SOVIET STRATEGIC FORCE DEVELOPMENTS

TESTIMONY BEFORE A JOINT SESSION OF THE SUBCOMMITTEE
ON STRATEGIC AND THEATER NUCLEAR FORCES OF THE
SENATE ARMED SERVICES COMMITTEE

AND

THE DEFENSE SUBCOMMITTEE OF THE SENATE COMMITTEE ON APPROPRIATIONS

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I. Introduction

By the mid-1990s, nearly all of the Soviets' currently deployed intercontinental nuclear attack forces--land- and sea-based ballistic missiles and heavy bombers--will be replaced by new and improved systems. New mobile intercontinental ballistic missiles (ICBMs) and a variety of cruise missiles are about to enter the force. The number of deployed strategic force warheads will increase by a few thousand over the next five years, with the potential for greater expansion in the 1990s. We are concerned about the Soviets' longstanding commitment to strategic defense, including an extensive program to protect their leadership, their potential to deploy widespread defenses against ballistic missiles, and their extensive efforts in directed-energy weapons technologies, particularly high-energy lasers. Their vigorous effort in strategic force research, development, and deployment is not new, but is the result of an unswerving commitment for the past two decades to build up and improve their strategic force capabilities.

Soviet leaders are attempting to prepare their military forces for the possibility that they will actually have to fight a nuclear war. They have seriously addressed many of the problems of conducting military operations in a nuclear war, thereby improving their ability to deal with the many contingencies of such a conflict.

We judge that the Soviets would plan to conduct a military campaign that would seek to end a nuclear war on their terms--by neutralizing the ability of US intercontinental and theater nuclear forces to interfere with Soviet capabilities to prevail in a conflict in Eurasia.

II. Strategic Offensive Forces

The most notable recent trend in offensive forces is the construction of bases for mobile strategic missiles--SS-20 intermediate-range ballistic missiles (IRBMs) and new ICBMs:

- --During 1984, the Soviets embarked on an unprecedented program for constructing new SS-20 bases, starting more new bases than in any previous year.

- --The Soviets have made major strides in preparing for the deployment of their two new mobile ICBMs--the road-mobile SS-X-25 and the rail-mobile SS-X-24. The Soviets' commitment to deploy mobile ICBMs represents a major resource decision; such systems require substantially more support infrastructure than do silo-based systems, and thus are much more costly to operate and maintain.

All elements of Soviet strategic offensive forces will be extensively modernized by the mid-1990s, as the result of programs that have been in train for many years. While the Soviets will continue to rely on fixed, silo-based

ICBMs, mobile ICBMs will be deployed in large numbers (see figure 1), and major improvements will be made to the sea-based and bomber forces. The major changes in the force will include:

--An improved capability against hardened targets. The Soviets already have enough hard-target-capable ICBM reentry vehicles today to attack all US ICBM silos and launch control centers and will have larger numbers of hard-target-capable RVs in the future. In such an attack today, they would stand a good chance of destroying Minuteman silos. The projected accuracy improvements for the new heavy ICBM we expect the Soviets to deploy in the late 1980s would result in a substantial increase in this damage capability.

--Significantly better survivability from improvements in the submarine-launched ballistic missile (SLBM) force--through quieter submarines and longer range missiles--and deployment of mobile ICBMs. Today, a large part of the Soviet silo-based ICBM force would survive an attack by US forces. However, with the increasing vulnerability of Soviet ICBM silos in the next ten years if more accurate US missiles are deployed, the Soviets will increasingly depend on the survivability of their mobile ICBM and SLBM forces.

--A substantial increase in the number of deliverable warheads for the bomber force as a result of the deployment of new bombers with long-range, land-attack cruise missiles.

ICBMs

Chart 1 shows new Soviet strategic ballistic missiles, land- and sea-based, and submarines--those recently deployed or now in testing and those we expect to see tested over the next five years.

The ICBM force, as shown in figure 2, will have been almost entirely replaced with new systems by the mid-1990s:

--The Soviets are preparing to deploy the SS-X-24 ICBM in silos in 1986 and on rail-mobile launchers in 1987. We expect SS-X-24-class ICBMs equipped with 10 multiple independently targetable reentry vehicles (MIRVs) to replace the MIRVed SS-17 and SS-19 silo-based ICBMs, which carry fewer warheads.

--The Soviets have started to retire older silo-based single-RV SS-11s as they prepare to deploy the single-RV road-mobile SS-X-25. We expect the SS-X-25 to be operational by late 1985.

--We expect at least three new ICBMs will be flight-tested in the 1986-90 time period:

- A new silo-based heavy ICBM, to replace the SS-18.

- A new version of the SS-X-24.

- A new version of the mobile SS-X-25, which could have a MIRVed payload option.

SS-20s

The SS-20 force of intermediate-range ballistic missiles is expected to expand to over 450 deployed launchers by 1987, as a result of an extensive program of constructing new bases. More new bases were started in 1984 than in any previous year. The total would have been considerably higher if the Soviets had not deactivated SS-20 bases in the central USSR to convert to SS-X-25 ICBM bases. A follow-on to the SS-20, which also carries three warheads and is probably designed to improve lethality, began flight-testing in 1984.

SLBMs

An extensive modernization program will result in replacement of the entire MIRVed Soviet SLBM force and deployment of much better nuclear-powered ballistic missile submarines (SSBNs). The major changes, as shown in figure 3, will include:

--Deployment of Delta-IV and additional Typhoon SSBNs. These boats have improvements that will contribute to their survivability. In addition, a new class of submarines is likely to enter the force in the early 1990s.

--Deployment of the new SS-NX-23 SLBM beginning in late 1985 or early 1986 on Delta-IVs and on Delta-IIIs. The increased range of the SS-NX-23, relative to that of the SS-N-18 missile currently on Delta-IIIs, will make SS-NX-23-equipped SSBNs more survivable because they will be able to operate closer to Soviet shores, where the Soviet Navy can better protect them.

--A replacement for the SS-N-20 on Typhoon SSBNs will probably be flight-tested in late 1985 or 1986, and a missile in the SS-NX-23 class will probably be tested later in the 1980s.

Heavy Bombers

Chart 2 shows new Soviet strategic bombers and a variety of new long-range, land-attack cruise missiles.

The Soviet heavy bomber force is undergoing its first major modernization since the 1960s; by the mid-1990s, as shown in figure 4, most of the older bombers will have been replaced. The heavy bomber force will have a greater role in intercontinental attack:

--The AS-15 air-launched cruise missile (ALCM) became operational on newly produced Bear H aircraft in 1984. By using newly produced aircraft of an old design, the Soviets were able to deploy ALCMs at least four years earlier than if they had waited for the new Blackjack bomber.

--We project Blackjack will be operational in 1988 or 1989, carrying both ALCMs and bombs.

Cruise Missiles

The ALCM is the first in a series of deployments of long-range, land-attack cruise missiles. Over the next 10 years, we expect them to deploy 2,000 to 3,000 nuclear-armed ALCMs, sea-launched cruise missiles (SLCMs), and ground-launched cruise missiles (GLCMs). The deployment of cruise missiles provides the Soviets with new multidirectional capabilities against US targets.

Growth of Intercontinental Attack Forces

The projected growth in the number of deployed warheads on Soviet intercontinental attack forces, under various assumptions, is shown in figure 5:

--The force currently consists of over 9,000 deployed warheads on some 2,500 deployed ballistic missile launchers and heavy bombers. Most warheads are in the ICBM force.

--Warheads are increasing: new Soviet Typhoon and Delta-IV submarines, Bear H bombers, and SS-X-24 ICBMs will carry many more warheads than the systems they are replacing.

--By 1990, if the Soviets continue to have about 2,500 missile launchers and heavy bombers and if they are within the quantitative sublimits of SALT II, the deployed warheads will grow to over 12,000.

--The 1983 Soviet proposal at the strategic arms reduction talks (START) would also result in an expansion in the number of warheads, although under its limits the Soviets would have about 1,000 fewer by 1990 than under SALT II limits.

--The effect of the 1983 US START proposal would be to reverse this trend and, by the 1990s, lead to substantial reductions.

--While the Soviets would not necessarily expand their intercontinental attack forces beyond some 12,000 to 13,000 warheads in the absence of arms control constraints, they clearly have the capability for significant further expansion, to between 16,000 and 21,000 deployed warheads by the mid-1990s. The lower figure represents a continuation of recent trends in deployment rates; the upper figure is not a maximum effort but would require a substantially greater commitment of resources.

The Soviets will face important decisions in the next few years, as they proceed with flight-testing the ballistic missiles which are scheduled to begin deployment in the late 1980s and early 1990s. (See Chart 1) Specifically, they have technical options to test new ICBMs in such a way as to conform with, or exceed, the limitations on characteristics and improvements in the unratified SALT II Treaty.

III. Strategic Defense

Soviet active and passive strategic defenses, while unable to prevent large-scale damage from a major attack, are intended to provide a degree of protection for the leadership, military, and military-related facilities necessary for wartime operations. The Soviets will significantly improve the capabilities of their strategic defenses over the next 10 years, as a number of new types of weapons are introduced and many of the older systems retired. Significant developments include the following:

Ballistic Missile Defense

--The Soviets have actively engaged in antiballistic missile (ABM) research, development, and deployment programs for many years.

--When completed by about 1987, the improved Moscow ABM system will consist of 100 silo-based high acceleration missiles and modified Galosh interceptors, providing an improved intercept capability against small-scale attacks on key targets around Moscow.

--By the end of the decade, when a new network of large phased-array radars (including the Krasnoyarsk radar) is expected to be fully operational, the Soviets will have a much improved capability for ballistic missile early warning, attack assessment, and accurate target tracking. These radars will be technically capable of providing battle management support to a widespread ABM system, but there are uncertainties about whether the Soviets would rely on these radars to support a widespread ABM deployment.

--The SA-X-12 system, to be deployed in the Soviet ground forces in 1985-86, can engage conventional aircraft, cruise missiles, and tactical ballistic missiles. It could have capabilities to intercept some types of US strategic ballistic missile RVs. Its technical capabilities bring to the forefront the problem that improving technology is blurring the distinction between air defense and ABM systems. This problem will be further complicated as newer, more complex air defense missile systems are developed.

We are particularly concerned that the Soviets' continuing development efforts give them the potential for widespread ABM deployments. The Soviets have the major components for an ABM system that could be used for widespread ABM deployments well in excess of ABM Treaty limits. The components include radars, an aboveground launcher, and the high acceleration missile that will be deployed around Moscow. The potential exists for the production lines associated with the upgrade of the Moscow ABM system to be used to support a

widespread deployment. We judge they could undertake rapidly paced ABM deployments to strengthen the defenses at Moscow and cover key targets in the western USSR, and to extend protection to key targets east of the Urals, by the early 1990s. In contemplating such a deployment, however, the Soviets will have to weigh the military advantages they would see in such defenses, against the disadvantages of such a move, particularly the responses by the United States and its Allies.

Air Defense

Deployment of new low-altitude-capable strategic air defense systems will increase. (See figure 6.) The Soviets are continuing to deploy the new SA-10 all-altitude surface-to-air missile (SAM), are deploying new aircraft with much better capabilities against low-flying targets, and will deploy the Mainstay airborne warning and control system (AWACS) aircraft in 1985. Penetration of Soviet air defenses by currently deployed bombers would be more difficult as improved systems are deployed. These defenses, however, would be considerably less effective against US cruise missiles. Against a combined attack of penetrating bombers and cruise missiles, Soviet air defenses during the next 10 years probably would not be capable of inflicting sufficient losses to prevent large-scale damage to the USSR. We judge, however, that the Soviets will be able to provide an increasingly capable air defense for many key leadership, control, and military and industrial installations essential to wartime operations.

Antisubmarine Warfare

The Soviets still lack effective means to locate US ballistic missile submarines at sea. We expect them to continue to pursue vigorously all antisubmarine warfare (ASW) technologies as potential solutions to the problems of countering US SSBNs and defending their own SSBNs against US attack submarines. We are concerned about the energetic Soviet ASW research and technology efforts. However, we do not believe there is a realistic possibility that the Soviets will be able to deploy in the 1990s a system that could pose any significant threat to US SSBNs on patrol.

Leadership Protection

The Soviets have a large program to provide protection for their leadership. We judge that, with as little as a few hours' warning, a large percentage of the wartime management structure would survive the initial effects of a large-scale US nuclear attack. We estimate there are at least 800, perhaps as many as 1,500, relocation facilities for leaders at the national and regional levels. Deep underground facilities for the top national leadership might enable the top leadership to survive--a key objective of their wartime management plans.

IV. Command and Control Considerations

While significant improvements in the capabilities of both Soviet and US strategic offensive forces will occur throughout the next 10 years, sizable forces on both sides would survive large-scale nuclear strikes. The Soviets' confidence in their capabilities for global conflict and in their ability to limit damage to the Soviet Union would be affected to a large extent by command and control considerations--the need for continuity in their own command and control capabilities, and their prospects for disrupting and destroying the ability of the United States and its Allies to command and to operate their forces.

--Although US attacks could destroy many known fixed command, control, and communications facilities, the Soviets' emphasis in this area has resulted in their having many key hardened facilities and redundant means of communications; thus, it seems highly likely that the Soviets could maintain overall continuity of command and control, although it would probably be degraded and they could experience difficulty in maintaining endurance.

--We believe the Soviets would launch continuing attacks on US and Allied strategic command, control, and communications to try to prevent or impair the coordination of retaliatory strikes, thereby easing the burden on Soviet strategic defenses, and impairing US and Allied abilities to marshal military and civilian resources to reconstitute forces. While the Soviets would devote substantial efforts to this mission, they probably are not confident that they could accomplish these objectives.

V. Space Program

The vigorous Soviet space program is predominantly military in nature. More than 70 percent of Soviet space missions are for military purposes only, with much of the rest serving a dual military-civil function. The Soviets view space as an integral part of their overall offensive and defensive force structure, not as a separate arena or as a sanctuary. While the Soviets seek to be able to deny enemy use of space in wartime, current Soviet antisatellite capabilities are limited and fall short of meeting this apparent requirement. Today, in addition to the dedicated nonnuclear orbital interceptor, other systems--the nuclear Galosh ABM interceptor and two ground-based high-energy lasers--have the potential to destroy or interfere with some satellites in near-Earth orbit, but the potential threat to satellites in higher orbit is limited. It is likely that the Soviets would attempt to destroy or interfere with US satellites during an intense conventional conflict, and in the initial stages of a nuclear war. These capabilities, however, would not survive a nuclear attack. Some improvements in Soviet antisatellite capabilities are expected.

VI. Directed-Energy and Hypervelocity Kinetic-Energy Weapons

Directed-energy and kinetic-energy weapons potentially could be developed for several strategic weapons applications--antisatellite (ASAT), air defense, battlefield use, and, in the longer term, ballistic missile defense (BMD).

There is strong evidence of Soviet efforts to develop high-energy laser weapons, and these efforts have been taking place, in some cases, since the 1960s:

- --We estimate a laser weapon program of the magnitude of the Soviet effort would cost roughly $1 billion per year if carried out in the United States.

- --Two facilities at the Saryshagan test range are assessed to have high-energy lasers with the potential to function as ASAT weapons.

- --We are concerned about a large Soviet program to develop ground-based laser weapons for terminal defense against reentry vehicles. There are major uncertainties, however, concerning the feasibility and practicality of using ground-based lasers for BMD. We expect the Soviets to test the feasibility of such a system during the 1980s, probably using one of the high-energy laser facilities at Saryshagan. An operational system could not be deployed until many years later, probably not until after the year 2000.

- --The Soviets appear to be developing two high-energy laser weapons with potential strategic air defense applications--ground-based and naval point defense.

- --The Soviets are continuing to develop an airborne laser.

- --Soviet research includes a project to develop high-energy laser weapons for use in space. A prototype high-energy, space-based laser ASAT weapon could be tested in low orbit in the early 1990s. Even if testing were successful, such a system probably could not be operational before the mid-1990s.

The Soviets are also conducting research under military sponsorship for the purpose of acquiring the ability to develop particle beam weapons (PBWs). We believe the Soviets will eventually attempt to build a space-based PBW, but the technical requirements are so severe that we estimate there is a low probability they will test a prototype before the year 2000.

The Soviets are strong in the technologies appropriate for radiofrequency (RF) weapons, which could be used to interfere with or destroy components of missiles or satellites, and we judge they are probably capable of developing a prototype RF weapon system.

We are concerned that Soviet directed-energy programs may have proceeded to the point where they could construct operational ground-based ASAT weapons.

The Soviets have expended significant resources since the 1960s in R&D on technologies with potential applications for hypervelocity kinetic-energy weapons.

VII. Resources for Projected Developments and Arms Control Considerations

Strategic offensive and defensive forces account for about one-fifth of total defense spending--about one-tenth each. The Soviets are increasing their resource commitments to their already formidable strategic forces research, development, and deployment programs. We estimate that total investment and operating expenditures for projected Soviet strategic offensive forces (intercontinental attack and intermediate range) and strategic defensive forces (assuming no widespread ABM deployments) will result in a growth in total Soviet strategic force expenditures of between 5 and 7 percent a year over the next five years. (The rate would be 7 to 10 percent if widespread ABM defenses were deployed.)

A growth rate of 5 to 7 percent a year for strategic programs, combined with the projected growth rate for nonstrategic programs of about 3 percent, would lead to a growth in total defense spending of between 3 and 4 percent per year--at the same time that we foresee sluggish growth in the Soviet economy for the rest of the decade. Increasing the share of the GNP devoted to defense will confront the Soviets with the difficult choice of reducing the growth in investment, which is critical to modernizing the industrial base, or curtailing growth in consumption, which is an important factor in the Soviet drive to improve labor productivity.

Despite serious economic problems since the mid-1970s, Soviet military procurement has been at high annual levels; in particular, the Soviets have continued to procure large quantities of new strategic weapons. Since the mid-1970s, for example, the Soviets fielded their MIRVed ICBM force, and then improved it; deployed the MIRVed SLBM force on new SSBNs; and deployed their mobile SS-20 force. In recent years the Soviets have increased their resource commitments to emerging new systems, particularly with respect to the deployment of costly mobile missile systems.

While Soviet economic problems are severe, we see no signs that the Soviets feel compelled to forgo important strategic programs or that they will make substantial concessions in arms control in order to relieve economic pressures. Soviet force decisions and arms control decisions are likely to continue to be driven by calculations of political-strategic benefits and the dynamism of weapons technology. We judge that strategic forces will continue to command the highest resource priorities and therefore would be affected less by economic problems than any other element of the Soviet military. We believe, however, that, as a result of the stark economic realities, decisions involving the rate of strategic force modernization probably will be influenced by economic factors more now than in the past and some deployment programs could be stretched out.

We believe the Soviets are determined to prevent any erosion of the military gains the USSR has made over the past decade. They recognize that new US strategic systems being deployed or under development will increase the threat to the survivability of their silo-based ICBM force, complicate their

ASW efforts, and present their air defense forces with increasingly complex problems. By their actions and propaganda, the Soviets have demonstrated they are very concerned about the US Strategic Defense Initiative (SDI) and its focus on advanced technology. In their view, it could force them to redirect their offensive ballistic missile development programs to reduce vulnerabilities or could stimulate a costly, open-ended high-technology competition for which they probably are concerned that the United States can outpace their own ongoing efforts. They are probably also concerned that SDI will lead to a sustained US effort in strategic defenses.

Soviet leaders view arms control policy as an important factor in advancing their strategy of achieving strategic advantage. They have been willing to negotiate restraints on force improvements and deployments when it served their interests. Moscow has long believed that arms control must first and foremost protect the capabilities of Soviet military forces relative to their opponents. The Soviets seek to limit US force modernization through both the arms control process and any resulting agreements. A salient feature of Soviet arms control policy will be its emphasis on trying to limit US ballistic missile defense and space warfare capabilities. The Soviets will try to use arms control discussions as a means of delaying or undercutting the US SDI program.

Figure 1
Soviet Intercontinental Attack Forces, Warhead Mix

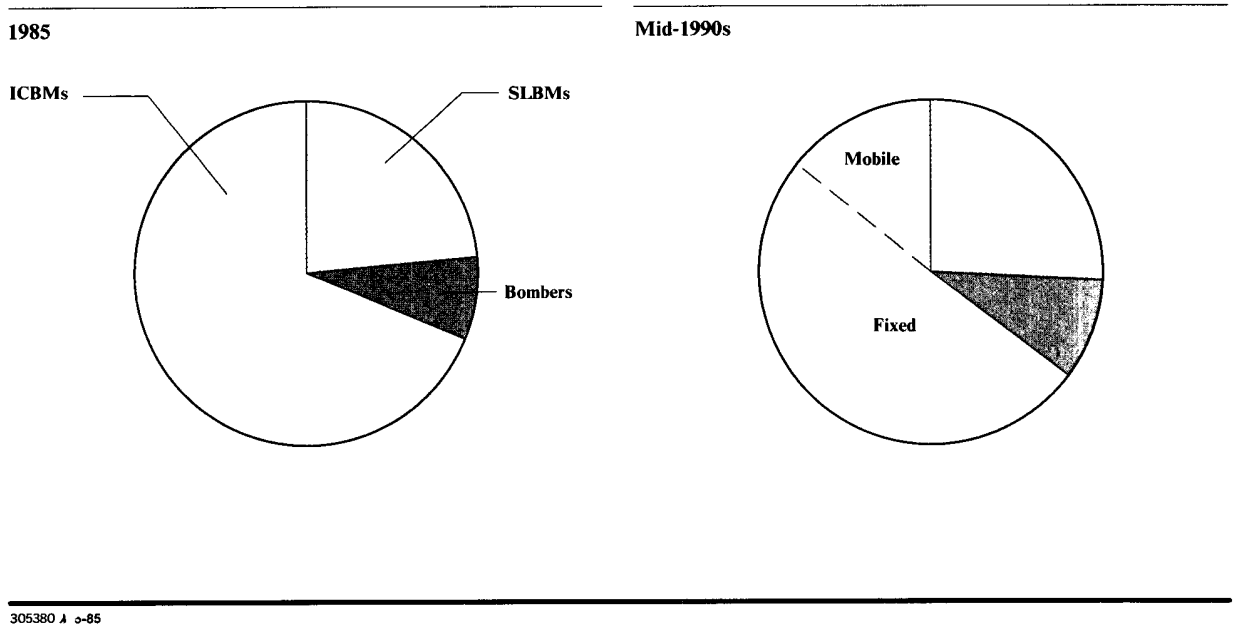

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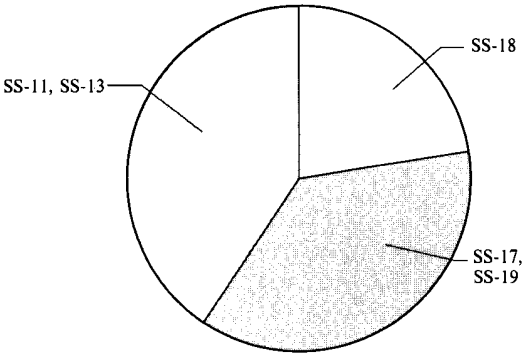
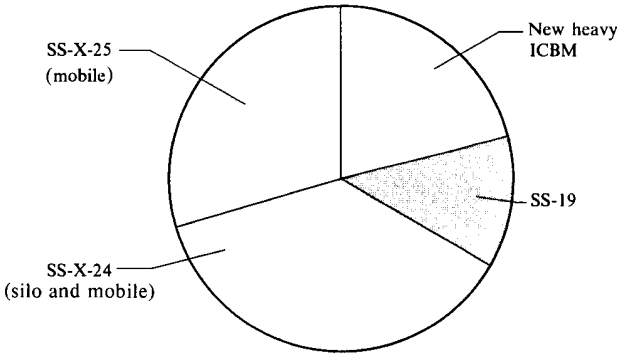
Figure 2
Modernization of Soviet ICBMs

Launchers

1985

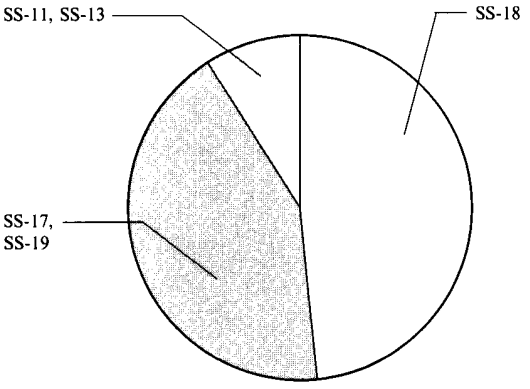


Mid-1990s



Warheads

1985



Mid-1990s

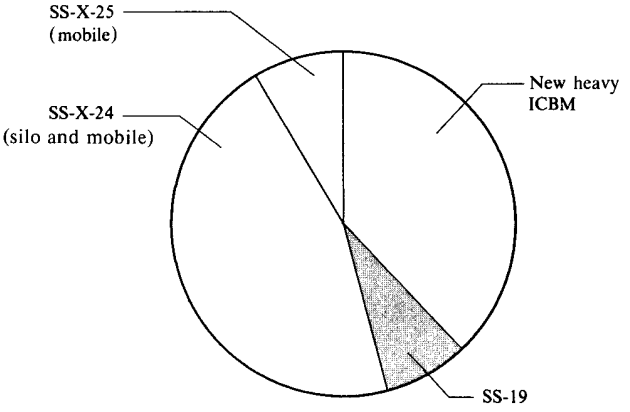


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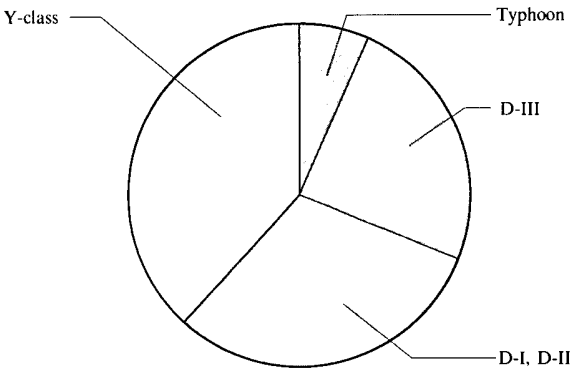
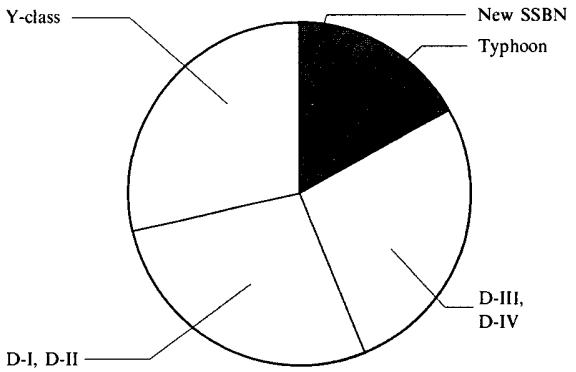
Figure 3
Modernization of Soviet SLBMs

Launchers

1985

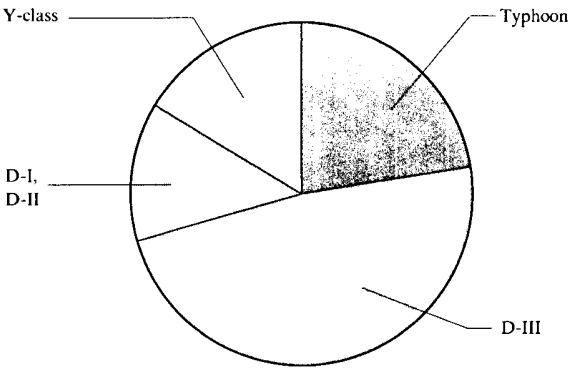


Mid-1990s

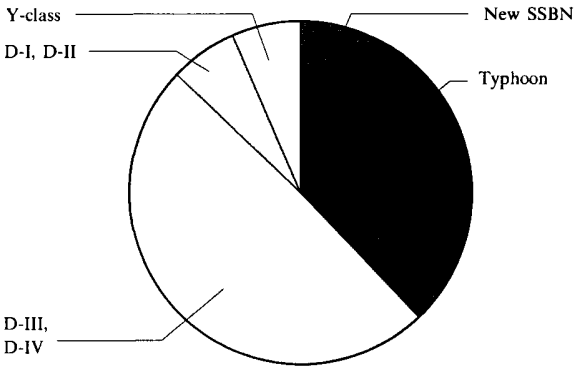


Warheads

1985



Mid-1990s

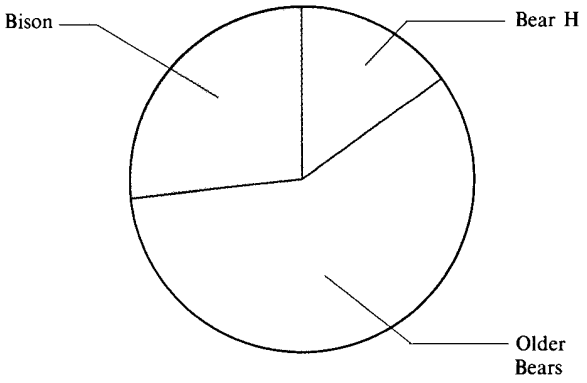


Note: Color changes for D-III and Typhoon in the mid-1990s indicate new missiles deployed in existing submarine classes.

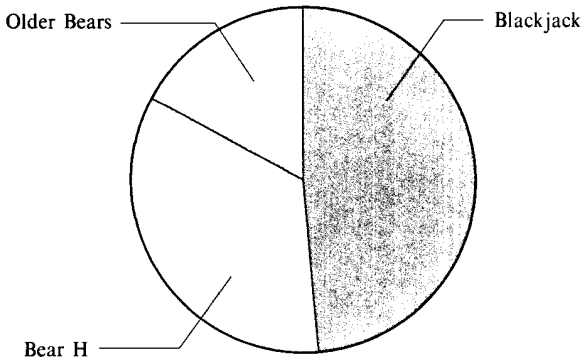
Figure 4
Modernization of Soviet Heavy Bombers

Heavy Bombers

1985

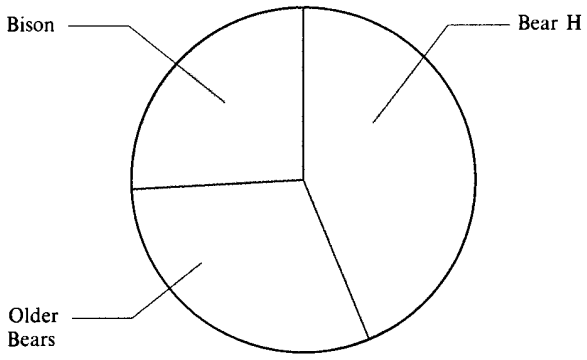


Mid-1990s



Heavy Bomber Weapons

1985



Mid-1990s

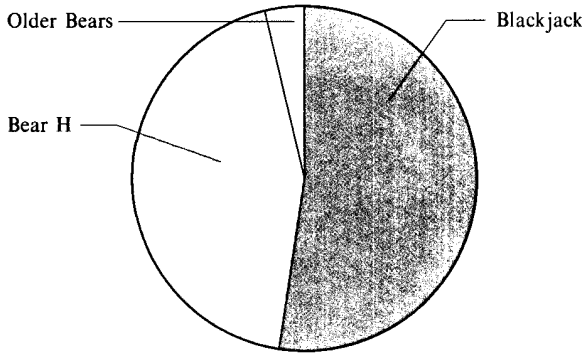


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Figure 5
Growth in Number of Deployed Warheads on Soviet Strategic Intercontinental Attack Forces

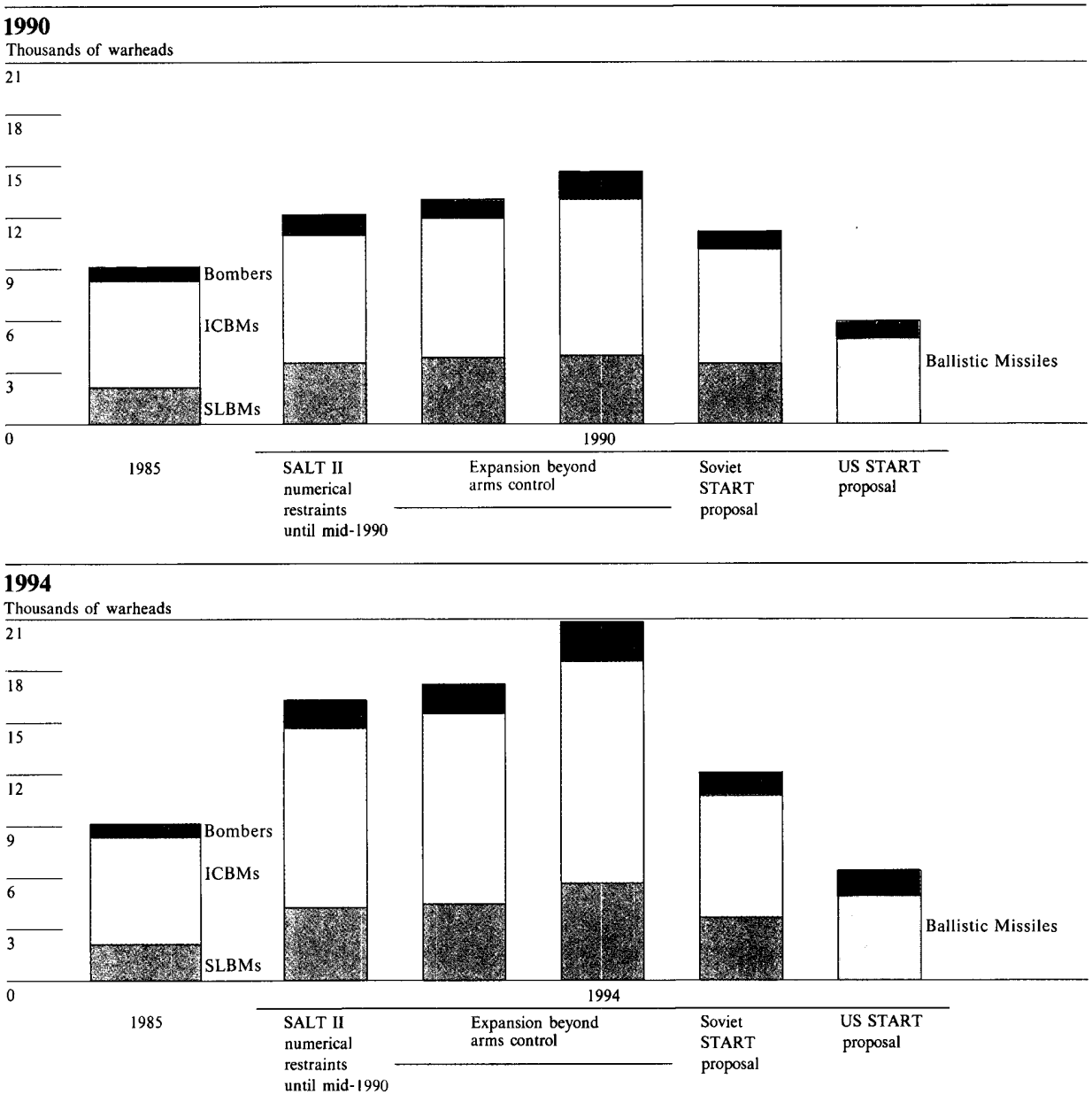

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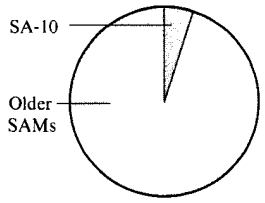
Figure 6
Modernization of Soviet Strategic Air Defense Forces

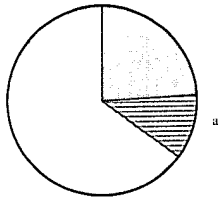
Strategic SAMs

Launchsites

1985

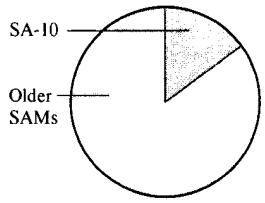


Mid-1990s

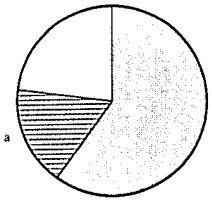


Launch Rails

1985



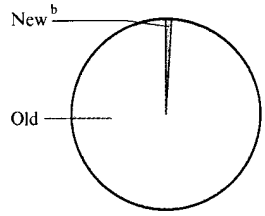
Mid-1990s



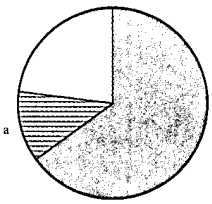
Air Defense Interceptors

Military District Aviation

1985

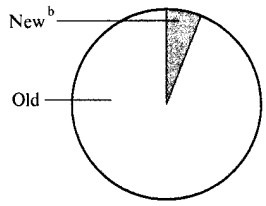


Mid-1990s



Air Defense District Aviation

1985



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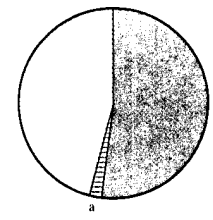

[a] Represents different assumptions about our projections of modernization.
[b] New interceptors are: Foxhound, Fulcrum, Flanker, long-range interceptor.

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Chart I: New Soviet Strategic Ballistic Missiles

Recently Deployed or in Testing

SS-X-24

ICBM

SS-X-25

ICBM

SS-20 Follow-on

IRBM

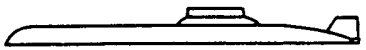
SS-N-20

SLBM

SS-NX-23

SLBM

Typhoon SSBN



D-IV SSBN

To be Tested 1986-90

SS-18 Follow-on

ICBM

SS-X-24 Follow-on

ICBM

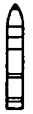
SS-X-25 Follow-on

ICBM

SS-N-20 Follow-on

SLBM

SS-NX-23 Follow-on



SLBM

New SSBN

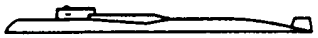


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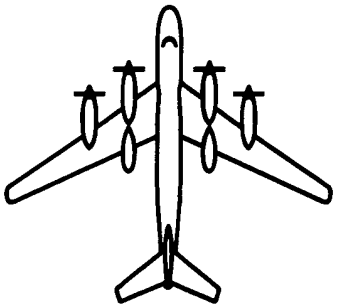
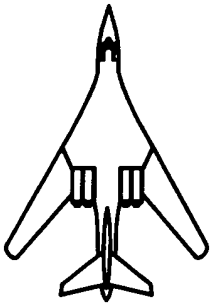
Chart II: New Soviet Strategic Bombers and Cruise Missiles

Bombers

Bear H



Blackjack

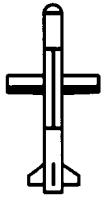


Long-Range Cruise Missiles

AS-15

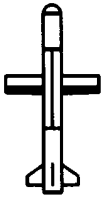
ALCM

SS-NX-21



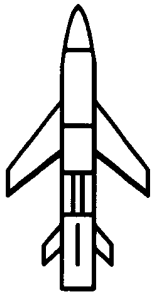
SLCM

SSC-X-4

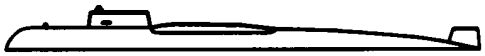


GLCM

SS-NX-24



SLCM, GLCM



New SSGN

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