soviet strategic intercontinental air power in the late 1980s. There are some 25 BEAR H bombers operational at this time.

Force Developments. The Soviets are developing four other long-range cruise missile systems. Two of these are variants of the AS-15, and the other two are variants of a larger system probably designed for long-range operations. The latter have no US counterpart.

The two smaller cruise missiles are being developed for launch from sea- and ground-based platforms, respectively. The sea-based variant, the SS-NX-21, is small enough to be fired from standard Soviet torpedo tubes. Candidate launch platforms for the SS-NX-21 include: the existing VICTOR III nuclear-powered attack submarine (SSN), a new YANKEE-Class SSN and, the new AKULA, MIKE, and SIERRA-Class SSNs. The SS-NX-21 is expected to become operational this year and could be deployed on submarines near US coasts.

The ground-based SSC-X-4 variant of the small cruise missile may not be ready for operational deployment until late this year or next. Its range and the likelihood the Soviets will not deploy the system outside the USSR indicate that its mission will be in support of theater operations. The system will be mobile and probably follow operational procedures like those of the SS-20 LRINF missile.

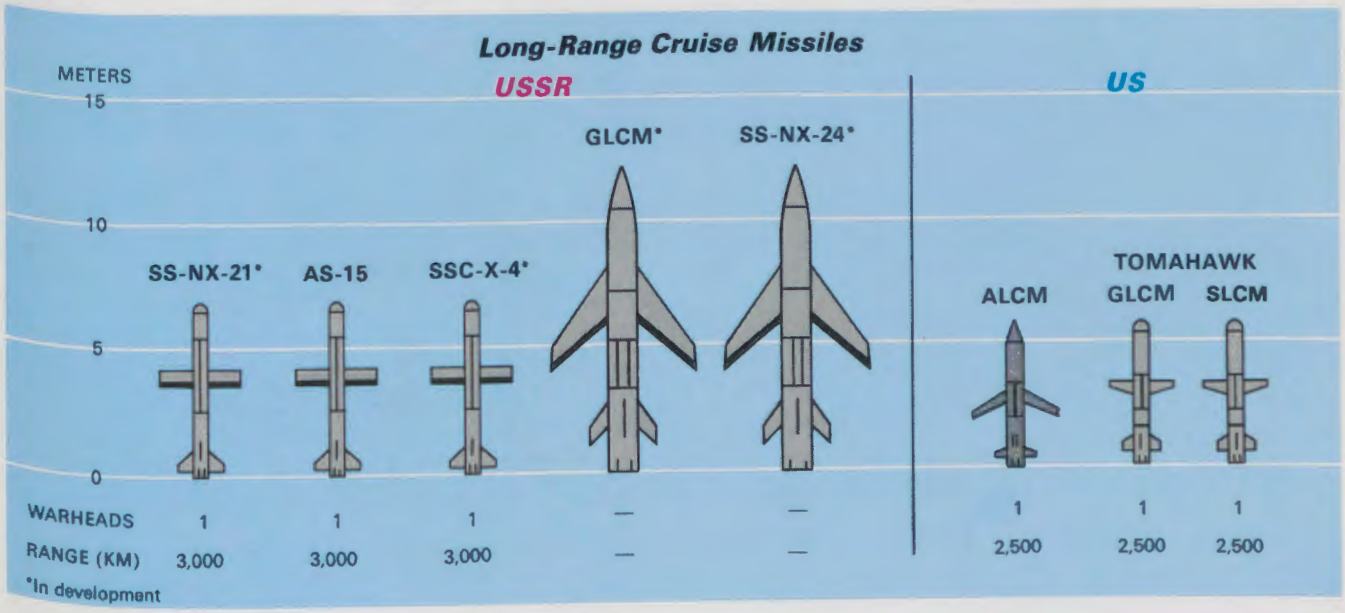
The larger cruise missile is being developed as a sea-based system that has been designated the SS-NX-24. A newly converted YANKEE-Class nuclear-powered cruise missile attack submarine (SSGN) will be the test platform for the SS-NX-24. A ground-based variant of this missile may be in development. The SS-NX-24 could be operational within the next two years, and the ground-based version sometime after that.

When first deployed, these cruise missiles probably will be fitted with nuclear warheads and capable of attacking hardened targets. Depending on future munitions developments and the types of guidance systems incorporated in their designs, they could eventually be accurate enough to permit the use of conventional warheads. With such warheads, highly accurate cruise missiles would pose a significant non-nuclear threat to US and NATO airfields and nuclear weapons in a non-nuclear conflict.

US Nuclear Forces

In measuring and evaluating the continuing progress being made by the USSR's strategic forces, it is useful to bear in mind the status of US forces. By mid-1985, US strategic deterrent forces will consist of:

- 1,000 MINUTEMAN ICBMs;



- 26 TITAN ICBMs;
- 240 B-52G/H model bombers, plus about 23 aircraft undergoing maintenance and modification;
- 56 FB-111 bombers, plus some 5 aircraft undergoing maintenance and modification;
- 496 POSEIDON (C-3 and C-4) fleet ballistic missile launchers; and
- 144 TRIDENT fleet ballistic missile launchers.

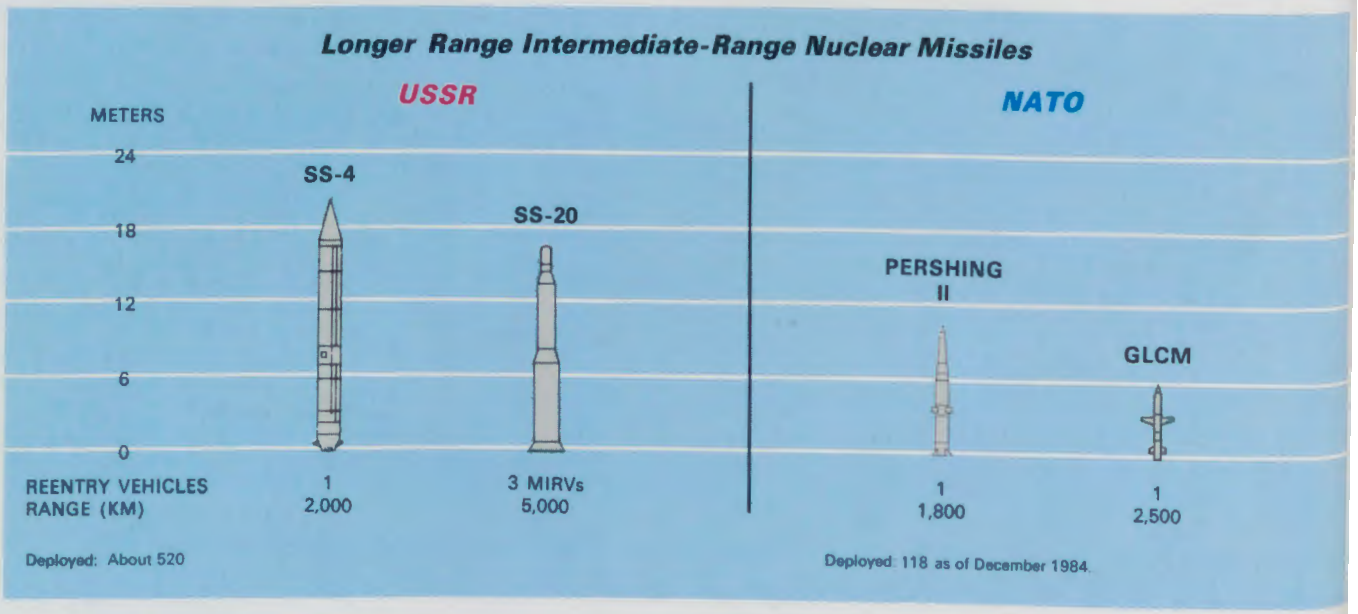
The historic and continuing objective of US strategic forces is deterrence of nuclear and major conventional aggression against the United States and its allies. This policy has preserved nuclear peace for nearly 40 years and, in sharp contrast to the Soviet priority accorded nuclear warfighting, is based on the conviction of all postwar American administrations that there could be no winners in a nuclear conflict. Rather, US deterrence policy seeks to maintain the situation in which any potential aggressor sees little to gain and much to lose by initiating hostilities against the United States or its allies. In turn, the maintenance of peace through nuclear deterrence provides the vital opportunity to realize a complementary and constant US goal of eliminating nuclear weapons from the arsenals of all states. To realize these deterrence objectives requires the development, deployment, and maintenance of strategic forces whose size and characteristics clearly indicate to an opponent that he cannot achieve his politico-military objectives either through employment of nuclear weapons or through political coercion based on nuclear advantages. Modernization of US strategic deterrent forces is reported in Chapter VIII.

Forces for Theater Attack

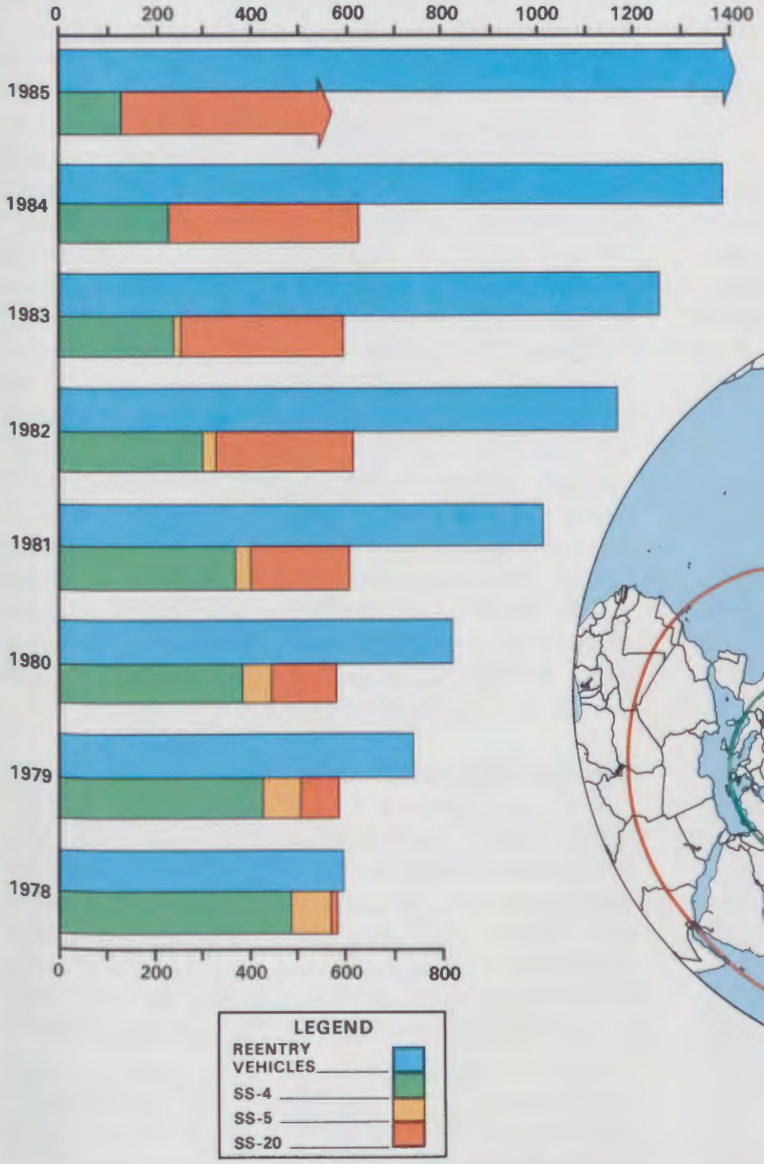
With the initial deployment of the SS-20 LRINF missile in 1977, the Soviets launched a concerted effort to modernize and expand their intermediate-range nuclear force. Each SS-20 carries three MIRVs, thereby providing a significant force expansion factor even as the older single-RV SS-4 is withdrawn. The SS-20 also has significant improvements in accuracy and reaction time over the older missiles they are replacing.

About 400 SS-20s have been deployed, two-thirds of which are opposite European NATO. Some shifting of the SS-20 force has recently been observed as the Soviets prepare for deployment of the SS-X-25 ICBM; however, no reduction in the SS-20 force is expected from this activity. The mobility of the SS-20 system enables both on- and off-road operation. As a result, the survivability of the SS-20 is greatly enhanced because detecting and targeting them is difficult when they are field deployed. Further, the SS-20 launcher has the capability of being reloaded and refired, and the Soviets stockpile refire missiles.

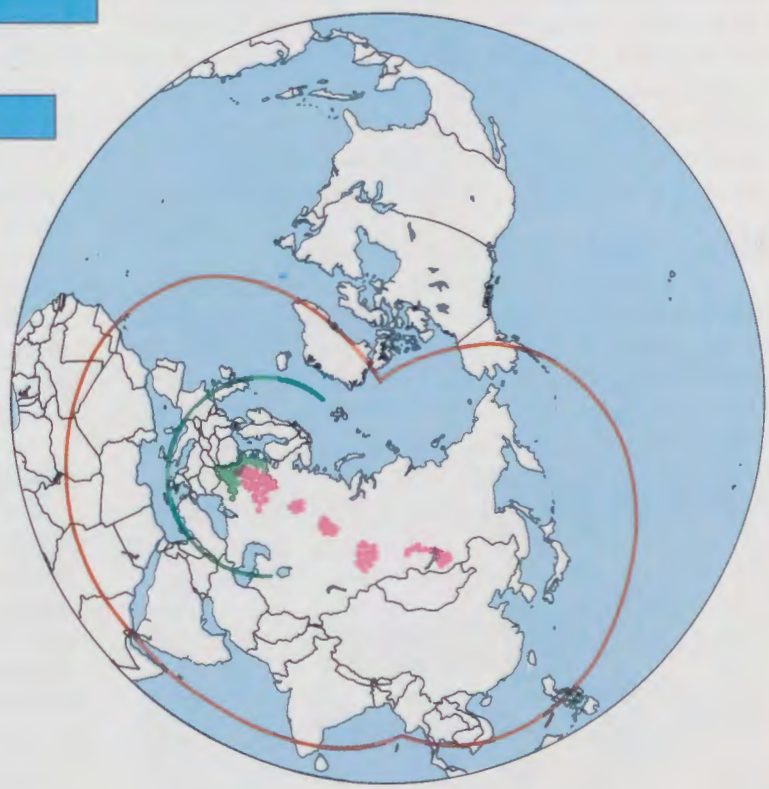
In addition to the SS-20 force, the Soviets still maintain some 120 SS-4 LRINF missiles. All of these missiles are located in the western USSR opposite European NATO. In addition to the land-based LRINF missile forces, the Soviets still maintain and operate 13 GOLF II-Class ballistic missile submarines. Each submarine is



Longer Range Intermediate-Range Nuclear Force Deployments



Deployment and Target Coverage 1985



equipped with three SS-N-5 SLBMs. Six GOLF II units are based in the Baltic, where they continue to pose a threat to most of Europe, while the remaining seven GOLF IIs patrol the Sea of Japan, where they could be employed against targets in the Far East.

Future Force Developments. A modified version of the SS-20 is in flight test. This missile is expected to have even greater accuracy and other improvements over the current SS-20.

US Non-Strategic Forces

The initial deployment of PERSHING IIs and ground-launched cruise missiles (GLCMs) began in Europe in late 1983. Deployment will continue until 1988, when 108 PERSHING IIs and 464 GLCMs will be in place, unless a US-Soviet agreement that eliminates or limits the number of LRINF missiles on both sides is concluded. The deployment of US PERSHING II and ground-launched cruise missiles responds to the Soviet LRINF missile threat to Europe.

As the US PERSHING IIs replace the shorter range PERSHING Is and Soviet SS-23s replace the SCUDs in Europe, the Soviet Union will at least maintain its substantial numerical superiority in shorter range non-strategic nuclear missiles while improving the qualitative

characteristics of its forces. The USSR also possesses a significant numerical advantage in intermediate-range nuclear force (INF) aircraft and is reducing the qualitative advantage NATO has enjoyed, despite NATO's INF aircraft modernization program, which consists of the replacement of older aircraft with the F-16 and TORNADO.

Short-range nuclear forces (SNF) consist of tube artillery and missiles of much shorter range than INF missiles. The balance in SNF artillery, traditionally an area of NATO advantage, also has shifted dramatically in favor of the Soviets in recent years. The Soviets have achieved parity in overall numbers of SNF and continue to have a substantial advantage in the category of short-range missiles, giving them more flexibility in the employment of SNF.

Short-Range Ballistic Missiles

Current Systems and Force Levels. Armies and fronts have missile brigades equipped with 12-18 SS-1C SCUD SRBMs. Over 400 SCUD launchers are opposite European NATO; over 100 are opposite the Sino-Soviet border and in the Far East; about 75 are opposite southwest Asia and eastern Turkey; and one brigade is in strategic reserve. The SCUD is expected to be replaced by the SS-23, which has a longer range and improved accuracy. Initial deployment is anticipated opposite NATO and China. Each front commander may also have a brigade of 12-18 SCALEBOARD missiles available. They are more accurate than the SS-12 they replaced. Over 60 launchers are opposite European NATO and 40 are opposite the Sino-Soviet border in the Far East. There is one battalion opposite southwest Asia/eastern Turkey, and one brigade is in the Strategic Reserve military districts. The new generation of shorter range missiles can be employed effectively with conventional and improved conventional munitions warheads in light of their greatly increased accuracy.

Missile Production USSR and NATO[1]

Missile Type	1980 USSR	1981 USSR	1982 USSR	1983 USSR	1984 USSR	1984 NATO
ICBMs	250	200	175	150	100	0
LRINF	100	100	100	125	150	70
SRBMs	300	300	300	350	350	0
SLCMs	750	750	800	800	850	665
SLBMs	200	175	175	200	200	80

[1] Revised to reflect current total production information. Includes United States; excludes France and Spain.

In 1984, the Soviets, for the first time, forward deployed the SCALEBOARD short-range ballistic missile to Eastern Europe. These front-level missiles, which normally deploy with Soviet combined arms formations, are now in position to strike deep into NATO without having first to forward deploy.

Force Developments. It is likely that the Soviets will continue to seek improvements in their SRBM force. Improvements in guidance and control, warhead capabilities, and accuracies are expected. Such improvements will give the combined arms commanders enhanced nonnuclear targeting options and more flexible, reliable, and survivable SRBMs. These systems will be capable of delivering nuclear, chemical, or conventional warheads closer to the forward edge of the battle area and at greater depths within the military theater of operations.

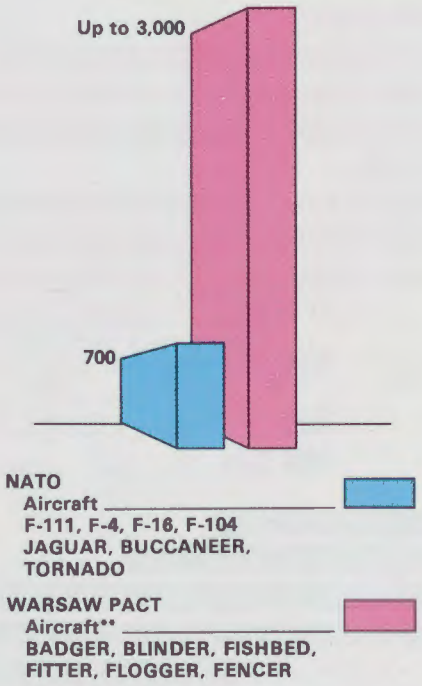
Tactical Missiles and Nuclear Artillery

Current Systems and Force Levels. At division level, the predominant weapon is the unguided FROG, found in a battalion of four launchers. The Soviets have begun to replace the FROG with the more accurate, longer range SS-21 in most divisions opposite NATO. Currently there are some 375 FROG and SS-21 launchers opposite NATO. Two hundred FROG launchers are opposite the Sino-Soviet border and in the Far East; about 100 are opposite southwest Asia and eastern Turkey; and about 75 are in the Strategic Reserve MDs.

In addition to FROG and SS-21 launchers, a division commander has some 800 nuclear-capable artillery tubes at his disposal. Two new self-propelled artillery pieces, a 152-mm gun and a howitzer/mortar, are now entering the inventory. Both of these guns are nuclear-capable and will bring the total number of nuclear-capable artillery tubes to over 2,000 when fully deployed. An additional 4,000 152-mm howitzers have at least a potential nuclear capability.

Force Developments. As in all other nuclear attack forces, it is likely that the Soviets will improve the capabilities of their tactical missiles and nuclear artillery pieces. This improvement will be accomplished through incre-

*Land-Based INF Aircraft Deployed at End of 1983**

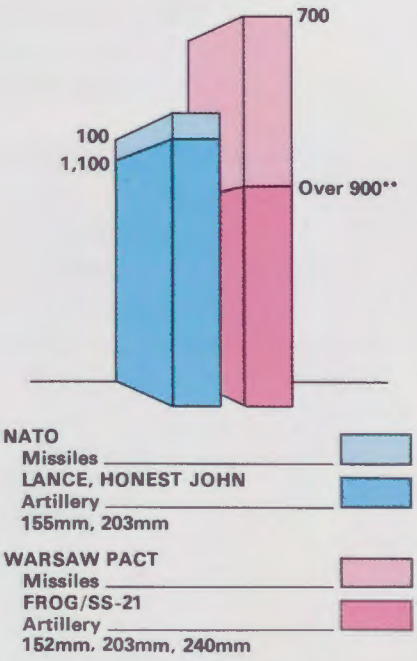


*Numbers refer to deployments of land-based aircraft (including maritime aircraft) in Europe.

**The BACKFIRE bomber with its primary nuclear role has been included in the strategic section because it has an inherent intercontinental capability although in its maritime and European land-attack roles it poses a serious threat to NATO Europe.

From 1984 Edition of NATO Publication:
NATO and the Warsaw Pact-Force Comparisons

*Short-Range Nuclear Forces (SNF) Deployed at End of 1983.**



*For NATO the data reflect forces deployed in NATO Europe; for the WARSAW PACT, forces facing NATO Europe.

**Includes 500 152mm guns.

From 1984 Edition of NATO Publication:
NATO and the Warsaw Pact-Force Comparisons

mental modernization of current systems and the introduction of entirely new systems.

Strategic Rocket Forces

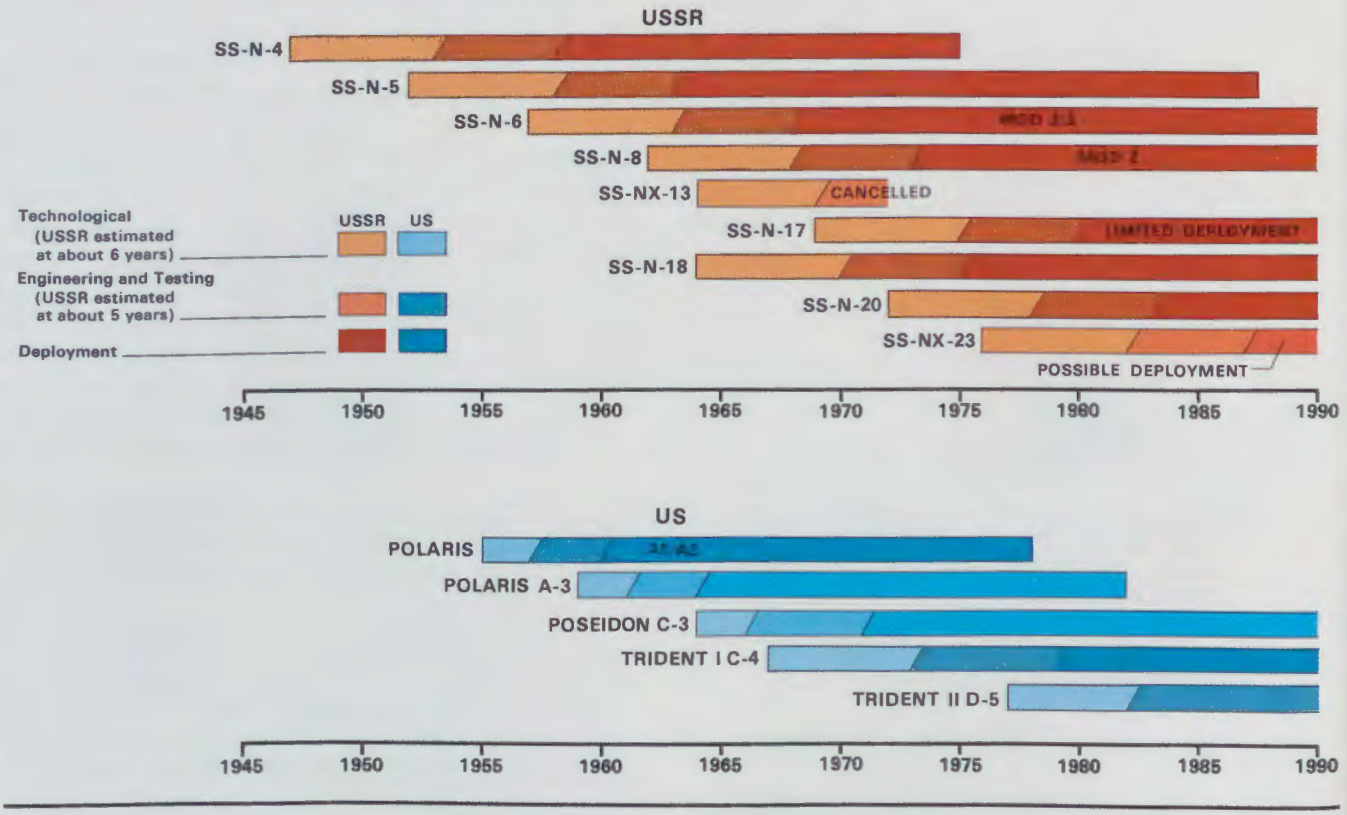
Immediately following World War II, Stalin committed Soviet scientists and engineers to develop the type of artillery promised by the V-1 and V-2 rockets as rapidly as possible. These weapons were to have increased ranges for use in strategic warfare and, if possible, an intercontinental capability. Stalin had assigned most missile development programs in the Soviet Union to the artillery component of the ground forces and kept their development under strict security. The prevailing Soviet view at the time was that rockets were ordnance, not pilotless aircraft. From the mission point of view, however, use of long-range missiles was assigned to Long-Range Aviation (LRA) since it was responsible for the conduct of strategic warfare. This mission assignment lasted until late 1953, when the collective leadership in the post-Stalin era stripped LRA of its operational control of ballistic missiles.

In the 1950s as issues of doctrine and strategy became clearer, yet to be resolved was what service or services controlled ballistic missiles and would be responsible for their operational use. According to the Soviets, the issue was discussed at the highest levels in the Ministry of Defense and the Politburo. In late 1959, the Soviets decided to create a new service, the Strategic Rocket Forces (SRF), responsible for the development, administration, training, and operation of ballistic missiles. The creation of the SRF and the appointment of M.I. Nedelin as its commander was announced in January 1960 during a session of the Supreme Soviet.

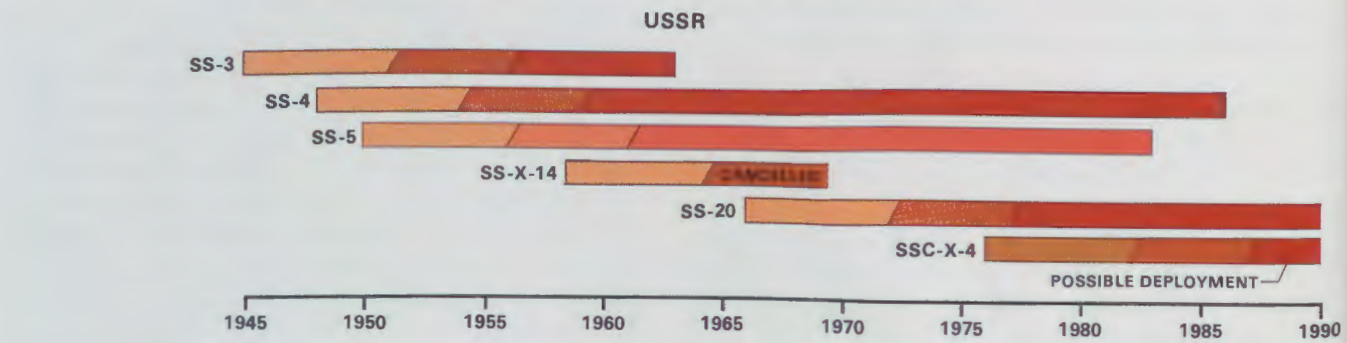
Force Training

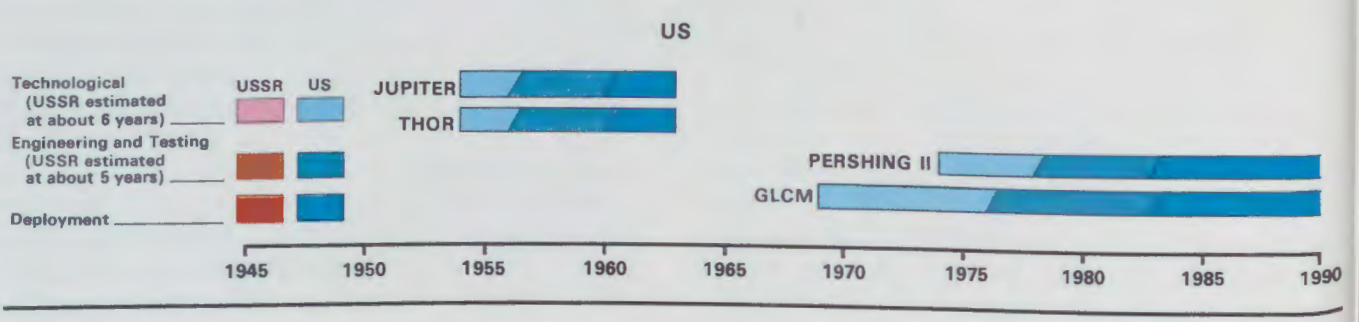
The Soviets were quick to realize that the improvements in ballistic missiles and the formation of the SRF required better technically trained personnel and combat readiness. In

Sea-Based Strategic Ballistic Missile Force Development

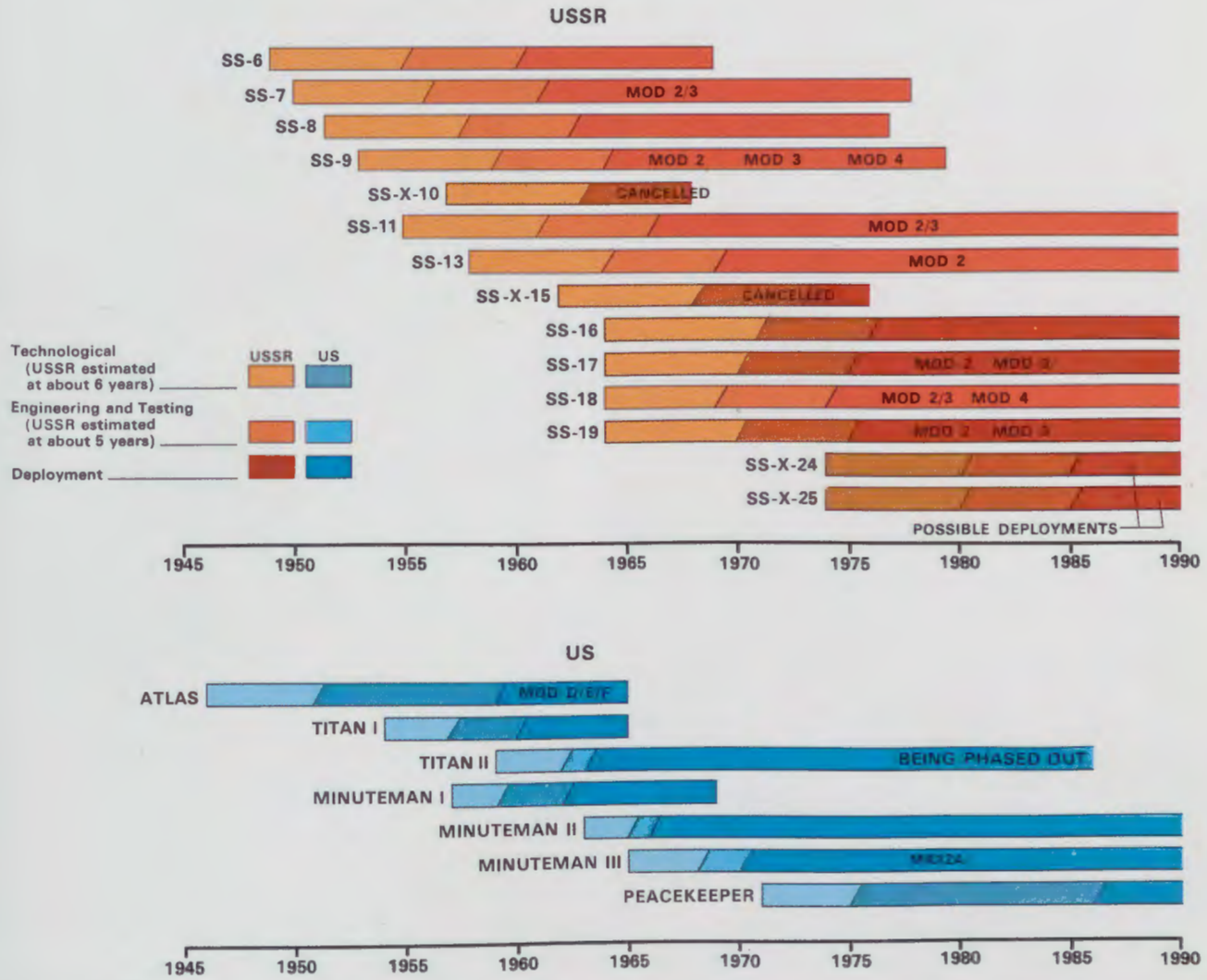


Longer Range Intermediate-Range Ballistic and Cruise Missile Force Development





Intercontinental Ballistic Missile Force Development



addition to the training of personnel in missile maintenance and operations, the Soviets trained missile crews to meet the demands of modern nuclear warfare. As more technically sophisticated computers and automated control systems were introduced and missile systems attained higher degrees of readiness, crew sizes were reduced. The demands placed upon crew readiness, however, increased to the point where most or all ICBM and LRINF missiles could be launched in minutes. The Soviets insist that SRF personnel be combat ready at all times. As a result, Soviet missile crews are regularly trained for the contingencies of preemption, launch-on-tactical-warning, or a second-strike attack. An additional part of crew training is reconstitution and refire of those silos not destroyed in a counterattack. In keeping with the demands of Soviet nuclear doctrine, missile crews are trained to perform their tasks under any contingency.

Chapter III

Strategic Defense and Space Programs

Strategic defenses are vital to the overall Soviet strategy for nuclear war. The operations of Soviet defensive and attack forces, as noted in Chapter II, are closely coupled; attack strategies are geared in large part to the reduction of the defensive burden. In the Soviet concept of a layered defense, effectiveness is achieved through multiple types of defensive capabilities compensating for shortcomings in individual systems and for the likelihood that neither offensive strikes nor any one layer of defense will stop all attacking weapons. The Soviets are making major improvements in their deployed strategic defenses and are investing heavily in ABM-related developments.

Soviet Military Power 1983 and *1984* outlined the continuing expansion into space of the Soviet drive for military superiority. In the past year, some 80 percent of Soviet space launches have been purely military in nature, with much of the remainder serving both military and civil functions. This is an increase from 70 percent in previous years. The Soviet military space program dominates the USSR's overall space effort. Soviet military doctrine establishes requirements for the military space program.

Laser/Energy Weapons Systems

Soviet directed-energy development programs involve future Ballistic Missile Defense (BMD) as well as antisatellite and air-defense weapons concepts.

The Soviet space shuttle, riding atop a BISON bomber, is taken aloft on a test flight as part of the USSR's extensive and growing military space program, which includes operational antisatellite weapons, development of ground- and space-based laser weapons, and the introduction of new heavy-lift space boosters and manned spacecraft — all contributing to an operational military capability in space.

By the late 1980s, the Soviets could have prototypes for ground-based lasers for ballistic missile defense. Testing of the components for a large-scale deployment system could begin in the early 1990s. The many difficulties in fielding an operational system will require much development time, and initial operational deployment is not likely in this century. However, with high priority and some significant risk of failure, the Soviets could skip some testing steps and be ready to deploy a ground-based laser BMD by the early-to-mid-1990s.

Ground- and space-based particle beam weapons for ballistic missile defense will be more difficult to develop than lasers. Nevertheless, the Soviets have a vigorous program underway for particle beam development and could have a prototype space-based system ready for testing in the late 1990s.

The Soviets have begun to develop at least three types of high-energy laser weapons for air defense. These include lasers intended for defense of high-value strategic targets in the USSR, for point defense of ships at sea, and for air defense of theater forces. Following past practice, they are likely to deploy air defense lasers to complement, rather than replace, interceptors and surface-to-air missiles (SAMs). The strategic defense laser is probably in at least the prototype stage of development and could be operational by the late 1980s. It most likely will be deployed in conjunction with SAMs in a point defense role. Since the SAM and laser systems would have somewhat different attributes and vulnerabilities, they would provide mutual support. The shipborne lasers probably will not be operational until after the end of the decade. The theater force lasers may be operational sometime sooner and are likely to be capable of structurally damaging aircraft at close ranges and producing electro-optical and eye damage at greater distances.

The Soviets are also developing an airborne laser. Assuming a successful development effort, limited initial deployment could begin in the early 1990s. Such a laser platform could have missions including antisatellite operations, protection of high-value airborne assets, and cruise missile defense.

The Soviets are working on technologies or have specific weapons-related programs underway for more advanced antisatellite systems. These include space-based kinetic energy, ground- and space-based laser, particle beam, and radiofrequency weapons. The Soviets apparently believe that these techniques offer greater promise for future antisatellite application than continued development of ground-based orbital interceptors equipped with conventional warheads. The Soviets also believe that military applications of directed-energy technologies hold promise of overcoming weaknesses in their conventional air and missile defenses.

The USSR's high-energy laser program, which dates from the mid-1960s, is much larger than the US effort. They have built over a half-dozen major R&D facilities and test ranges, and they have over 10,000 scientists and engineers associated with laser development. They are developing chemical lasers and have continued to work on other high-energy lasers having potential weapons applications—the gas dynamic laser and the electric discharge laser. They are also pursuing related laser weapon technologies, such as efficient electrical power sources, and are pursuing capabilities to produce high-quality optical components. They have developed a rocket-driven magnetohydrodynamic (MHD) generator which produces 15 megawatts of short-term electric power—a device that has no counterpart in the West. The scope of the USSR's military capabilities would depend on its success in developing advanced weapons, including laser weapons for ballistic missile defense.

The Soviets have now progressed beyond technology research, in some cases to the development of prototype laser weapons. They already have ground-based lasers that could be used to interfere with US satellites. In the late 1980s, they could have prototype space-based laser weapons for use against satellites. In addition, ongoing Soviet programs have progressed to the point where they could include construction of ground-based laser antisatellite (ASAT) facilities at operational sites. These could be available by the end of the 1980s and would greatly increase the Soviets' laser ASAT capability beyond that currently at their test site at Sary Shagan. They may deploy operational systems of space-based lasers for antisatellite purposes in the 1990s, if their technology developments prove successful, and they can be expected to pursue development of space-based laser systems for ballistic missile defense for possible deployment after the year 2000.

Since the early 1970s, the Soviets have had a research program to explore the technical

feasibility of a particle beam weapon in space. A prototype space-based particle beam weapon intended only to disrupt satellite electronic equipment could be tested in the early 1990s. One designed to destroy satellites could be tested in space in the mid-1990s.

The Soviets have conducted research in the use of strong radiofrequency (RF) signals that have the potential to interfere with or destroy components of missiles, satellites, and reentry vehicles. In the 1990s, the Soviets could test a ground-based RF weapon capable of damaging satellites.

Soviet programs for the development and application of directed-energy technologies to strategic defense have been very vigorous in the past and will continue to be so in the future, irrespective of what the US does about new strategic defense initiatives.

In the area of kinetic energy weapons, using the high-speed collision of a small mass with the target as the kill mechanism, the Soviets have a variety of research programs underway. These programs could result in a near-term, short-range, space-based system useful for satellite or space station defense or for close-in attack by a maneuvering satellite. Longer range, space-based systems probably could not be developed until the mid-1990s or even later.

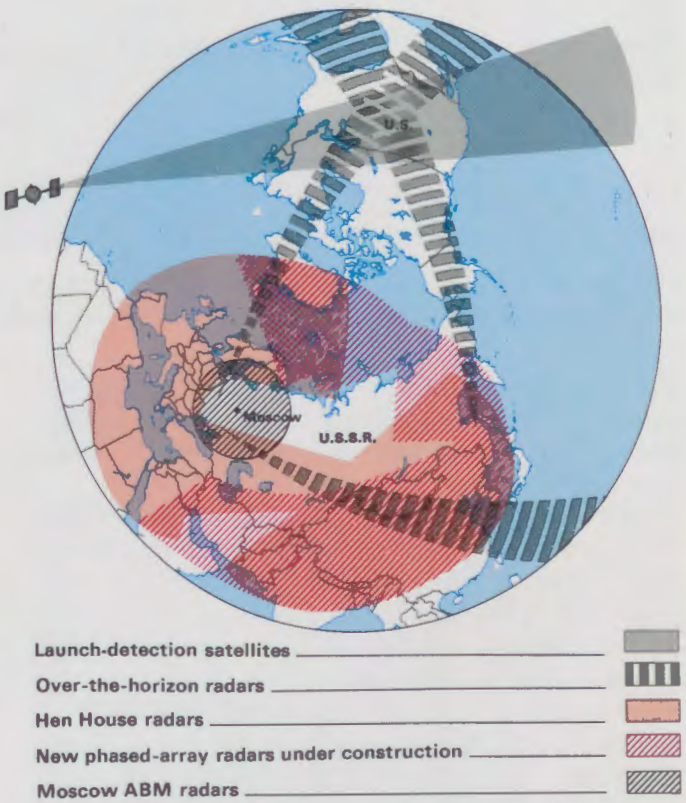
Early Warning

The Soviets maintain the world's most extensive early warning system for both ballistic missile and air defense. Their operational ballistic missile early warning system includes a launch-detection satellite network, over-the-horizon radar, and a series of large phased-array radars located primarily on the periphery of the USSR. Their early warning air surveillance system is composed of an extensive network of ground-based radars linked operationally with those of their Warsaw Pact allies.

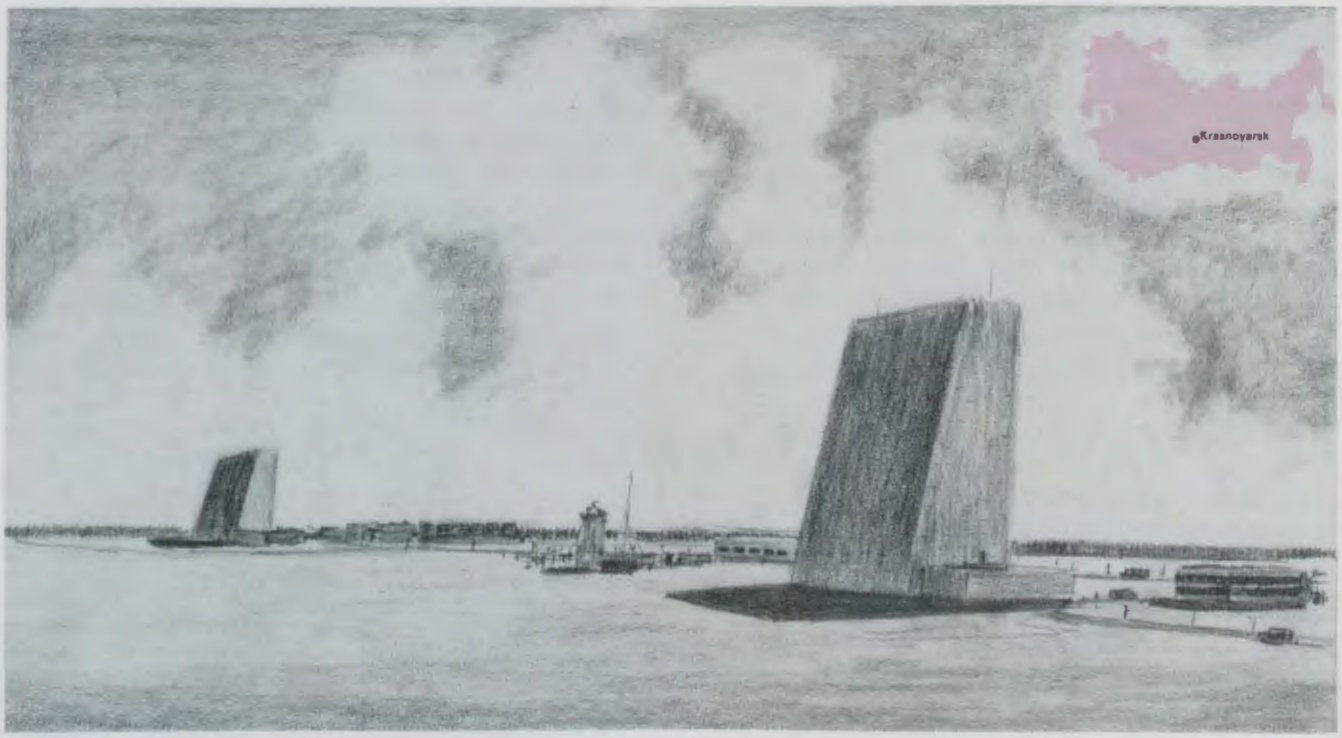
The current Soviet launch-detection satellite network is capable of providing about 30 minutes warning of any US ICBM launch and of determining the general area from which it originated. The two over-the-horizon radars the Soviets have directed at the US ICBM fields also could provide them with 30 minutes warning of an ICBM strike launched from the United States, but with somewhat less precision than the satellite network. Working together, these two early warning systems can provide more reliable warning than either working alone.

The next layer of operational ballistic missile early warning consists of 11 large HEN HOUSE detection and tracking radars at six locations on the periphery of the USSR. These radars can distinguish the size of an attack, confirm the warning from the satellite and over-the-horizon radar systems, and provide target-tracking data in support of antiballistic missile (ABM) deployments.

Coverage of Ballistic Missile Detection and Tracking Systems



Current Soviet air surveillance radar deployments include more than 7,000 radars of various types located at about 1,200 sites. These deployments provide virtually complete coverage at medium-to-high altitudes over the USSR and in some areas extend hundreds of kilometers beyond the borders. Moreover, the over-the-horizon radars provide additional warning of the approach of high-flying aircraft. Limited coverage against low-altitude targets is concentrated in the western USSR and in high-priority areas elsewhere. Since 1983, the Soviets have begun to deploy two new types of



The Soviet Union is violating the ABM Treaty through the siting, orientation, and capability of the large phased-array, early warning and ballistic missile target-tracking radar at Krasnoyarsk.

air surveillance radars. These radars assist in the early warning of cruise missile and bomber attacks and enhance air defense electronic warfare capabilities.

The new large phased-array radar for ballistic missile early warning and target-tracking discovered in 1983 in Siberia is still under construction. This new radar closes the final gap in the combined HEN HOUSE and new large phased-array radar early warning and tracking network. Together, this radar and the five others like it form an arc of coverage from the Kola Peninsula in the northwest, around Siberia, to the Caucasus in the southwest. The new radar violates the 1972 ABM Treaty in that it is not located on the periphery of the Soviet Union, nor is it pointed outward as required by the Treaty. Its orientation and function indicate it is for ballistic missile detection and tracking—not space object tracking as claimed by the Soviets. The complete network of these radars, which could provide target-tracking data for ABM deployments beyond Moscow, probably will be operational by the late 1980s.

The Soviets may establish a network of satellites in geostationary orbit designed to provide timely indications of ballistic missiles, including submarine-launched ballistic missile (SLBM) launches. Such a network could be operational by the end of the decade.

The USSR has a strong research and development program to produce new early warning and other air surveillance radars as well as to improve existing systems. More than 15 types of these radars are currently in development. In addition, the Soviets are continuing to deploy improved air surveillance data systems that can rapidly pass data from outlying radars through the air surveillance network to ground-controlled intercept sites and SAM command posts. These systems will continue to be deployed until all areas are equipped with them.

Ballistic Missile Defense

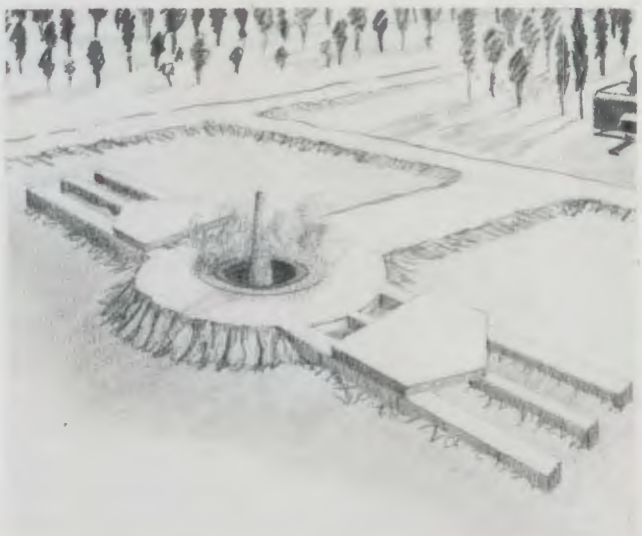
The Soviets are continuing a major upgrading of their ballistic missile defense capabilities. The Moscow missile defenses are being enlarged and equipped with a new generation of radars and interceptor missiles. Developments aimed at providing the foundation for widespread ABM deployments beyond Moscow are underway.

The new SA-X-12 surface-to-air missile, which incorporates ballistic missile defense ca-

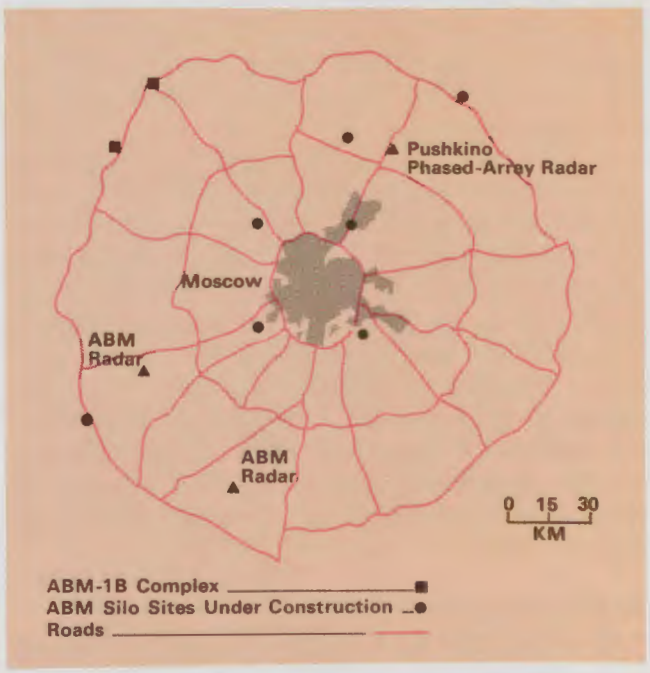
pabilities, is nearing operational status, while research on directed-energy BMD technology continues apace.

The Soviets maintain around Moscow the world's only operational ABM system. This system is intended to afford a layer of defense for Soviet civil and military command authorities in the Moscow area during a nuclear war rather than blanket protection for the city itself. Since 1980, the Soviets have been upgrading and expanding this system around Moscow within the limits of the 1972 ABM Treaty.

The original single-layer Moscow ABM system included 64 reloadable above-ground launchers at four complexes for the GALOSH ABM-1B, six TRY ADD guidance and engagement radars at each complex, and the DOG HOUSE and CAT HOUSE target-tracking radars south of Moscow. The Soviets are upgrading this system to the 100 accountable



Moscow Ballistic Missile Defense



The Moscow ballistic missile defenses identified in the map at right include the Pushkino ABM radar, above, GALOSH antiballistic missile interceptors, top left, and new silo-based high-acceleration interceptors, top right.

launchers permitted under the ABM Treaty. When completed, the new system will be a two-layer defense composed of silo-based, long-range, modified GALOSH interceptors designed to engage targets outside the atmosphere; silo-based high-acceleration interceptors designed to engage targets within the atmosphere; associated engagement and guidance radars; and a new large radar at Pushkino designed to control ABM engagements. The silo-based launchers may be reloadable. The first new launchers are likely to be operational this year, and the new defenses could be fully operational by 1987.

The Soviets are developing a rapidly deployable ABM system to protect important target areas in the USSR. They have been testing all the types of ABM missiles and radars needed for widespread ABM defenses beyond the 100 launcher limit of the 1972 ABM Treaty. Within the next 10 years, the Soviets could deploy such a system at sites that could be built in months instead of years. A typical site would consist of engagement radars, guidance radars, above-ground launchers, and the high-acceleration interceptor. The new, large phased-array radars under construction in the USSR, along with the HEN HOUSE, DOG HOUSE, CAT HOUSE, and possibly the Pushkino radar, appear to be designed to provide support for such a widespread ABM defense system. The aggregate of the USSR's ABM and ABM-related activities suggests that the USSR may be preparing an ABM defense of its national territory.

In addition, the Soviets are deploying one surface-to-air missile system, the SA-10, and are flight testing another, the mobile SA-X-12. The SA-X-12 is both a tactical SAM and antitactical ballistic missile. It may have the capability to engage the LANCE and both the PERSHING I and PERSHING II ballistic missiles. The SA-10 and SA-X-12 may have the potential to intercept some types of US strategic ballistic missiles as well. These systems could, if properly supported, add significant point-target coverage to a widespread ABM deployment.

Air Defense

The Soviets have deployed numerous strategic and tactical air defense assets that have excellent capabilities against aircraft flying at medium and high altitudes. Although their capability to intercept low-flying penetrators is marginal, they are in the midst of a major overhaul geared toward fielding an integrated air defense system much more capable of low-altitude operations. This overhaul includes partial integration of strategic and tactical air defenses; the upgrading of early warning and surveillance capabilities; the deployment of more efficient data transmission systems; and the development and initial deployment of new aircraft, associated air-to-air missiles, surface-to-air missiles, and airborne warning and control system (AWACS) aircraft.

Over the years, the Soviets have invested enormous resources in their air defense systems. This sustained effort has produced an array of weapons systems designed for a variety of air defense applications. For example, they have fielded 13 different surface-to-air missile systems, each designed to cover a specific threat regime.

The Soviets have made significant shifts in the subordination of their air and air defense assets. The reorganization has resulted in a streamlined organization that merged strategic and tactical air and air defense assets in most land border areas of the USSR. The air defense (APVO) interceptors became part of a new structure, the Air Forces of the Military District (MD), which also includes most of the assets of the former tactical air armies. The Air Forces of an MD include all air assets in their geographic area (excluding Strategic Aviation and transport assets). These assets can be used either offensively or defensively as the situation requires. The new structure improves defensive capabilities, but its most significant impact is on the capability to conduct massed offensive air operations. Technological advances in weapons systems and in command, control, and communications have made its implementation possible.

In terms of numbers alone, Soviet strategic and tactical air defense forces are impressive. Moreover, with the continuing deployment of new systems like the SA-10 SAM and impending deployment of the SA-X-12, these numbers are increasing along with capability. Currently, the Soviets have nearly 10,000 SAM launchers at over 1,200 sites for strategic defense, along with more than 4,000 launch vehicles for tactical SAMs, subordinated to nearly 445 launch units. More than 1,200 interceptors are dedicated to strategic defense, while an additional 2,800 Soviet Air Forces (SAF) interceptors could also be used. Fur-

A new generation of air defense, all-weather interceptors is joining the highly capable FLOGGER G, seen at top with AA-7 and AA-8 air-to-air missiles under wing, and FOXBAT E, seen with the AA-6 missile.

ther, the Soviets are continuing the MAINSTAY AWACS aircraft program and test and evaluation is underway. The MAINSTAY will substantially improve Soviet capabilities for early warning and air combat command and control, especially against low-flying aircraft. The MAINSTAY will also provide Soviet air defenses with overland and overwater capabilities to detect aircraft and cruise missile targets flying at low altitudes. Additionally, the MAINSTAY could be used to help direct fighter operations over European and Asian battlefields and to enhance air surveillance and defense of the USSR. MAINSTAY production could be about five aircraft per year.

The 1,200 all-weather interceptors assigned to strategic defense are primarily based in central air defense regions of the Soviet Union, in addition to fighter/interceptors subordinate to the military districts that are generally located on the periphery of the Soviet Union. The interceptor force is composed of a wide variety of aircraft with varying capabilities.

The deployment of the supersonic MiG-31/FOXHOUND interceptor, the first Soviet aircraft with a true look-down/shoot-down and multiple-target engagement capability, continued during 1984. The FOXHOUND, comparable in size to the US F-14 TOMCAT, is deployed at several locations from the Arkhangelsk area to the Far East Military District. More than 70 of these aircraft are operational.

The MiG-25/FOXBAT A/E is a high-altitude, high-speed interceptor that comprises approximately one-quarter of the strategic interceptor force. The upgrade program of the FOXBAT A to the newer FOXBAT E configuration provides a limited look-down radar capability. The remaining FOXBAT A aircraft are expected to be modified to the FOXBAT E configuration during 1985.

The MiG-23/FLOGGER B/G fighter comprises approximately one-third of the total strategic interceptor forces. This variable-geometry-wing fighter is equipped with a limited look-down radar. The remaining aircraft employed as interceptors (the older FLAGON, FIDDLER, and FIREBAR) comprise less than one-third of the force.

Two new fighter-interceptors, the Su-27/FLANKER and the MiG-29/FULCRUM, have true look-down/shoot-down capabilities. The FULCRUM is a single-seat, twin-engine fighter similar in size to the US F-16. First deployments of the FULCRUM to the Soviet Air

Force military districts have begun, and more than 30 are now operational. The FLANKER is a larger, single-seat, twin-engine fighter similar in size to the US F-15. Both aircraft have been designed to be highly maneuverable in air-to-air combat.

The three latest Soviet fighter-interceptor aircraft are equipped with two new air-to-air missiles, the AA-9 designed for the FOXHOUND and the AA-10 designed for the FULCRUM and the FLANKER. The AA-9 is a long-range missile that can be used against low-flying targets; the AA-10 is a medium-range missile with similar capabilities.

The new Il-76/MAINSTAY aircraft is illustrated as configured for its airborne warning and control mission.

The FLANKER and the FULCRUM, as well as the FOXHOUND, are likely to operate under certain circumstances with the new MAINSTAY AWACS aircraft.

Soviet strategic SAMs form barrier, area, and terminal defenses. They afford broad coverage for medium- and high-altitude defenses under all weather conditions. Five systems are operational—the SA-1, SA-2, SA-3, SA-5, and SA-10. Of these, only the SA-10 is capable of defending against targets with a small radar-cross-section such as cruise missiles.

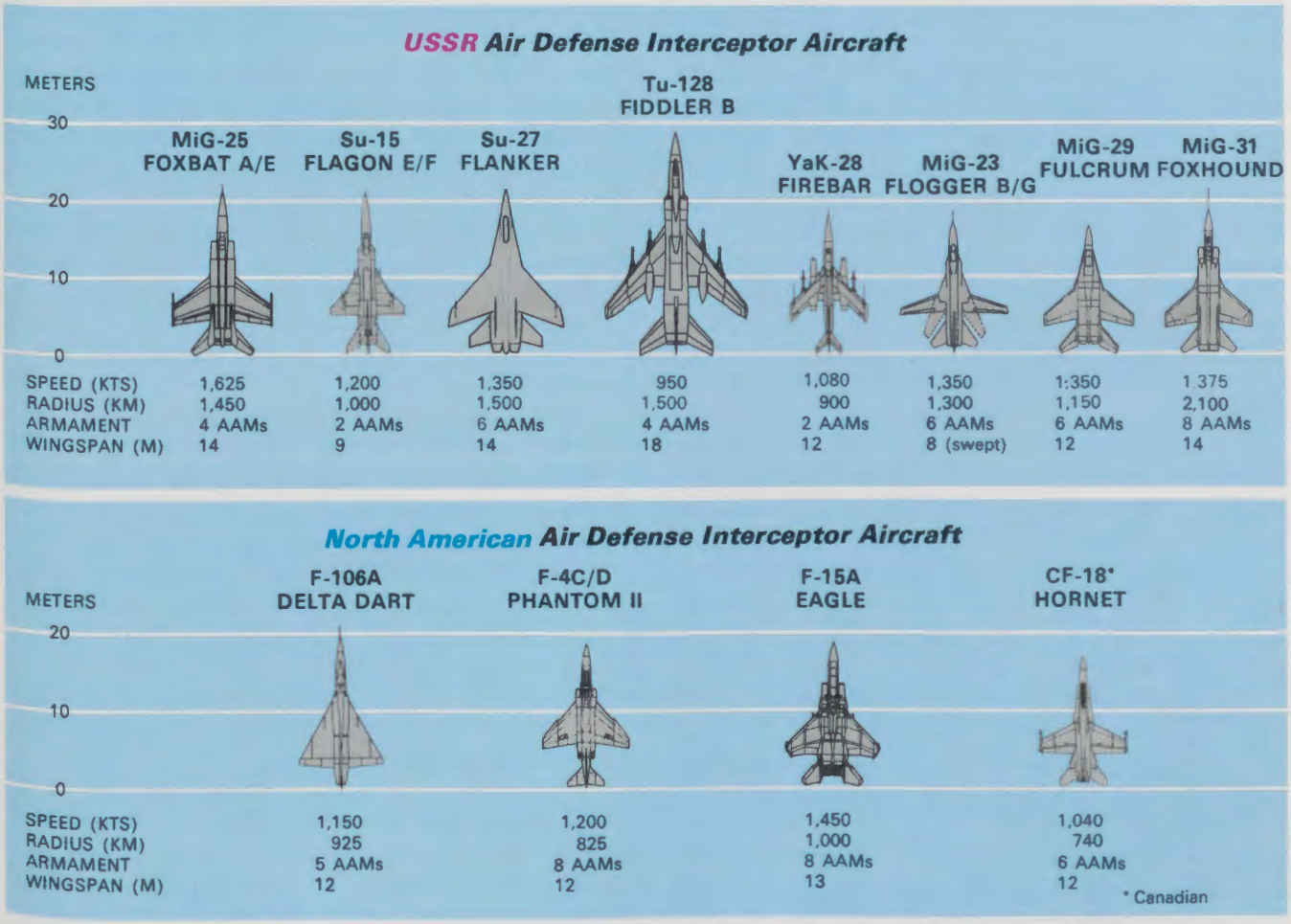
The first SA-10 site reached operational status in 1980. Nearly 60 sites are now operational and work is underway on at least another 30. More than half of these sites are located near Moscow. This emphasis on Moscow and the patterns noted for the other SA-10 sites suggest a first priority on terminal defense of wartime command and control, military, and key industrial complexes. Over the years, the Soviets have continued to deploy the long-range SA-5 and have modified the system repeatedly. Further deployment and upgrading of the SA-5 to enhance its capability to work in conjunction with low-altitude systems like the SA-10 are likely in the future.

In keeping with their drive toward mobility as a means of weapons survival, the Soviets are developing a mobile version of the SA-10 SAM. This mobile version could be used to support Soviet theater forces but, perhaps more importantly, if deployed with the territorial defense forces, it would allow the Soviets to change the location of SA-10 sites in the USSR. The mobile SA-10 could be operational sometime this year.

The 1980 air defense reorganization permits efficient integration of strategic and tactical SAM systems. Most tactical SAMs are not as range-capable as strategic SAMs, but many have better low-altitude capabilities.

A mixed and integrated system of aircraft, SAMs, and antiaircraft artillery (AAA) provides the Soviet Union with the most comprehensive air defense system in the world. Over 4,600 SAM launcher vehicles and 11,500 AAA pieces are deployed at regimental through front level. In addition, as many as 25,000 shoulder-fired SAM launchers are found at battalion and company level and with non-divisional units. The standard air defense for a tank or motorized rifle regiment is a battery of SA-9/13 SAMs and ZSU-23/4 self-propelled AAA pieces. The SA-9 system, mounted on a wheeled transporter-erector-launcher (TEL), is being replaced by the SA-13 on a tracked TEL. A follow-on to the ZSU-23/4 is expected shortly. The standard SAM at division level is the SA-6 or SA-8, although some divisions still have an AAA-equipped air defense regiment. A new division-level SAM, the SA-11, is beginning to enter the inventory. It features an onboard radar that increases mobility and target-handling capability. The standard weapon at army and front levels is the SA-4, soon to be replaced by the SA-X-12. The SA-X-12 has good low-altitude air defense capabilities as well as the ballistic missile defense capabilities noted above. Soviet tactical SAM development is both broad-based and active. New tactical SAMs and improvements to older ones are now under development.

The largest concentration of SAM launchers and AAA pieces—over 8,100—is found opposite European NATO; over 4,200 are opposite the Sino-Soviet border and in the Far East; there



are nearly 700 opposite southwest Asia and eastern Turkey; over 1,300 are in the Strategic Reserve military districts.

Passive Defense

Soviet passive defense preparations have been underway in earnest for some 30 years and have, over time, expanded from the protection of such vital entities as the national Party and government leadership and Armed Forces to embrace the territorial leadership, national economy, and general population. The Soviets regard passive defense as an essential ingredient of their overall military posture and war planning. In conjunction with active forces,the Soviets plan for a passive defense program to ensure the survival and wartime continuity of:

- Soviet leadership;
- military command and control entities;
- war-supporting industrial production and services;
- the essential workforce; and
- as much of the general population as possible.

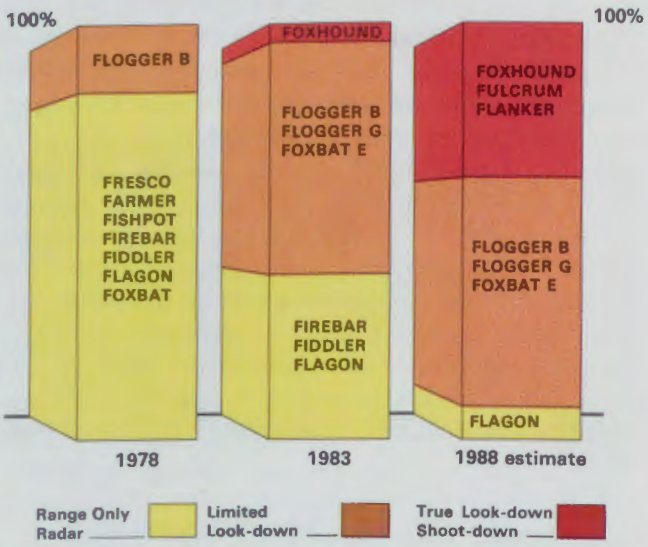
As this program has expanded, elements of it have been designated by the Soviets as "civil defense." Use of this term in its normal West-

ern context does not convey the full scope of Soviet Civil Defense.

Extensive planning for the transition of the entire State and economy to a wartime posture has been fundamental to Soviet passive defense preparations. The Soviet General Staff and Civil Defense officials have supervised the development of special organizations and procedures to implement a rapid transition to war and have emphasized the mobilization and protection of all national resources essential to the successful prosecution of war and recovery.

The senior Soviet military establishment has also supervised the 30-year program to construct hardened command posts and survivable communications for key military commanders and civilian managers at all levels of the Party and government. Likewise, protective hardening, dispersal, and wartime production plans for Soviet industry have all been coordinated with the wartime requirements of the military and supervised by Civil Defense personnel. The protection of the general population through evacuation procedures and extensive sheltering in or near urban areas is the most visible aspect of the passive defense program.

Interceptor Aircraft Radar Capability

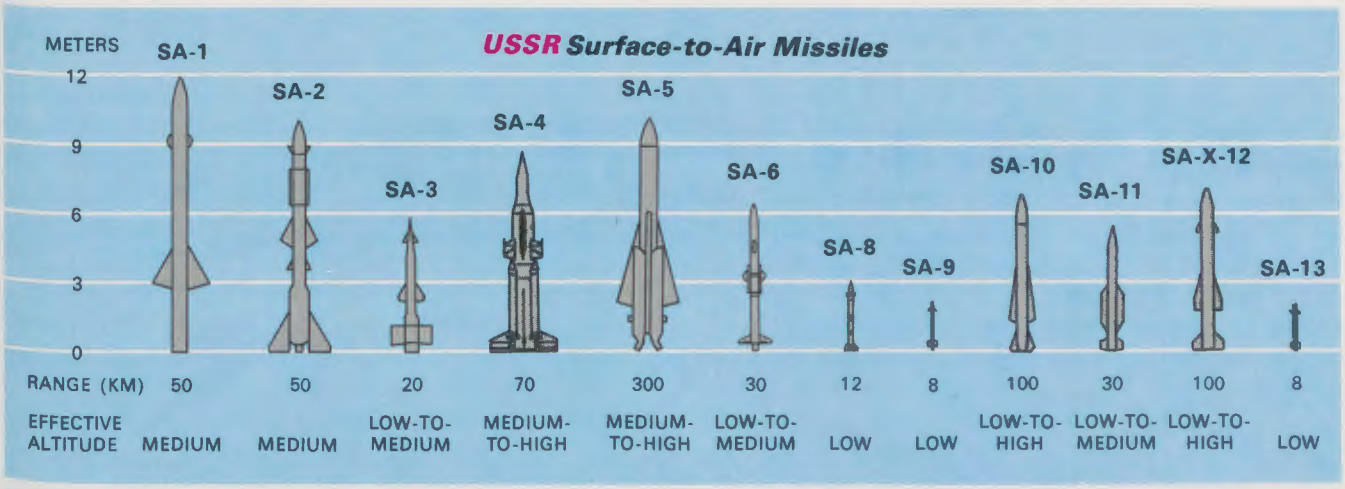


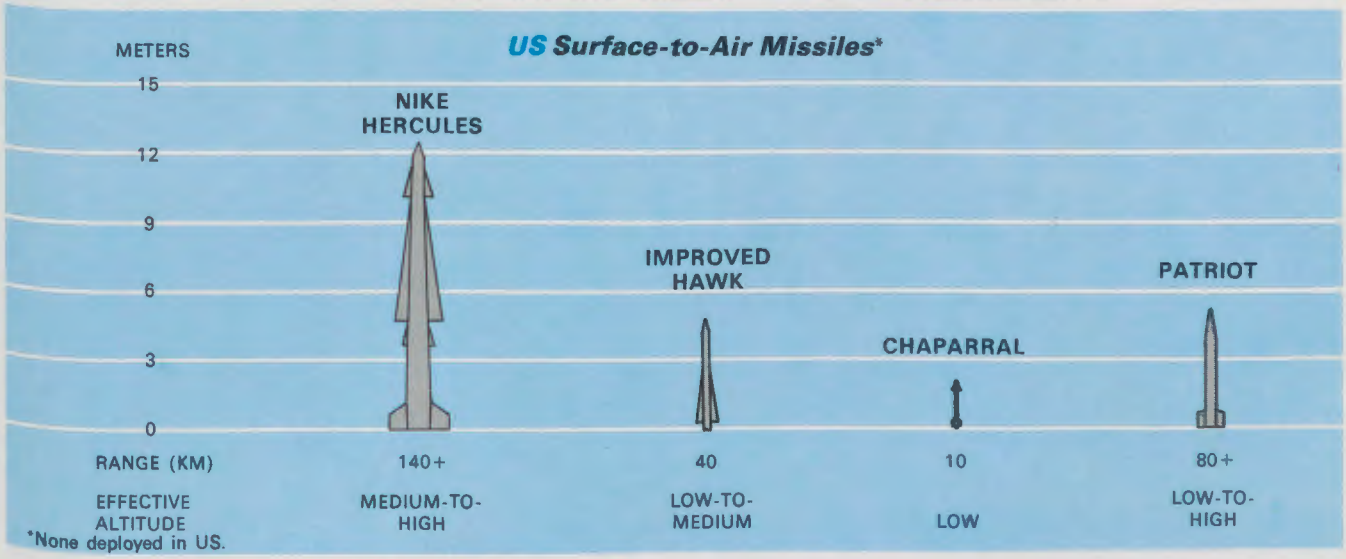
The passive defense program reflects the Soviets' belief of their wartime need. The wartime management system would be the militarized system of national administration in which peacetime government bodies become Civil Defense components under direct military subordination. This would extend to Soviet territorial administration at all levels and to specialized functional components such as industrial, transport, power, and communications ministries. Soviet authorities at all levels would serve as uniformed chiefs of Civil Defense and command their respective organizations in a military capacity. Soviet Civil Defense thus serves both as a vehicle to administer peacetime preparations and training and as the infrastructure that would keep together civil and military bodies in the unified wartime management systems.

Soviet commanders and managers at all levels of the Party and government are provided hardened alternate command posts located well away from urban centers. This comprehensive and redundant system, composed of more than 1,500 hardened facilities with special communications, is patterned after similar capabilities afforded the Armed Forces. More than 175,000 key personnel throughout the system are believed to be equipped with such alternate facilities in addition to the many deep bunkers and blast shelters in Soviet cities.

Soviet passive defense efforts include measures to maintain essential production and services even during a nuclear war. Elaborate plans have been set for the full mobilization of the national economy in support of the war effort and the conversion to wartime production. Reserves of vital materials are maintained, many in hardened underground structures. Redundant industrial facilities have been built and are in active production. Industrial and other economic facilities have been equipped with blast shelters for the workforce, and detailed procedures have been developed for the relocation of selected plants and equipment. By ensuring the survival of essential workers, the Soviets intend to reconstitute vital production programs using those industrial components that can be redirected or salvaged after an attack.

The annual military and civilian cost of four elements of the program—pay and allowances for full-time Civil Defense personnel; operation of specialized military Civil Defense units; construction and maintenance of facilities for these units; and shelter construction—is less than 1 percent of the estimated Soviet defense budget. If duplicated in the United States, these four elements would cost roughly $3 billion annually. The cost of construction and equipment for leadership relocation sites over





the past 25 years is between 8 and 16 billion rubles, or $28-56 billion if acquired in the United States.

North American Defense Forces

United States and Canadian interceptor forces assigned to the North American Aerospace Defense Command (NORAD) maintain continuous ground alert at sites around the periphery of the United States and Canada. Alert aircraft intercept and identify unknown intruders. At present, there are no SAMs for US continental air defense. In a crisis, the Air Force, Navy, and Marine Corps could provide additional interceptors. Supported by AWACS aircraft, these forces could provide a limited defense against bomber attacks.

To meet the increasing Soviet bomber and air-launched cruise missile (ALCM) threats, US interceptor squadrons assigned to NORAD are being equipped with newer more advanced F-15 and F-16 aircraft. These modern fighters will provide a look-down/ shoot-down capability to detect and engage enemy bombers penetrating at low altitudes. The Canadians are upgrading their air defense forces with the CF-18. Joint United States and Canadian improvements to long-range surveillance include modern microwave radars for the Distant Early Warning line and over-the-horizon back-scatter radars looking east, west, and south.

Soviet space-oriented military systems pose a threat to the land, sea, and air forces of the United States. Some Soviet satellites are designed to support targeting of Soviet antiship cruise missiles launched against US surface ships. The US ASAT program, centering on the Air-Launched Miniature Vehicle, is part of the response to this and similar threats.

Finally, the United States has called for a research program to explore the possibility of strengthening deterrence by taking advantage of recent advances in technology that could,

The USSR's operational antisatellite interceptor, at right, is launched from Tyuratam, above, where launch pads and storage for additional interceptors and launch vehicles are available.

in the long term, provide an effective defense against ballistic missiles. This Strategic Defense Initiative (SDI) is discussed in the concluding chapter.

The Soviet Space Program

The Soviets believe in the combined arms concept of warfare in which all types of forces are integrated into military operations to

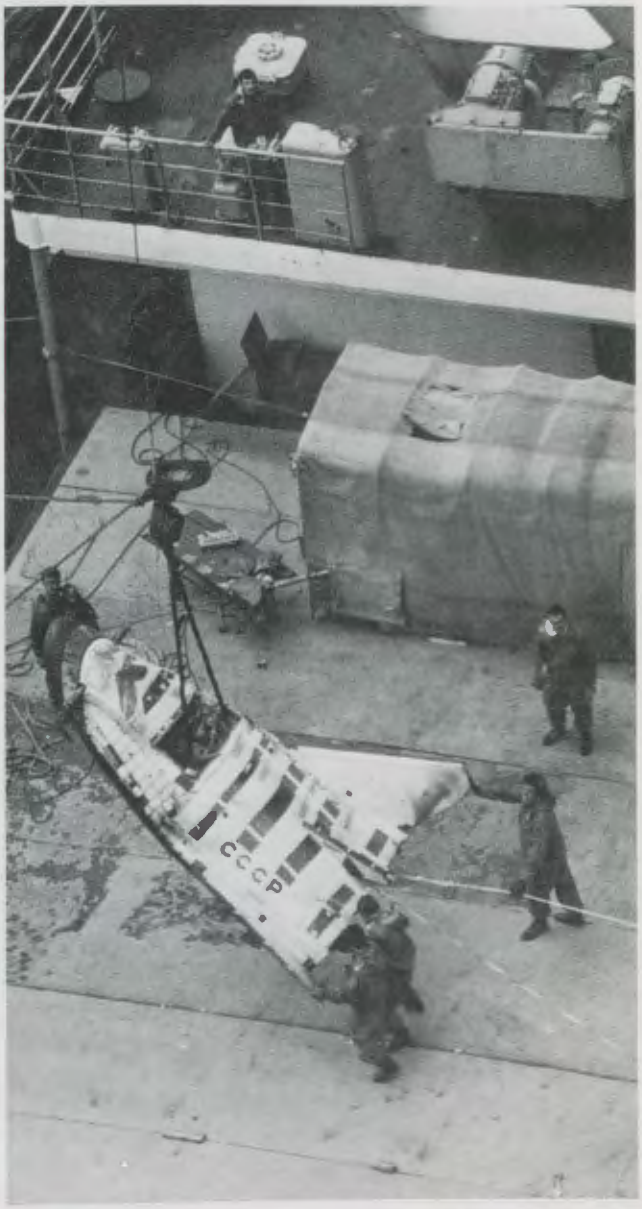
achieve the desired goals. Space assets play a major role in this equation in the areas of antisatellite warfare; intelligence collection; command, control, and communications; meteorological support; navigational support; and targeting. The military support systems are linked to ground, naval, and air forces through earth terminals. Thus, Soviet forces can receive orders and information via satellite from command headquarters thousands of miles away. Their reliance on these systems is growing. Space weapons also play an important role in their strategic operations.

The late Marshal V.D. Sokolovskiiy included space in a statement defining the modern concept of a theater of military operations. The Soviet drive to use space for military purposes is an integral part of Soviet military planning. The Soviet coorbital ASAT system, while launched from the ground, is a space weapon system. The Soviets also have two ground-based lasers that are capable of attacking satellites in various orbits. These systems suggest that the Soviets are willing to use space for military purposes that are more ominous than those for which it has been used thus far.

The Soviets are currently developing a version of the US space shuttle, a heavy-lift booster system, a space plane, and directed-energy weapons and have engaged in military-related experiments aboard the SALYUT-7 space station. The Soviets continue to pursue their manned space programs, maintaining in orbit the SALYUT space station, which is manned during most of the year. This gives the Soviets the capability to perform a variety of functions from space, including military R&D and using man to augment their other reconnaissance and surveillance efforts. In addition, there are other developments indicating Soviet research on space-based ballistic missile defense.

The Soviet space plane, above, may well have an antisatellite mission when operational. An unmanned scale model, at right, has already been tested.

Antisatellite Systems. Since 1971, the Soviets have had the capability to attack satellites in near-earth orbit with a ground-based orbital interceptor. Using a radar sensor and a pellet-type warhead, the interceptor can attack a target in various orbits during the interceptor's first two revolutions. An intercept during the first orbit would minimize the time available for a target satellite to take evasive action. The interceptor can reach targets or-

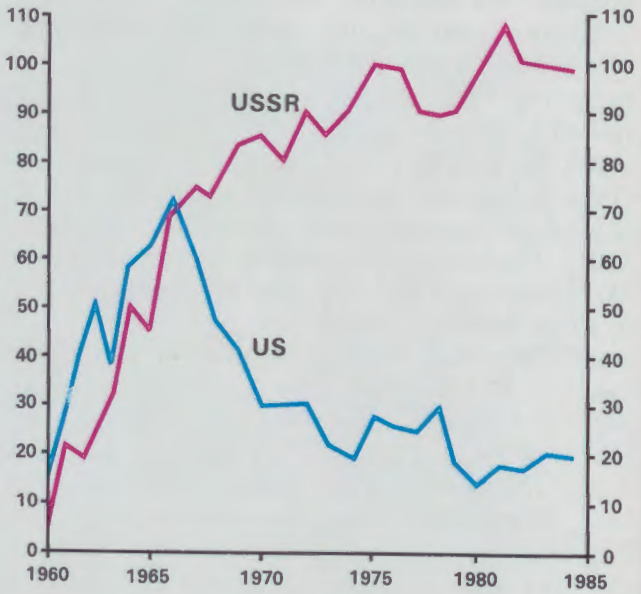


biting at more than 5,000 kilometers, but it probably is intended for high-priority satellites at lower altitudes. The antisatellite interceptor is launched from Tyuratam, where launch pads and storage space for interceptors and launch vehicles are available. Several interceptors could be launched each day. In addition to the orbital interceptor, the Soviets have two ground-based, high-energy lasers with antisatellite capabilities. The Soviets also have the technological capability to conduct electronic warfare against space systems and could use their ABM interceptors in a direct-ascent attack on low-orbiting satellites.

Space Boosters. The Soviets currently maintain eight space launch systems that are used to place objects in orbits ranging from low-earth to geosynchronous and beyond. They are developing two more systems—a TITAN-Class medium-lift launch vehicle and a SATURN V-Class heavy-lift vehicle. Also, they are developing their version of the US shuttle orbiter, which seems almost identical to its US counterpart, except for the absence of main engines. It is estimated that the new heavy-lift vehicle will be used to launch their orbiter as well as other large payloads. This vehicle should be able to lift as much as 150,000 kilograms to low-earth orbit, giving the USSR a tremendous capability to orbit heavy objects, such as the components for a large, manned space complex. The estimate for the medium-lift vehicle is a payload capacity of approximately 15,000 kilograms. This system may be used to launch their space plane, discussed below.

Manned Space Program. The Soviets have emphasized man in space since the beginning of their space program. In 1961 they placed the first man into orbit. Their SALYUT space stations have accommodated cosmonauts for extended periods, setting several records in the process. In 1984, three cosmonauts set a new record, spending 237 days aboard SALYUT 7. In 1982, two Soviet cosmonauts spent 211 days aboard the space station. At the end of 1984, Soviet cosmonauts had accumulated 3,691 man-days in space, compared to the US astronaut total of 1,289. In the spring of 1984, Soviet cosmonauts demonstrated their capability to perform on-orbit maintenance and repair by conducting extra-vehicular activity (EVA) five times, gaining valuable experience in on-orbit repairs. During one EVA, the cosmonauts added new solar panels to SALYUT 7. During another EVA, the Soviets accomplished another space first—a space walk by a female cosmonaut, Svetlana Savitskaya.

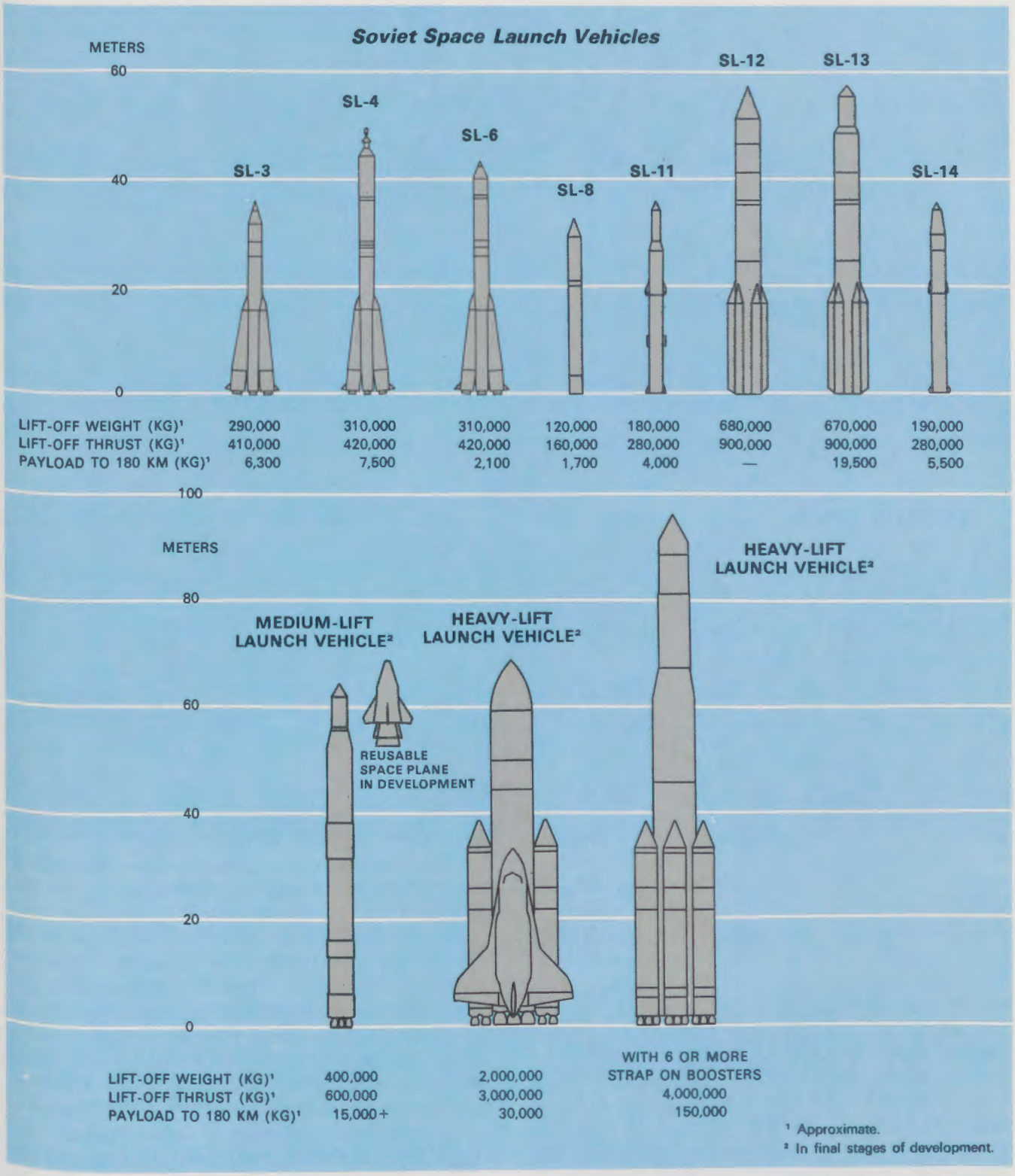
US and Soviet Space Launches



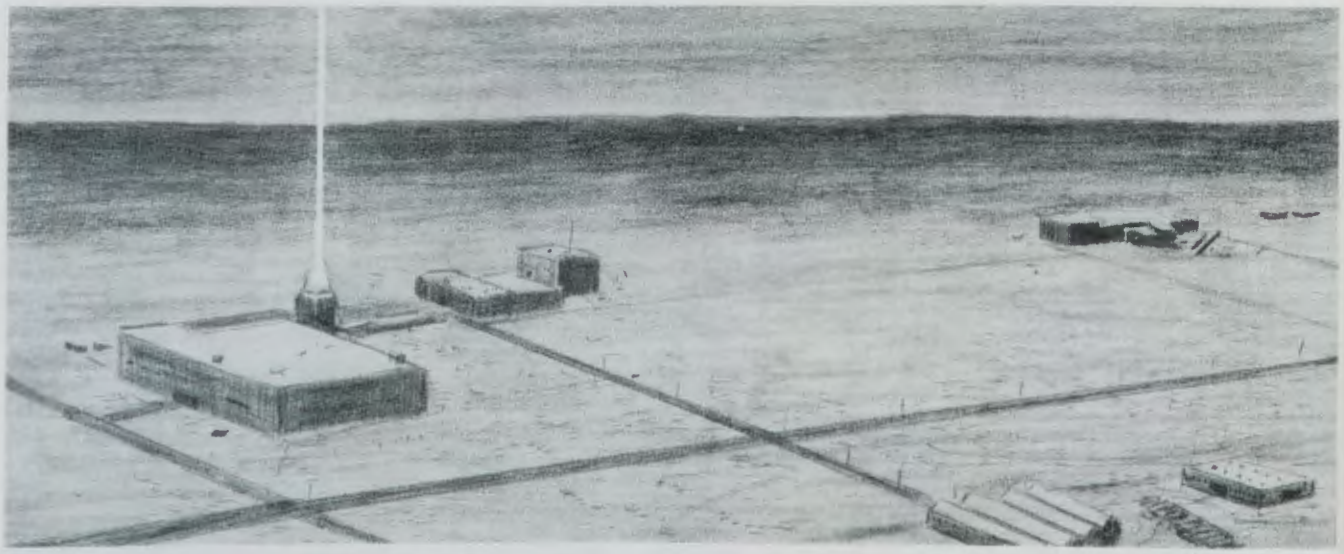
The Soviets have made known their plans to replace SALYUT 7 with large space complexes, supporting 20 or more cosmonauts on a permanent basis. Such a complex will enhance their space-based military support and warfighting capabilities. Missions could include military R&D, on-orbit repair of satellites, reconnaissance, imagery interpretation, ASAT support operations, and ballistic missile defense support operations. Their shuttle orbiter will likely be used to ferry cosmonauts to this station as well as to place satellites in orbit.

The Soviets apparently have already found some military utility in their manned space program. They have stated that "earth surface surveys" were conducted during past manned missions, but none of the photographs has ever been published. The continuation of photographic and other missions aboard SALYUT 7 indicates the Soviets are aware of the potential value of manned space stations in an actual wartime situation.

The Soviets have been experimenting with a test vehicle that is apparently a scale model of a larger, manned space plane. This vehicle has been orbited unmanned on four occasions, landing in water each time. Similar in appearance to the earlier US Dyna Soar craft,



this plane's possible missions include reconnaissance, crew transport, satellite repair and maintenance, and ASAT operations. It could also be used as a manned space station defender. A clue to its purpose is found in a 1965 Soviet definition of antispace defense: "A component part of air defense. The main purpose of antispace defense is to destroy space systems used by the enemy for military purposes, in their orbits. The principal means of antispace defense are special spacecraft and vehicles (e.g., satellite interceptors), which may be controlled either from the ground or by special crews."



The directed-energy R&D site at the Sary Shagan proving ground includes ground-based lasers that could be used in an antisatellite role today and possibly a BMD role in the future.

The Soviets have openly discussed their plans for ambitious planetary exploration in spite of their apparent decision not to match US lunar expeditions. In 1992, the condition for a launch to Mars will be favorable, and the Soviets are considering a manned expedition to that planet at that time. They have stated that the recent manning of the SALYUT space station for increasingly longer periods of time is to simulate the time it would take to conduct a Mars mission. This timeframe also coincides with the 75th anniversary of the Bolshevik Revolution and with the 500th anniversary of Columbus' discovery of the New World. Such an expedition would add great prestige to the Soviet Union and would further demonstrate the capability of its space technology.

Military Space Systems. Soviet space systems dedicated to military missions include satellites that perform reconnaissance, missile-launch detection and attack warning, command and control, and ASAT operations. Dual-purpose satellites that perform some civilian functions are used for communications, navigational support, and weather prediction and monitoring. The US has no counterpart to Soviet ocean reconnaissance satellites, the Electronic Intelligence Ocean Reconnaissance Satellite (EORSAT), or the nuclear-powered Radar Ocean Reconnaissance Satellite (RORSAT). Their mission is to detect, locate, and target US and Allied naval forces for destruction by antiship weapons launched from Soviet platforms. These systems track naval and merchant shipping. Four such satellites were launched in 1984, two of which were of the same type (RORSAT) that crashed in 1978, one spreading radioactive debris across northern Canada.

The Soviets have recently employed a new radar-carrying satellite system. Designed for mapping ice formations in polar regions, these satellites will greatly enhance the ability of the Soviet Navy to operate in icebound areas. The system can be used to aid in the navigation of northern sea routes to assist in moving naval ships from construction yards in the western USSR to new ports in the Pacific.

The launch rate of satellites to geostationary orbits has risen in recent years. In the period 1974-78, one to two launches per year were conducted. In 1979, the rate increased to five per year, and eight launches occurred in 1984. These satellites are presumed to be for communications, although not all may have been for that purpose. The Soviets have filed their intent with international organizations to place almost 40 satellites in 21 different positions in the geostationary belt. Many of these satellites are years overdue, but the Soviets are apparently determined to fill the announced slots. The Soviets are also in the early stages of developing a satellite system called GLONASS, which, when fully developed, should provide the Soviets with accurate positioning data worldwide.

For the most part, Soviet satellites do not have lifetimes as long as those of their US

The Soviet space shuttle, when operational, will have many roles including the delivery of personnel and components to increasingly sophisticated manned Soviet space complexes.

counterparts. This is especially true of their reconnaissance platforms, necessitating frequent launches of replacements. However, the Soviets have shown great flexibility in maintaining these systems in orbit, augmenting them with extra satellites as warranted by changing situations. They have demonstrated a launch surge capability that could be a distinct advantage in time of hostilities. In 1984, the Soviets orbited a reconnaissance satellite that stayed in orbit far longer than previous ones. This could indicate a new system or an advanced modification of an old one, demonstrating their increasing sophistication and capabilities.

In late 1984, a new Soviet auxiliary ship was seen arrayed with extensive radomes and antennae. The ship, named after the first commander of the Strategic Rocket Forces, Marshal M.I. Nedelin, appears to be a new space and missile support ship capable of a variety of missions, including support to strategic forces worldwide. On its maiden voyage the *NEDELIN* transited directly from the Baltic to the port of Vladivostok, the headquarters of the Pacific Ocean Fleet. This ship will significantly upgrade the Soviet capability to test new generations of missiles as well as support the expanding Soviet space program. The *NEDELIN* joins a growing fleet of Soviet space support ships that provide assistance to manned and unmanned missions. An additional ship of the NEDELIN-Class is under construction.

Chapter IV

Ground Forces

With approximately one-sixth of the earth's land surface within its boundaries, the USSR is a continental power that has traditionally maintained large, well-equipped ground forces as one of its prime components of military power. The ground forces are the largest of the USSR's five branches of the Armed Forces. They are currently engaged in an ambitious force development program involving force expansion, equipment modernization, improvements in training, the development of innovative tactics and operational concepts, and enhancement of command and control capabilities. The result of this effort is the development of a formidable, offensively oriented force that poses a serious threat to land areas peripheral to the USSR and beyond.

Soviet ground forces are capable of participating in large-scale, theaterwide, combined arms offensive operations in areas contiguous to the USSR, Eastern Europe, Mongolia, and Afghanistan. As the main element in Soviet Armed Forces, the ground forces have been equipped and trained for a war of highly mobile combat under nuclear conditions. Recently, however, improvements have greatly increased their capability to fight a non-nuclear conflict.

The past 15 years have seen technological improvements in Soviet military equipment, an expansion in the size of the ground forces, and numerous organizational changes, all of which are related to evolving Soviet military doctrine and adaptation to the problems of modern warfare.

Until recently, a major assumption in Soviet military planning was that a conventional war would cross the nuclear threshold early in a conflict; therefore, the Soviets were prepared

28,000 of the USSR's 52,000 main battle tanks are opposite NATO Europe. Pontoon bridges and other river-crossing equipment — some 27,000 meters of bridging equipment — have been pre-positioned in Eastern Europe to speed the forward thrust of Soviet tank and motorized rifle divisions in the event of conflict.

The 50 tank divisions of the USSR's ground forces include growing numbers of modern main battle tanks such as the T-72, seen here, the T-64, and the T-80.

to fight in a nuclear environment. This was reflected in their equipment, deployment of forces in the field, and operational planning that envisioned early use of nuclear weapons. Realizing, however, the uncertainty of warfare once nuclear weapons are employed, Soviet military leaders have developed an operational concept designed to win a war before the enemy can use nuclear weapons. If an adversary should decide to escalate to nuclear warfare, the Soviets would attempt to preempt with a massive theater nuclear strike. They would also attempt to intermingle their forces with the enemy in order to inhibit enemy use of nuclear weapons.

Soviet military operational concepts are dynamic and respond to changes in technology, military geography, politics, and developments in enemy forces. However, the Soviet goal is constant—the attainment of a quick victory in theater warfare through the rapid advance to deep theater objectives.

Ground Force Organization

In peacetime Soviet ground forces personnel number approximately 1.9 million. Their combat power resides in 213 maneuver divisions, including 14 mobilization divisions, with two additional divisions expanded to new corps-type structures. There is also an extensive combat support structure, including artillery, missile, air defense, engineer, reconnaissance, signal, chemical, and logistic units.

In peacetime, the ground forces in the USSR are subordinate to 16 military districts. Forces deployed in Eastern Europe are organized into four Soviet Groups of Forces—one each in the German Democratic Republic (GDR), Poland, Czechoslovakia, and Hungary. Soviet forces in Mongolia and Afghanistan are each organized into an army subordinate to the adjacent military district. The seven airborne divisions are directly subordinate to Airborne Forces Headquarters in Moscow.

While the structure and size varies widely, a typical military district or Group of Forces includes several combined arms or tank armies, an artillery division, an air defense division, several surface-to-air missile brigades, an aviation component called the air forces of the military district or Groups of Forces, and nu-

merous other support units. During wartime, the major Groups of Forces and military districts would form fronts. There is no exact Western counterpart to a front; the nearest equivalent would be an Army Group with organic tactical aviation. A number of fronts would conduct operations designed to secure strategic objectives within a designated theater of military operations (TVD). There is no fixed organization for either an army or a front; rather, each is tailored for operations in a particular area.

Tank, motorized rifle, and airborne divisions constitute the basic maneuver forces of the Soviet ground forces. Tank and motorized rifle divisions are highly mobile armored forces. The tank division—with 11,000 men—is based on three tank regiments and one motorized rifle regiment, while the motorized rifle division—13,000 men—is based on three motorized rifle regiments and one tank regiment. Both tank and motorized rifle divisions have a full complement of support elements—aviation, artillery, air defense, signal, engineer, chemical, reconnaissance, maintenance, motor transport, and medical units. Soviet airborne divisions do not have the same degree of land mobility as tank or motorized rifle divisions, but they are significantly more mobile than a US airborne division. They consist of three parachute regiments with BMDs (airborne amphibious combat vehicles) plus combat support and service units.

The Soviets are now engaged in a far-reaching and comprehensive upgrading of their ground force structure. This program is designed to ensure the maintenance of offensive capability in Eurasian theaters. These developments enable the Soviets to implement their offensive doctrine calling for seizure of objectives deep in the theater in a short, intense campaign fought in a conventional, nuclear, or chemical environment. Force structure developments involve:

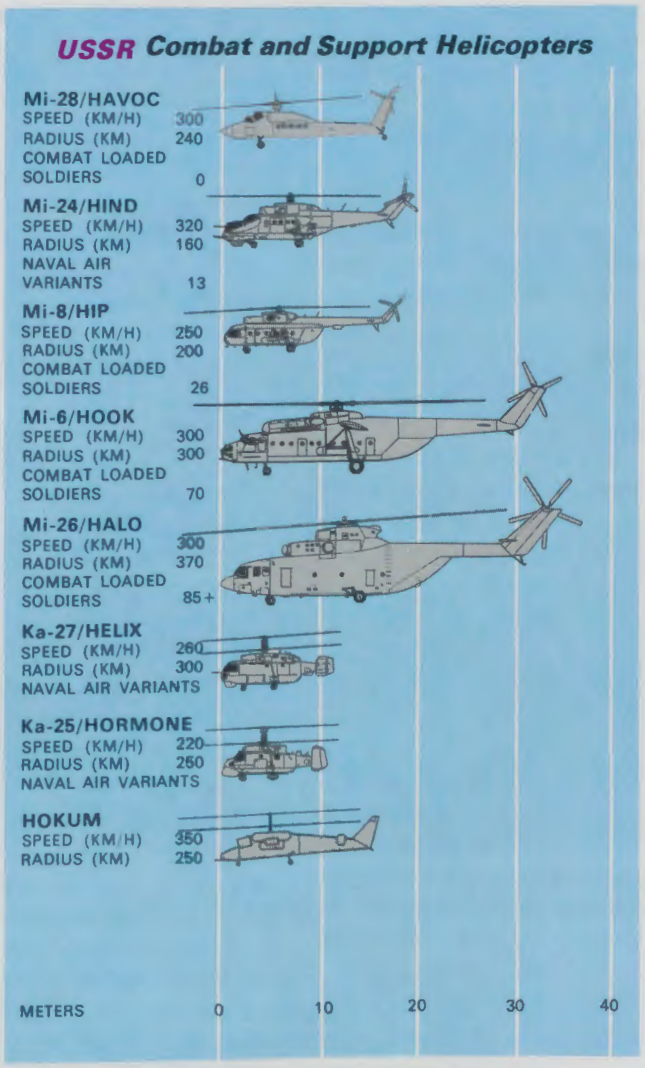
- force expansion through the growth of existing units and the creation of new units;
- force modernization through the assignment of large numbers of new tanks, artillery, air defense systems, helicopters, surface-to-surface missiles, and other support equipment;
- force reorganization to enable optimal employment of the improved war-fighting capabilities resulting from the introduction of new weapons systems; and
- expansion and improvement of the logistic support structure.

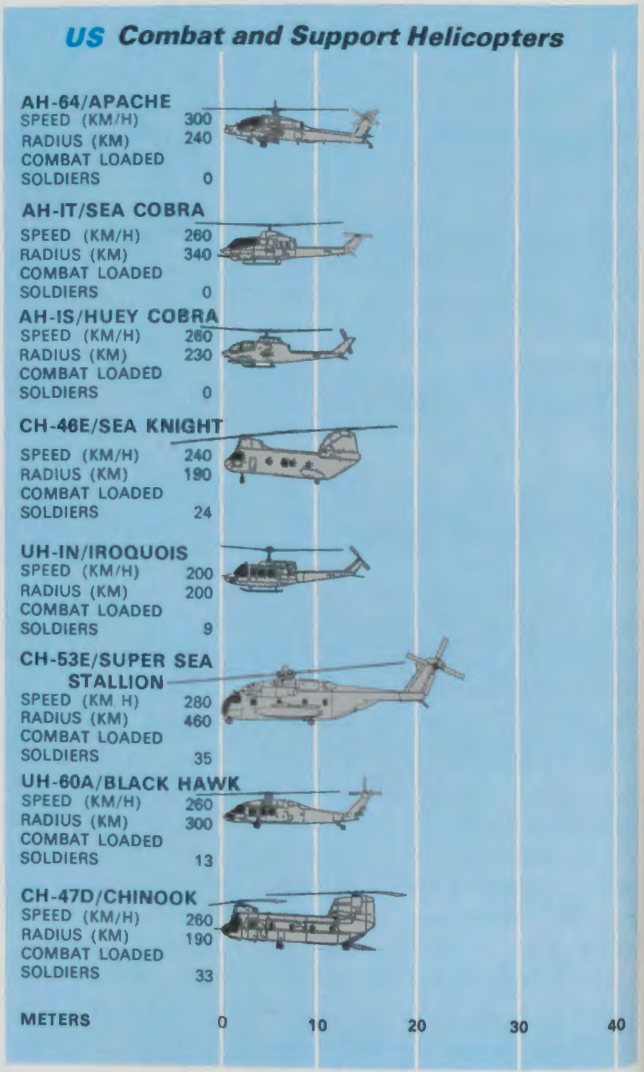
These enhancements are being complemented by improvements in training and in command and control developments, as well as the employment of innovative operational concepts and tactics. Altogether, Soviet ground forces are a modern, powerful, mobile, offensive threat in land theaters of Eurasia.

Force developments are most noteworthy in the expansion and reorganization of tank and motorized rifle divisions. The resultant divisions are larger and more combat-capable, configured for high-speed, combined arms operations on either a conventional or nuclear battlefield which are envisioned in Soviet offensive strategy. The expansion of the motorized rifle and artillery assets of tank regiments is particularly noteworthy. These regiments are now a very effective combined arms formation. Infantry fighting vehicles (IFVs) and armored personnel carriers (APCs) have been assigned to motorized rifle battalions to carry personnel to man crew-served weapons. The expansion of the division's helicopter detachment to a squadron equipped with attack helicopters now gives division commanders organic aerial fire support.

The Soviets have converted two divisions into corps-like structures. Almost twice as large as a normal tank division, these new formations contain in excess of 450 tanks, 600 infantry vehicles and armored personnel carriers, and 300 artillery pieces/multiple rocket launchers. They are ideally suited to act as an Operational Manuever Group (OMG), conducting high-speed, large-scale raid and exploitation operations deep in an enemy's rear area. Additional units of this type are expected to be formed once testing and evaluation are completed. These new-type corps would be powerful formations, the employment of which would be a critical element of Soviet ground force operations.

The Soviet Union maintains the world's largest airborne force, currently seven divisions. The units of an eighth division are employed in operations in Afghanistan but could be relocated to meet Soviet requirements. In addition to the regular airborne divisions, the Soviet Union has formed air assault brigades at front level and air assault battalions at army level. These units have the capability to be inserted behind the front line by parachute, heliborne operations, or by air landings. Their





mission would be to secure key road and rail junctions and river crossing sites or to capture or destroy command, control, communications, and intelligence (C^3I) facilities and Western nuclear weapons systems.

In addition to the upgrade of forces at the division level, non-divisional artillery support for maneuver forces is also experiencing significant growth. Some army-level regiments are being expanded to brigade size with the addition of a fourth battalion. Concurrently, battalions are expanding from 18 to 24 guns each. These changes have resulted in a 40 percent increase in artillery pieces and are occurring primarily in units opposite NATO.

In 1984, the Soviets deployed the SCALEBOARD short-range ballistic missile to Eastern Europe. These missile units redeployed from the Western USSR. Their forward deployment places the SCALEBOARDs, with their 900-kilometer range, in position to strike deep into NATO's rear area from their new launch sites without having first to deploy forward, thus reducing warning time prior to launch.

The Soviets are upgrading and expanding their helicopter forces. At division level, helicopter detachments continue to expand to squadrons, and, in some squadrons, the number of HIND attack helicopters has been increased. At army level about 20 attack regiments have been formed, with up to 60 HIP and HIND attack helicopters in each. Over half are deployed opposite NATO forces. Most attack helicopters are the heavily armed Mi-24/HIND D/E and Mi-8/HIP E. All three aircraft are armed with antitank guided missiles (ATGMs) and 57-mm unguided rockets, which are effective against personnel and lightly armored targets. The ATGMs and rocket pods on the HIND can be replaced with a mix of up to 750 kilograms of chemical or conventional bombs on each wing. Other armament on the

The Mi-28/HAVOC is the USSR's newest attack helicopter.

HIND D/E includes a multibarrel 12.7-mm turreted nose gun; the HIP E has a single-barrel 12.7-mm gun.

Soviet emphasis on a heavy-lift helicopter transport capability is reflected in the development and recent appearance of the Mi-26/HALO. It is the world's largest production helicopter, capable of carrying internally two airborne infantry combat vehicles or about 90 combat-loaded troops. The Soviets are now equipping their helicopters with infrared (IR) suppressors, IR decoy dispensers, and additional armor, thereby increasing their survivability—modifications that are probably the result of lessons learned in Afghanistan. A new attack helicopter, the Mi-28/HAVOC, similar to the US Army APACHE, is expected to be deployed in the near future. The new HOKUM helicopter will give the Soviets a significant rotary-wing air superiority capability. This system has no current Western counterpart. The Soviets are also employing helicopters as airborne command posts and electronic jamming platforms, as well as attack and transport platforms.

To ensure proper support for their expanding maneuver and fire support forces, the Soviets are making changes in their logistics structure. In the past, transport, supply, and servicing operations were fragmented. Today, at division level, there is a materiel support battalion that includes motor transport, supply, and maintenance elements. Its transport vehicle inventory is about 30 percent larger than those of divisional motor transport battalions. Materiel support brigades are being formed at army and front levels, with the consolidation of motor transport assets and materiel depots under one materiel support brigade commander, streamlining logistics command and control. The Soviet Armed Forces have prestocked large quantities of ammunition, fuel, and other war

supplies in forward areas and maintain large strategic reserves for long-term conflicts. In the Western TVD, opposite European NATO, for example, there is sufficient fuel for 90 days and ammunition for 60 to 90 days of combat.

Inventories and Deployments

The Soviets currently have 199 active tank, motorized rifle, and airborne divisions. Of these, 98 are located opposite NATO, including 30 in Eastern Europe, and 53 are along the Sino-Soviet border and in the Soviet Far East opposite China and Japan. An additional ten divisions, including four in Afghanistan, are opposite southwest Asia. The 20 divisions in the Caucasus are available for operations in eastern Turkey and southwest Asia. An additional 18 divisions are located in the Strategic Reserve MDs.

Approximately 40 percent of Soviet divisions, including all those deployed outside the USSR and six of the seven airborne divisions, are manned at what the Soviets consider ready levels. These could be mobilized and prepared for combat in a short period of time. The remainder are cadre divisions and could require up to 60 days to mobilize personnel and equipment, deploy to local dispersal areas, and train for offensive combat operations. The Soviets also have 14 mobilization bases or inactive divisions. These are unmanned equipment sets intended to form mobilization divisions in wartime. In total, the Soviets have 213 divisions and two new army corps. These forces are backed up by a well-organized and tested mobilization system that can rapidly call up the civilian reservists required to bring the Armed Forces to full wartime manning. The USSR has an enormous manpower pool with approximately 9 million reservists having served in the last five years, of which over 3 million are ground force trained. These would be called up first and could be quickly integrated into the force structure.

The ground forces include over 52,000 main battle tanks in the active inventory, of which more than one-third are the latest models, the T-64/72/80 series. These new tanks feature increased firepower, with a 125-mm main gun, and improved fire control systems, including a laser range finder on some versions. Both the T-80 and a variant of the T-64 can fire an antitank guided missile through the main gun. Survivability has been increased through the use of improved armor, incorporating laminates and composites.

Over half the tanks, nearly 28,000, are found opposite European NATO, including almost all the T-64/72/80 series. The second largest grouping, about 15,000, is opposite the Sino-Soviet border and in the Far East. Forces opposite southwest Asia and in the Caucasus have an additional 5,000 tanks, and another 4,000 are located in the Strategic Reserve MDs.

US Main Battle Tanks

	M-60A1/3 PATTON	M-1 ABRAMS
		
WEIGHT (MT)	51	55
SPEED (KM/HR)	50	70
MAIN ARMAMENT	105-mm	105-mm
MUZZLE VELOCITY (MPS)	1,350	1,350

USSR Main Battle Tanks

	T-54/55	T-62	T-64	T-72	T-80
					
WEIGHT (MT)	36	37	35	41	42
SPEED (KM/HR)	50	50	50	60	60
MAIN ARMAMENT	100-mm	115-mm	125-mm	125-mm	125-mm
MUZZLE VELOCITY (MPS)	1,500	1,600	1,750	1,750	1,750

Infantry Carriers

To mesh the infantry with the tank force, the ground forces have an inventory of some 60,000 armored personnel carriers and infantry fighting vehicles. The majority of the inventory consists of the BTR-60 wheeled APC, and the tracked BMP IFV. Normally, a motorized rifle regiment of a tank division and a motorized rifle regiment of a motorized rifle division are BMP equipped; the other two motorized rifle regiments of the motorized rifle division are equipped with BTR-60s.

A follow-on to the BTR-60, the BTR-70, has been fielded in limited numbers. It has an improved engine/drive train and better off-road performance. The improved BMP-2 is augmenting and replacing the BMP. It has a 30-mm rapid-fire gun in place of the 73-mm gun of the original BMP and carries the AT-5 ATGM. In addition to the BTR/BMPs, the Soviets have fielded the BMD with airborne and air assault units and a number of light-ground-pressure vehicles such as the GTT/MT-LB series for use in areas of poor trafficability.

As with tanks, the largest concentration of APCs/IFVs is opposite European NATO—nearly 29,000. Over 17,000 are opposite the Sino-Soviet border and in the Far East. An additional 8,000 are opposite southwest Asia and eastern Turkey, and over 3,500 are in the Strategic Reserve MDs.

Shorter Range Missiles

Over 1,500 tactical missile and shorter range intermediate-range nuclear force (SRINF) ballistic missile launchers are in the Soviet inventory. At division level, the predominant missile is the unguided, free rocket over ground (FROG) found in a battalion of four launchers. The Soviets have begun to replace the FROG with the more accurate, longer range SS-21 in some divisions opposite European NATO. Currently, there are some 375 FROG and SS-21 launchers opposite NATO. Over 200 FROG launchers are in the Far East, about 100 are opposite southwest Asia and eastern Turkey, and about 75 are in the Strategic Reserve MDs.

Armies and fronts have missile brigades equipped with from 12 to 18 SS-1C SCUD SRINF missile launchers. Over 400 SCUD launchers are opposite European NATO, over 100 are in the Far East, about 75 are opposite southwest Asia and eastern Turkey, and one brigade is in the Strategic Reserve MDs. It is likely that the SCUD will be replaced by the SS-23, which has a longer range and improved accuracy. Initial deployment is anticipated opposite NATO and China. The front commander may also have a brigade of 12-18 SS-12s and SS-22s available. The SS-22 is more accurate than the SS-12 it is replacing. Over 60 launchers are opposite European NATO, and 40 are in the Far East. There is one battalion in the southwest Asia/eastern Turkey area and one in the Strategic Reserve MDs. The new generation of shorter range

SS-23 short-range ballistic missile transporter-erector-launchers.

USSR Surface-to-Surface Missiles

	FROG-7	SS-21	SS-1 SCUD B	SS-23	SCALEBOARD
					
RANGE (KM)	70	120	300	500	900
DEPLOYMENT LEVEL	Division	Division	Army/Front	Army/Front	Front/Theater

missiles can be employed effectively with conventional and improved conventional munitions (ICM) warheads due to their increased accuracy.

Fire Support

The Soviets have traditionally placed great emphasis on fire support and currently have over 33,000 artillery pieces and multiple rocket launchers (MRLs) greater than 100mm in caliber in their active inventory. The ground forces are now fielding self-propelled artillery at all levels. Over 14 percent of their inventory consists of self-propelled weapons, of which over 70 percent are opposite the NATO central region. The Soviets first began to deploy self-propelled artillery in the early 1970s, when 122-mm and 152-mm howitzers were introduced. In the mid-1970s, a 203-mm howitzer and 240-mm mortar appeared in nuclear-capable heavy artillery brigades; and, in the late 1970s, the ground forces began deployment of a new, nuclear-capable 152-mm self-propelled gun. A towed version of this gun is also being fielded. The most recent self-propelled weapon to enter the inventory is a howitzer/mortar assigned to airborne and air assault units. The number of nuclear-capable artillery tubes has gone from less than 800 to over 7,700 in about ten years. An additional 4,000 152-mm howitzers have a potential nuclear capability.

About half—17,000—of the artillery pieces and MRLs are deployed opposite European NATO, and over a quarter—nearly 10,000—are in the Far East; about 4,000 are opposite southwest Asia and eastern Turkey, and over 2,000 are in the Strategic Reserve MDs. There are also 10,000 artillery pieces 100mm or smaller in caliber used as training pieces or as substitutes for larger caliber weapons.

122-mm self-propelled howitzer.

Surface-to-Air Missiles

An integrated system of surface-to-air missiles (SAMs) and antiaircraft artillery (AAA) provides the Soviet Union with the most comprehensive troop air defense system in the world. Over 4,600 SAM launchers and 12,000 AAA pieces are deployed at regimental through front level. In addition, as many as 25,000 shoulder-fired SAM launchers are at battalion and company level and with non-divisional units.

The standard air defense for a tank or motorized rifle regiment is a battery of SA-9/13 SAMs and ZSU-23/4 self-propelled AAA pieces. The SA-9 system, mounted on a wheeled transporter-erector-launcher (TEL), is being selectively replaced and augmented by the SA-13 on a tracked TEL. A follow-on to the ZSU-23/4 is expected. The standard SAM at division level

USSR Selected Artillery

	2S3	2S1	M-1975	M-1975	2S5	M-1976
						
TOWED/ SELF-PROPELLED	Self-Propelled	Self-Propelled	Self-Propelled	Self-Propelled	Self-Propelled	Towed
CALIBER/TYPE	152-mm Howitzer	122-mm Howitzer	203-mm Gun	240-mm Mortar	152-mm Gun	152-mm Gun
MAXIMUM RANGE (M)	17,200	15,300	30,000	12,000	27,000	27,000
NUCLEAR CAPABLE	Probably	No	Yes	Yes	Yes	Yes

The surface-to-air missiles of the SA-X-12 air defense system are designed to counter high performance aircraft and will also have a capability against tactical ballistic missiles.

is the SA-6 or SA-8, although some divisions still have an AAA-equipped air defense regiment. A new division-level SAM, the SA-11, is beginning to enter the inventory. It features onboard radar, which increases mobility and target handling capability. The standard weapon at army and front level is the SA-4, which should shortly begin being replaced by the SA-X-12. The SA-X-12 will probably also have a capability against tactical ballistic missiles.

The largest concentration of SAM launchers and AAA pieces—over 10,500—is found opposite European NATO, with 4,000 in the Far East; over 4,000 are opposite southwest Asia and eastern Turkey, and over 3,700 are in the Strategic Reserve MDs.

The SA-8 tactical air defense system is part of the USSR's integrated system of surface-to-air missiles and antiaircraft artillery.

Major Soviet Military Storage Areas

Ammunition Depots
12 million metric tons arms/ammunition including storage in Eastern Europe

Reserve Armor Storage Depots
6,000 armored vehicles (tanks/APCs) including storage in Eastern Europe

Petroleum, Oil and Lubricants Storage Depot Concentrations
52 million metric tons including storage in Eastern Europe

Capabilities and Operations

The Soviets conceive of a theater—or TVD—campaign as an integrated, combined arms operation, with ground forces as the primary force component. The campaign would be conducted to seize theater objectives located at a depth of up to 800 kilometers in operations lasting 12 to 15 days. Operations would be continued, if required, to seize deeper, subsequent objectives. In the Western TVD, for example, the Soviets envision a large, intense theater operation to attain immediate theater objectives in a campaign lasting approximately two weeks.

The Soviets consider a strategic operation in a TVD as consisting of complementary and mutually supporting ground forces, aviation, air defense, and theater nuclear forces. The success of ground operations would be predicated on a favorable combat air environment resulting from the conduct of massive offensive air operations to attain air superiority. This would be complemented by an integrated, theater-wide air defense operation conducted to prevent remaining enemy aircraft from interfering with the ground advance or the functioning of rear area support activities. Naval forces would secure coastal flanks and participate in amphibious operations. If war escalated to the nuclear level, the Soviets would attempt to destroy enemy military capabilities by a massive theater-nuclear strike involving the coordinated use of ground, aviation, naval, and strategic rocket force systems to allow a rapid and unimpeded advance of frontal forces.

Innovations in traditional Soviet operational concepts have kept pace with developments in force structure and weapons systems. The most prominent involves an increased emphasis on the concept of deep operations to an opponent's rear area early in a conflict. Adapting their experience with mobile groups in World War II, the Soviets have developed Operational Maneuver Groups (OMGs) to conduct mobile warfare in the enemy's rear area following a breakthrough of his forward defenses. The insertion of OMGs, consisting of tank-heavy formations supported by infantry fighting vehicles, mobile fire support, air defense, air assault units, and aviation, is designed to isolate front-line defending forces; disrupt rear area logistics and reserves; threaten key command and control, economic and population centers; and neutralize nuclear attack systems. The successful use of OMGs would facilitate the commit-

ment of second-echelon forces and accelerate the overall rate of advance. The use of multiple OMGs would be intended to impose a theater-wide "deep battle" and, in the Soviet view, place the enemy in an untenable situation.

From a Soviet viewpoint, the concentration of overwhelming firepower, either nuclear or conventional, would be the principal method of achieving advantageous force ratios. While past emphasis has been on the employment of massive numbers of artillery weapons, the concept of fire support has expanded to include not only field artillery, multiple rocket launchers, and mortars, but also air defense systems, helicopters, fixed-wing aviation, antitank weapons, surface-to-surface missiles, and unguided rockets. All these weapons systems would be fully integrated into a single, coordinated fire support effort, using automated control systems to optimize the allocation of weapons to the target and to allow centralized command and control of firepower.

Chemical Warfare.

The USSR is better prepared to conduct operations in a chemical environment than any other force in the world. Soldiers receive extensive chemical defense training. Most combat vehicles are equipped with a chemical protection system and a chemical detection alarm system. Chemical defense troops with specialized detection and decontamination equipment are found throughout the ground forces. These units range in size from a platoon at regiment level to a brigade at front level. The Soviets have more than 80,000 officers and enlisted specialists trained in chemical warfare, a force that would double in wartime; of this, 45,000 are assigned to the ground forces. They have about 20,000 special vehicles for reconnaissance and decontamination. The Soviets have established chemical military academies and more than 200 sites for teaching and training Soviet troops on how to protect and decontaminate themselves following combat. Chemical troops are responsible for the development, testing, and evaluation of new chemical agents, weapons systems, antidotes, suits, gas masks, and protective and decontaminating systems. Offensively, nearly all Soviet mortars, howitzers, guns, multiple rocket launchers, and surface-to-surface missiles can be used to deliver chemical munitions.

The Soviet Union continues to test, produce, and stockpile chemical weapons. The

Major Soviet Military Storage Areas

Reserve Artillery Storage Depots
18,000 artillery and AAA pieces including storage in Eastern Europe

Bridge Equipment Storage Depots
27,000 meters of bridging materials including storage in Eastern Europe

Nuclear Warhead Stockpile Concentrations
including storage in Eastern Europe

In the 1980s, Soviet ground forces have fielded a new bridge/ferry system to augment their river-crossing capability; here, a heavy amphibious ferry transports a tank-mounted scissors bridge.

Soviets have developed the doctrine, plans, personnel, and equipment to support their use of chemical weapons. Chemical weapons might, of course, provide a military advantage in a conventional conflict. Their continued testing of chemical weapons, the enlarged storage capacity of chemical agents and weapons, and the existence of active production facilities are indicators of a serious chemical weapons program. These indications and strong evidence of the actual use of chemical and toxin weapons by the Soviet Union and its client forces in Afghanistan, Laos, and Kampuchea reflect their drive to strengthen and improve the capability to wage chemical warfare and a willingness to employ such weapons in battlefield situations.

In order to ensure control of forces on the modern battlefield, the Soviets have developed a command and control system that employs redundant command posts, communication networks, and equipment to enhance survivability. Automated systems now being introduced are used in operational planning and decisionmaking, fire control, and logistics management. The Soviets are improving their command and control structure to facilitate the close coordination of ground forces, aviation, and air defense operations.

Special Purpose Forces (SPETSNAZ)

The USSR maintains a complement of special purpose forces, known by the Soviet acronym SPETSNAZ. These special purpose forces are controlled by the Main Intelligence Directorate (GRU) of the Soviet General Staff and are trained to conduct a variety of sensitive missions, including covert action abroad. This latter mission was illustrated by their covert role, under KGB direction, in the December 1979 assassination of Afghan President Hafizullah Amin, which was performed by a joint KGB/SPETSNAZ force.

During peacetime, the GRU carefully coordinates reconnaissance programs that are geared to meet the intelligence requirements for Soviet forces in war. In wartime, SPETSNAZ forces would operate far behind enemy lines for extended periods of time. They would conduct reconnaissance, sabotage, and attacks on a wide variety of military and political targets.

The KGB is assessed to have responsibility, under Central Committee guidance, for operational planning, coordination, and political control of special purpose forces that operate abroad in peacetime. This was the case in the Soviet invasion of Czechoslovakia in 1968 and of Afghanistan in 1979. The KGB maintains its own special operations capabilities in the form

of clandestine assets dedicated to assassination and wartime sabotage.

Wartime missions of GRU special purpose forces are planned under the direction of the General Staff and are integral to the Soviet combined arms operations. Intended to support front or fleet-level operations, SPETSNAZ forces are capable of operating throughout the enemy homeland.

Organized into brigades, these forces would infiltrate and fight as small teams. In a war, each of these brigades could be expected to field approximately 100 SPETSNAZ teams. A typical team would be composed of an officer as leader with a warrant officer or sergeant as second in command. Other members of the group are trained as radio operators and weapons and demolition experts. In addition to the normal military training, all are trained in:

- infiltration tactics;
- sabotage methods using explosives, incendiaries, acids, and abrasives;
- airborne operations;
- clandestine communications;
- hand-to-hand combat and silent killing techniques;
- psychological operations;
- language/customs of target country;
- survival behind enemy lines; and
- reconnaissance and target location.

To make training as realistic as possible, SPETSNAZ brigades have facilities equipped with accurate full-scale models of key targets such as enemy installations and weapons systems. The brigades intended for operations against NATO share similar demolition training and equipment familiarization. Training facilities are equipped with mockups of NATO nuclear systems including the PERSHING, LANCE, and GLCMs, as well as airfields, nuclear storage, air defense sites, and communications facilities. The missions of SPETSNAZ are a significant addition to Soviet combat forces.

In both peace and war, these SPETSNAZ forces represent an important threat. In peacetime, they are a formidable instrument with which the Soviets can project limited, but decisive, force abroad, especially into the Third World. In war, major facilities and weapons systems are the objects of their attacks.

Training

Conscripts constitute about 75 percent of Soviet ground force personnel. Their training is highly centralized and standardized. Soviet units are expected to master a basic program of tactical maneuvers that would be carried out in war.

The Soviets conduct an extensive program of training in which youths receive 140 hours of training prior to military service. Upon callup, conscripts serve for two years with the ground forces. Semiannual troop rotation in the spring and fall dictates an annual training cycle of two training periods. Each period commences with four weeks of basic training and then proceeds to staff and unit training at the squad, platoon, company, and battalion level and ends with tests and inspections.

The Soviets are implementing changes in their training program that should continue to improve the skills of personnel and maintain unit cohesiveness. Conscript rotation now reflects a phased training program. Draftees, under the leadership of career officers, warrant officers, and noncommissioned officers, are assigned to a new company in an active battalion. Here they train together for two years. Meanwhile, other companies in the battalion, unaffected by the semiannual troop rotation, can concentrate on more advanced unit and individual training than was possible under the former system. This allows personnel to receive lengthier advanced training and enables Soviet forces to learn to operate the more complex weapons and equipment entering the ground forces.

Research and Development

Soviet force developments continue to be assisted by an extensive R&D program that ensures a flow of well-designed, technically advanced weapons and equipment. Tactical surface-to-surface and surface-to-air missile systems, complex C^3 systems, and advanced chemical and biological warfare agents from Soviet research and development are now being incorporated into Soviet ground forces' battlefield capability. Soviet tank R&D is a continuous process, with numerous permanent design bureaus, design teams, and associated work forces dedicated to new tank development. In recent years, the Soviets have fielded modern tanks such as the T-64, T-72, and T-80, and they continue the development of future tank capabilities. Soviet artillery R&D programs of the past several years have concentrated on the application of "state-of-the-art" technology to new self-propelled artillery, mortar, and rocket

SCUD-1B nuclear brigades are deployed with armies in all theaters. In field-training exercises, chemical troops practice chemical/ biological decontamination of SCUD launchers.

systems. Air defense R&D programs for the Soviet ground forces stress advancements in surveillance, identification, and target-tracking capability. Maximum effort is devoted to the development of systems capable of operating in all types of combat environments.

A strong effort is being made to achieve high technological advancements in radar, electro-optics, and laser and directed-energy weapons for use with their Armed Forces and with important applications for their ground forces. The Soviets' R&D on directed-energy weapons dates back to the 1960s. The high-energy laser program, conducted at several secure facilities, is considerably larger than the US program. They are pursuing the development of high-quality optical components and efficient electrical power sources to support this laser program. They have already developed a rocket-driven magnetohydrodynamic generator that has produced 15 megawatts of short-term electrical power. This device, which is only in the very early stages of development in the West, could provide a compact, light-weight power source for mobile or transportable laser weapons. Soviet developments in compact and moderate-power laser weapons for tactical air defense, antipersonnel, and ground-to-ground applications may well be far enough along for such systems to be fielded by the end of this decade. In the late 1980s and early 1990s, the Soviets could demonstrate laser weapons in a wide variety of ground, ship, and aerospace applications.

The Soviets also continue an intensive effort aimed at the development of high-power microwave and millimeter-wave sources for radio frequency weapons. Soviet radio frequency technology has now advanced to the stage where it could support development of a prototype, short-range radio-frequency weapon. Many Western weapons systems would be vulnerable to such a device, which not only could damage critical electronic components but also

could inflict disorientation or physical injury on personnel.

There is also considerable research on the development of particle-beam weapons. They could deliver intense energy particles at the speed of light which would be capable of penetrating the exterior of a target, destroying key internal components, or igniting fuels and munitions. While much of the Soviet R&D effort in this field is on a par with Western efforts, there are difficult technological problems to be solved. Technology to support development of such weapons is not expected to be available before the mid-1990s.

US Ground Forces

US military strategy does not call for matching the size of the Soviet ground forces, but instead emphasizes refining the US qualitative edge in conjunction with moderate force increases.

US active and reserve units are manned at higher levels, and the reserves receive more training than their Soviet counterparts. The US Army is developing organizational changes to improve combat effectiveness. The Army is undertaking a program entitled "Army 90" to implement its Air-Land Battle Doctrine. This doctrine has been developed to synchronize the close-in battle against enemy lead forces with a longer range battle against enemy follow-on forces. Army light and heavy divisions are being rearmed and restructured for sustained, continuous combat operations at any level of conflict. The Army is seeking to increase the strategic mobility of its light divisions while capitalizing on systems to increase their overall firepower and combat effectiveness.

The present generation of antiarmor weapons includes the long-range TOW and medium-range DRAGON missile, and light antitank short-range rockets. Improved warheads and guidance systems will increase the TOW's ability to penetrate new Soviet armor.

By the end of the decade, the Army is scheduled to have over 1,500 attack helicopters, two-thirds of which will be the AH-1 COBRA TOW. The Army's AH-64 APACHE helicopter, which entered production in 1982, is an advanced, quick-reaction antitank weapon. It is armed with 16 HELLFIRE antiarmor missiles, a 30-mm automatic gun, and 2.75-inch rockets.

The M1 ABRAMS main battle tank has been deployed in Army field units since 1981. The M1 provides US forces with improved mobility, survivability, and antiarmor firepower. The Army plans to mount the German-designed 120-mm main gun system on future M1 tanks. The M1s with the 120-mm main gun will be interoperable with the German LEOPARD II main battle tanks.

The multiple-launch rocket system (MLRS)—a cooperative program with the Federal Republic of Germany, France, Italy, and the United Kingdom—was fielded with US forces in 1983. It is designed to give NATO ground forces enhanced firepower to suppress enemy artillery and introduces a new capability to interdict enemy operations beyond normal artillery range.

The BRADLEY Fighting Vehicle, introduc-

Production of Ground Forces Materiel USSR/NSWP and NATO[1]

Equipment Type	1980		1981		1982		1983		1984		1984
	USSR	NSWP	USSR	NSWP	USSR	NSWP	USSR	NSWP	USSR	NSWP	NATO
Tanks	3,100	700	2,000	500	2,500	600	2,700	550	3,200	450	1,760
Other Armored Fighting Vehicles	6,500	1,300	5,200	1,300	4,500	1,400	4,500	1,300	3,800	1,200	2,230
Towed Field Artillery	1,400	175	1,600	150	1,800	250	1,700	300	1,600	250	425
Self-Propelled Field Artillery	900	50	950	50	850	150	750	200	1,000	300	240
Multiple Rocket Launchers	700	150	700	150	700	100	700	100	600	100	80
Self-Propelled AA Artillery	300	100	300	50	200	50	100	0	50	0	40
Towed AA Artillery	—	150	—	250	—	200	—	225	—	225	50

[1] Revised to reflect current total production information. Includes United States; excludes France and Spain.

ed in 1981, is modernizing Army mechanized forces. These vehicles are armed with 25-mm automatic cannons, 7.62-mm coaxial machine-guns, and TOW antitank weapons. They give mechanized infantry a true mounted combat capability. Introduction of a new light armored vehicle will provide the Marine Corps units with increased mobility and firepower.

United States and Allied tactical air defenses include several new weapons. The STINGER, with improved infrared-seeker guidance systems, is a man-portable, surface-to-air missile system developed to replace the REDEYE. Two new systems, the PATRIOT and SGT YORK Division Air Defense Gun, will increase the Army's air defense capabilities against a variety of aircraft approaching at varying altitudes. The PATRIOT, which will replace NIKE-HERCULES and the Improved HAWK as the principal theater-level SAM for defense against aircraft at high or medium altitudes, has begun deployment in Europe.

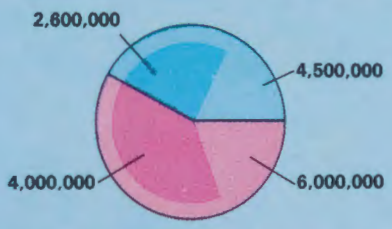
NATO-Warsaw Pact Comparison

The following NATO assessment does not include France and Spain. Although both are members of the North Atlantic Alliance, they do not participate in its integrated military structure. In an invasion of Western Europe by the Warsaw Pact, France and Spain would defend their national sovereignty with the following forces: approximately 20 divisions; 2,000 tanks, 3,000 artillery/mortars; 1,000 antitank launchers; 8,000 combat vehicles; 450 helicopters; 9,000 aircraft; and 200 naval ships and craft.

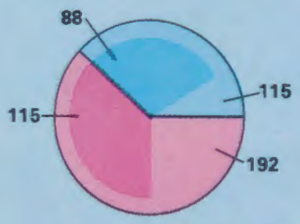
The 1984 edition of the NATO Alliance's *NATO and the Warsaw Pact—Force Comparisons* provides the following assessment of Warsaw Pact and NATO ground forces:

> Warsaw Pact forces facing Allied Command Europe (ACE), which is the NATO military command which stretches from the northern tip of Norway to the eastern borders of Turkey, consist of about 167 active and mobilisable divisions plus the equivalent of 9 divisions of airborne, air assault, and air-mobile formations, which could be used in a number of different areas. Taking account of the forces of the Non-Soviet Warsaw Pact countries, the Soviet forces located in those countries but only the high readiness forces of the six Western Military Districts of the Soviet Union, there are some 115 divisions positioned well forward or considered ready to fight at very short notice. Moreover, these standing Warsaw Pact forces can be reinforced by about 16 divisions from the Strategic Reserve based in the central Military Districts of Russia (Moscow, Ural, and Volga Military Districts). Warsaw Pact divisions normally consist of fewer personnel than NATO divisions but contain tanks and artillery, thereby producing similar combat power. Their principal offensive conventional capabilities consist of tanks, modern mechanised infantry vehicles, and highly mobile long-range artillery and mortars; large numbers of these are to be found in all their units. Soviet forces possess a wide variety of chemical agents and delivery systems and are the best equipped in the world to sustain operations in a chemical environment. Growing numbers of transport, support and attack helicopters provide the Warsaw Pact with a quick-assault and reaction capability, and with a supplement to their fixed-wing tactical aircraft in the battlefield area. A significant number of new electronic warfare helicopters have appeared in Soviet units during the past two years.
>
> Land forces committed to NATO and stationed in or rapidly deployable to Europe, consist of the equivalent of some 88 active and mobilisable divisions (including three airborne/air mobile divisions), many of which are also ready to fight at very short notice... Almost half of NATO's tank and mechanised divisions are equipped with modern weapons although a very unfavourable ratio continues between NATO anti-tank guided weapons and Warsaw Pact tanks and armoured personnel vehicles. NATO similarly has a lower proportion of armed attack helicopters. Only the United States has a retaliatory chemical capability and a number of NATO nations lack even adequate protection against chemical weapons.

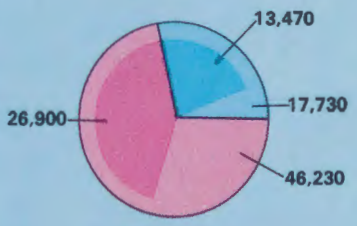
NATO-WARSAW PACT Comparison



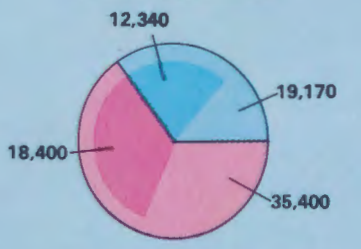
Total Military Including Naval Forces



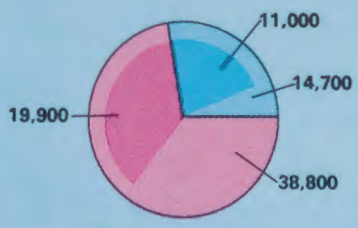
Division Equivalents



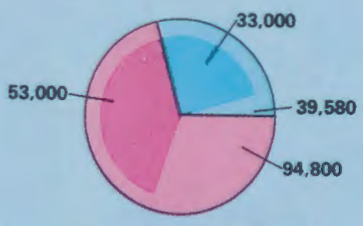
Main Battle Tanks



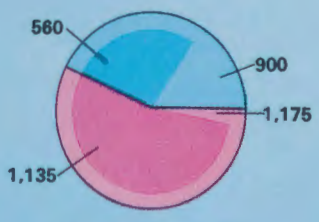
Anti-Tank Guided Weapons Launchers



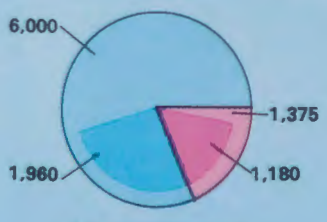
Artillery/Mortar



Armored Personnel Carriers
Fighting Vehicles



Attack Helicopters



Transport/Support
Helicopters

NATO* Rapidly Deployable Forces in Place in Europe

NATO** Fully Reinforced Forces

WARSAW PACT* Rapidly Deployable Forces in Place in Europe

WARSAW PACT** Fully Reinforced Forces

Excludes France and Spain

Warsaw Pact Divisions normally consist of fewer personnel than many NATO Divisions but contain more tanks and artillery, thereby obtaining similar combat power.

* Rapidly deployable forces — Include those U.S. Forces whose equipment is stored in Europe and high-readiness Soviet Forces located in the Baltic, Belorussian, Carpathian, Odessa, Kiev, and North Caucasus Military Districts.

** Fully reinforced forces — Include North American reinforcements and all Warsaw Pact Forces located west of the Ural Mountains.

From 1984 Edition of NATO Publication:
NATO and the Warsaw Pact-Force Comparisons

Chapter V

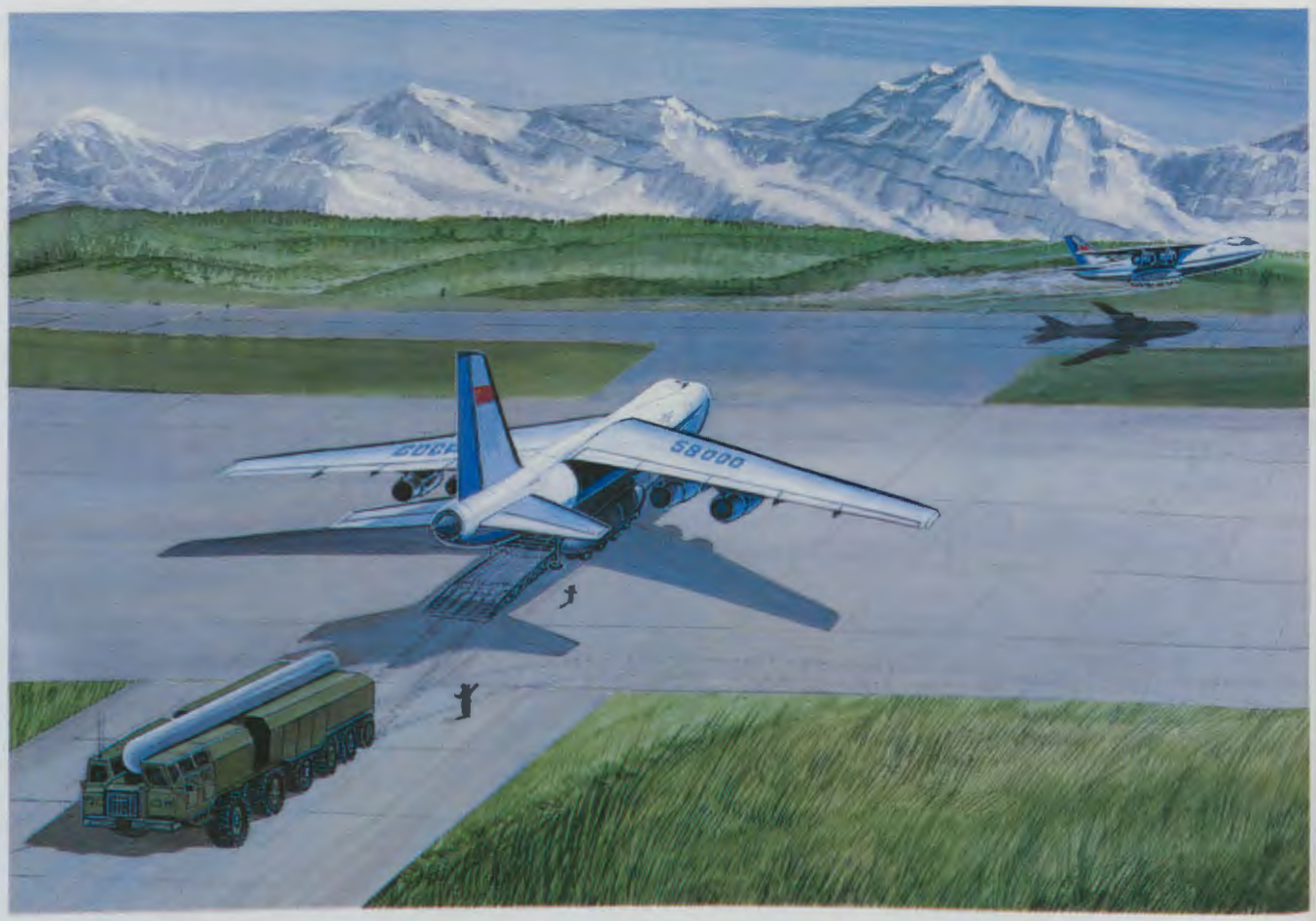
Air Forces

The Soviet Air Forces (SAF) have three major combat components: Strategic Air Armies, Air Forces of Military Districts and Groups of Forces; and Soviet Military Transport Aviation (VTA in Russian). The USSR is dedicating high priority to the upgrading of each component, with new generations of strategic, tactical, and transport aircraft in development, test, production, and deployment. This commitment to developing a superior air force is exemplified in the production and deployment of BACKFIRE and BEAR H long-range bombers for strategic aviation and the FULCRUM and FROGFOOT aircraft for tactical aviation. The nuclear capabilities of Soviet strategic bomber and strike aircraft are discussed in Chapter II.

The BACKFIRE, first introduced into Soviet Air Forces in 1974, has a variable-geometry wing that can be swept for supersonic performance. The BACKFIRE is designed for long-range subsonic cruise, high-altitude supersonic dash, and low-altitude high-subsonic penetration. It can carry conventional or nuclear bombs internally or AS-4 supersonic cruise missiles attached to its wings. Production lines for the BEAR airframe have been reopened to produce the BEAR H long-range turboprop strategic bomber. This new BEAR, however, has been specifically configured to carry the new AS-15 long-range cruise missile.

In tactical aviation, the Soviets have introduced the MiG-29/FULCRUM high-performance aircraft into their inventory. The FULCRUM has been designed as an all-weather, counterair fighter-interceptor fitted with a true look-down/shoot-down radar inte-

The MiG-29/FULCRUM all-weather, air superiority fighter-interceptor, seen in company with a BACKFIRE strategic bomber, reflects the USSR's continuing drive to produce new generations of tactical, strategic, and transport aircraft. The FULCRUM is fitted with AA-10 missiles and the USSR's most modern look-down/shoot-down radar — technology made possible, in part, by thefts from the West.



The CONDOR heavy-lift transport will have triple the payload capacity of the Il-76/CANDID.

grated with the Soviets' improved AA-10 missile. It is possible that the FULCRUM has a dual capability and might be configured for ground attack missions. For close air support missions, the Soviets have developed and deployed the Su-25/FROGFOOT. It is fitted with a 30-mm gun and can carry a variety of air-to-ground ordnance, including bombs, unguided rockets, and tactical air-to-surface missiles. The Soviets have been using the FROGFOOT extensively in Afghanistan against the Mujahideen. The Su-27/FLANKER all-weather, air superiority fighter, which is nearing deployment, is similar to the US F-15. The FLANKER has a true look-down/shoot-down weapons system and beyond-visual-range AA-10 missiles.

For strategic missions against the United States, the Soviets are developing the variable-geometry-wing BLACKJACK bomber, now in flight testing. The BLACKJACK almost certainly will carry the AS-15 long-range cruise missile. Unlike the BEAR H stand-off launch platform for the AS-15, the BLACKJACK will probably be designed for low-altitude high-subsonic penetration of air defenses.

To complement the new bomber and fighter systems, the Soviets are also working on new airborne warning and control systems (AWACS) and tanker aircraft using the Il-76/CANDID airframe. Rounding out Soviet Air Force developments is the new large CONDOR transport aircraft currently undergoing flight testing. Similar in many respects to the US C-5A Galaxy in size and lift capability, the CONDOR probably has clam shell-type rear doors for outsized cargo entry and exit as well as a visor-type nose to facilitate rapid loading and unloading from either end. With a payload even greater than the C-5A, the CONDOR will substantially enhance Soviet military airlift and power projection capabilities when deployed in significant numbers.

The current composition of the SAF reflects an evolutionary process dating from the Soviet experience in World War II. In 1940, a reorganization of the Soviet air arm was de-

The Su-24/FENCER is a nuclear-capable, all-weather fighter-bomber.

signed to produce a single military air service composed of five component parts. The mission of each part was defined along functional lines. The components were: (1) Long-Range Bomber Aviation, tasked with strategic bombing; (2) the Air Reserve of the High Command; (3) Frontal Aviation, assigned to MD/front commands; (4) Army Aviation, organic to and directly supporting the subordinate ground armies of MDs/fronts; and (5) Troop Aviation, tasked with providing liaison support to ground corps. The opening phase of the war exposed serious problems in the still-incomplete reorganization of the Soviet air arm. The Soviet Air Forces lacked adequate command and control systems and specialized aircraft.

In March 1942, the General Staff ordered the establishment of a simplified air force structure. Long-Range Aviation (LRA) was subordinated to the Supreme High Command (VGK) and assigned exclusive responsibility for attacking strategic targets. Frontal and Army aviation were integrated into air armies assigned to combined arms fronts, which came to be called Tactical Air Armies (TAAs). The recentralized and streamlined field command of aviation assets provided greater flexibility and faster response at higher command levels. This structure remained largely intact for more than 30 years, except for the formal creation of VTA as a separate command in the 1950s.

The reorganization of Soviet air assets that began in the late 1970s dissolved LRA and the TAAs, which had become known as Frontal Aviation, and restructured Soviet Air Defense Forces (VPVO). All LRA and some TAA assets were organized into five new Strategic Air Armies. The rest of TAA along with almost half the strategic interceptor force of Air Defense of the Homeland (APVO) were organized as air forces of specific military districts or GOFs.

Current Structure

There are 17 air forces in the Groups of Forces, peripheral military districts of the So-

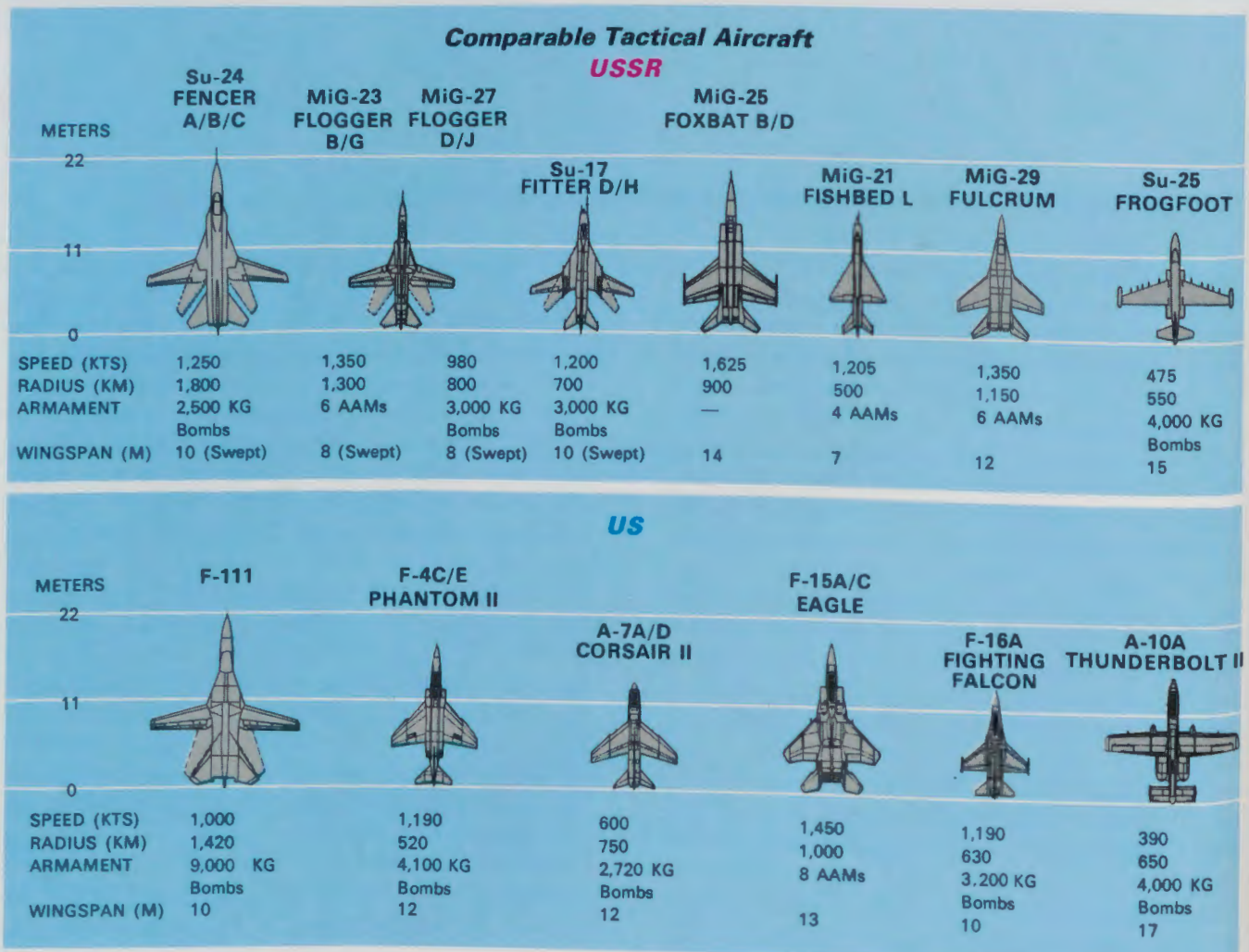
viet Union, Mongolia, and Afghanistan. Each of these air forces is operationally subordinate to the MD or Group commander and is comprised of combat fighters, reconnaissance aircraft, fighter-bombers, and helicopters—the latter known as Army Aviation—although the mix is not standard. Fighter and fighter-bomber regiments can be organized into divisions or remain independent, reporting directly to the military districts and Groups of Forces. Reconnaissance regiments and squadrons are independent units, while helicopter units either report to the military districts and Groups of Forces or to their assigned maneuver entities.

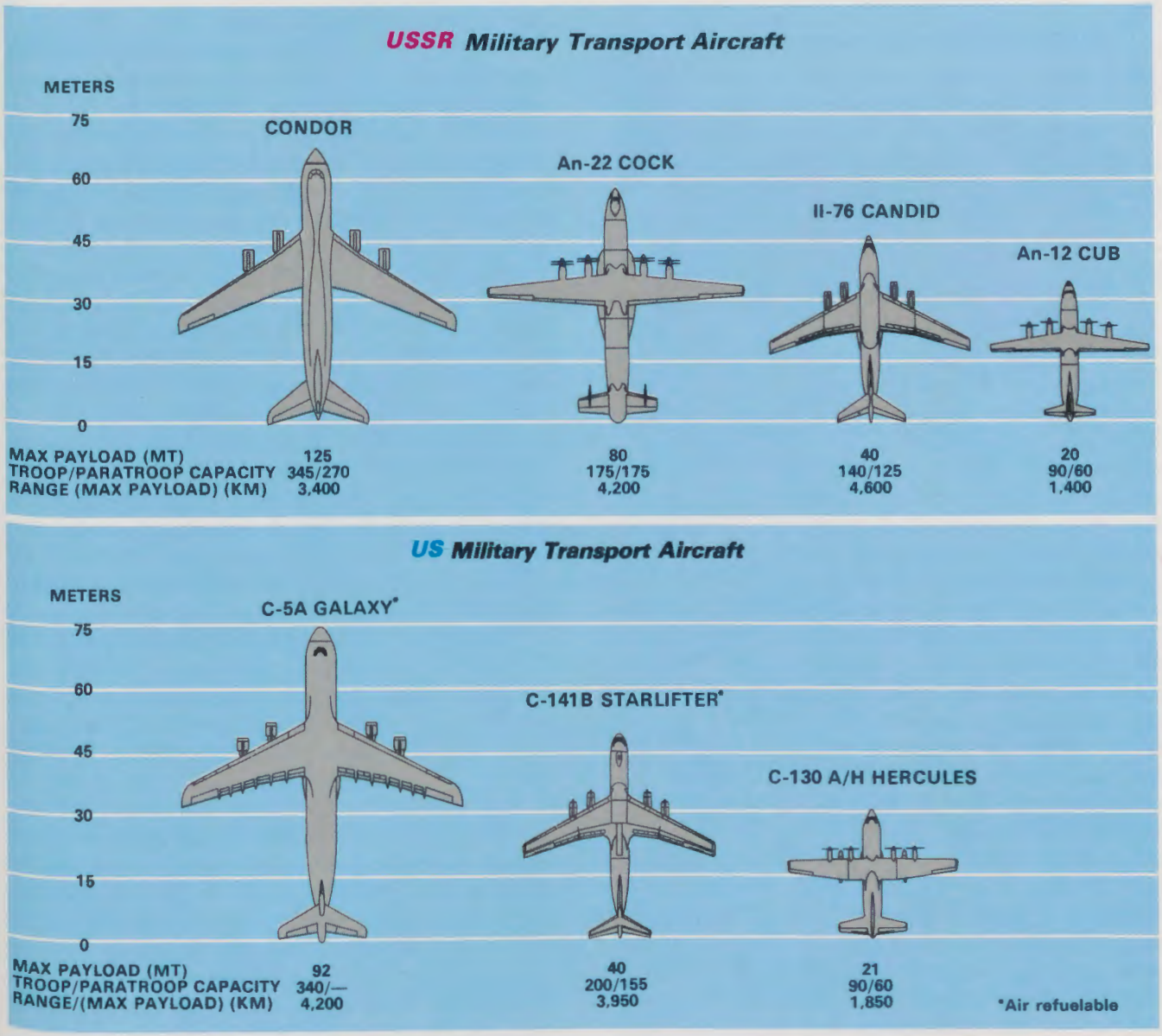
The five Strategic Air Armies include one designed for intercontinental and maritime strike missions and four designed to support various theater missions. Two of the latter air armies are comprised entirely of former TAA assets. Regiments within the air armies are generally organized into divisions, although some independent regiments exist.

Soviet Military Transport Aviation, the third operational element of SAF, has the primary responsibility of providing airlift services for the Soviet Airborne Forces (VDV) and air assault units. It also provides air logistics support for other deployed Soviet and allied armed forces, as well as supporting other Soviet political and economic interests, especially in the Third World. Today the Soviet Air Forces are tailored and equipped to meet the requirements of the various levels of command and the entire range of assigned missions.

The Soviet Air Forces have as their combat and combat support assets nearly 900 bomber aircraft, nearly 6,100 fighter and fighter-bombers, and 600 VTA transports.

Modernization of Strategic Aviation is ongoing. BACKFIRE bombers continue to replace BADGERs, and the BLINDER inventory continues to shrink gradually due to attrition. Two new long-range BEAR variants are entering the inventory. One, a modification to





older airframes designated the BEAR G, is an improved missile-carrying airframe. The other, the BEAR H, is a renewed-production aircraft designed to carry the AS-15 long-range, air-launched cruise missile. The new strategic BLACKJACK bomber, an aircraft similar to but larger than the B-1, is under development. BISON airframes continue to be used as tankers and bombers but are being phased out of service and placed in storage.

The VTA aircraft force consists of almost 600 medium- and long-range cargo transports. Il-76/CANDID long-range jet transports have been gradually replacing the older An-12/CUB medium-range turboprop transports in VTA units at a rate of about 30 per year. The CUB, previously VTA's main aircraft, is being supplanted by CANDID to the extent that the numbers are now about even (over 250 each). The CANDID offers obvious advantages over the CUB, being able to carry twice the maximum payload over three times as far. VTA also has about 55 An-22/COCK long-range turboprop transports, the only Soviet transport able to carry out-sized cargo such as tanks or large missiles. Production of the new heavy-lift CONDOR transport, comparable in size to the US C-5A GALAXY, will significantly upgrade VTA's heavy-lift capability. It is estimated that initial deployment of the CONDOR will occur during 1987 or 1988.

Air Forces of MDs and GOFs have about 5,300 fighter-interceptors, fighter-bombers, and reconnaissance and electronic counter-

USSR Air Base Concentrations

measures (ECM) aircraft deployed in nearly 140 regiments and squadrons. About 800 of these aircraft are assigned to Strategic Air Armies. The MiG-23/FLOGGER is by far the most numerous fighter-interceptor, equipping around 40 regiments. Late-model MiG-21/FISHBEDs make up over ten regiments, while additional regiments of Su-15/FLAGON continue in the force. Other, less numerous fighter-interceptors include the FOXBAT, FIREBAR, FIDDLER and the new MiG-31/FOXHOUND and MiG-29/FULCRUM. The FLOGGER will likely remain in the force in large numbers for the next five years. The FULCRUM will replace the FISHBED, FLAGON, and some FLOGGERS. The FOXHOUND and the Su-27/FLANKER will probably replace FISHBED, FLOGGER, FLAGON, and older FOXBAT aircraft.

The variable-geometry-wing Su-17/FITTER, the most common aircraft in SAF regiments in MDs or GOFs, is devoted to ground attack. The next most numerous airframe in this role is the MiG-27/FLOGGER. The best interdiction aircraft in the Soviet inventory is the Su-24/FENCER. Other regiments are comprised of MiG-23/FLOGGERs, the new Su-25/FROGFOOT, and older MiG-21/FISHBED and Su-7/FITTER As.

Reconnaissance assets are composed of MiG-21/FISHBEDs, Su-17/FITTERs, MiG-25/FOXBATs, and YAK-28/BREWERs. Newer aircraft are beginning to replace the BREWER, significantly increasing Soviet reconnaissance range capabilities. Reconnaissance units are deployed in the military districts and GOFs and theater-level air armies.

Air Forces Capabilities

The majority of Strategic Air Army aircraft are deployed west of the Urals, with a second concentration near Lake Baykal. All VTA CANDID and COCK units are based in the western USSR along with some CUB units. The remaining CUB aircraft are located along the southern and far eastern periphery of the Soviet Union. This concentration in the western USSR places the main VTA assets near the airborne divisions they support. Nevertheless, VTA is capable of quickly concentrating aircraft to support an operation anywhere along the Soviet periphery, as demonstrated in the December 1979 invasion of Afghanistan.

Air Forces of the MDs and GOFs are concentrated along the eastern, southern, and western borders of the USSR and in northern East Europe. By region, 40 percent of the assets are in western areas, 25 percent are located along southern areas, and 35 percent along the Sino-Soviet border.

Soviet intermediate- and long-range bomber crews are proficient in all aspects of strategic air operations, including navigation, bombing, ASM strike procedures, electronic warfare, staging, and—for most long-range bomber crews—in-flight refueling.

Soviet bomber crew training places considerable emphasis on bombing and air-to-surface missile-launching missions. Soviet doctrine stresses the importance of electronic warfare (EW) in modern combat operations. Accordingly, the Soviets have developed a sophisticated and widespread program of EW and have demonstrated the capability and intent to use it in various operational situations. Evidence would suggest that all Soviet bombers have some electronic countermeasures capability, both passive and active. The basic bomber training program calls for periodic deployment, dispersal, staging, and recovery operations. This type of mobility training generally is conducted throughout the USSR. Accordingly, most bomber units participate in these operations and are proficient in performing their assignments.

The Soviets have modified two airframes—the BISON and the BADGER—for use as tankers. The BISON tanker, employing the probe-and-drogue system, services BISON bombers and refuelable BEARs and BLINDERS. About half of the BADGER tankers employ the wingtip-to-wingtip system for refueling other

BADGERs. The remainder use a probe-and-drogue system to refuel the BLINDER. All BISON strike-configured bombers and about one-half the BEARs can be refueled in-flight. The BLACKJACK bomber will most likely be configured for probe-and-drogue refueling. Although BACKFIREs were originally deployed with aerial refueling probes, by July 1980 probes had been removed from all operational BACKFIRE Bs. Removal of the probes was related to Soviet assurances in SALT II that the range of the BACKFIRE would not be extended through in-flight refueling. Reinstallation of the probes on this aircraft could be accomplished in a short period of time assuming no internal changes were made to the aircraft. A similar refueling potential for the BACKFIRE C cannot be ruled out.

When operational, the new BLACKJACK bomber will have an estimated maximum unrefueled radius of 7,300 kilometers, giving it coverage capability similar to the BEAR. Staging from the Arctic, the BLACKJACK will have the capability to strike almost any target in the US on a high-altitude, unrefueled, two-way mission. The BLACKJACK will also have the capability to strike any target in the US on a high-subsonic, low-level mission with forward recovery in non-hostile territory, such as Cuba.

The unrefueled BACKFIRE bombers can fly a variety of strike profiles against targets in Europe or China. Although Soviet spokesmen have stated the BACKFIRE does not have an intercontinental role, the aircraft has the capability to strike the US on one-way intercontinental missions with forward recovery. Using Arctic staging bases and in-flight refueling, the BACKFIRE could achieve similar target coverage on two-way missions. If staged, but not refueled inflight, it could conduct strike missions against some targets in the US.

Since the late 1960s, VTA has demonstrated its airlift capabilities in a number of operations. Soviet transports were involved in the invasion of Czechoslovakia in 1968 and of Afghanistan in 1979. Each involved about 300 sorties over a period of 1 to 3 days. The most intense operation occurred in the October 1973 airlift to Egypt and Syria, involving almost 900 sorties over about a month. Other airlift operations to Angola, Ethiopia, and Vietnam have exercised the long-distance capabilities of the COCK and CANDID.

VTA's air logistics capabilities are expanding and can be augmented both by air transports belonging to other Soviet Armed Forces and by Soviet civil aviation. Several thousand Soviet civil aviation aircraft, some 1,500 of which are medium- and long-range transports, provide a vast airlift reserve for use in peace and war. These Aeroflot aircraft practice this mission semiannually as they conduct the airlift portion of the rotation of Soviet forces in East Europe and elsewhere. Aeroflot's 200 CANDID and CUB aircraft would be especially useful augmentation in crisis or war.

The Soviets have significantly enhanced the performance characteristics of their tactical combat aircraft over the past decade. Older weapons systems had limited range and payload capabilities, short-range air-intercept radars or range-only radars, little or no capability to employ precision-guided munitions, and were restricted primarily to clear-weather operations. Newer fighters and interceptors have the ability to conduct air intercepts at beyond-visual ranges. They can operate at greater distances from their airfields, carry up to six air-to-air missiles, and perform in all weather conditions. The newest generation of fighters—FOXHOUNDs, FULCRUMs, and FLANKERs—is assessed to have a true look-down/shoot-down capability that will enable them to engage low-flying aircraft or cruise missiles.

Training

The ultimate objective of Soviet pilot training is to develop a combat-effective force that is highly skilled, disciplined, knowledgeable, and ideologically committed to defeating any potential adversary.

Each SAF school focuses on a particular type of mission training. A fighter-bomber or fighter pilot receives training at one of six four-year schools. Three schools train bomber pilots, one focuses on transport pilot training, and two higher military aviation schools train all Soviet helicopter pilots.

Hours of intensive ground school are a significant part of the overall flight training program. The Soviets believe in intensive preflight mission rehearsal and also make use of aircraft flight simulators for mastering flying procedures and preparing for emergency situations. Student flying usually begins during the summer months of the second year and alternates with academics during the winter.

In-flight refueling from BADGER A tankers extends the range of BADGER C strike aircraft.

Flight instruction takes place at training airfields subordinate to each school. The 25-year service commitment enables the Soviets to conduct a lengthy basic flight training program and retain experienced pilots for many years. The service commitment ensures a continuity in the Soviets' flying force that is unprecedented in the West.

Upon graduation, the cadet receives his wings, a regular commission as a junior lieutenant, and the academic degree of pilot-engineer. Although he will have received an average of 250 flight hours, he is not rated in the Soviet pilot classification system and will require additional operational training to gain the tactical proficiency necessary to be a combat-ready member of SAF. This additional training for both strategic and tactical aviation pilots is accomplished at the operational unit.

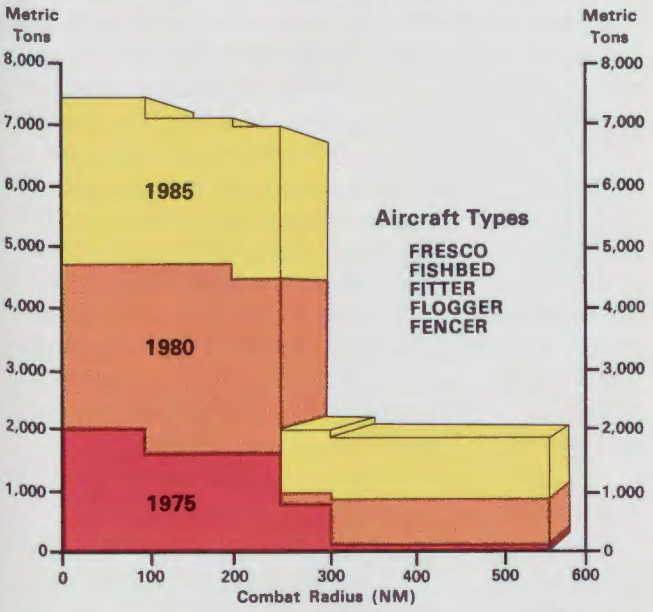
Soviet tactical sorties are short and are performed after extensive rehearsal in a cockpit or simulator. Soviet doctrine emphasizes extensive pre-flight preparation and post-flight evaluation of mission sorties. Flying hours range between 80 and 120 a year. Combat-related flying is more sophisticated and demanding, however, and continues to take up an increasing percentage of total training. Approximately 180 sorties a year represent the Soviet standard to maintain proficiency. The primary training strength of the SAF is the stability of the aircrew force in both continuity in flying assignments and flying the same aircraft for a long time.

Soviet aircrews are proficient in aircraft handling and in the execution of precisely timed, preplanned attacks. Soviet fighter pilots continue to improve their capability for air-to-air combat and are increasingly proficient in complex controlled-intercept techniques and in transitioning to visual combat against a maneuvering target.

Ground-controlled intercept (GCI) is still a hallmark of Soviet fighter operations. However, as Soviet fighter aircraft have been greatly improved in range and in onboard radar and weapons capability, the nature of the GCI interface has changed. GCI continues to play the primary role in an intercept until a pilot acquires his target and takes control of the mission.

Since 1980, fundamental changes have occurred in Soviet fighter tactics and training. The introduction of an air-to-air combat training program, incorporating air combat in a visual environment against maneuvering targets,

Bombing Capabilities of Soviet Tactical Ground Attack Aircraft



is a significant step forward.

They have also increased the number of multi-event training sorties. The Soviets practice a limited number of independent search missions, low-altitude missions, escort flights, and night intercepts of maneuvering targets and have increased training for the intercept of helicopters, bombers, and transport aircraft.

Wartime Force Employment

Offensive plans for the utilization of Strategic Aviation in wartime would adhere to the basic principles of airpower employment—surprise, mass, mobility, and flexibility. All bombers engaged in combat strike missions would employ tactics to avoid detection, make maximum use of terrain features, and employ electronic countermeasures. Intermediate-range bombers could employ some of the same strike tactics; however, in strikes against Eurasian targets, greater use would probably be made of the low-level approach to evade air defenses and provide surprise. To improve the chance that bombers would reach NATO targets in a conventional strike, the Soviets might employ a corridor-saturation operation. Under such a plan, bombs and antiradiation missiles would be employed against key air defense installations. Aircraft penetrating through these corridors would attack designated targets such as airfields, nuclear storage depots, and command and control facilities.

To support operations in the Far East Theater, the Soviets have some 120 medium bombers and nearly 60 reconnaissance, ECM, and tanker aircraft. Tactical aircraft include 815 fighter-interceptors; 735 fighter-bombers; and 265 reconnaissance, ECM, and tanker aircraft. To support operations in the Southern Theater, the Soviets have 380 tactical aircraft, including some assets in Afghanistan. Additional bombers could be assigned from either western or eastern air armies, while additional tactical aircraft could be drawn from assets assigned to other regions. If the situation warrants, reserve combat fighter, fighter-bomber, and reconnaissance aircraft are available in the Moscow Military District.

While no formal reserve program exists for Soviet Air Forces, additional regiments would be formed in wartime from the 4,000 older aircraft in training units or storage. A pilot pool

Il-76/CANDID transports increase the USSR's airlift capabilities.

Aircraft Production USSR and NATO[1]

Aircraft Type	1980 USSR	1981 USSR	1982 USSR	1983 USSR	1984 USSR	1984 NATO
Bombers	30	30	35	35	50	0
Fighters/ Fighter-Bombers	1,300	1,350	1,100	950	900	525
Transports	350	350	300	300	300	250
ASW	10	10	10	5	5	7
Helicopters	700	800	800	800	800	720
Utility/ Trainers	85	50	50	10	10	305

[1] Revised to reflect current total production information. Includes United States; excludes France and Spain.

of instructor pilots, advanced students, and recently retired pilots could man these newly created units.

VTA's wartime functions would remain primarily paradrop and the landing of combat units, as well as logistics support to all Soviet Armed Forces as needed. This could include rapid reinforcement and aerial resupply, nuclear weapons delivery, and medical evacuation. VTA, along with the mobilized Soviet Civil Aviation (Aeroflot) and the air transports of the other Soviet military elements, would probably provide sufficient numbers of air transport assets to perform their missions.

Wartime employment of fixed-wing tactical ground attack airpower would probably fall into small and large strike packages. The small attacks would be two to four aircraft flying close support for troops, defense suppression, or perhaps armed reconnaissance missions. Large strike packages, on the order of 50 to 100 aircraft, would conduct major strike missions against nuclear storage depots, airfields, C^3 facilities, ports and rear area logistics, and support bases. All Soviet air operations would occur as part of a well-planned, well-coordinated, combined arms operation intended to achieve Soviet war aims. Pre- and post-strike reconnaissance, ECM escort support, and air defense support are closely integrated with strike aircraft in major combat operations.

US Tactical Air Forces

US tactical air forces retain a qualitative advantage over those of the Soviet Union in aircraft and weapons and, more importantly, in personnel and training. Air combat in the Middle East demonstrated the lethality of US-built air-to-air missiles. US Air Force and Navy aircrews receive about twice as much flying time as do their Soviet counterparts, and US training exercises are considered superior to those of the Soviets. Non-US NATO countries generally provide about as much flying time for their aircrews as do the Soviets.

The US and NATO Allies also have been carrying out a force modernization program over the last five years. The United States has added the A-10, the F-15, and the F-16 aircraft to its inventory. The NATO Allies continue to add F-16 and TORNADO aircraft, and both the United States and NATO are adding the E-3 AWACS.

The high-performance F-14 fighter, designed for fleet air defense and air-to-air combat, is operating on more than 80 percent of the Navy's aircraft carriers, with additional procurement planned. The F/A-18, which will replace the F-4 and A-7 in the Navy and Marine Corps, can accomplish both air-to-air fighter and air-to-ground attack missions. The Marine Corps' AV-8B HARRIER is scheduled to be operational by 1985, and six active light-attack squadrons will receive this new version by FY 1988. To keep pace with the anticipated threat, both the F-15 and F-16 aircraft are receiving radar modifications to enhance air-to-air target-detection ranges and will also be modified to carry advanced medium-range air-to-air missiles. Production of F-15s and F-16s will continue into the 1990s.

NATO-Warsaw Pact Air Forces

NATO and the Warsaw Pact Force Comparisons provides the following comparative data; as is the case with ground and naval forces, data on France and Spain are not included.

> The overall global total of Warsaw Pact aircraft is nearly 13,000. These totals include all aircraft of combat types including those in non-combat units as well as combat units (a criterion essential for arms control); all other numbers are based on aircraft in combat units. More than 10,000 of these are facing NATO Europe, of which 7,500 are of types technically capable of delivering nuclear weapons. The majority of these aircraft would likely be used in conventional attacks over NATO Europe.

NATO–Warsaw Pact Combat Aircraft in Place in Europe

	Fighter-Bomber Ground-Attack	*Interceptor*	*Reconnaissance*	*Bombers*
NATO	1,960	795	235	—
Warsaw Pact	2,250	4,195	585	400*

Excludes France and Spain

Some interceptors can be used in ground attack roles.

*This figure does not include BISON and BEAR strategic bombers or support aircraft such as tankers or those used for command and control or electronic warfare.

From 1984 Edition of NATO Publication: NATO and the Warsaw Pact-Force Comparisons

The total number of combat aircraft in operational units facing NATO Europe is 7,430. Warsaw Pact air defense forces as far east as the Urals (but excluding those in the Moscow Military and Air Defense Districts) consist of some 4,195 interceptor/aircombat aircraft. Many of these aircraft can be used in offensive roles such as assuring air superiority over the battlefield and they are backed up by extensive modern surface-to-air missile systems. Additionally there are some 2,250 ground-attack fighter bombers, 585 reconnaissance aircraft and about 400 bombers (including 65 BACKFIRE bombers), the majority of which would likely be used in a conventional role .... These air forces could be reinforced rapidly with some 540 combat aircraft from central Russia. Significant numbers of new combat aircraft are introduced each year, replacing older models which were less capable than NATO aircraft of the same generation. The introduction of these modern tactical aircraft has considerably increased the Warsaw Pact's offensive capability. These latest aircraft are capable of carrying up to twice the payload, can travel over three times the range, at higher speeds, and can conduct operations at lower altitudes than the aircraft they are replacing; this renders them less vulnerable to NATO air defenses. Their increased combat radius would allow for Warsaw Pact operations from more distant bases in case of Warsaw Pact aggression against NATO. This would mean that NATO fighter-bombers would have to penetrate much deeper into defended enemy airspace to counter-attack Warsaw Pact airbases. Additionally, an increasing proportion of these modern aircraft can operate in adverse weather conditions by day or by night.

The overall global total of aircraft belonging to NATO countries is slightly more than 11,000. The land-based air forces, available in-place for NATO's Allied Command Europe, consist of 1,960 ground-attack fighter bombers, 795 interceptors and 235 reconnaissance aircraft. In addition to fighting the air battle, air forces would have to assist NATO ground forces in repulsing a Warsaw Pact attack. The United States and Canada could reinforce rapidly with some 1,750 more combat aircraft, though airlift would be required for ground crews and equipment. The quality of NATO aircraft has improved with the introduction into service of the F-15, F-16 and the Tornado. These aircraft have a greater range, payload and all-weather capability than the previous generation of NATO aircraft. However, since NATO and Warsaw Pact aircraft now have comparable range and payload characteristics the quantitative advantage of the Warsaw Pact is more significant than formerly.

NATO's military airlift assets consist of nearly 750 transport aircraft, which can be augmented by the civil air fleets of the Allied countries. These are considerably larger than the civil air fleets available to the Warsaw Pact. However the latter are centrally controlled.

NATO nations have made considerable progress in improving the ability of their air forces to operate and survive in a hostile environment, particularly by providing better protection for vital operational and logistical facilities. To a considerable degree, NATO air forces maintain a high state of readiness and are qualitatively superior to those of the Warsaw Pact in terms of training and weapons systems. The tactical flexibility of NATO air forces and the ability to augment in-place forces rapidly in time of tension or war are also positive factors.

Chapter VI

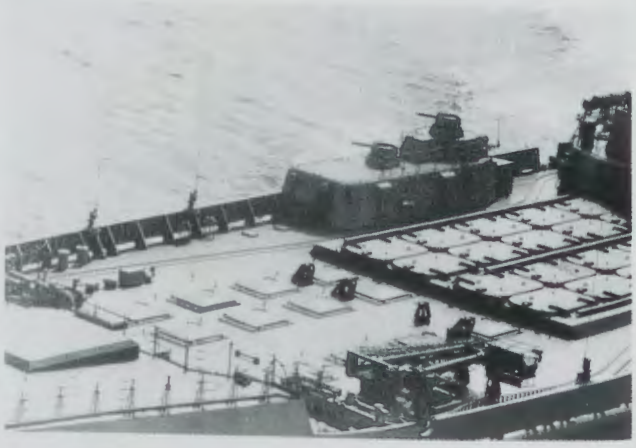
Naval Forces

The growth of the Soviet Navy since 1960 and the expansion of its oceanic areas of operation have made it a highly visible symbol of increasing Soviet military capabilities. During this period, the ballistic missile submarine force has become the second most important strategic arm of the Soviet Armed Forces, as discussed in greater detail in Chapter II. The Navy's power, mobility, and capability for worldwide deployment give it the ability to support Soviet state interests abroad to a degree unmatched by other branches of the Soviet military. Because the Soviet Navy has evolved from its own particular national political requirements and geographic constraints, its missions, organization, structure, and composition differ appreciably from those of the US Navy.

While the modern Soviet Navy has not been tested in battle, it is clearly designed and structured for particular wartime tasks. Overall, the missions of the Soviet Navy are to conduct strategic strikes against land targets, to provide for the maritime security of the USSR, and to support Soviet policy and promote Soviet interests worldwide. Within the context of these missions, the Soviet Navy would have the following wartime tasks:

- protect Soviet strategic strike capability and carry out strategic submarine-launched ballistic and cruise missile strikes when directed;
- counter the perceived threat from Western sea-based strategic forces;
- achieve sea control in the approaches to the Soviet Union and other Warsaw Pact countries;
- conduct sea-denial operations in selected ocean areas to prevent Western forces

The USSR is deploying an increasingly versatile, modern submarine, surface ship, and naval air force. The 1984 launching of the first DELTA IV SSBN as the launch platform for the MIRVed, SS-NX-23 ballistic missile marked still another increase in the Soviet Navy's ability to conduct strategic strikes against land targets.



freedom of action in these areas;

- support Warsaw Pact ground operations by protecting their seaward flanks, seizing vital straits and islands, and conducting amphibious assaults;
- protect vital sea lines of communication (SLOC); and
- interdict Western SLOCs.

The pattern of implementation of these tasks would vary from fleet to fleet. The Northern and Pacific Fleets, to which all SSBNs are assigned, would be initially concerned with deploying and protecting those submarines. The nearly landlocked Baltic and Black Sea Fleets, on the other hand, would likely concentrate initially on seizing control of their approaches and on supporting continental theater operations. A major concern of all four fleets would be countering Western naval strike groups, especially aircraft carriers and cruise missile-equipped platforms approaching the USSR.

The Soviets rely on in-depth defense in the sea approaches to the USSR in order to provide immediate protection to the homeland and to secure access from bases to operating areas. Most Soviet general purpose surface, submarine, and naval air forces would likely be assigned initial wartime tasks within this perimeter where they could provide both protection for SSBNs and defense against sea-based land-attack platforms. Here, Soviet surface combatants would deploy in independent, mission-oriented task groups, unlike the large, multipurpose, carrier-centered battle groups of the West. A typical Soviet antisubmarine warfare (ASW) group might consist of two

The nuclear-powered guided-missile cruiser FRUNZE, second unit of the KIROV-Class, at 28,000-tons displacement, is 248 meters in length, carries RBU-6000 rocket/launchers, 96 vertically launched SA-N-6 surface-to-air missiles, and 20 SS-N-19 surface-to-surface missiles as well as ADMG Gatling guns on its foredeck (facing page). Its radars and electronic warfare suite contribute to its surface strike and fleet defense missions. Its afterdeck has a twin-barrel 130-mm gun, landing platform and handling facilities for embarked HELIX helicopters.

UDALOY-Class guided-missile destroyers (DDGs) and two KRIVAK-Class guided-missile frigates (FFGs). Torpedo attack submarines and land-based ASW aircraft would participate in coordinated ASW operations.

An antiship task group could include a SLAVA guided-missile cruiser (CG) and two SOVREMENNYY-Class DDGs. Cruise missile submarines and land-based reconnaissance and strike aircraft would join in coordinated strikes against intruding surface forces. On deploying for wartime operations, a heavily armed capital ship like the KIROV-Class cruiser (CGN) or the KIEV-Class aircraft carrier would likely be accompanied by a mix of some six to eight ships to enhance its mission flexibility. This multipurpose task group could include such ships as the KARA-Class CG, KRESTA II-Class CG, and UDALOY-Class DDG for antisubmarine warfare and the KRESTA I-Class CG, SLAVA-Class CG, and SOVREMENNYY-Class DDG for antiship warfare tasks. According to Soviet writings, naval infantry might conduct landings on its own against lightly defended coastal targets or might be used as a spearhead unit in a large-scale amphibious landing with ground forces and airborne units.

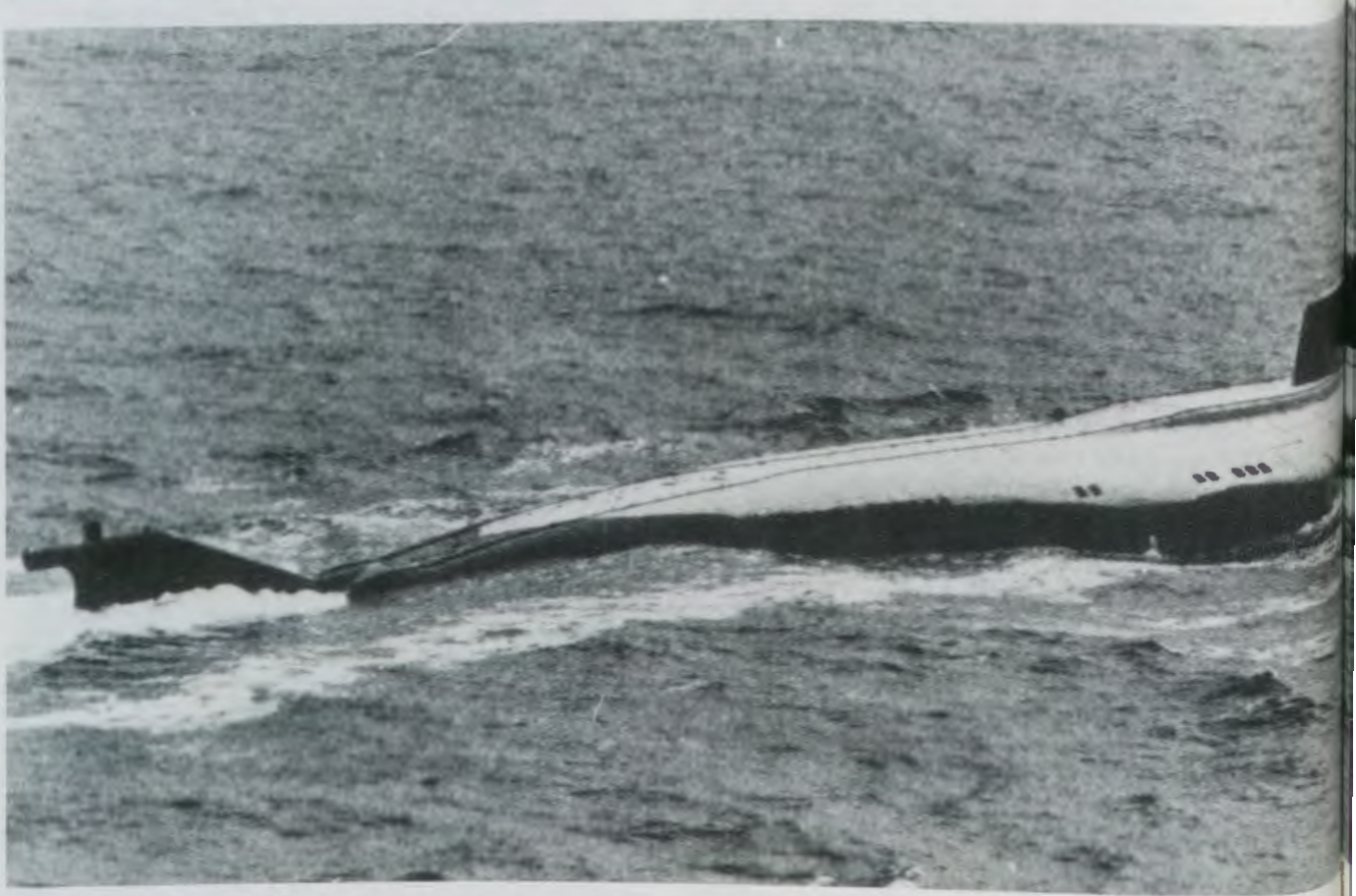
Extending into other ocean areas, antisubmarine operations in the vicinity of some NATO SSBN bases and expected transit lanes could be anticipated. Soviet anti-SLOC actions would be chiefly geared toward isolating the European theater from outside assistance, especially from North America. This would probably include extensive Soviet mining operations in the approaches to and roadsteads of European ports, particularly around the western approaches to Europe and in the Mediterranean. Additionally, the Straits of Florida, through which more than 40 percent of our reinforcement shipping for NATO must pass, and the Valdez oil SLOC, along which flow several million barrels of Alaskan crude oil per day, might also pose lucrative targets, although few Soviet forces would initially be available for such open-ocean, anti-SLOC operations.

These missions and tasks have shaped the present Soviet Navy and will continue to influence its future development. The primacy of the strategic strike mission will ensure dy-

The new SIERRA-Class nuclear-powered attack submarine, with a stern-mounted towed-array sonar pod, became operational in 1984.

namic evolution of the SSBN force along with supporting general purpose forces. The mission of destruction of opposing naval forces and the importance of the wartime tasks of SLOC interdiction and support for ground force operations will commit the Soviets to continued development and acquisition of forces capable of posing a credible threat to the NATO nations.

The growing peacetime emphasis on support of state policy and interests at sea and overseas power projection suggest an even more ambitious program of future naval growth. Ships



The 14,000-ton OSCAR-Class cruise missile submarine carries 24, nuclear-capable, 550-kilometer, antiship cruise missiles.

and weapons systems must be developed to improve the capabilities to execute each of these missions and tasks across the range of the military and political uses of naval power. With the evidence of recent history, it is clear that the Soviet Union is committed to a goal of building and deploying a fleet capable of worldwide operations and meeting unique Soviet naval mission requirements.

Naval Organization

The Soviet Navy is headed by a Commander in Chief (CINC) who is also a Deputy Minister of Defense; he functions as the equivalent of both the US Secretary of the Navy and the Chief of Naval Operations and is the chief adviser on naval policy to the Minister of Defense. Fleet Admiral of the Soviet Union Sergey G. Gorshkov has commanded the Navy since 1955, and was appointed Deputy Minister of Defense in 1956. He is assisted by several deputies who supervise the day-to-day operations of the Navy, including the work of more than ten staff directorates.

The Soviet Navy is comprised of four major fleets: Northern Fleet, Pacific Ocean Fleet, Baltic Fleet, and Black Sea Fleet. Fleet headquarters are located at Severomorsk for the Northern Fleet, Vladivostok for the Pacific Ocean Fleet, Kaliningrad for the Baltic Fleet, and Sevastopol for the Black Sea Fleet. In peacetime, the fleet commanders report directly to Chief of the Main Navy Staff and exercise operational control over all general purpose forces afloat and ashore within their fleet areas. In wartime, naval fleet CINCs would become the naval component commanders of the combined arms high command in the appropriate TVD. Under each fleet commander there are several major operational elements, including surface and submarine forces, naval base commands, naval aviation, and naval infantry. While the fleet commands provide administrative, logistic, and operational support to the strategic submarine force, operational control of Soviet SSBNs is at the national level.

Submarines

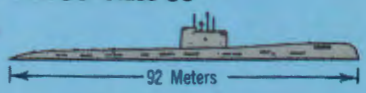
A significant part of Soviet naval strength lies in its general purpose submarine force, the largest in the world. Today, this force numbers some 300 active units composed of some 25 different classes of torpedo attack, cruise missile, and auxiliary submarines. Nearly half the force is nuclear powered, and this percentage is expected to rise in the years ahead as heavy investment in submarine building programs continues to receive priority allocations of military resources.

Currently, the Soviets are producing or testing nine different classes of submarines. Of these, all but one are nuclear powered. This program spans the entire range of undersea warfare applications including torpedo and antiship cruise missile attack, land-attack SLCM, technology research, and specialized communications support. Backed by aggressive research and development, the newest Soviet submarine designs show evidence of an emphasis on quieting, speed, nuclear propulsion, weapon versatility, and incorporation of advanced technologies.

This emphasis has been underscored dramatically since 1983, with the introduction of four new classes of nuclear-powered attack submarines. The MIKE SSN, at almost 10,000 tons, embodies the Soviets' state-of-the-art in propulsion and pressure hull design. It is capable

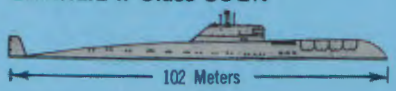
USSR Attack Submarines

TANGO-Class SS



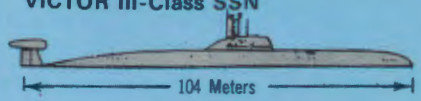
Armament: Torpedoes, Possible ASW missile
Propulsion: Diesel
Submerged Displacement: 3,900 MT
Initial Operational Capability: 1973

CHARLIE II-Class SSGN



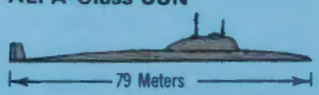
Armament: Torpedoes, SS-N-9 antiship cruise missile
Propulsion: Nuclear
Submerged Displacement: 5,400 MT
Initial Operational Capability: 1974

VICTOR III-Class SSN



Armament: Torpedoes, SS-N-16 ASW missile
Propulsion: Nuclear
Submerged Displacement: 6,300 MT
Initial Operational Capability: 1979

ALFA-Class SSN



Armament: Torpedoes, SS-N-15 ASW missile
Propulsion: Nuclear
Submerged Displacement: 3,700 MT
Initial Operational Capability: 1978

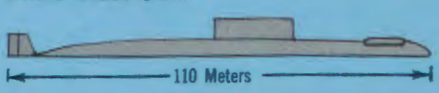
OSCAR-Class SSGN

Armament: Torpedoes, SS-N-19 antiship cruise missile
Propulsion: Nuclear
Submerged Displacement: 14,000 MT
Initial Operational Capability: 1981

KILO-Class SS

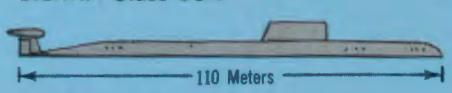
Armament: Torpedoes
Propulsion: Diesel
Submerged Displacement: 3,000 MT
Initial Operational Capability: 1980

MIKE-Class SSN



Armament: Torpedoes, ASW missile
Propulsion: Nuclear
Submerged Displacement: 9,700 MT
Initial Operational Capability: 1983

SIERRA-Class SSN

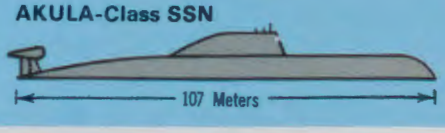


Armament: Torpedoes, ASW missile
Propulsion: Nuclear
Submerged Displacement: 8,000 MT
Initial Operational Capability: 1984

YANKEE-Class SSN

Armament: Torpedoes, land-attack cruise missile
Propulsion: Nuclear
Submerged Displacement: 13,000 MT
Initial Operational Capability: 1984

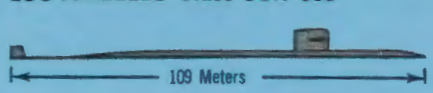
AKULA-Class SSN



Armament: Torpedoes, ASW missile
Propulsion: Nuclear
Submerged Displacement: 8,000 MT
Initial Operational Capability: 1985; still in sea trials

US Attack Submarines

LOS ANGELES-Class SSN-688



Armament: Torpedoes, HARPOON antiship missiles, TOMAHAWK SLCM, SUBROC ASW rocket
Propulsion: Nuclear
Submerged Displacement: 6,500 MT

USS LOS ANGELES-Class is shown for comparison purposes. Other US attack submarine classes are STURGEON, SKIPJACK, SKATE, and PERMIT.

of firing a wide range of submarine-launched weapons including the SS-N-15 nuclear depth bomb, the SS-N-16 ASW missile, and possibly the SS-NX-21 land-attack SLCM.

The second nuclear-powered attack submarine introduced in 1983 was the SIERRA. At 8,000 tons, the SIERRA is about 20 percent larger than the VICTOR III, which was

introduced only four years earlier. In this era of rapidly developing technologies, the SIERRA is a clear demonstration of the high priority that submarine development programs receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typifies another aspect of Soviet philosophy, which is to incorporate new innovations into older designs, thus extending the service life and tactical utility of its submarine force. In this case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. This YANKEE SSN has probably been re-equipped with updated systems such as fire control and sonar in addition to other modifications that will enable it to launch a wider variety of weapons.

In 1984, another new class of nuclear-powered attack submarine—the AKULA-Class—was launched. The lead AKULA unit is also similar to the VICTOR III- and SIERRA-Classes.

The increased production of expensive high-technology SSNs underscores the Soviet determination to improve their antiship and antisubmarine warfare capabilities and the potential for torpedo tube-launched SLCM deployment. Other submarine missions have received emphasis as well. Patrols by the OSCAR-Class nuclear-powered cruise missile submarine have now become routine. At 14,000 tons, the OSCAR is fitted with 24 submerged-launched, 550-kilometer, nuclear-capable SS-N-19 antiship cruise missiles, targeted primarily against NATO carrier battle groups. In addition to continued OSCAR production, the Soviets are proceeding with a program to convert the older 1960 vintage SS-N-3-equipped ECHO II SSGNs to the improved, 550-kilometer, supersonic SS-N-12 antiship missile.

In conjunction with other programs to produce specialized nuclear-powered submarines for research and development, weapons system evaluation, and fleet command and control, the Soviet Union has pursued an active diesel-powered submarine production program as well. As construction of the KILO SS continued, a Pacific-based unit became the first to conduct an extended out-of-area patrol when it deployed to the South China Sea and Indian Ocean for three months during 1984.

The scope of Soviet submarine developments thus encompasses all undersea warfare areas and gives strong evidence of the high priority national resources accorded these programs. Through this unwavering commitment, the Soviet leadership has constructed a large, versatile, modern, offensive strike force capable of operations throughout the world. Moreover, newer submarine classes are showing clear design improvements over their predecessors and are narrowing the technological lead long held by the West. This demonstrated capability to translate undersea research to the submarine production line is a clear indication that the Soviet Union will strive to apply increasing technological pressure on the West in the years ahead.

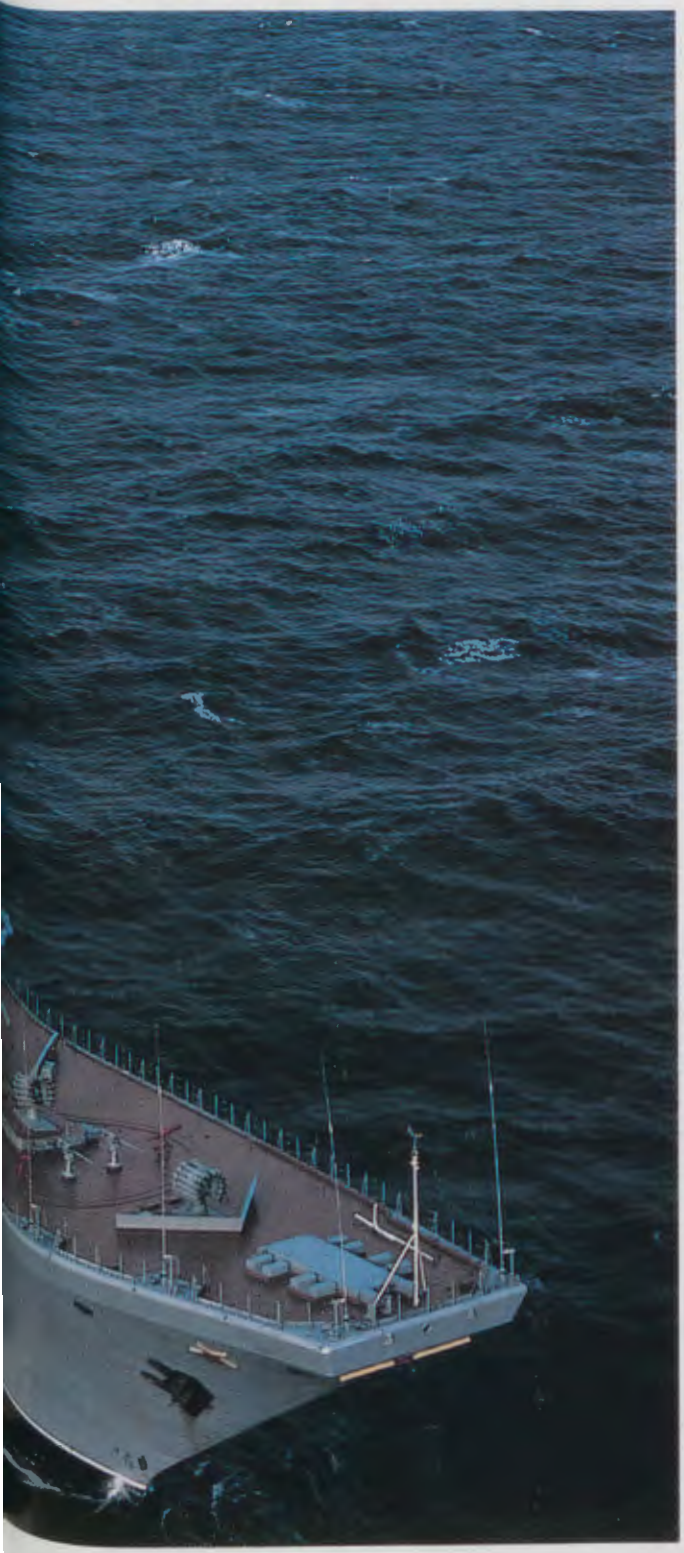
Surface Forces

The surface forces of the Soviet Navy also continue to improve their ability to fulfill a broad range of naval operations, especially in waters distant from the USSR. In general, the afloat forces are modern and well equipped.

The trend in Soviet major surface warship programs has been toward larger, technologically more sophisticated units. Construction of these Soviet ships over the last decade has produced increasingly larger ships with an upgraded array of weapons systems and complementary sensors. These ships can cruise for longer distances, carry more ordnance, and conduct a greater range of operations than their predecessors. This has created a new flexibility and versatility for Soviet surface forces in carrying out deployed operations on a worldwide scale.

Currently, the largest ship in the Soviet Navy is the KIEV-Class aircraft carrier. Its weapons suite includes a battery of 550-kilometer-range SS-N-12 antiship cruise missiles that can be targeted beyond the ship's horizon by onboard HORMONE helicopters or information derived from satellites or land-based long-range aircraft. This class also carries an array of other weaponry and support equipment, including over 100 long- and short-range surface-to-air missiles, air defense gun batteries, tactical sensors, electronic warfare systems, and advanced communications devices. The 600-foot flight deck accommodates both HORMONE and HELIX helicopters and the FORGER vertical/short take-off and landing (V/STOL) aircraft that is capable of daylight attack, reconnaissance, and intercept missions.

A new era in Soviet warship development began in 1980 with the appearance of the initial units of the most technologically advanced classes yet produced. These included the first Soviet nuclear-powered surface warship—the KIROV guided-missile cruiser—and the UDALOY and SOVREMENNYY guided-missile destroyers. In 1982, the first of a new class of gas-turbine-powered guided-missile cruisers—the SLAVA—entered the inventory. The SLAVA is equipped with 16 SS-N-12, 550-kilometer range antiship cruise missiles, 64 SA-N-6 air defense missiles, 40 SA-N-4 point defense missiles, a 130-mm twin-barrel, dual-



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The NOVOROSSIYSK is the third of four 37,000-ton KIEV-Class V/STOL aircraft carriers to enter the Soviet Navy. Construction on an entirely new 65,000-ton nuclear-powered aircraft carrier that will operate a new generation of embarked, high-performance combat aircraft continues.

purpose gun, and the surveillance variant of the HORMONE helicopter.

Each of these classes is currently in series production and illustrates the Soviet Navy's trend toward construction of larger displacement ships with greater firepower, endurance, and sustainability for distant operations. The KIROV CGN, with a displacement of about 28,000 tons, is the largest warship, with the exception of aircraft carriers, built by any nation since World War II. Its principal armament is a battery of 20 550-kilometer SS-N-19 antiship cruise missiles, complemented by launchers for the SS-N-14 antisubmarine missile in the first ship of the class only. Three HELIX or HORMONE helicopters are carried onboard for ASW and missile targeting. The KIROV is outfitted with an array of air defense weapons, including 96 long-range SA-N-6 missiles and, on the second unit, provisions for 128 SA-NX-9 shorter range SAMs. Medium-caliber gun mounts, a proliferation of Gatling-type guns for point defense, torpedoes, and ASW rockets complete the KIROV's modern armament. In 1984, *FRUNZE,* the second unit of the KIROV-Class, became operational, and a third ship is under construction.

Other new construction combatant programs show similar evidence of Soviet concern for the multidimensional aspect of modern naval warfare. All new principal surface combatants are equipped with surface-to-air missiles and sensors and weapons for antisubmarine warfare, in addition to helicopters and specialized weaponry. The SOVREMENNYY DDG, for example, is estimated to carry 44 SA-N-7 short-range surface-to-air missiles, a HELIX helicopter, 53cm torpedoes, and 120 antisubmarine rockets, as well as 8 SS-N-22 supersonic antiship missiles.

A newer era still in Soviet naval development will begin soon with the launching of a new type of aircraft carrier now under construction at Nikolayev in the Black Sea. Expected to displace some 65,000 tons, this new unit will probably incorporate a nuclear propulsion system based on that of the KIROV nuclear-powered guided-missile cruiser CGN.

The ultimate flight deck configuration of the new carrier is still not confirmed, and the aircraft for its air wing are still under development. In order for this carrier to be capable of flight operations comparable in kind and tempo

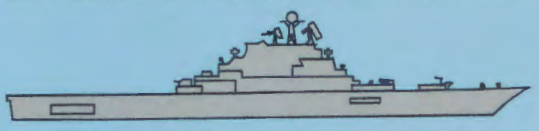
Surface Ship Comparisons

USSR

New Class Aircraft Carrier

300 Meters (est.)
Displacement 65,000 Tons

KIEV-Class Guided-Missile VSTOL Aircraft Carrier

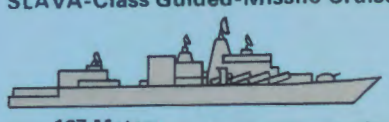


273 Meters
Displacement 37,100 Tons

KIROV-Class Guided-Missile Cruiser

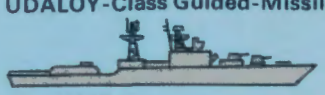
248 Meters
Displacement 28,000 Tons

SLAVA-Class Guided-Missile Cruiser



187 Meters
Displacement 12,500 Tons

UDALOY-Class Guided-Missile Destroyer



162 Meters
Displacement 8,000 Tons

SOVREMENNYY-Class Guided-Missile Destroyer

156 Meters
Displacement 7,900 Tons

US

NIMITZ-Class Aircraft Carrier

333 Meters
Displacement 91,400 Tons

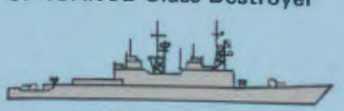
VIRGINIA-Class Guided-Missile Cruiser

175 Meters
Displacement 11,000 Tons

TICONDEROGA-Class Guided-Missile Cruiser

170 Meters
Displacement 9,600 Tons

SPRUANCE-Class Destroyer



170 Meters
Displacement 7,824 Tons

OLIVER HAZARD PERRY-Class Guided-Missile Frigate

130 Meters
Displacement 3,605 Tons

to those of the US Navy, it would require a system of catapults and arresting gear. Two catapults would enable the forward launch of aircraft with recovery on the angled deck by means of arresting wires. Other possible flight deck configurations include the option of an angled launching ramp—or ski jump—in place of catapults that would limit the type and per-

formance of embarked fixed-wing aircraft and would degrade the operational flexibility of the air wing.

In support of the development of aircraft for the new carrier, the Soviets have an active test and evaluation program underway at Saki naval airfield in the Black Sea. There, the Soviets have constructed a 975-foot flight deck outline, arresting gear, and aircraft barricades, and a catapult remains under development. In addition, two ski-jump ramps have been erected to test aircraft in short, rolling, ramp-assisted takeoffs. Several aircraft have been associated with these test facilities, including the Su-27/FLANKER, MiG-29/FULCRUM, and the Su-25/FROGFOOT. While candidates to fly aboard the new carrier themselves, these aircraft could also be testing particular aspects of sea-based aviation to support a totally new aircraft designed specifically for the stringent requirements of carrier air operations.

Although it will take several years after launch and fitting-out and training with an operational air wing to develop a credible operational effectiveness, the new Soviet carrier will enable the Soviets to extend their operations beyond the umbrella currently provided by land-based aviation. The high-performance aircraft of the embarked air wing will permit the Soviets to conduct integral air defense of task groups, decrease the vulnerability of their deployed surface forces, and eventually contribute to overall national air defense. In addition, the Soviets have an active interest in improving their distant area power projection capabilities to become more influential in the Third World. To achieve this goal, they seek enhanced capability to protect and assist ground forces operating ashore, as well as to provide air protection for naval forces. Thus, it is expected that the aircraft on the new carrier will have both air-to-air and ground-support mission capabilities.

Naval Aviation

Although there will be an increasing emphasis on sea-based aircraft development, Soviet Naval Aviation (SNA) will remain primarily a land-based force. Numbering over 1,600 aircraft, SNA alone is larger than most of the national air forces in the world today. Since the mid-1950s, when the force was first equipped with missile-carrying jet bombers, weapons systems and tactics associated with its principal antiship strike mission have been progressively upgraded. The Tupelov-designed variable-geometry-wing BACKFIRE bomber entered the SNA inventory in 1974 and is currently deployed in the Black Sea, Baltic Sea, and Pacific Ocean Fleets. The BACKFIRE can carry antiship missiles, bombs, or mines and exhibits marked improvements in performance, nearly doubling the combat radius of its BADGER and BLINDER predecessors.

Swing-wing fighter-bombers are also assigned to SNA. Its FITTER C aircraft, which can carry

The SLAVA-Class guided-missile cruiser carries sixteen, 550-kilometer antiship cruise missiles as well as air- and point-defense missiles and a 130-mm twin-barrel gun.

The AIST is the world's largest operational air cushion vehicle. Its 250-tons displacement, aircraft-type gas-turbine main propulsion, and bow and stern ramps facilitate Soviet amphibious force delivery.

over 7,000 pounds of ordnance, are well suited to such roles as the support of Soviet amphibious forces and antiship attacks against fast and highly maneuverable small combatants. Naval FITTERs were first assigned to the Baltic Fleet, and a new naval unit was formed recently in the Pacific.

ASW is an important and growing mission for SNA as new and improved airborne sensors are deployed. A BEAR F turboprop variant, designed for ASW missions, was introduced in 1970 and has since been upgraded. With a 5,000-kilometer radius and a sophisticated sensor suite, it enables the Soviets to extend the range and quality of their ASW searches. For shipboard applications, a new ASW helicopter, the HELIX, became operational in 1980. Now widely deployed in the Soviet fleets, the HELIX has significantly greater range, speed, and payload than its HORMONE predecessor.

SNA aircraft are also employed for vital maritime reconnaissance missions. Intermediate-range MAY aircraft are continuously deployed to the People's Democratic Republic of Yeman (PDRY) and periodically deploy to Libya, Syria, and Ethiopia to conduct ASW and maritime surveillance operations. Additionally, BEAR F and BEAR D long-range aircraft conduct regular deployments to staging bases in Cuba and Angola and are continuously deployed to Vietnam. Operations from these bases provide the Soviets not only with military intelligence but also with detailed information of ship movements along critical Western sea lines of communication.

Amphibious Forces

Another area of continuing development in the Soviet Navy is their amphibious assault force, Soviet Naval Infantry (SNI). Since 1968, Soviet amphibious warfare capability has improved steadily, and the SNI now numbers some 16,000 troops allocated among the four fleets. Each western fleet has a naval infantry brigade of some 3,000 men, while the Pacific Ocean Fleet contains a single 7,000-man division.

Unlike the larger US Marine Corps, which

could carry out extensive independent operations, the SNI's primary mission is to spearhead amphibious landings for other ground forces—sometimes in concert with airborne troops. Secondary missions would be to hold captured littoral areas, and to defend naval complexes. The SNI is highly mechanized, equipped with tracked and wheeled amphibious vehicles, including PT-76 tanks and BTR-60 armored personnel carriers. The recent addition of 122-mm self-propelled howitzer artillery and other upgraded weapons has improved the organic firepower of SNI units.

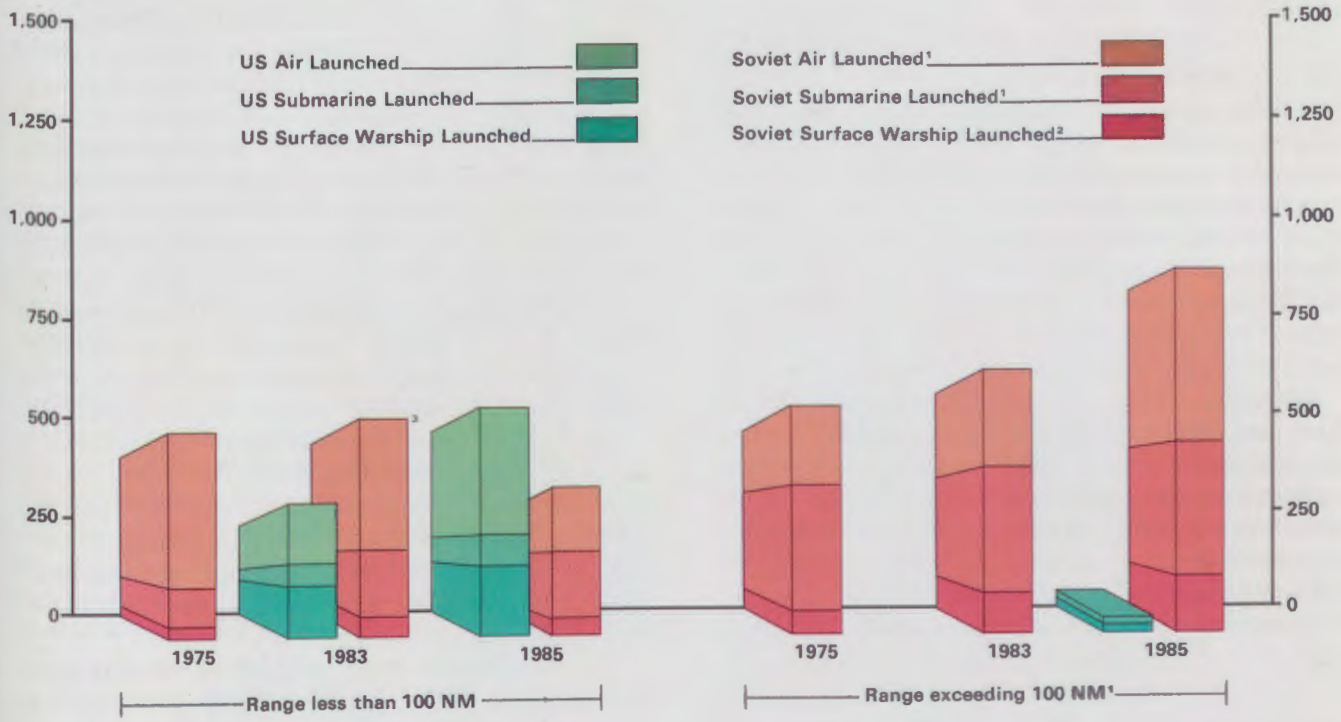
Amphibious lift for the naval infantry is provided by a number of specialized ships, the largest of which are the two IVAN ROGOV-Class amphibious assault transport docks (LPDs). The *IVAN ROGOV* can carry four HELIX helicopters and has bow doors and a wet well-deck at the stern that can accommodate two LEBED air cushion vehicles (ACVs). This ship can transport over 500 SNI troops and their equipment. Additional lift is provided by ALLIGATOR- and ROPUCHA-Class amphibious vehicle landing ships (LSTs) and smaller POLNOCNY-Class medium amphibious assault landing ships (LSMs).

The Soviet Navy is also the world's largest operator of military air cushion vehicles. These craft, because of their high speed and nondisplacement hulls, are able to move troops and equipment for short distances more rapidly and effectively than conventional landing craft. Air cushion vehicles like the GUS, LEBED, AIST, and others in development will likely play an increasing role in Soviet amphibious warfare operations.

Although numerically small, the Soviet Naval Infantry provides the Soviet leadership with a valuable political-military tool in addressing potential Third World crises. For example, on several occasions when the Rene government of the Seychelles was threatened by internal disruption, the Soviet Union dispatched combatants, including an amphibious ship with naval infantry embarked, to the capital to provide visible and tangible support for the regime.

Such contingency missions are facilitated by the routine deployment of Soviet amphibi-

Antiship Cruise Missile Launchers



[1] All Soviet weapons in these categories are nuclear-capable.
[2] Includes carriers, cruisers, destroyers, and frigates.
[3] These ASM Launchers could also carry longer-range (+ 100NM) ASMs.

ous ships to Third World areas. Pacific-based ships, with SNI embarked, maintain a near-continuous presence in the Indian Ocean and have conducted landing exercises ranging from Vietnam to Socotra Island near the strategic Gulf of Aden. Other units from the western fleets maintain a presence off the West African coast and in the Mediterranean, where joint amphibious exercises have been conducted with Syrian forces.

Naval SPETSNAZ Forces

A smaller body of specially trained troops is also present in each fleet area. Designated Special Purpose Forces, or SPETSNAZ, these troops are controlled by the Main Intelligence Directorate (GRU) of the Soviet General Staff and are trained to conduct a variety of sensitive missions including reconnaissance, sabotage, and assassination operations. A brigade-size unit is assigned to each of the four Soviet fleets.

In wartime, small 5-12 man teams would be transported to a target area by aircraft, submarine, or surface ship and would be inserted immediately prior to hostilities. Their training includes parachuting, scuba diving, demolition, sabotage, surveillance, and target selection, as well as languages, such as English and French.

Once deployed, naval associated SPETSNAZ would conduct reconnaissance and tactical operations against a wide variety of naval targets, such as ship and submarine bases, airfields, command and intelligence centers, communication facilities, ports, and harbors, radar sites, and —of prime importance —nuclear weapons facilities. Though a small force, SPETSNAZ has the potential to achieve results disproportionate to its size against such a critical, yet often vulnerable, target list.

Maritime Border Guard. In addition to the fleet and SPETSNAZ forces, the Soviet Union maintains an armed force of some 20,000 men assigned to the Maritime Border Guard subordinate to the KGB. It is the approximate Soviet counterpart of a coast guard and is charged with maintaining maritime border security and augmenting the Navy's coastal ASW and antisurface warfare capabilities in wartime. It is equipped largely with corvettes and patrol combatants, but in 1984, its Sea of Japan contingent received the first helicopter-equipped KRIVAK III-Class frigate, a major improvement in surveillance and combat capabilities.

US Naval Forces

An essential element of US defense capabilities is the ability to conduct maritime operations across the full spectrum of contingencies in support of US and allied interests. The US Navy is embarked on an important shipbuilding program that will expand the fleet to 600 ships, providing the naval forces needed to respond to the continuing buildup and modernization of Soviet naval forces. Additionally, the increase of naval forces will give the United States an improved capacity for naval power projection, including employment of Marine amphibious forces in geographical areas of strategic importance.

The nucleus of the 600-ship force consists of 15 carrier battle groups, 4 battleship surface action groups, 100 nuclear-powered attack submarines, 10 underway replenishment groups, and sufficient lift for the simultaneous movement of the assault echelon of a Marine Amphibious Force and Marine Amphibious Brigade (MAB), including their supporting air elements.

Replacement of older and less capable amphibious ships by the LHD-1, LSD-41, and LSD-41-variant classes of ships capable of handling air-cushion landing craft will provide a new and expanded amphibious lift capability. This will also provide an adequate rotational base for our peacetime forward-deployed amphibious forces and signal the beginning of an over-the-horizon assault capability using helicopters and air cushion vehicles.

In addition to the future shipbuilding program, the existing fleet is being modernized by installation of system improvements. All 30 cruisers in the current inventory, both nuclear and conventionally powered, are receiving a longer range surface-to-air missile (SM-2) and a faster, more tightly integrated computerized combat system called New Threat Upgrade. Twenty-four of the 31 SPRUANCE-Class destroyers will receive the vertical launch system (VLS), enabling them to carry many more antisubmarine rockets (ASROC) and the TOMAHAWK missile. The remaining SPRUANCE-Class destroyers, although not outfitted with VLS, will be capable of launching TOMAHAWK.

In comparison with earlier nuclear attack submarines, the LOS ANGELES-Class is quieter, faster, and more capable. Armed with improved MK-48 antisubmarine and antiship torpedoes, HARPOON antisurface ship and TOMAHAWK cruise missiles, the LOS

Naval Ship Construction USSR and NATO[1]

Ship Type	1980 USSR	1981 USSR	1982 USSR	1983 USSR	1984 USSR	1984 NATO
Submarines	13	11	8	10	9	8
Major Combatants	11	9	8	10	9	19
Minor Combatants	65	45	55	45	45	34
Auxiliaries	9	6	5	6	5	11

[1] Revised to reflect current total production information. Includes United States; excludes France and Spain.

ANGELES-Class SSNs provide an effective counter to the new classes of Soviet submarines and surface ships. Operational in both the Atlantic and Pacific Fleets, a total of 18 LOS ANGELES-Class submarines are programmed to be authorized between FY 1985 and FY 1989, in addition to the 28 in the current inventory.

Tactical aviation is expanding to support the growing fleet, with the Navy's 14th active carrier air wing scheduled to be activated in FY 1987. The dual-mission F/A-18 has been introduced to the fleet with 4 Navy and 3 Marine squadrons currently established and 24 Navy and 12 Marine F/A-18 squadrons programmed by FY 1990. An aggressive modernization program is underway upgrading the F-14B and A-6E to meet and counter the threat of the 1990s. An ASW capability necessary to counter the increasing submarine threat will be provided through a number of improvement programs including P-3C update IV, S-3B Weapons System Improvement Program, and the SH-60B and CV inner-zone helicopters. In addition, effective antiair warfare capabilities are necessary to counter improvements in Soviet standoff systems. Programs are underway to upgrade the PHOENIX missile for the F-14A and improve battle force long-range AAW capability with the AEGIS, New Threat Upgrade Systems, and SM-2 missile family.

Current deficiencies in US Navy mine countermeasures capability will be reduced as new, more effective mine warfare platforms such as the AVENGER-Class minesweeper (MCM-1) enter the fleet.

The Navy-Marine Corps amphibious team provides a significant combat force that is essential to deterrence and power projection requirements. During FY 1986, the Marine Corps will maintain three Marine Amphibious Forces (MAFs) within its active structure, one in the western Pacific and one on each coast of the United States. The Marine Corps Reserve's 4th Marine Division-Wing Team will continue to augment and reinforce the three active MAFs or provide another division-wing team under mobilization conditions.

The Marine Corps is restructuring infantry battalions to increase firepower and tactical mobility. Introduction of more advanced weapons will improve combat capabilities. A 25-percent increase in DRAGON antitank missile teams in each battalion and an additional TOW antitank missile platoon in each regiment will improve antiarmor capabilities.

The US Navy will continue to improve its capability to operate in the open ocean and high-threat areas while performing offensive missions in support of allies and forces ashore.

Soviet Merchant Fleet

Going beyond the strict categorization of military forces, the Soviet concept of seapower envisions the use of all its maritime resources, including the Merchant Marine and large fishing and research fleets, in support of state policy. Since World War II, the Soviet Merchant Marine has grown from a group of rusting coastal freighters to rank fifth in the world in numbers of ships and eighth in terms of deadweight tonnage.

The growth of the Soviet Merchant Marine to some 1,700 ships has been carefully directed to create a fleet that can perform a commercially competitive peacetime mission and satisfy military logistics requirements in crisis or war. Continued Soviet attention to the military application of its maritime fleet is reflected in substantial investment in new ships and associated facilities that, in many cases, clearly surpass their demonstrated and projected commercial applications.

Merchant ships produced over the last two decades increasingly have been constructed to military standards, incorporating such key features as chemical-biological-radiological (CBR) protection, increased endurance and service speeds, improved capability in handling gear and self-servicing features, advanced communications, navigation and electronics, including identification-friend-or-foe (IFF) systems—systems restricted to naval ships in the West.

The current Soviet Merchant Marine shipbuilding program emphasizes technological modernization in designs that have direct

military applications. These include: roll-on/roll-off (RO/RO), roll-on/float-off (RO/FLO), lighter aboard ship (LASH), and container ships.

The operations of the Merchant Marine are closely coordinated with naval requirements from the Moscow level down to the smallest port facility. On a regular basis, a significant amount of logistic support required by the Soviet Navy in peacetime, especially in distant areas, is provided by merchantmen. This flexibility allows Soviet merchant ships to obtain supplies for naval use in ports where warship visits might be denied. In a crisis, the highly organized, centrally controlled merchant fleet can provide suitable military support quickly and effectively, particularly for amphibious operations, troop movements, and arms shipments. For example, to support a military operation against Japan, the Soviet Far East merchant fleet has an estimated capacity to transport up to seven motorized rifle or tank divisions in a single lift operation if given appropriate conditions of sea and air superiority. To ensure their readiness to perform such missions, Soviet merchant ships are commanded largely by naval reserve officers and routinely participate in major naval exercises.

Soviet Naval Deployments

With the acquisition of larger, more capable ships over the past two decades, the Soviet Navy has dramatically increased at-sea operations. Today, the Soviet Union maintains a naval presence in virtually every maritime theater. Soviet naval ships, supported by submarines and aircraft, provide a visible element of Soviet power and a credible military presence opposite NATO and Japan and in critical areas of the Third World.

Mediterranean Sea. The Soviets maintain some 45 ships and submarines in the Mediterranean Sea, where they serve to promote Soviet policies and increase the range of Soviet political and military options in crisis. This contingent of ships, the Soviet Mediterranean Squadron (SOVMEDRON), can be augmented quickly and substantially by units of the Black Sea Fleet. SOVMEDRON units regularly carry out antisurface ship, antisubmarine, and air defense exercises and have participated in joint exercises with Syrian and Libyan forces, as well as with other navies of the Warsaw Pact. SOVMEDRON combatants routinely shadow ships of the NATO nations and have established operating areas near chokepoints. They are thus poised to move quickly to block strategic straits essential to support the Southern Region of NATO.

Indian Ocean. Following the 1979 invasion of Afghanistan, Soviet naval presence in the Indian Ocean rose dramatically to some 30 ships through 1982 but has since stabilized at an average of about 20 ships on continuous deployment. The Soviet Indian Ocean Squadron (SOVINDRON) conducts operations, port visits, and show-the-flag missions designed to enhance the political image and military position of the Soviet Union. The squadron has demonstrated a capability and willingness on the part of the USSR to employ its naval power in support of regional objectives. Normally, the majority of the force operates in the northwestern Arabian Sea astride the vital oil lines from the Middle East. Support facilities are maintained in Ethiopia, where a floating drydock is positioned at Dahlak Island, and in Aden, PDRY. Considerable effort is also being devoted to broaden naval access throughout the area in strategically located islands and littoral countries including Mozambique, Mauritius, the Seychelles, the Comoro Islands, and India.

South China Sea. Before 1979, Soviet naval units only occasionally operated in the South China Sea. However, in the past several years, their presence, centered on Cam Ranh Bay, has increased dramatically to an average of over 25 deployed units. Cam Ranh Bay itself has evolved from an infrequently utilized support facility to a major staging complex for Soviet Pacific Ocean Fleet submarines, ships, and aircraft. The complex, still under development, encompasses missile storage and handling, fueling, communications, barracks, and other support facilities. Permanent facilities to support a deployed squadron of BADGER strike and reconnaissance aircraft are under expansion and could support up to a 30-aircraft, regimental-size force. A squadron of Soviet-manned MiG-23/FLOGGERs that has recently become operational at Cam Ranh will provide air defense and strike escort for Soviet BADGERs operating in the region. Their increasing naval presence in the South China Sea offers the Soviets distinct military advantages by providing the capability to augment the SOVINDRON in crisis, monitor and interfere with

Soviet Naval Fleets

BALTIC FLEET

SURFACE COMBATANTS*	390
SUBMARINES	33 (INCLUDES 6 SSB AND 27 GENERAL PURPOSE)
NAVAL AVIATION	270
NAVAL INFANTRY	1 BRIGADE

NORTHERN FLEET

SURFACE COMBATANTS*	212
SUBMARINES	180 (INCLUDES 41 SSBN/SSB AND 139 GENERAL PURPOSE)
NAVAL AVIATION	440
NAVAL INFANTRY	1 BRIGADE

BLACK SEA FLEET/CASPIAN FLEET FLOTILLA

SURFACE COMBATANTS*	380
SUBMARINES	33 (INCLUDES 1 SSB** AND 32 GENERAL PURPOSE)
NAVAL AVIATION	435
NAVAL INFANTRY	1 BRIGADE

PACIFIC OCEAN FLEET

SURFACE COMBATANTS*	441
SUBMARINES	134 (INCLUDES 31 SSBN/SSB AND 103 GENERAL PURPOSE)
NAVAL AVIATION	500
NAVAL INFANTRY	1 DIVISION

* Includes aircraft carriers, principal surface combatants; patrol, mine, and amphibious warfare ships and craft.
** GOLF V Class SSB used for sea-launched ballistic missile research and development.

international shipping along a major sea route, threaten the southern coastal areas of China, and strike US and allied air and naval forces in the South China Sea and in the Philippines.

West Africa. Since December 1970, the Soviets have maintained a naval presence off the west coast of Africa, drawing on assets from the three Soviet western fleets. An average of three combatants and three support ships operate in the Gulf of Guinea, often calling at Angolan ports to which they have had easy access since Marxists seized power in 1976. Aside from the small Nigerian and South African navies, the Soviet combatants maintain the only continuous naval presence in that area of the South Atlantic astride the vital oil route from the Persian Gulf to Western Europe.

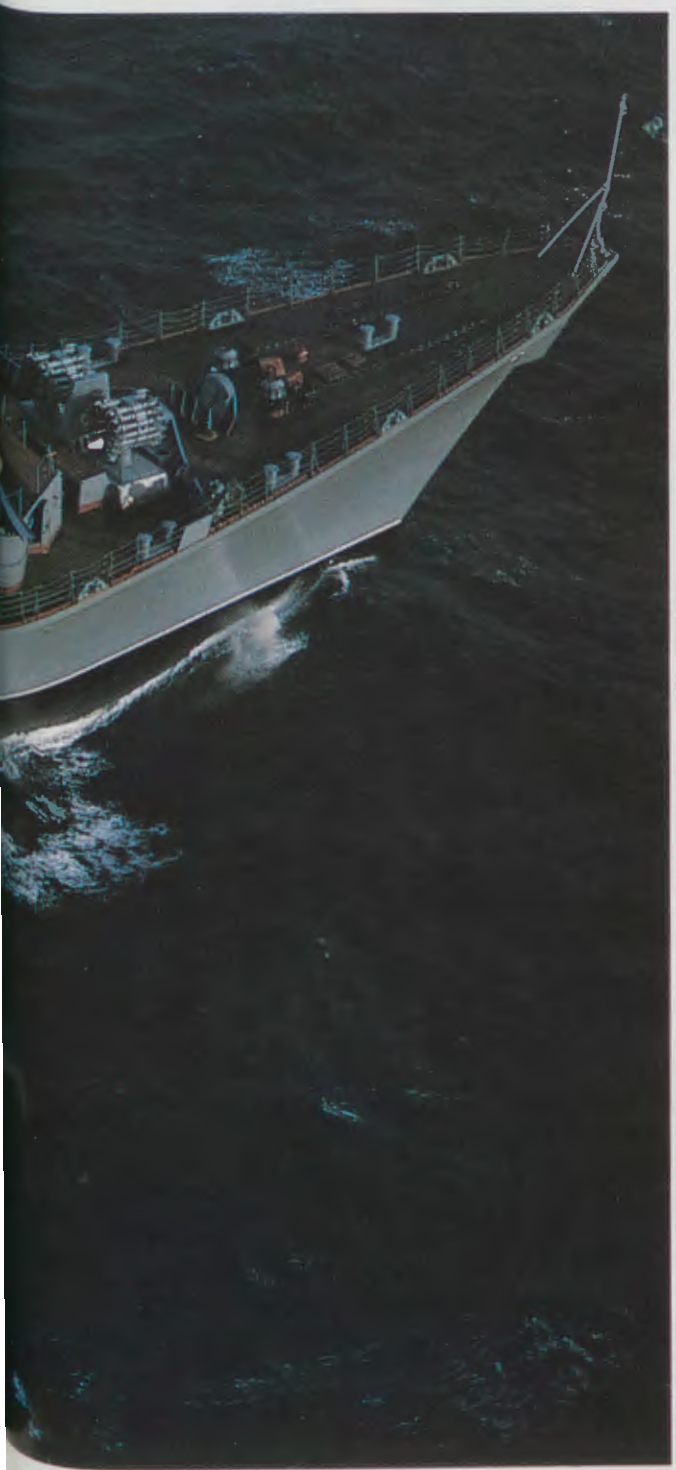
Caribbean. Since 1969, the Soviets have deployed 24 naval task groups to the Caribbean to provide visible support for the Castro regime and to demonstrate an ability to operate in waters close to the United States. In conjunction with these deployments, Soviet ships visit Cuban ports, conduct exercises with the Cuban

Navy, and often probe regional defenses by operating deep into the Gulf of Mexico. In the summer of 1984, the Soviet aviation cruiser *LENINGRAD*, accompanied by a destroyer and a Cuban frigate, conducted the first-ever joint exercises within the Gulf of Mexico. Subsequently, a second combined task group comprised of a SOVREMENNYY guided-missile destroyer, two KRIVAKs, a TANGO submarine, and support ships deployed to the Caribbean in December 1984 and continued operations into 1985.

Force Training

Though deployed Soviet naval forces present a formidable challenge to the West, they represent only about 10-15 percent of the ocean-going naval forces of the Soviet Union. In

peacetime, the bulk of the Soviet Navy operates within the local fleet area, conducting frequent exercises that provide the West with a larger view of the capabilities of Soviet naval forces. Naval exercises, designed to test new systems and tactics and to prepare crewmen and commanders for wartime missions, may be sharply focused on a single warfare area such as ASW or may be very broad in scope. The Soviets recognize that naval forces would not act in isolation during wartime, and their exercises underscore naval integration with both air and ground forces.



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Frequent antisurface ship and antisubmarine exercises are conducted in the Norwegian, Barents, and Mediterranean Seas, in the Sea of Japan, and off Kamchatka. These exercises are focused on destroying targets in the maritime approaches to the Soviet Union, yet at a considerable distance from Soviet territory. Simulated surface, submarine, and air attacks are conducted against Soviet combatants representing "intruder" forces, or sometimes, for added realism, against actual Western task groups operating in adjacent areas.

The Soviets also conduct exercises with other Warsaw Pact navies to practice integrated wartime command and operational procedures. Exercises with the East German and Polish navies in the Baltic are frequent and have often extended into the North Sea. Training with Black Sea nations, particularly Bulgaria, is also actively pursued. Annual exercises in both the virtually landlocked Baltic and Black Seas emphasize training for a combined arms operation to seize control of the straits' approaches.

The Soviet Navy also conducts fully integrated, complex exercises of a worldwide scope that clearly demonstrate the range of Soviet naval capabilities. The latest of these was conducted in September 1983 and involved at least 40 surface combatants, 25 submarines, and 100 aircraft sorties—many from airfields outside the Soviet Union. The exercise demonstrated the full integration of the Merchant Marine, with the largest number of non-naval ships ever to participate in a naval exercise. Maneuvers included antisubmarine, anticarrier, SLOC interdiction, and convoy escort operations designed to test new platforms and to evaluate the Soviet ocean surveillance system and overall command, control, and communications (C^3) systems in worldwide scenarios.

With the acquisition of larger, more capable ships over the past two decades, the Soviet Navy has dramatically increased at-sea operations. Today, with units such as this KARA-Class guided-missile cruiser, the Soviet Union maintains a naval presence in virtually every maritime theater.

Tu-95/BEAR D naval reconnaissance aircraft conduct regular deployments to Cuba and Angola and are stationed in Vietnam as part of the Soviet Navy's expanding global presence.

Research and Development

Throughout the remainder of the century, the Soviet Navy will continue to develop as a balanced and powerful force that will constitute the primary worldwide threat to US and other Western naval forces. The Soviets support a wide variety of research and development efforts that will continue to stimulate an expanding industrial base oriented primarily toward military systems and construction.

In the area of naval technologies alone, the Soviets produce approximately 1,500 graduates annually. This is contrasted with the approximately 400 yearly graduates of the 10 major US universities that offer a curriculum in shipbuilding technologies. Soviet naval research institutes, whose programs are directly applied to naval weapons systems, have experienced a steady annual growth since the early 1970s and are continuing to expand. Separate naval test facilities under continuous modernization and a growing fleet of over 170 specialized naval research ships are also dedicated to the Soviet naval R&D effort.

The Soviets have a large-scale program to acquire, by any means necessary, a broad range of Western technologies critical to the enhancement of Soviet naval weapons capabilities. This technology transfer allows the Soviets a preview of future Western military systems and enables them not only to reduce their own inherent R&D risks by exploiting proven Western designs but also to develop prospective countermeasures.

This dynamic R&D effort points to new weapons and sensors evolving within the next ten years in virtually every category of naval warfare, including:

- the introduction of laser weapons on surface combatants;
- improved ocean surveillance systems, including the routine use of manned space platforms for military reconnaissance;
- a variety of new and improved SLBMs with greater accuracy, range, and MIRV capability;
- increased production of nuclear submarines with improved weapons, sensors, propulsion, and sound quieting;
- larger, more heavily armed surface combatants emphasizing nuclear power, endurance, and sustainability;
- new, longer range antiship cruise missiles with increased stand-off range and an ability to penetrate defenses;
- greatly improved command, control, and communications capabilities aboard new surface, air, and submarine platforms;

- expansion of automated battle management capability and fleet-wide deployment of advanced ADP equipment; and
- the deployment of at least two long-range, land-attack sea-launched cruise missiles.

NATO Warsaw Pact Comparison

The NATO Alliance's 1984 edition of *NATO and the Warsaw Pact-Force Comparisons* provides the following comparative naval forces data; French and Spanish force data are presented in Chapter IV:

> The Warsaw Pact navies include an increasingly modernized submarine force which poses a serious threat to NATO's sea lines of communication. There is also a wide range of modern surface vessels fitted with antisubmarine weapons systems, antiair missiles and some which carry fixed-wing aircraft and/or helicopters. The capabilities of these naval forces, complemented by a force of land-based naval attack aircraft, include standoff weapons and cruise missiles. Approximate numbers of Warsaw Pact naval forces expected to face NATO (i.e. excluding the Pacific Fleet) are shown for 1971, 1981 and 1983, to provide a trend in quantitative terms.... There have been major qualitative improvements in individual naval units and supporting systems of the NATO navies which are reflected both in new construction and modernisation programmes. Included amongst such improvements are the capabilities of shipborne aircraft, anti-surface ship missiles, anti-submarine warfare detection systems, command and control, electronic warfare, and submarine noise suppression. The strategic missile submarine forces have been enhanced with the introduction of the OHIO class submarines and the Trident missile system. Despite these improvements, the high cost of ship construction has set a trend towards less than one-for-one replacement.... The tables comparing NATO and Warsaw Pact maritime forces indicate the strengths and capabilities called for by the different missions of the forces concerned.

NATO and Warsaw Pact Maritime Forces in the North Atlantic and Seas Bordering Europe

Category	NATO			Warsaw Pact		
	1971	1981	1983	1971	1981	1983
Aircraft Carriers						
VSTOL Carriers	9	7	10	—	—	—
KIEV Class Ships	—	—	—	—	2	2
Helicopter Carriers	6	2	—	2	2	2
Cruisers	11	15	14	20	21	23
Destroyers and Frigates	381	274	277	142	182	187
Coastal Escorts and Fast Patrol Boats	180	167	192	553	551	515
Amphibious Ships						
- Ocean-Going	24	41	44	7	16	19
- Independent Coastal Craft	62	69	69	190	155	174
Mine Warfare Ships	349	257	273	374	360	378
Total Submarines (All Types)	195	190	197	248	258	246
- Ballistic Missile Submarines	38[1]	35[1]	35[1]	38[1]	52[1]	49[1]
- Long Range Attack Submarines	72	60	67	115	149	142
- Other Types	85	95	95	95	57	55
- % Submarines Nuclear Powered	50%	49%	50%	32%	45%	64%
Sea-Based Tactical ASW and Support Aircraft Including Helicopters	801	712	685	36	146	181
Land-Based Tactical and Support Aircraft Including Helicopters	112	180	366[2]	521[3]	719[3]	700[3]
Land-Based Anti-Submarine Warfare Fixed Wing Aircraft and Helicopters	471	450	454	225	179	228

Excludes France and Spain

[1] Also referred to in the section on nuclear forces.

[2] For 1983, includes U.S. Marine Corps aircraft and helicopters.

[3] About 300 of these are bombers.

From 1984 Edition of NATO Publication: NATO and the Warsaw Pact-Force Comparisons

Chapter VII

Global Ambitions

The Soviet Union has long sought a dominant role in the international arena. The most visible aspect of Soviet ambitions has been territorial expansion. Prior to World War II, the Soviet Union's efforts to extend its influence and control beyond its national borders resulted in the annexation of the Baltic states of Latvia, Lithuania, and Estonia and the absorption of territory from Romania and Finland. Following the war, the Soviets annexed territory from Germany, Czechoslovakia, Poland, and Japan. Similar moves were made against Iran and Austria but were rebuffed by Western actions. The annexations and the imposition of Communist regimes in Eastern Europe, stretching from the Baltic to the Black Sea, transformed the Red Army from a force for enforcing Communist goals in the homeland into an offensive arm of Soviet imperialism.

The creation of strong alliances by the West has helped halt the Soviets' territorial expansion in the east and west, although these alliances have not diminished Soviet desires to be the dominant world force. A major manifestation of the Soviet Union's global ambitions since the 1960s has been its steadily expanding presence and reach beyond Soviet borders to the most distant oceans and throughout the Third World. Reflecting the continuing increase in Soviet military force capabilities, this military presence abroad has supported a continuing, aggressive Soviet foreign policy aimed at expansion of Soviet influence around the world.

As the USSR's ability to project power has improved, the Soviet forces abroad have grown apace and today include:

The Soviet Union has transformed Cam Ranh Bay, Vietnam, and its adjoining airfield into a major forward deployment base enhancing Soviet military capabilities in the Pacific, Southeast Asian, and Indian Ocean regions. In extending its military reach, the USSR is tenaciously pursuing increased access to land, sea, and air facilities for use by its forces in a growing number of Third World nations.

Soviet Naval Reconnaissance Aircraft Operating Areas — 1965

Soviet Naval Reconnaissance Aircraft Operating Areas — 1985

* Newly constructed airfield capable of handling Soviet long-range reconnaissance aircraft.

- worldwide naval and air deployments;
- frontline combat forces positioned throughout Eastern Europe and Mongolia and engaged in battle in Afghanistan;
- additional ground and air defense troops in Cuba and the Middle East; and
- military technicians and security advisers in the Middle East, Africa, Asia, and Latin America.

In extending its military reach, the Soviet Union has developed a global network of communications and intelligence collection sites; it has underwritten the military combat, support, and advisory roles of its Cuban and East European proxies; and it has tenaciously pursued increased access to military facilities—land, sea, and air—in a growing number of Third World nations.

The attainment of rough strategic nuclear parity with the United States by the mid-1970s, combined with the fielding of large, modern ground and air forces and increased naval and airlift assets, provided the Soviet Union with a stronger base for the implementation of more aggressive activities abroad. Events in the Third World also provided new opportunities for Soviet involvement. The results have often been less successful than the Soviets hoped, but in a number of instances, Soviet activities have worked to the detriment of Western interests. The outbreak of civil war in Angola provided an opening for the Soviets and their Cuban allies to install a pro-Soviet regime. In Ethiopia, following the overthrow of Haile Selassie and the subsequent request for Soviet aid by the new regime, the Soviets and Cubans were quick to respond with massive military aid, military advisers, and Cuban combat forces. That significant Soviet and Cuban presence continues today. The US withdrawal from Vietnam and the ensuing Sino-Vietnamese clash led to Soviet access to Vietnamese naval and air facilities. In Central America, guerrilla movements presented new opportunities for Soviet, East European, and Cuban exploitation.

Military Assets Abroad

Given the effectiveness of Alliance deterrence since the end of the Second World War, the Third World has taken on new importance to Soviet strategists. Soviet or proxy forces now regularly appear—and are often used—during regional crises or confrontations. Approximately 24,000 military advisers—quadruple the 1965 figure—are stationed in about 30 countries. Soviet combat or air defense units have operated in Afghanistan, Cuba, Syria, and Vietnam. Naval aircraft are stationed in the People's Democratic Republic of Yemen (South Yemen) and Vietnam and periodically deploy to Cuba, Angola, Syria, and Libya. Soviet military transport aircraft are on loan to various countries. Naval communications facilities are in Cuba, Angola, South Yemen, and Vietnam. Intelligence collection sites have been established in Cuba, South Yemen, and Vietnam.

In addition to the presence of these forces, the Soviets are striving to develop and sustain an interlocking and pervasive infrastructure of influence through treaties of friendship, active and informal alliances, penetration and training of Third World military cadres, the acquisition of overflight rights, and a world-wide base support system for the Soviet forces.

The USSR currently has limited capability to inject home-based military forces quickly into rapidly changing overseas situations. In order to advance its interests further, the Soviet Union is placing considerable reliance on the enhancement and use of in-place military assets abroad, both in peacetime and during regional crises.

The Soviet Navy is the most visible element of the Soviet Union's forward military presence. The Navy has vastly increased its capabilities since the mid-1960s for the projection of power. Except for combat forces in Afghanistan, no other Soviet military asset has played as significant a role in Soviet policy toward the Third World. Soviet Naval forces can play roles of major significance in power projection in peacetime—with missions ranging from showing the flag to threatening strategic areas and waterways—in regional conflicts, as well as in the initial period of global hostilities. Despite geographic constraints on its forces and limited operational flexibility in distant areas, the Soviet Union's military and political strategy in the Third World has been tailored to maximize its strengths while minimizing weaknesses. In general, this strategy has yielded relatively high returns for the Soviets.

The acquisition of and access to facilities in the Third World are integral parts of the Soviet Union's policy of extending its global reach. These bases, ports, and anchorages contribute to the operational readiness of Soviet naval air, surface, and submarine forces. Access to facilities for Soviet combatants, auxiliaries, and aircraft includes understandings with Third World countries for occasional port visits, berthside provisioning and minor maintenance, bunkering of fuel oil, and use of local shipyards for repair or overhaul; it also includes, however, the additional right in some countries to construct and operate exclusive installations for the support of land, sea, and air units; for command and control; for logistics storage; housing of personnel; and intelligence collection.

From the USSR's perspective, the acquisition of naval access privileges in nations bordering distant deployment waters serves both operational and political purposes. Operationally, the Soviets' use of foreign facilities contributes to their ability to sustain worldwide deployments. It provides an opportunity for peacetime reconnaissance of Western naval forces that could extend into the early stages of hostilities. Politically, naval forces abroad can reinforce the Soviets' response to regional crises, underscore their commitment to specific policies or local regimes, and support their efforts either to strengthen ties or to destabilize individual governments.

The USSR has succeeded in gaining military access to countries where the local regime needed military support against domestic opponents, was faced with a major external threat, or desired Soviet military or economic aid. Currently, every country in the Third World having Soviet military facilities or providing military access has been the recipient of substantial Soviet arms aid, political support, or a combination of both.

Access to overseas facilities, deployed repair ships, and protected anchorages extend time-on-station of both Soviet naval surface combatants and submarines. Land-based sites offer redundant communications links and improved reception in distant areas. The fivefold increase in the amount of time Soviet naval air units have spent in overseas deployments since 1979 reflects the increasingly important contribution of such aircraft to Soviet ocean surveillance capabilities, which also include satellites, shore-based high-frequency direction-finding sites, naval combatants, merchant and fishing ships, and human sources.

The Soviets now have military sites and capabilities in every major region of the world. Cuba is the USSR's most important ally in the Third World and is the base for Soviet access to the Caribbean and Latin America. Vietnam may eventually play a similar role in Southeast Asia and the Pacific. A Soviet combat brigade of more than 2,500 men is continuously deployed in Cuba and engages in regular field training exercises.

Cuba's proximity to the United States greatly enhances Soviet intelligence collection activities. Access to Cuban naval and air facilities provides valuable benefits to the Soviets in peacetime and could be advantageous in wartime. If the Soviet Union decided to pursue an even more active military role in the region, Cuba would have more than sufficient port capacity for the naval surface and submarine forces the Soviets might wish to deploy to the area. Cuban airfields, which already provide intermittent basing for surveillance aircraft, could serve as recovery bases for bombers, thereby extending the range that So-

SOVIET GLOB

SOVIET MILITARY PERSONNEL IN THE THIRD WORLD

	(Est.)
Latin America (including Cuba)	7,900
Sub-Saharan Africa	3,600/4,000
Mideast and North Africa	9,000
Asia (including Vietnam)	3,500
Afghanistan	115,000

CUBAN MILITARY PERSONNEL IN THE THIRD WORLD

Latin America	2,500-3,500
Sub-Saharan Africa	35,000-37,000
Mideast and North Africa	500

Soviet Arms Transfers (1977-1984)
$1 billion or more
$50 million—$1 billion
Soviet Treaties of Friendship
Soviet Military Personnel
Mutual Defense Treaties
Major Cuban Presence


WER PROJECTION
ARCTIC OCEAN
Soviet Union
Finland
Mongolia
China
Japan
Turkey
Iraq
Iran
Afghanistan
Pakistan
India
Nepal
Burma
Thailand
Vietnam
Cambodia
Egypt
Saudi Arabia
Kuwait
Bahrain
Qatar
U.A.E.
Oman
Sudan
Somalia
Djibouti
Sri Lanka
Maldives
Indian Ocean
(20-25 Ships, Average)
INDIAN OCEAN
Hong Kong (U.K.)
Macao (Port.)
South China Sea
(25-30 Ships, Average)
PACIFIC OCEAN
Philippines
Brunei (U.K.)
Malaysia
Singapore
Indonesia
Papua New Guinea
Nauru
Kiribati
Solomon Islands
Tuvalu
Western Samoa
Fiji
Tonga
Australia
New Zealand
Uganda
Kenya
Rwanda
Burundi
Tanzania
Seychelles
Comoros
Zambia
Malawi
Zimbabwe
Madagascar
Mauritius
Mozambique
Swaziland
Lesotho
Major Soviet Naval Operating Areas
Deployed Soviet Naval Forces
SSB/SSBN Operating Areas
Soviet Naval Access
Airfield Access

viet planes would have for attack missions in the region. Massive Soviet military aid and training assistance have raised the status of Cuban military and paramilitary forces to the position of the second largest military power in the Western hemisphere. In addition to its usefulness as a Soviet proxy, Cuba now has the capability to threaten sea and air lines of communication in the Caribbean, the Gulf of Mexico, and the southeastern United States.

In Africa, Soviet naval ships of the West African Patrol have the capability to intervene in regional crises. Operating astride vital international sea routes in the southern Atlantic, where the West does not routinely operate naval or air units, the Soviet patrol could inflict damage and disruption out of proportion to its size and offensive capability should conflict occur. The largest Soviet Military Transport Aviation (VTA) detachment abroad is deployed to Angola. Soviet Navy maritime patrol aircraft fly missions over the Indian Ocean from Al-Anad airfield in South Yemen. A naval repair and replenishment facility at Dahlak Island in the Red Sea provides support for the Soviet Indian Ocean Squadron, which normally ranges from 20 to 25 units, including surface combatants, attack and cruise missile submarines, and auxiliaries. South Yemen's port of Aden and Socotra Island also support and provide anchorages for Soviet naval ships. The Soviet communication and intelligence collection facilities in South Yemen could greatly assist the Soviet Indian Ocean Squadron's capabilities during any crisis.

The Mediterranean and the Middle East have historically been the most active regions of the Third World for Soviet military forces. The Mediterranean Squadron, which includes cruisers, frigates, destroyers, attack submarines, intelligence collection ships, and auxiliaries, is one of the largest, most capable Soviet naval forces operating beyond the USSR's home waters. During peacetime, the Squadron spends time on the surveillance of Western naval forces. The Squadron also supports Soviet interests by its influence-exerting presence on the nations of the Mediterranean littoral and its military support for client countries. Access to ports in the region, such as Tartus, Syria, allows the Squadron to deploy for extended periods without returning to home waters for maintenance and repair.

Soviet advisory personnel provide a ready capability to aid a client state during a crisis—aid ranging from increased participation in the operation of sophisticated equipment for the client state's armed forces to covert participation in combat operations. For example, Soviet advisory personnel in Syria are being used to improve the overall effectiveness of the Syrian Armed Forces. The SA-5 surface-to-air missile equipment in Syria, in addition to enhancing Syria's air defense, provides a dramatic symbol of Soviet support. The potential stationing of Soviet troops in Syria, while of questionable military utility, would send a strong political message to both Syria and its potential foes. In the event of war, the Mediterranean Squadron would be tasked with gaining sea control of the eastern Mediterranean and protecting the Soviet Union's southwestern flank. Soviet pilots serving as advisers in Syria, and to a lesser extent in Libya, could be used to fly reconnaissance or combat missions in the region.

In Asia, Soviet forces and facilities in Afghanistan could provide an established support base in the event of military operations in the Persian Gulf area and against Pakistan. Development of Cam Ranh Bay, Vietnam, into a Soviet facility of increasing importance has allowed the Soviets to sustain the growth of its naval and naval air forces in the South China Sea. Cam Ranh is now the center of the largest concentration of Soviet naval units outside the USSR. Approximately 30 units—including surface combatants, conventional and nuclear-powered submarines, and naval auxiliaries—operate in the South China Sea. The adjacent air base supports long-range naval reconnaissance, strike, and tactical fighter aircraft. This base provides the Soviets with strategic geographic positioning from which to follow US operations in the South China Sea, Indian Ocean, and Pacific Ocean. Operating from this base, Soviet air and naval forces could strike US military units and bases in the Pacific as well as interdict sea lines of communication in the South China Sea. Soviet signal intelligence facilities in Vietnam, combined with reconnaissance aircraft operating from Cam Ranh Bay, provide Soviet military forces with significant capabilities in peacetime or wartime to monitor US military activities in Southeast Asia and in the Pacific.

Instruments of Power Projection

The Soviets have been persistent in their efforts to gain influence and deter Western access to the Third World. They have fol-

lowed a somewhat pragmatic approach in dealing with governments and opposition groups regardless of their ideological views. In addition to deployed forces, the Soviets have developed a variety of instruments to gain access and influence, including treaties of friendship, military assistance, the use of proxies, naval port calls, visits by high-level dignitaries, limited economic aid, propaganda, and covert activities.

Military assistance has been the most effective Soviet foreign policy instrument. From 1955 through 1984, the Soviets delivered almost $90 billion worth of arms to Third World clients. The training of client state personnel and the dispatch of advisers and instructors are major parts of the Soviet arms export package. Over the past three decades, some 69,000 Third World military personnel have received training in the USSR and other Communist countries. The Soviets also make extensive use of proxies to act in their behalf, promoting military coercion and terror in the Third World. The most active of these proxies are Cuba, Vietnam, East Germany, and Bulgaria. Economic and humanitarian aid, however, is meager. For example, the USSR has not made a major contribution to the relief of starvation in Ethiopia.

Soviet activities in the Third World contribute to a strategy designed to undermine US and Western influence by creating instability while avoiding direct confrontation. Soviet aims in the Third World are to:

- promote the destabilization of democratic, pro-Western governments;
- assist in the accession to power of Communist regimes and strengthen their control over the indigenous populations;
- gain access to overseas air and naval facilities;
- obtain political support from Third World countries;
- increase the potential to limit or impede Western access to strategic resources; and
- increase the USSR's prestige and standing as a global superpower.

Latin America

Soviet involvement in the Caribbean Basin has increased markedly over the past few years. The Soviet approach has been varied and tailored to the conditions found in different countries in the region. The strategic objective of the USSR, supported by Cuba and Nicaragua,

The USSR's 24th naval deployment to the Caribbean included a KRIVAK I-Class guided-missile frigate and a TANGO-Class long-range attack submarine.

is to install pro-Soviet regimes in as many nations as possible throughout the region. *Soviet Military Power 1984* chronicled the failure of the Soviet and Cuban effort in Grenada. This setback notwithstanding, the USSR pressed ahead with its Western Hemisphere strategy in 1984.

Cuba plays a vital role in Soviet strategy by serving as a base from which to expand Communism in the Western Hemisphere. Cuba's importance to the USSR is reflected in the massive amount of economic aid and subsidies provided—some $4.1 billion in 1983 and an estimated $4.0 billion in 1984—the presence of 6,000 to 8,000 civilian advisers and technicians, over 7,000 military personnel, and the provision of over $5 billion in military aid to date. From 1981 through 1984, the Soviets delivered almost $3 billion in military equipment to Cuba. This massive military buildup has modernized and expanded the country's military capabilities and facilitated the transshipment of weapons throughout the region in support of guerrillas. Soviet military arms to Cuba also serve as Soviet payment for the use of Cuban facilities by Soviet forces.

In addition to the presence of the combat

Combat Radius of MiG-21 and MiG-23 Aircraft

brigade, the USSR uses Cuba for both naval and naval air deployments. In March-April 1984, for example, a Soviet task force, including the helicopter carrier *LENINGRAD*, the lead unit of the new UDALOY-Class of destroyers, and the oiler *IVAN BUBNOV* deployed to Cuba for Caribbean operations—the 23rd Soviet naval task group to deploy to the Caribbean since 1969. The 24th Soviet task group arrived at Havana at the end of December 1984. The Soviets use these deployments for joint training with the Cuban Navy and to establish a periodic Soviet naval presence in the Caribbean. In addition, Northern Fleet Tu-95/BEAR D and Tu-142/BEAR F naval reconnaissance and antisubmarine aircraft have made some 50 deployments to Cuba. The Soviets also have extensive signal intelligence facilities in Cuba. At the Lourdes complex near Havana, the Soviets have three separate sites dedicated to signals intelligence collection. These sites are targeted primarily against US commercial satellites.

In Nicaragua, the Soviets are openly supporting the government and have induced other socialist or sympathetic nations to provide additional assistance. An estimated 40 to 50 Soviet military personnel are in Nicaragua. The Soviet military contingent is augmented by military advisory groups similar in size from East Germany, from the Middle East (PLO and Libya), and from North Korea. Approximately 6,000 Cubans, including about 3,000 military and security personnel, are now in Nicaragua. The Soviets, along with their Cuban counterparts, act as advisers to key members of the Armed Forces. Soviet military personnel are also closely involved in plans to reorganize and improve the Nicaraguan military services, particularly the Air Force. Soviet pilots and technicians accompanied deliveries of An-2/COLT transport planes and about ten Mi-8/HIP helicopters that began in 1981. Soviet advisers are now assisting Nicaraguan forces with the even more capable Mi-24/HIND D attack helicopters delivered in 1984. Nicaragua now has about 150 tanks, including some 120 Soviet T-55 medium tanks and nearly 30 light amphibious tanks, as well as 200 other armored vehicles, which provide mobility that Nicaragua's neighbors cannot match. Nicaragua has also steadily built up its inventory of other military vehicles. Additionally, the deployment of some 50 Soviet 152-mm and 122-mm howitzers and 24 122-mm multiple rocket launchers from Soviet Bloc suppliers has been confirmed. The rocket

launchers and howitzers, in addition to 350 tanks and armored vehicles, give Nicaragua firepower and mobility unequaled in the region.

Looking further at the military infrastructure of Nicaragua, one major new airfield is under construction and significant improvements are being made to four others.

Preparations for introducing Soviet combat aircraft into Nicaragua have been underway for more than four years. In 1980, a first group of Nicaraguans was sent to Eastern Europe for flight training in MiGs. Palestine Liberation Organization pilots and mechanics have been in Nicaragua to provide assistance to the Nicaraguan Air Force. Aircraft revetments have been built at Sandino Airfield and the new military airfield at Punta Huete. When completed, Punta Huete will have a runway long enough to accommodate any aircraft in the Soviet inventory.

As Soviet military influence in Nicaragua has increased over the past four years, the Soviets have grown more assertive in their efforts to consolidate their position. For example, a review of military tonnage delivered directly by Soviet ships from 1981 through 1984 reveals significant increases each year for Soviet seaborne carriers. Soviet-delivered tonnage jumped by nearly 400 percent from 1981 to 1982, and by 157 percent from 1983 to 1984. By the end of 1984, total deliveries by the Soviets and their surrogates since 1981 had exceeded 33,000 metric tons. The 1984 increase has further upgraded Sandinista military capabilities with the delivery of Mi-24/HIND D helicopters as well as the Mi-8/HIP helicopter.

Nicaragua Equipment Deliveries 1984

Army	
T-55 MEDIUM TANKS	66
PT-76 LIGHT AMPHIBIOUS TANKS	28
BTR-152 ARMORED PERSONNEL CARRIERS	63
BTR-60 ARMORED PERSONNEL CARRIERS	3
BRDM-2 RECONNAISSANCE VEHICLES	26
57mm S-60 AAA GUNS	18
37mm NAVAL GUN MOUNTS	6
152mm HOWITZERS	12
ARS-14 DECONTAMINATION TRUCKS	4
BRDM-2 RHK CHEMICAL RECON VEHICLES	2
Navy	
SINHUNG PATROL BOATS	2
ZHUK PATROL BOATS	1
K-8-CLASS MINESWEEPERS	4
YEVGENYA-CLASS MINESWEEPERS	2
Air Force	
Mi-24/25 HIND HELICOPTERS	5-8
Mi-8 HIP HELICOPTERS	5

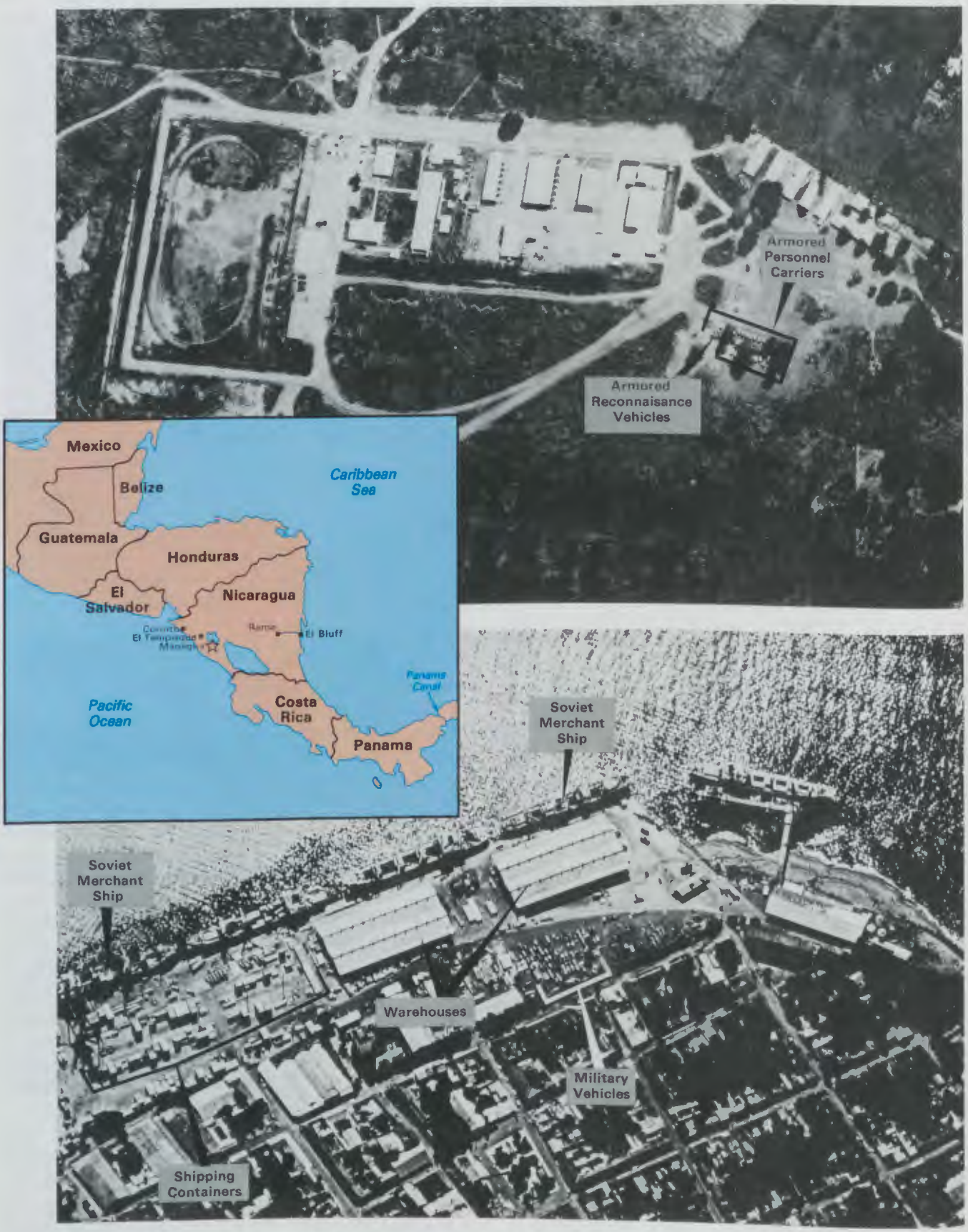
Metric Tons Delivered by Sea to Nicaragua Per Year by Communist Country

Country	*1981*	*1982*	*1983*	*1984*
USSR	900	3400	3750	6500
Bulgaria		2900	6600	9200
Cuba	(cargo largely delivered by air)			240
GDR			3000	2260

In contrast to previous Soviet ships that had made intermediate stops, the direct passage of the Soviet ship *BAKURIANI* from the port of Nikolayev on the Black Sea to Corinto on the west coast of Nicaragua in November 1984 marked a new, more assertive turn in Soviet efforts.

Primarily through its clients Cuba and Nicaragua, the Soviets are fostering guerrilla warfare in El Salvador and Guatemala and are urging Honduran leftists toward future revolutionary activity. Over the past 20 years, a large number of leftists from the Caribbean Basin have received paramilitary instruction in Cuba. Because most of the training is provided by other countries, principally Cuba, the USSR is able to continue to deny direct involvement.

In South America, the Soviet Union has followed a two-pronged effort to increase its influence that combines pursuit of government-to-government contacts through the traditional diplomatic, economic, and military channels of foreign policy with covert ties to pro-Soviet groups. The Soviets are also us-



Soviet shipments of modern military equipment to Corinto, Nicaragua, are transshipped to military garrisons such as El Tempisque (at top). El Bluff is also a delivery port.

ing a number of overt and covert activities, including an extensive propaganda campaign. Each year, the USSR provides a large number of scholarships to students throughout Latin America for study in the Soviet Union and other socialist countries with the goal of influencing recipients to become and remain sympathetic to the policies of the USSR and Cuba.

Soviet economic aid to South America between 1954 and 1984 amounted to about $1 billion, of which nearly 65 percent was provided after 1975. By concentrating on highly visible showcase projects, the Soviets have sought maximum political benefits at relatively small cost. East European countries provided an additional $1.6 billion during the same period. Peru is the only South American country to receive large amounts of Soviet military equipment. Beginning with the sale of Mi-8 helicopters and T-55 medium tanks in 1973, the Soviet Union began a comprehensive program of training and military equipment sales that has amounted to over $1.6 billion. As part of this program, an estimated 3,000 Peruvian military personnel have received training in the Soviet Union. Approximately 150 Soviet military advisers and technicians provide maintenance and instruction on Soviet-made military equipment in Peru, including instruction on the Soviet SA-3/GOA missile in the Peruvian air defense school.

In return for such assistance, the Soviet Union has gained access to Peruvian ports over the past 14 years for logistics support and maintenance of their nearly 200 fishing vessels that operate off the coast of South America. The Soviet Aeroflot office makes Lima, Peru, the crossroads for most of the Soviet travel in South America. Over 1,200 Soviets transit Peru each month, about 800 of whom are merchant seamen and fishermen rotating between Moscow and Peru on Aeroflot's four round-trip flights a week.

Sub-Saharan Africa

In the mid-1980s, the USSR is heavily involved in maintaining its gains of the 1970s in Sub-Saharan Africa. Two increasingly successful insurgent movements continue to fight against the regimes in Angola and Mozambique. These are the National Union for the Total Independence of Angola (UNITA) and the National Resistance of Mozambique (RENAMO). In addition, the Marxist regime in Ethiopia faces serious challenges from several insurgent groups, particularly in the north, where government counterguerrilla campaigns have been unsuccessful.

The USSR has continued military support to both Angola and Mozambique. In 1984, Mozambique took delivery of additional MiG-21/FISHBED fighter aircraft, increasing its total to at least 44. Angola received large quantities of Soviet equipment, including initial deliveries of the SA-2 SAM system and MiG-23/FLOGGER and Su-22/FITTER aircraft, as well as additional helicopters, tanks, APCs, field artillery, trucks, and other equipment.

Soviet access to military facilities in Angola and Ethiopia has continued. In Luanda, the Soviets have maintained since mid-1982 an 8,500-ton capacity floating drydock capable of handling most major Soviet naval combatants. Luanda is the most important port for Moscow's West African naval units. Further, the airfield at Luanda continues to serve Tu-95/BEAR D maritime reconnaissance aircraft, which deploy in pairs about three or four times per year.

Since 1975, the Soviets have furnished Ethiopia with about $3 billion in military assistance and signed agreements for $1 billion more. In return, the USSR has gained naval and air access at Dahlak and Asmara. The Dahlak installation is a maintenance facility and supply depot for Soviet naval combatants operating in the Indian Ocean and Red Sea. The facility includes an 8,500-ton floating drydock, floating piers, helipads, fuel and water storage, a submarine tender, and other repair ships. Guided-missile cruisers and nuclear-powered submarines regularly call at Dahlak for repair and supplies. The USSR also deployed two Il-38/MAY antisubmarine warfare and maritime reconnaissance aircraft to Asmara Airfield until they were destroyed by Eritrean rebels in May 1984.

In Guinea, the USSR uses Conakry harbor routinely as a facility for its West African patrol. Although access for BEAR reconnaissance aircraft was terminated in 1977, Conakry airfield is still used as a stopover point for military transport flights to Angola.

In the Indian Ocean, the Soviets are attempting to increase their influence in the Seychelles, with the probable intent of gaining regular access in the islands for naval ships and naval air units. In February 1984, Soviet military transport planes began using the islands for stopovers enroute to southern Africa.

The Soviets have also provided visible political support by having naval vessels call whenever President Rene is absent or when there is a disturbance on the island.

The most important instrument for the spread of Soviet influence in Sub-Saharan Africa continues to be military aid. The Soviets have kept their lead as the largest provider of weapons through military sales agreements with 21 nations. Soviet advisers and technicians serve in 16 nations in the region. Since the mid-1970s, arms sales agreements in Sub-Saharan Africa have totaled nearly $10 billion; the value of equipment delivered was about $9 billion. Some 3,900 Soviet military advisers and technicians are serving in Sub-Saharan Africa, and at least 1,500 African military personnel are receiving training in the USSR.

The Middle East and North Africa

The Soviet Union attempts to influence the Middle East by the exploitation of intra-Arab and Arab-Israeli conflicts. Entree to the Middle East has been provided to the Soviets by their willingness to supply vast amounts of military equipment, including advanced models of weapons systems that have not even gone to their Warsaw Pact allies. While the Soviets still rely heavily upon some of their major Arab arms clients, (e.g., Syria and Libya) to further their influence in the region, there has been a growing effort to use arms sales to improve relations with moderate Arab states such as Jordan and Kuwait.

It is useful to recall that in 1970 the Soviets deployed about 10,000 air defense personnel to Egypt to expand and control that country's air defense system. Their subsequent expulsion from Egypt in 1972 was a major reversal but did not halt Soviet activities in the region. The Soviets continued to develop their naval and airlift capabilities to enhance their ability to support political objectives and to project limited military power in the Third World—capabilities demonstrated in the 1973 Arab-Israeli war, when the Soviet Union performed an airlift of 850 flights over three and one-half weeks for emergency resupply of military equipment to Iraq, Syria, and Egypt.

Syria

The Soviet-Syrian relationship remains the centerpiece of Soviet Middle East policy. Syria is Moscow's second largest arms client in the Third World, having contracted for nearly $17 billion worth of military equipment. There are more Soviet military advisers in Syria—approximately 4,000—than in any other Third World country with the exception of Afghanistan. These include 1,100 Soviet ground force advisers, 800 assigned to the Syrian Air Force, 2,000 air defense advisers, and about 100 advisers assigned to the Navy. Since the Syrian defeat by Israel in June 1982, the Soviets have augmented, by approximately 600, their advisory presence, primarily in the area of air defense. Highlighting the Soviet upgrading of the Syrian air defense are two operational SA-5/GAMMON missile complexes located at Dumayr and Homs—the first operational SA-5s outside the Soviet Union. All other advanced C^3 and electronic warfare equipment is either manned or supervised by Soviet personnel.

Soviet military advisers are headquartered in Damascus. Directly subordinate to the Soviet General Staff and in communication with Moscow, advisers are assigned to the Syrian Ministry of Defense, the headquarters of all three services, operational units, repair and maintenance facilities, and various schools and military academies. Additional Soviet personnel are assigned to administrative or communications support of the military advisory group or as guards. The Soviet military presence in Syria includes naval access to the port of Tartus and naval air deployments to Tiyas airfield. Tartus is the primary maintenance facility for Soviet submarines operating in the Mediterranean. A Soviet submarine tender, a yard oiler, and a water tender are stationed there. Periodically, the Soviets deploy pairs of Il-38/MAY antisubmarine warfare aircraft to Tiyas.

In contrast to their normal, frugal use of economic aid, the Soviets have provided extensive economic assistance to Syria. Communist aid was Syria's only sustained source of economic assistance until 1974, when OPEC governments began to extend nearly $1 billion per year for balance-of-payments support. The burden of the roughly $2 billion Communist aid commitment extended through 1983 was nearly equally divided between Eastern Europe and the USSR, with Eastern Europe assuming responsibility for oil refineries, a phosphate plant, land reclamation, power, and light industrial plants. The Soviet Union's showpiece was the Euphrates dam. The USSR also contributed to oil development, improvement of the railroad system, and expansion of ports.

Syria's economic infrastructure is being built for long-term centralized control, dependent on Soviet technical expertise and spare parts. The 800-megawatt Al-Thawra dam across the upper Euphrates, built with Soviet aid and completed in 1978, supplies up to 70 percent of all energy produced in Syria. The dam also created the 12 billion-cubic-meter Al-Assad Reservoir, which should ultimately have the capacity to irrigate 640,000 hectares.

The Soviet Union has played a major role in the development of Syria's energy industry. Oil exploration with Soviet help began in the 1960s. In 1983, the Soviet Union provided over $300 million in new credits for nuclear power and thermal power projects.

More than 9,500 Syrian technicians and students have received training in the Soviet Union. In addition, more than 35,000 Syrians have been trained as skilled workers, technicians, and engineers at secondary and higher educational institutions in the Soviet Union. Over the past 10 years, the Soviet Union has maintained a constant civilian technical presence in Syria averaging slightly over 1,000 personnel. The various economic aid projects, dependent on Soviet expertise, necessitate the continuous presence of Soviet personnel in the form of engineers, designers, and other technical experts.

Libya

Soviet relations with Libya are based largely upon mutual military and economic benefits. Since the first arms agreements in 1970, the Soviets have supplied Libya with large amounts of equipment for its armed forces. Of over $15 billion in sales, approximately $10 billion in Soviet equipment has been delivered.

There are approximately 1,400 Soviet Air Defense, Air Force, Army, and Navy advisers in Libya. The Soviet mission assists with the assembly and maintenance of MiG-25/FOXBATs, MiG-23/FLOGGERs, MiG-21/FISHBEDs, Su-22/FITTERs, and Mi-24/HIND helicopters. Soviets are also assigned to Tu-22/BLINDER bomber maintenance and assist with BLINDER, Il-76/CANDID, and An-26/CURL operations. There are Soviet pilot instructors and control tower personnel in Libya, and the Soviets provide on-site pilot training. Soviet and East European advisers also assist in training Libyan military personnel and in maintaining the large amounts of Soviet-supplied armor and other equipment that Libya has in storage.

The Soviets have limited, although increasing, military access to Libyan ports and airfields. Periodic Soviet naval combatant port visits and Il-38/MAY ASW aircraft deployments to Libya have taken place since mid-1981.

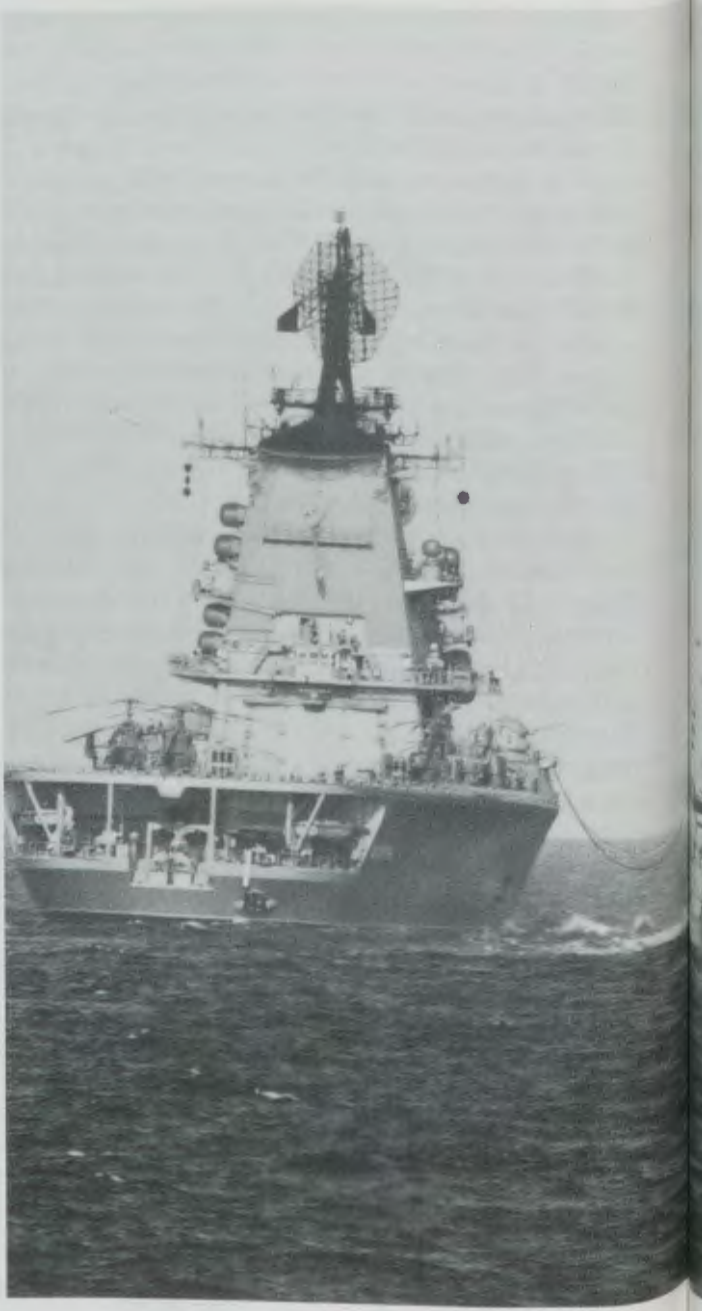
Algeria

Although Algeria currently maintains a nonaligned policy, the Soviets remain Algeria's main supplier of military equipment, and there are approximately 1,000 Soviet military advisers in-country. Approximately one-half of the advisers work in the various Algerian acad-

Major Soviet Equipment Delivered to the Third World 1980-1984

	Near East and South Asia	*Sub-Saharan Africa*	*Latin America*	*East Asia and Pacific*	*Total*
Tanks/Self-propelled Guns	3,160	500	405	320	4,385
Light Armor	5,640	770	195	230	6,835
Artillery	3,590	1,860	775	310	6,535
Major Surface Combatants	21	4	4	3	32
Minor Surface Combatants	23	17	38	41	119
Submarines	5	0	2	0	7
Missile Attack Boats	16	9	6	6	37
Supersonic Aircraft	1,360	305	135	205	2,005
Subsonic Aircraft	105	5	0	10	120
Helicopters	585	140	80	75	880
Other Combat Aircraft	200	65	30	70	365
Surface-to-Air Missiles	7,480	545	920	350	9,295

The increasing sophistication of the Soviet Navy's operations was evident during the 23rd Soviet naval task group's deployment to the Caribbean in 1984, with units including, left to right, the aviation cruiser LENINGRAD, a Soviet-built Cuban KONI-Class frigate, the underway replenishment ship IVAN BUBNOV, and an UDALOY-Class guided-missile ASW destroyer.



emies, schools, and training centers, with the remainder assigned to equipment repair installations and individual combat units. These include T-62 and T-72 tank units; MiG-21, -23 and -25 aircraft squadrons; and air defense units with Soviet SA-2, SA-3, and SA-6 surface-to-air missiles.

Through 1984, Soviet-Algerian military aid agreements totaled close to $5.4 billion, with deliveries of over $5 billion. In 1981, the Soviet Union strengthened its economic relationship with Algeria by concluding several hundred million dollars worth of agreements for the construction of development projects. During 1982 and 1983 this relationship continued, and in 1983, the Soviets extended about $250 million in new credits for railway construction. The Soviets also maintain an extensive technical presence in Algeria, with some 6,000 civilian advisers in the country. It has been reported, however, that Algerians have expressed discontent with the quality and reliability of Soviet equipment and have indicated a willingness to diversify to Western, including US, sources.

Southwest Asia/Indian Ocean

Southwest Asia has significant strategic importance to the USSR because of its proximity, its large energy resources, and its chronic instability. Among the moderate oil-producing Arab States of the Persian Gulf, the Soviet Union maintains official links only with Kuwait. The Soviets have signed arms contracts worth over $300 million with Kuwait that include weapons such as the SA-8/GECKO surface-to-air missiles and FROG-7 surface-to-surface rockets. Soviet interest in the countries of the Arabian Peninsula and Persian Gulf is high because of the West's dependence on oil from this area. The Soviet Union relies extensively on the provision of military assistance to maintain its position in the region. Since 1954, Moscow has provided over $19 billion worth of military equipment, including $3 billion to Iraq since 1983, more than $2 billion to South Yemen since 1968, and over $1 billion to North Yemen since 1979. Arms sales have often led to the stationing of military advisers who perform maintenance and provide training for Soviet-supplied equipment. An estimated 2,500 Soviet military advisers are presently in the region.

Iran

The USSR's influence in Iran is at a low level primarily because of the Khomeini regime's hatred of atheistic Communism, the Soviet provision of arms to Iraq, and the continued Soviet occupation of Muslim Afghanistan. The

Soviets have been frustrated by Iran's unwillingness to negotiate a peace with Iraq, the suppression of the Tudeh Communist Party, and its provocative anti-Soviet campaign following the expulsion of 18 Soviet diplomats in May 1983 on charges of spying. Despite these problems, however, the USSR has continued to attempt to expand contacts with Iran in the hope that a government more sympathetic to Moscow will eventually come to power.

Iraq

Soviet relations with Iraq improved in 1982, when Moscow resumed arms shipments that had been embargoed after the start of the Iran-Iraq war in 1980. In 1983, in an effort to win its war with Iran, Iraq obtained more military assistance from the USSR than any country in the Third World and has continued to be one of the Soviet Union's best arms customers in 1984, with large shipments of sophisticated equipment such as MiG-25/FOXBAT fighter aircraft and T-72 tanks.

In 1984, Iraq resumed normal diplomatic relations with the United States; however, this relationship does not include military assistance because of continued US neutrality in the Iran-Iraq war.

South Yemen

For more than a decade, the Soviet Union has maintained strong ties to the Marxist regime in South Yemen. Initial ties with the regime were an outgrowth of Soviet support given to leftist groups in South Yemen's war of independence from 1963 to 1967 and the British withdrawal from the Persian Gulf. In 1970, the state was reconstituted as the People's Democratic Republic of Yemen (PDRY) under a Marxist regime.

Since 1977, when the USSR was expelled from Somalia, South Yemen has been a major focus of Soviet attention. In October 1979, a 20-year treaty of friendship and cooperation was signed between the USSR and South Yemen. Since then, the USSR has developed more pervasive influence in South Yemen than in any other country in the region. A pattern of increasingly large aid agreements has served to bind South Yemen more closely to Soviet policies. The USSR supplies virtually the entire South Yemen military arsenal and, to date, Soviet military deliveries have totaled over $2 billion. In addition, about 1,000 military advisers from the USSR, Eastern Europe, and Cuba provide assistance.

The USSR enjoys almost unlimited access to the country's main port in Aden. The facilities there are used for delivery of military and economic aid; transshipment of petroleum products; transshipment of cargo to Ethiopia and other parts of Africa; crew rest and recreation; fueling and provisioning; and alongside berthing and anchoring space for naval combatants, cargo ships, and units of the fishing fleet. Soviet Il-38/MAY naval reconnaissance aircraft began using Aden International Airport in November 1978, and, subsequently, Al-Anad military airfield to monitor Western naval operations. The Soviet Navy also has a high-frequency radio transmitting and receiving station in the Bir Fuqum area.

North Yemen

The USSR has been economically, militarily, and politically involved in North Yemen for more than 20 years. The Soviets' position in North Yemen was enhanced in 1979 by the conclusion of an arms agreement worth approximately $1 billion. To date, more than $2 billion in arms have been delivered. In 1984, the USSR signed a new treaty of friendship with North Yemen, which extended a 1964 accord between the two countries. The Soviet Union has a 500-man military advisory group in North Yemen. Military technicians provide maintenance, repair, and technical guidance for the Soviet-made equipment in the Yemeni inventory. Soviet aid was a significant factor in North Yemen's success against the National Democratic Front insurgency sponsored by South Yemen. Seeking to play both sides of the conflict, the USSR also provided small amounts of support to this insurgency. This involvement with the insurgents by the Soviets, as well as North Yemen's strict nonaligned foreign policy, has undermined Moscow's attempts to gain military access to North Yemen's facilities. Additionally, North Yemen's eagerness to accept US military assistance weakens Soviet influence there.

South Asia

India

Of significant importance to the USSR, India is the predominant power in South Asia due to its size, strategic location, regional dominance, and leadership in the Nonaligned Movement. The USSR employs military assistance as the primary instrument to strengthen its ties and cultivate a special relationship with India. In this connection, the 1982 Indian-Soviet arms agreement was valued at nearly $3 billion. Former Defense Minister Ustinov's visit to New Delhi in March 1984, his second in two years, highlighted the Soviet Union's commitment to provide its MiG-29/FULCRUM fighter aircraft to India, the first Third World nation to receive this most advanced Soviet aircraft—even before full deployment of the FULCRUM to Warsaw Pact forces.

Delivery of the An-32/CLINE tactical transport aircraft began in July 1984, and deliveries of the first of the Il-76/CANDID heavy transport aircraft are expected to begin in the spring of 1985. Meanwhile, delivery of T-72 tanks continues, and preparations are underway for the coproduction of this modern main battle tank in India. The extent of Soviet arms aid and the high technological level of the equipment being provided, combined with excellent prices and extremely favorable pay-back terms, characterize the Soviet Union's efforts to remain India's primary foreign arms supplier and to counter Indian efforts to diversify its arms purchases abroad through the acquisition of Western military hardware.

Along with military assistance activities, the

USSR has stepped up its disinformation campaign in India to cultivate anti-US feelings by attempting to exploit the assassination of Prime Minister Indira Gandhi.

Afghanistan

In December 1984, the Soviet Union's war in Afghanistan entered its sixth year, making Soviet combat involvement longer than that of the Second World War. Despite indiscriminate bombing of the countryside and a year of increased military operations, the Soviets still control little of Afghanistan outside of Kabul and other smaller urban areas. The Soviet Army in Afghanistan now numbers approximately 115,000 troops.

There is no indication that the Soviets have any intention of withdrawing from Afghanistan. The Afghan Government, installed by the USSR after its invasion force had deposed and executed Afghan President Amin, is less capable than ever of surviving without Soviet military support. Soviet efforts to develop a viable Afghan Army to assume control have been frustrated by a steady stream of desertions that has reduced the former 100,000-man Afghan force by more than half. The Soviets have implemented a national program of conscription to rebuild the ranks but, while able to conscript Afghans faster than they can desert, they cannot stop the qualitative decline of the force.

In contrast to the Afghan Army, the effectiveness of the Afghan resistance has continued to improve. In response, the Soviet's 1984 military campaign was the largest and most aggressive thus far of the war. The initial 1984 operation was a Soviet assault on the Panjshir Valley, the stronghold of the resistance forces of Shah Ahmad Masood. The operation, which broke a 16-month truce, was in response to Masood's increasing ability to cut important Soviet lines of communication, putting the Soviets' control of Kabul at risk. The attack on the valley in April 1984 included for the first time high-altitude bombing conducted by BADGER bomber aircraft staging from bases in the southern USSR. While Soviet motorized infantry advanced up the valley, air assault troops were helicoptered behind the resistance in an effort to cut off retreat. During this operation, the Soviet forces again demonstrated their disregard for world opinion and the rules of war by indiscriminate assaults on villages and wide-scale attacks on the populace. The Soviets have adopted a new tactic of forcing Afghans to leave their homes in order to end popular support of and assistance to the resistance forces.

The Panjshir Valley campaign was immediately followed by Soviet assaults on resistance forces in Herat, in western Afghanistan, and a series of major operations in eastern Afghanistan designed to cut insurgent supply routes. The Soviet Union's new aggressiveness increased casualties on both sides. Soviet press coverage has increasingly acknowledged the likelihood of a prolonged and difficult conflict, indicating that the Soviet Union has no intention of accepting peace initiatives that would call for their withdrawal.

The USSR's actions in Afghanistan have resulted in a deterioration of Soviet relations with the government of Pakistan, which has been faced with accommodating large numbers of Afghans fleeing Soviet oppression. In July 1984, the Soviets presented Pakistan with a demarche protesting Pakistan's aid to the Afghan resistance. The Soviets then cancelled a scheduled meeting between foreign ministers. In August, Afghan aircraft and artillery began cross-border strikes against villages in Pakistani territory. In view of the total Soviet control of the Afghan Armed Forces, such an escalation would have been highly unlikely without direct Soviet authorization. On August 31, the Soviet publication *Izvestiya* labeled Pakistan's support to the freedom fighters "a risky gamble" that "poses dangers above all for Pakistan itself." The high tension between Pakistan and the USSR caused by the

The Soviets' modern, heavily armed ground attack aircraft FROGFOOT continues to be employed in an attack role against Afghan freedom fighters.

Soviet invasion and occupation of Afghanistan continues.

East Asia

The expansion of Soviet military forces in the Far East has been an integral part of the USSR's efforts to extend its power and influence in the region. Soviet forces in the Far East include over 50 Soviet divisions along the Sino-Soviet border and northeast Asia, supported by some 1,700 aircraft, excluding BACKFIRE bombers, and about one-third of the total Soviet SS-20 missile force.

Soviet activities in Asia are conditioned by Sino-Soviet relations, geographic barriers between the USSR and key nations of the region, and the generally anti-Communist orientation of these Asian states. The 1979 Soviet invasion of Afghanistan, the September 1983 shootdown of the South Korean airliner, Soviet support to North Korea in the wake of the October 1983 Rangoon bombing, and recurring expulsions of Soviet covert operations personnel from a number of Asian states have reinforced regional suspicions of Soviet intentions.

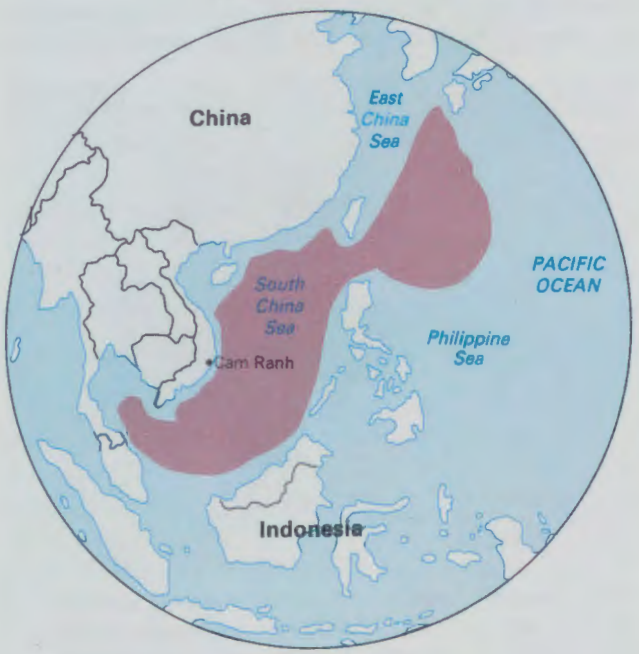
The Soviets continue to work to reduce the influence of China, their major competitor in the region. Soviet relations with Japan are shaped by the USSR's determination to retain the Northern Territories—four islands above Japan's northernmost island of Hokkaido—and to prevent Japan from strengthening its military forces. This policy is moderated somewhat by the desire to obtain Japanese involvement in the economic development of the Soviet Far East. Soviet-Japanese relations deteriorated in 1983 with the shootdown of the Korean airliner and outspoken Japanese support for US defense policy. In 1984, the Soviets responded positively to Japanese efforts to reopen a dialogue but have remained unyielding on the issue of the Northern Territories.

Pacific and Southeast Asia

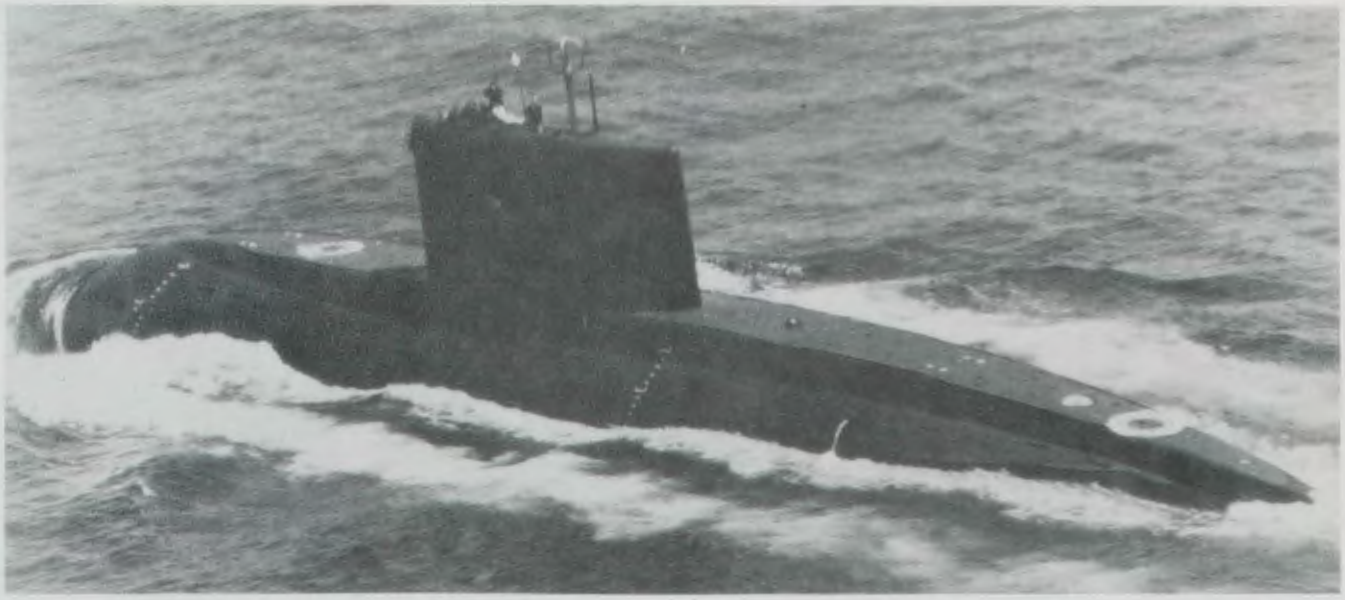
The Pacific Islands, a region of great stability with sound relationships to Western nations, continue to attract persistent Soviet attention. Moscow's renewed efforts to negotiate fishing agreements, coupled with increased ocean research activities in the region, highlight Soviet intentions to acquire influence in these island states.

Soviet military and economic assistance to Vietnam continues at a high level in return for expanding Soviet use of the former US naval facilities and air base at Cam Ranh Bay. In addition, the USSR supports Hanoi's occupation of Kampuchea both in world forums and in

Soviet BEAR Operating Area



Soviet Tu-16/BADGER Combat Radius From Cam Ranh Airfield



The KILO-Class diesel-powered fast attack submarine has begun periodic operations in the Pacific and Indian Oceans from Cam Ranh Bay, Vietnam.

discussions with the ASEAN member states—Thailand, Malaysia, Singapore, Indonesia, and the Philippines.

Vietnam is dependent on the Soviet Union for economic and military assistance to support its economy, maintain its occupation of Kampuchea, and counter Chinese military pressure along the Sino-Vietnamese border. From 1978 through 1984, the Soviets provided over $5 billion in arms aid to Hanoi. Over 2,500 Soviet military advisers are in Vietnam to support this program. In addition to more than $4 billion in Soviet economic assistance through 1983, Vietnamese membership in the Communist Council for Mutual Economic Assistance obligates the Soviet Union's East European allies to provide aid to Vietnam.

In return for this support, the Soviets have transformed Cam Ranh Bay into the largest Soviet naval forward deployment base outside the Warsaw Pact. With the arrival of 7 additional Tu-16/BADGER aircraft in late 1984, the squadron at Cam Ranh now totals 24 reconnaissance or combat aircraft, with 8 BEARs and 16 BADGERs, including 10 with strike capabilities. The BADGERs' range from Cam Ranh Bay extends the strike capability of the Soviets over an area that includes not only regional states but also the US territory of Guam and the western portion of the Trust Territory of the Pacific Islands. Support facilities have also been upgraded for additional permanently deployed aircraft, including a squadron of MiG-23/FLOGGER fighters. The Soviets deploy between 25 and 30 ships to the South China Sea, including surface combatants, attack and cruise missile submarines, and naval auxiliary ships. The V/STOL aircraft carrier *MINSK* has called at Cam Ranh as part of its distant-water operations.

Conclusion

The quest for additional overseas facilities, matched by the USSR's continuing improvements in strategic mobility and the growth in the Soviet Navy's distant-area capabilities, is part of the unceasing effort by the USSR to give its Armed Forces enhanced global capabilities. This effort is coupled with the Soviet Union's use of all other instruments of power projection—military assistance, diplomacy, trade, aid, propaganda, and espionage—in its determined effort to extend Soviet power and influence throughout the world to promote the USSR as the dominant world force.

Chapter VIII

Response to the Challenge

The preceding chapters document the most recent developments in the Soviet Union's upgrade and expansion of its nuclear and conventional forces, confirming a full-scale continuation of the USSR's major military buildup over the past 25 years. The Soviets have accumulated a stock of military assets much larger than our own. Soviet military research and development continues to grow rapidly, and a number of advanced new weapons systems are nearing deployment. Heavy investment in military research and development, coupled with the purchase and theft of Western high technology, is most disturbing because it has eroded the qualitative advantage that the West has relied on to establish a military balance.

These trends have led to three major developments in Soviet military capabilities that pose new challenges to our defense policy:

- the Soviet military buildup, both quantitative and qualitative, has produced a major shift in the nuclear and conventional balance;
- the Soviet military offensive capability has increased dramatically; and
- the Soviets have significantly extended the global reach of their military forces, enhancing their ability to project influence and power, especially in the Third World.

Since the end of World War II, the primary security objective of the United States has been deterrence of Soviet aggression to ensure the freedom of the United States and of all nations that cherish liberty. Our policies and

Since the early 1980s, the USSR's SS-20 LRINF mobile nuclear missile forces have grown steadily from 250 launchers to a total today of about 400 deployed launchers — each with a MIRVed three-warhead missile and reload. Against the continuing Soviet military buildup, the United States and our allies must maintain military capability sufficient to convince the Soviet Union that the costs of aggression far outweigh any possible gain.

strategy are designed to strengthen deterrence by restoring the military balance between the Free World and the Soviets and by increasing allied confidence in US capabilities and commitments. Our commitment to collective security is based on the understanding that defensive alliances are necessary, both to deter attack—by demonstrating that any potential aggressor would encounter a resolute and united defense—and to share the responsibility of defending freedom.

As the Soviets expand their military capabilities and global reach, the need for greater allied defense efforts can subject our alliances to new and increased strains. Indeed, the Soviets devote considerable efforts to attempting to weaken the ties among the nations of the Free World. While the interests of the United States and those of our allies are not always congruent, the importance of shared interests far outweighs any issue that we might view from different perspectives.

Our alliances remain healthy today. Close cooperation continues to be the watchword within NATO, particularly in light of the threat posed by the Soviet longer range intermediate-range nuclear forces deployed in Warsaw Pact countries. Our appreciation of the Communist threat we face was again firmly underscored in 1984 by the publication of the second edition of the Alliance's authoritative report, *NATO and the Warsaw Pact—Force Comparisons*. We continue to work with our European Allies to improve Alliance defense capabilities, with special emphasis on conventional defense capabilities in Europe.

In Asia, we have strengthened our relationship with Japan, which is increasingly committed to playing a greater role in its self-defense. We have also strengthened our ties with Korea. Our alliance with Australia and New Zealand preserves peace and stability in a region that is of growing economic importance. This alliance, like our other alliances, is based on a shared set of democratic ideals and traditions as well as a resolute commitment of each ally to world peace. We have also developed a more substantive relationship with the People's Republic of China.

Outside the formal alliance structure, we have also improved relations with our friends and those nations that support our mutual interests. We have, for example, continued to expand our security relationships with Middle Eastern and southwest Asian states. Our security has been strengthened by closer ties to our neighbors, and various initiatives for the Caribbean Basin are underway, holding out new promise in a vital region.

Restoring the Nuclear Balance

Today, the destructiveness of modern weapons systems, both nuclear and conventional, has made the prevention of global conflict of paramount importance. The US policy of deterrence is based upon this imperative; however, recognition of this on our part alone is not enough. The Soviet leadership must also recognize and understand this if we are to be able to maintain a credible deterrence. As the Scowcroft Commission so succinctly stated:

> Deterrence is not an abstract notion amenable to simple quantification. Deterrence is the set of beliefs in the minds of the Soviet leaders, given their own values and attitudes, about our capabilities and our will. It requires us to determine, as best we can, what would deter them from considering aggression, even in a crisis—not to determine what would deter us.

The decade of the 1970s, marked by the massive Soviet military buildup while the US maintained a virtually static posture, left our nation in a clearly disadvantageous position. This dangerous shift in the global balance unmistakably demonstrated Soviet intentions to attain a position of military superiority. Should this trend continue unchecked, one must assume—given Soviet writings, force deployments, and strategic force exercises—the Soviet leadership could conclude that they had acquired the capability to fight and win a nuclear war. As discussed in earlier chapters, such initiatives as their development of a potential first-strike force of SS-18s and SS-19s, their plans to reload ICBM silos, and the extensive hardening and dispersal programs designed to protect their key assets provide clear indications of this Soviet attitude. It is this conclusion that we seek to prevent. To do this, we must convince Soviet leadership that, because of our retaliatory capability, there can be no circumstance in which it would benefit them to attack us or our allies at any level. Our goal, then, has been to restore the balance—to revitalize our deterrent posture. Toward that end, we have embarked on two separate but mutually reinforcing paths: modernization of our deterrent forces and pursuit of arms reductions.

Modernization Programs

Strategic Nuclear Forces. At the beginning of the 1980s, the most evident US shortfall existed in the military effectiveness, survivability, and age of our Strategic Triad of intercontinental ballistic missiles (ICBMs), submarine forces, and bomber systems, as well as their supporting command, control, and communications (C^3) systems. The Strategic Modernization Program, begun in October 1981, has begun to redress these deficiencies.

Our ICBM force was faced with the twin problems of a decreasing of hard-target capability due to Soviet silo-hardening programs and the increased vulnerability of our current systems to the threat of their SS-18s and SS-19s. To counter this, we are pursuing a dual approach of initially deploying the hard-target-capable PEACEKEEPER (MX) missile in selected MINUTEMAN silos and the development of a new small ICBM that will be deployable in a variety of survivable basing modes to ensure the continued viability of our ICBM force.

The SLBM force, which in 1980 consisted primarily of POSEIDON submarines built nearly 20 years ago, faced the problems of impending block obsolescence and a lack of hard-target capability. Both will be remedied as we continue production of TRIDENT submarines and begin deploying, toward the end of the decade, the TRIDENT II missile, possessing requisite hard-target capability. Finally, to enhance our deterrent capability in the near term, the deployment of the nuclear TOMAHAWK land attack cruise missile, begun in 1984, will be continued.

Our B-52 bomber force has served us well, adapting to significantly upgraded Soviet defenses over the past 25 years. However, the Soviet air defense capabilities continue to grow and, as a result, it has become difficult for the B-52 to perform its penetration mission. Once again, the B-52 is being adapted—assuming an additional stand-off role, carrying cruise missiles. To continue to provide the needed bomber force penetration capability, production of 100 B-1B bombers, with an initial operational capability (IOC) of 1986, is planned. In addition, development of an advanced technology bomber (ATB), with an IOC in the early 1990s, continues. As the ATB is deployed, older models of the B-52 will be retired, and B-1Bs will assume the cruise missile carrier role, thus maintaining a mix of bomber stand-off and penetration capability well into the 21st century.

Steps also have been taken to bolster our C^3 networks to ensure that these systems are survivable and able to function through the full spectrum of possible Soviet attacks. In addition, we are upgrading our tactical warning and attack assessment systems to ensure that the National Command Authorities receive timely, unambiguous, and accurate data.

Non-Strategic Nuclear Forces. Following the unwarranted Soviet buildup of SS-20s that resulted in a new and dangerous threat to Europe, the NATO Alliance in 1979 formally adopted a dual-track approach toward restoring stability. The Allies agreed to deploy 464 ground-launched cruise missiles (GLCMs) and 108 PERSHING II ballistic missiles, while at the same time offering US-Soviet arms control negotiations on these systems. In the absence of such a negotiated agreement, implementation of this intermediate-range nuclear force (INF) program began in 1983 and is scheduled to continue through 1988 in accordance with the 1979 decision. Similarly, enhancements of our short-range nuclear force capabilities will continue when we replace our aging stock of artillery-fired atomic projectiles with projectiles that possess improvements in range, accuracy, and security. INF aircraft modernization continues with additional deployments of F-16 and TORNADO dual-capable fighter-bombers and new tactical weapons with improved capabilities and enhanced safety and security features.

In October 1983, NATO decided to withdraw 1,400 nuclear warheads from Europe. When fully implemented, this decision will bring to 2,400 the total net removal of nuclear warheads from Europe since 1979. The earlier withdrawal of 1,000 warheads was mandated when NATO made its 1979 dual-track decision to modernize longer range intermediate-range nuclear forces and to pursue arms control negotiations with the Soviet Union. The current reduction will bring NATO's nuclear stockpile to the lowest level in over 20 years. Moreover, since one nuclear warhead will be removed for each PERSHING II or ground-launched cruise missile (GLCM) warhead deployed, the stockpile will not be increased by deployment of new LRINF missiles.

Strategic Defense Initiative

Looking to the many challenges posed by the Soviet Union to the security of the United States and our allies, we are continuing to

examine the feasibility of strategic defenses against ballistic missiles. To achieve this goal, the research and technology programs of the Army, Navy, Air Force, Defense Nuclear Agency, Department of Energy, and Defense Advanced Research Projects Agency that relate to missile defense were consolidated in 1984 under the Strategic Defense Initiative (SDI).

The SDI program is chartered to explore key technologies permitted by the ABM Treaty so that a future President and Congress will have technical options to decide whether to embark on development and deployment of strategic defenses against ballistic missiles. While many technical questions remain, we are confident that new technologies offer great promise for fulfilling the President's goal of eliminating the threat of nuclear ballistic missiles. The fruits of the SDI research can also provide the impetus for further significant arms control measures to eliminate ballistic missiles, as the President has proposed.

To facilitate the destruction of ballistic missiles, it is important to be able to attack them at many places during their flight with different types of systems. The flight of a MIRVed ballistic missile has four basic phases. The first is the boost phase, in which the first- and second-stage rocket engines of the missile are burning. Missiles in this phase produce an intense and unique infrared signature. In the second, or post-boost phase, the bus—warhead carrier—separates from the main engines, and the multiple warheads are deployed from the bus, along with any penetration aids such as decoys and chaff. In the third, or mid-course phase, the multiple warheads and penetration aids travel on ballistic trajectories through space, well above the earth's atmosphere. In the fourth, or terminal phase, the warheads and penetration aids reenter the earth's atmosphere, where they are again affected by atmospheric conditions. The SDI program seeks to explore technologies enabling the engagement of attacking missiles in all four phases of their flight.

There is an advantage in engaging the missiles in the boost phase because the multiple warheads and penetration aids have not yet been deployed. There is also a military advantage in engaging the bus during the post-boost phase before all the warheads and decoys have been deployed. After deployment, we must be able to discriminate warheads from decoys so we can target only the real threats. The technologies for the terminal defenses are also likely to be applicable to defense against the shorter range nuclear ballistic missiles that have brief flight times, such as submarine-launched ballistic missiles and theater-range ballistic missiles.

To manage research efforts, the Strategic Defense Initiative program is divided into five major elements. The first of these, surveillance, acquisition, tracking, and kill assessment, is chartered to explore the technologies needed to detect, identify, locate, and track ballistic missiles or their components during the boost, mid-course, and terminal phases of their trajectory.

The second program element consolidates the directed-energy weapons projects. Here, the research is conducted in the four general classes of directed-energy weapons applicable to missile defense: space-based lasers, ground-based lasers, X-ray lasers, and particle beams.

The next program element directs research on kinetic energy weapons that are designed to destroy ballistic missiles or their components by direct impact. Research is focused on "smart bullets" that could be fired from the ground or space. An example of kinetic energy weapons research is the US Army's successful demonstration last July of the technologies needed to intercept and destroy a ballistic missile warhead in space using non-nuclear techniques.

The fourth, and one of the most critical program elements, is system architecture and battle management. In this area, we are conducting research on how positive command and control might be structured for a defensive system. During 1984, ten contracts were awarded for the study of strategic defense architecture options.

The fifth and final program element of the Strategic Defense Initiative encompasses survivability, lethality, and key technologies. Here, research is being focused on the problems of space electrical power, launch vehicle requirements, and the critical areas of ballistic missile lethality and defensive system survivability.

This approach allows a coordinated and focused research program that would permit decisionmakers, perhaps by the early 1990s, to make informed choices on whether to proceed to development of strategic defenses against the ballistic missile threat to the United States and its allies.

If the decision were ultimately to be made to develop and deploy a strategic defense, the implementation would logically have several phases:

- *Research Phase:* The current phase is the time from the President's 23 March 1983 speech to the early 1990s, when a decision on whether to enter systems development could be made by a future President and a future Congress.
- *Systems Development—or full-scale Engineering Development—Phase:* Assuming a decision to go ahead, the period of time beginning in the early 1990s when prototypes of actual defense system components will be designed, built, and tested.
- *Transition Phase:* The period of incremental, sequential deployment of defensive systems. The intent is for each added increment, in conjunction with effective and survivable offensive systems, to increase deterrence and reduce the risk of nuclear war. During this period, as the United States and Soviet Union deploy defenses against ballistic missiles that progressively reduce the value of such missiles, significant reductions in nuclear ballistic missiles could be negotiated and implemented.
- *Final Phase:* The period of time during which deployments of highly effective, multiphased defensive systems are completed and during which ballistic missile force levels would reach a minimum. If similar technical progress in defense against other means of nuclear attack has been attained by this time, such defenses could also be incorporated.

Faced with effective defenses, Soviet military planners could not count on successfully attacking the required military objectives with ballistic missiles, and they would have strong military and economic incentives for negotiated ballistic missile force reductions. The end result will be improved stability, a reduction in the likelihood of war, and a safer world.

Nuclear Arms Reduction

The second element of our two-tracked approach to enhanced deterrence is one for which the US has long strived—arms reductions. Since the advent of the nuclear age, the US has led the way in attempting to reduce nuclear stockpiles—both in strategic and tactical weapons. On our own, we have made substantial reductions; in the 1960s, our nuclear stockpile was one-third larger, and its destructive capability was four times greater than it is today.

To go further, we are seeking militarily effective, verifiable, bilateral agreements with the Soviet Union that establish a nuclear balance at greatly reduced levels and the resumption of Soviet compliance with the many existing arms control agreements that the USSR is currently violating. The US has proposed substantial reductions under President Reagan's START initiatives, as well as the elimination of an entire class of nuclear weapons in the INF negotiations. In both negotiations, the US has added ample flexibility to its proposals to meet Soviet concerns. Despite the past record of Soviet intransigence in both areas, the US remains ready to work toward arms reductions as a top priority.

It is the intent of the US to continue to pursue these complementary efforts with the end objective of restoring the nuclear balance at lower levels, enhancing deterrence, promoting stability, and ensuring a safer world.

Conventional Forces

Our conventional forces must maintain capabilities sufficient for two purposes: first, and most important, to deter aggression worldwide against the United States, our allies, and our friends; and second, should deterrence fail, to limit military conflict and to restore peace on favorable terms at the least cost in lives and resources.

US conventional forces, in cooperation with allied forces, can deter aggression in key areas as long as they are strong and flexible enough for effective responses in each area and are supported by adequate airlift, sealift, and pre-positioning. Should conflict nevertheless arise, US military responses would be governed by alliance commitments, general strategic priorities, specific circumstances, and force availability.

We have made great strides in rebuilding our conventional deterrent force over the past four years, and this has contributed importantly to our ability to counter—and therefore deter—threats around the world. Nonetheless, much remains to be done by ourselves and our allies to ensure an adequate counter to the growing Soviet conventional buildup.

Although often incorrectly used as a synonym for warfighting capability, readiness—the people, training, spare parts, and

maintenance to keep our forces prepared to deploy and fight—is only one of four components that, when integrated and maintained in balance, form the pillars of our total combat capability. The other three components are sustainability—inventories of munitions, spare parts, fuel, and other needed items to provide the staying power our forces would need to prevail in conflict; modernization—the equipping of this force structure with more technically sophisticated and capable weaponry and facilities; and force structure—the number and characteristics of air wings, battalions, and ships in the Armed Forces.

Our objective has been, and continues to be, to improve the combat capability of our forces through measured and balanced progress in each of the four pillars. These pillars provide an especially meaningful way to summarize our conventional force improvements and, along with greater emphasis on our Special Operations Forces (SOF) and Reserves, form the framework for the discussion to follow.

Readiness

Our military forces must be able to reach full combat potential under the most demanding circumstances and time constraints. Should deterrence fail, warning time could be so short that peacetime readiness would become the key factor in determining success. For this reason, one of our top priorities is building and maintaining a combat-ready force—one that is adequately manned, trained, supplied with modern equipment in good working order, and supported by adequate facilities.

We have significantly improved our readiness posture and ability to bring more forces to bear in the critical early phases of any potential conflict. Readiness, however, is not a one-time investment. Continued growth in readiness will be required to maintain and improve selectively our readiness posture as our force structure is increased and its weaponry modernized. Since ours is fundamentally a defensive strategy, it is essential that we maintain our readiness at or above that of potential aggressors.

Sustainability

We recognize that our forces, even with high readiness, might become a "hollow" deterrent if we cannot sustain them in combat. Adequate logistics support for our forces—munitions, fuel, equipment, and repair parts—is necessary for successful deterrence and defense.

Our current level of sustainability is barely adequate for credible deterrence. In Europe, for example, our sustainability remains inferior to that of the Warsaw Pact. We will continue, in conjunction with our allies, to emphasize increases in sustainability to fortify the deterrent value of our forces.

Building upon the gains made during the past four years, we seek a level of conventional sustainability to ensure deterrence of the Soviet threat. Besides providing sufficient quantities of stocks to maintain the staying power of our forces in combat, we seek forces of superior quality equipped with our most modern and effective conventional munitions.

Force Structure

Besides improving combat readiness and sustainability, we are developing a force structure well designed to meet potential threats. We have worked to mold our conventional forces to be more responsive and flexible, with greater projection and striking power.

Land Forces. The US Army, hit especially hard by the 1970s decade of stagnation, is well on the road to rebuilding its capability to respond to aggression over a broad spectrum of conflict, ranging from counterterrorist operations to full-scale armored and mechanized warfare. The latter remains the most dangerous challenge, especially for those forces committed to the forward defense and rapid reinforcement of NATO; conflicts at the other end of the spectrum are more likely to occur.

Maritime Forces. We need a strong Navy, Marine Corps, and Merchant Marine to support our forward defense strategy, to fulfill the responsibilities associated with our network of overseas alliances and global commitments, and to protect the vital sea lanes to Europe and to southwest and northeast Asia. We also rely heavily upon our maritime forces in peacetime to respond to a wide variety of crises, a role to which their global reach, high responsiveness, and integrated combat power are particularly well suited.

The Navy's modernization program is most dramatically reflected in the evolution of major surface combatants. Fitting out continues on the carrier *THEODORE ROOSEVELT,* which will form the nucleus of a fifth nuclear-powered carrier battle group (CVBG). The battleship USS *NEW JERSEY* completed an extended first deployment, which included op-

erations in the western Pacific, Central America, and in the Mediterranean, where the ship provided naval gunfire support to the multinational force operation in Lebanon. The *NEW JERSEY* was the first US ship to deploy with the TOMAHAWK long-range, antiship, cruise missile. USS *IOWA,* the second battleship, was recommissioned in 1984 and will be followed by *MISSOURI* and *WISCONSIN,* each forming the nucleus of a surface action group.

USS *TICONDEROGA* (CG-47), the first ship of a new guided-missile cruiser class, completed a highly successful initial deployment to the Mediterranean in 1984. The ship with its AEGIS combat system adds a new dimension to modern naval warfare by being able, in concert with carrier aircraft, to defeat intense, coordinated attacks by enemy aircraft, submarines, and surface ships. Twenty-seven AEGIS-equipped ships are planned. The ARLEIGH BURKE-Class (DDG-51) guided-missile destroyer will incorporate the AEGIS system with a vertical launcher that accommodates a variety of antiair and antisubmarine weapons and long-range TOMAHAWK cruise missiles. Twenty-nine ships of this new class are planned as one-for-one replacements for the aging DDG-2 and DDG-37-Class guided-missile destroyers. The lead ship has been authorized for FY 1989 delivery.

Tactical Air Forces. Well-trained and properly equipped tactical air forces can quickly engage targets on land and at sea as well as provide an air defense umbrella in support of ground and naval forces worldwide. The Western Alliance continues to depend heavily on such tactical airpower to counter the significant numerical advantage in ground forces of the Soviets and their allies. Our forces have long been considered superior to the Soviets in air combat capabilities, but our advantage has been diminishing. The Soviets' new generations of Soviet fighter, attack, and bomber aircraft, along with their introduction of the MAINSTAY AWACS, now challenge our air superiority. We continue to rely on superior personnel to exploit fully the potential of our aircraft. We stress realism in training and pilot initiative.

Special Operations Forces. The United States must be prepared to respond to low-intensity conflict when it threatens our vital national interest. The Soviets and their surrogates, as a matter of policy, have both encouraged and supported this form of aggression as a way of achieving their objectives without direct confrontation with the Free World. Today, more than 20 insurgencies are threatening peace in the Third World, and one out of every four countries around the globe is engaged in some form of conflict.

Low-level conflict will likely be the most pervasive threat to Free World security for the rest of this century. Special Operations Forces provide us the ability to respond to a range of crises in a flexible manner. They contribute to our ability to deter and defeat a major conventional attack by their capability to disrupt the enemy's rear, engage in unconventional warfare, psychological operations, counterterrorism actions, or intelligence missions.

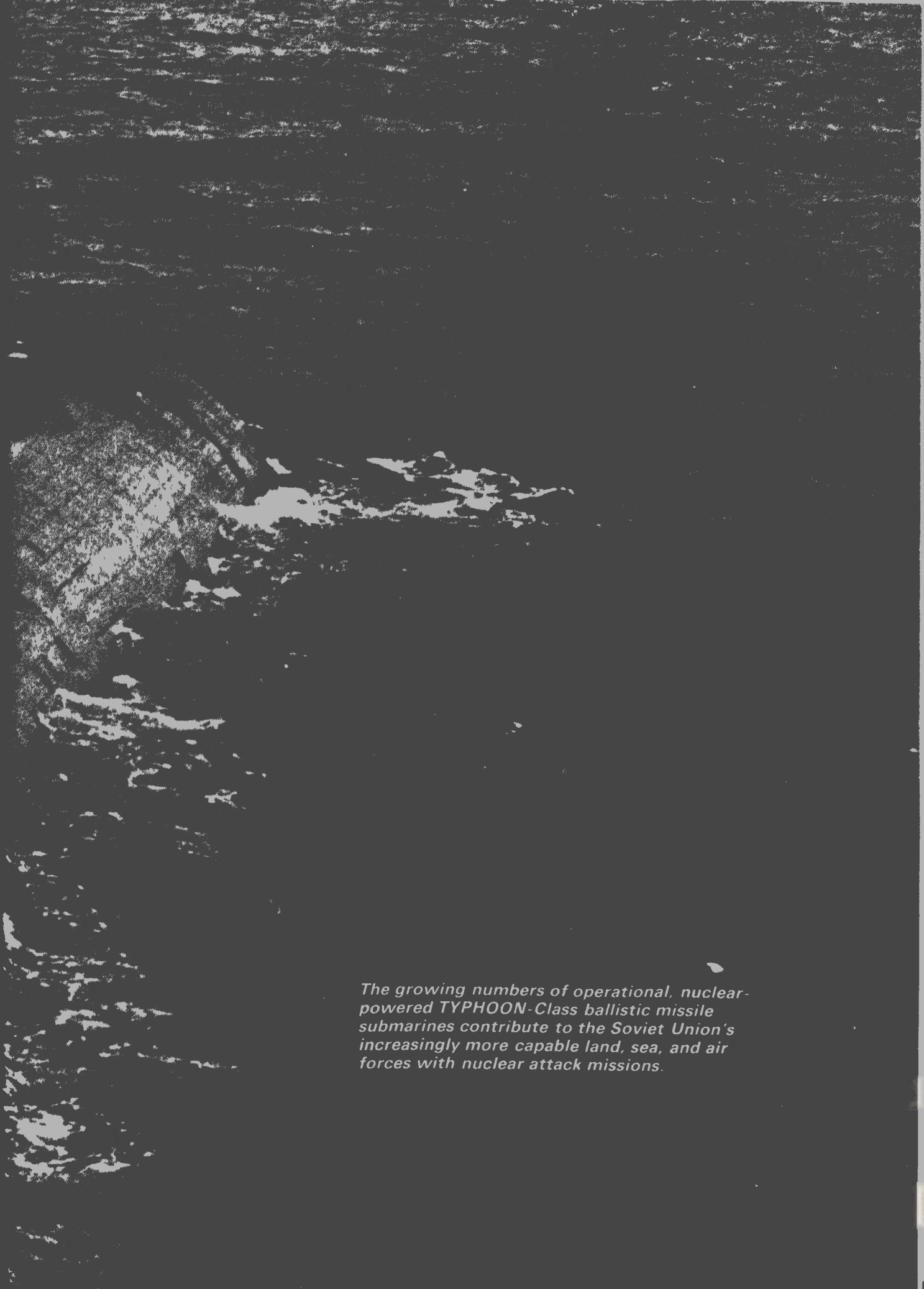
Reserve Forces. Under the Total Force Policy, the Reserve Components have in recent years played an increasingly important role in our conventional defense capabilities. We have, for example, improved the equipment, training, force structure, and manning of Army and Marine Corps Reserve units and the Air National Guard. Following the "first to fight, first to be equipped" policy, early deploying Army National Guard and Reserve units are receiving modern weapons systems before active component units that would deploy later.

US Strategic Mobility

The US must be able to sustain deployed forces and to redeploy in response to combat needs. Forces able to meet these objectives should be adequate for virtually any other contingency.

Our capability to move troops and equipment by air is unmatched by any country in the world. US airlift assets include the transports of the Military Airlift Command (MAC) augmented by the Civil Reserve Air Fleet (CRAF) in time of emergency. Current MAC strategic mobility transports include 70 C-5 and 234 C-141 aircraft. Under the CRAF program, US civilian airlines augment the military with an additional 61 cargo and 221 intercontinental passenger aircraft. The combined cargo carrying capability of these US aircraft is more than twice that of the Soviet Union's military and civilian aircraft. When distance to a region of possible conflict is considered, however, this 2:1 ratio favoring US cargo capacity changes significantly in terms of maximum number of tons deliverable per day.

The Military Sealift Command (MSC) currently owns or has under charter 31 ships,



The growing numbers of operational, nuclear-powered TYPHOON-Class ballistic missile submarines contribute to the Soviet Union's increasingly more capable land, sea, and air forces with nuclear attack missions.

which include 17 ships under MSC charter for the Near-Term Pre-positioning Force (NTPF). NTPF ships are fully loaded and positioned overseas. They are intended to be used primarily for contingencies in southwest Asia, but they could be used in any overseas contingency. The Maritime Pre-positioning Ship (MPS) program will place an additional 13 ships under MSC contract. The MPS program increases our afloat pre-positioning capabilities by providing additional unit equipment, POL, supplies, and ammunition for three Marine Corps amphibious brigades. The MPS program will extend to the eastern Atlantic, western Pacific, and Indian Ocean, thereby improving our capability to respond rapidly to any worldwide contingency.

Security Assistance

US security assistance programs respond to the global Soviet challenge and contribute directly to the national security of the United States by helping friendly and allied countries defend themselves. Through the sale of equipment and services, some of which are supported by financial assistance, our programs enable recipient countries to make better use of their own resources, assist in furthering greater military self-reliance, and help advance the shared goal of collective security and regional stability around the world.

These programs also promote closer military working relationships between US forces and the armed forces of other countries, help strengthen our alliance relationships, and improve forward defense capabilities through access to overseas facilities and retention of base rights abroad. They also enhance our ability to interact with other friendly forces through improved commonality of equipment and training, thus adding a force multiplier to US capabilities. In each instance, security assistance has been an essential foreign policy tool for obtaining or retaining these defense benefits.

The foreign policy contrast between the United States and the Soviet Union is starkly evident in the provision and implementation of security assistance in general and especially to the Third World. The US program is the most open in the world. Soviet assistance, by contrast, is not subject to public review or internal criticism; no justification for decisions is provided.

The Soviet Union stations more than 20 times the number of permanent military technicians abroad than does the US, even though the US has security assistance relationships with a far larger number of countries. The US attempts to develop greater self-reliance in the recipient countries; the sale of support, spares, and services contributes the greatest portion of US security assistance exports. The Soviets, on the other hand, seek to foster military dependence through the sale of military hardware which they prefer to maintain themselves, rather than training others to repair. This policy permits them to place Soviet personnel on-site in the recipient countries.

Both countries have host training programs for foreign military personnel. In the USSR, foreign officers are segregated from Soviet society and subjected to heavy doses of political indoctrination. In the US, there are no special restrictions on training of foreign personnel, and exposure to US society is encouraged.

US Industrial Base

The United States defense-related industrial base consists of both privately owned and Government-owned industrial facilities needed to produce and maintain military items required by the Armed Forces. Public law mandates that maximum reliance be placed on the private sector for the provision of goods and services. As a result, the Government-owned base is limited in most instances to a capability that is unique or that has little, if any, civilian equivalent. Examples are ammunition, artillery tubes, or other military-related items that could not be sufficiently produced and maintained by private investment. The present US Government-owned base consists of 72 production plants and 43 maintenance facilities. Only one Government-owned plant has been constructed since 1965.

The Soviet military production base is kept relatively active and, in effect, is close to or on a wartime footing with the capability to expand rapidly. Many items produced by the Soviets can be simplified by removing technologically sophisticated subsystems, resulting in an ability to produce larger quantities of less complex weapons. By contrast, US reliance on high-technology weapons, combined with a decline in heavy industry and traditional manufacturing methods, constricts the US ability to expand production capability as rapidly in the event of a crisis.

To counteract the Soviet threat, the US is continuing a number of important initiatives

that are beginning to result in industrial expansion and modernization. We have seen significant positive results from the policies and programs established in recent years. The Congress has supported increased funding for surge industrial responsiveness. Further activity involves an Industrial Modernization Incentives Program to provide contract incentives that encourage industry to make productivity-enhancing capital investments.

A healthy and responsive industrial base has been and will continue to be an important element of US national security. As such, it requires vigilant attention to quality, productivity, and efficiency while, at the same time, maintaining a sufficient reserve capability to meet any potential crisis.

Technology Security

A strong industrial base is vital to our ability to meet the Soviet challenge of superior numbers of men and weapons. Rather than trying to match the Soviets in terms of numbers, we rely on our technological superiority to help deterrence. The quality that makes the US industrial base responsive, healthy, and competitive in the world marketplace is the very quality missing in the Soviet industrial system: innovation fueled by competition. The Soviets have mounted an all-out effort to acquire Western, principally US, high technology for incorporation into their weapons systems. Preventing the loss of strategically significant technology to the Warsaw Pact is one of the most cost-effective defense policies we can pursue in the structure of our national defense.

The US is committed to an efficient and effective program of combatting the loss of strategic technology across the board, whether from direct Soviet attempts or inadvertent acts of our own. Much remains to be done. As we have proceeded to bar Soviet access to US technology, the Soviets increasingly have turned to alternate sources—Europe, the Far East, and elsewhere.

We are seeking to increase the incentives for other countries to cooperate with us in denying the Soviets the technology that undermines the security of the Free World. We are also increasing the disincentives for non-cooperation. A well-managed and effective control of the transfer of strategically significant technology from the West to the Warsaw Pact is critical for the security of the West. We must continue to make strides with our allies and friends.

Conclusion

For the United States and our allies the challenge is clear. Together, we must maintain a military capability sufficient to convince the Soviets that the costs of aggression far outweigh any possible gain. We must be equally steadfast in our resolve to defend the security of all free nations. These are the preconditions to the long-sought goals of arms reductions and world peace. Our strategy of nuclear and conventional deterrence—given sinew by forces that are well-manned, well-equipped, and well-trained—has thus far been effective in preventing major war. It is incumbent upon the United States and its allies to have a full and precise understanding of the Soviet challenge as we take the steps necessary to preserve our freedom, to ensure an effective deterrent to the threat and use of force, and, at the same time, to seek genuine and equitable arms reductions, contributing to global stability and to our transcending goal as a free people—the goal of peace and security. We must stay the course.