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DIRECTORATE OF INTELLIGENCE

Intelligence Report

Soviet Strategic Forces for Peripheral Strike

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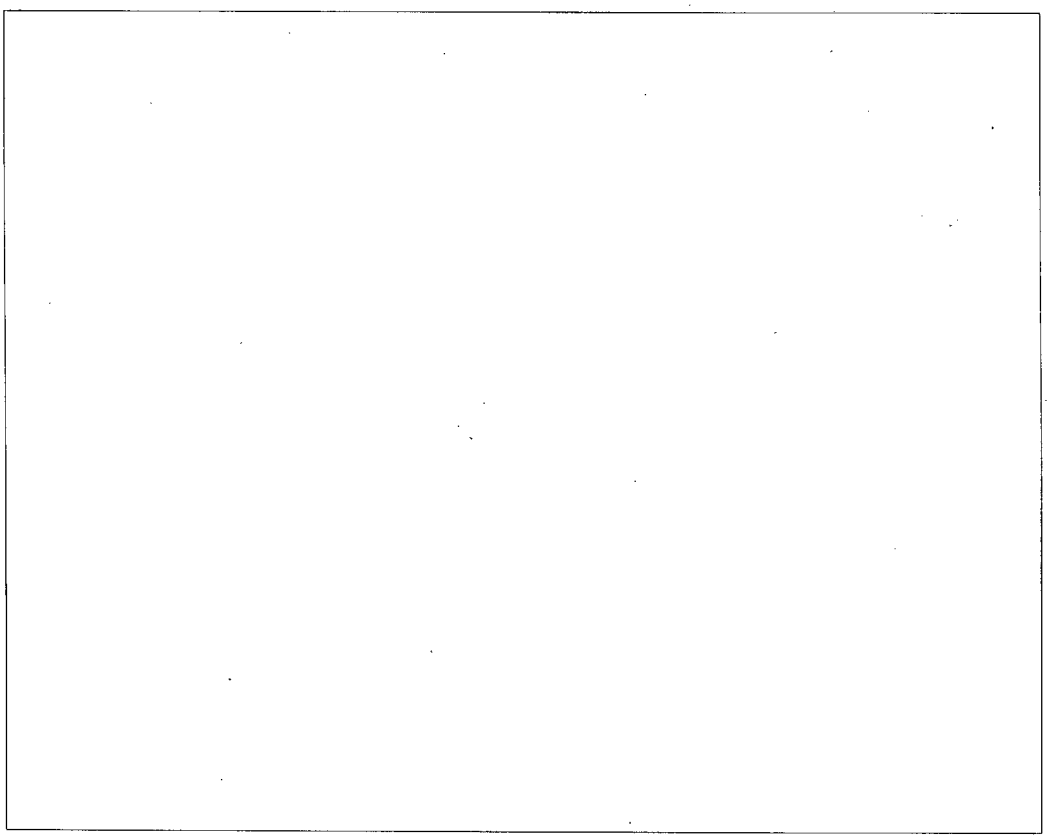

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
May 1971

INTELLIGENCE REPORT

Soviet Strategic Forces for Peripheral Strike

Introduction

The Soviet capability to carry out strategic strikes against targets around the periphery of the USSR is provided by elements of Long Range Aviation, the Strategic Rocket Forces, and the Soviet navy. Present peripheral attack forces consist of more than 700 jet medium bombers; about 750 short, medium, intermediate, and intercontinental range ballistic missiles; and probably about ten diesel powered ballistic missile submarines. Most of these forces are based in the western USSR.

Although the Soviets in recent years have concentrated on expanding their intercontinental attack capabilities, the peripheral strike forces have been maintained and are being modernized. The unique capabilities of each element--the short reaction time of the land-based missiles, the survivability of the missile submarines, and the varied delivery capabilities of the bombers--provide the overall force with the flexibility to perform a number of missions and to engage a variety of targets of strategic significance in areas adjacent to the USSR.

This report discusses the evolution, capabilities, and future trends of the peripheral strike

Note: This report was prepared by the Office of Strategic Research and coordinated within CIA.

forces which, in addition to their deterrent value, would provide the strategic punch in any Soviet ground campaign against western Europe or China. It does not focus on the issue of possible Soviet intentions to use some of these weapons for inter-continental attack.

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Summary

After World War II, the Soviets began to build strategic forces capable of striking targets on the periphery of the USSR. A variety of factors influenced this buildup: the technology available at the end of the war, the perennial Soviet fear of attack from Europe, the growth of NATO forces, and the hope that holding Europe hostage would deter a US attack until strong Soviet intercontinental attack forces could be developed. The size and variety of the forces ensure that a large number of potential targets can be attacked by one or more elements and that targets not destroyed initially can be attacked in follow-up strikes.

The addition of new weapon systems to the peripheral strike force over the next few years probably will provide it with increased range, greater survivability, and more flexibility. In addition, elements of the force may acquire a greater intercontinental attack capability.

Medium Bombers: The first element of the peripheral strategic strike forces was the medium bomber deployed shortly after World War II. After reaching a high of 1,350 piston and jet bombers in 1956, the size of the bomber force began to decline as a result of the phaseout of older aircraft and the transfer of some to the Soviet navy. By mid-1966 the size of the force had decreased to about 760 jet aircraft--660 TU-16 Badgers and 100 TU-22 Blinders. The present force consists of about 535 Badgers and 175 Blinders for a total of 710 aircraft, mostly based in the western USSR.

Although the medium bomber force has a limited capability for intercontinental attack, the manner of [redacted] basing, and equipping the force indicates that it is mainly assigned to peripheral attack missions. These bombers also have the mission of supporting Soviet theater forces with nuclear or conventional strikes against tactical targets as well as providing reconnaissance and electronic countermeasures support.

A major weakness of the force is the increasing number of obsolescent aircraft. Efforts are being made, however, to extend the useful life of the TU-16 Badgers by equipping them with new or modified air-to-surface missiles. The only new bomber known to be under development is a swing-wing strategic aircraft which is now being flight tested. This aircraft apparently was designed for low altitude, high speed penetration. Although its range may approach that of the M-type Bison heavy bomber, the new aircraft appears best suited for a peripheral attack role. It probably will begin entering service by the mid-Seventies.

The size of the medium bomber force will continue to decline over the next few years as additional Badgers are withdrawn from service. The effect of this decline in Badger strength probably will be offset, however, by the deployment of new air-to-surface missiles, the increased capability of the Soviet tactical air force, and the initial deployment of the new swing-wing bomber.

Land-Based Ballistic Missiles: The buildup of the force of land-based ballistic missiles for peripheral attack began in 1958 with the deployment of about 60 SS-3 medium range ballistic missiles. The force grew substantially through the early Sixties as deployment of the SS-4 medium range and SS-5 intermediate range ballistic missiles progressed. When deployment of these two systems ended in 1965, the force contained 492 soft and 84 hard SS-4 launchers, and 50 soft and 51 hard SS-5 launchers. By 1967, all of the old SS-3 launchers had been phased out and deactivation of some SS-4 and SS-5 launchers had begun.

Mobility was added to the force in 1967 when a total of 27 to 36 Scaleboard short range ballistic missiles were deployed at three Strategic Rocket Forces facilities near China. Some or all of these missiles may now be subordinate to the ground forces. The latest addition to the force has been the SS-11 intercontinental ballistic missile. Since 1968 a total of 120 SS-11 silos have been built in the

western USSR at Derazhnya and Pervomaysk--complexes presently considered to have a peripheral attack role. These locations suggest that the SS-11s deployed there are intended primarily for peripheral attack, although they could strike all of China and much of the United States.

The mission of the peripheral strategic missile force is to destroy nuclear delivery systems and other strategic targets in Europe and Asia. The secondary mission of the force is to support Soviet theater forces. In a first strike, the present peripheral missile force probably could destroy most strategic targets in areas adjacent to the USSR. The capabilities of the force could be substantially reduced if attacked preemptively, however, because two-thirds of the launchers are at soft sites and all silos except those for the SS-11 are deployed in clusters.

The Soviets have tested two new mobile missile systems--the SS-14 Scamp and the SS-X-15 Scrooge--which may have been designed for peripheral attack. The status of both programs currently is in doubt because of the lack of test firings, and both programs may have been suspended or canceled. The SS-14 probably has been tested sufficiently to be deployed, but so far, there has been no evidence of deployment. The SS-X-15 probably would require at least another year of testing before it would be ready for deployment.

Through 1975, there probably will be a mix of three fixed and one or two mobile peripheral attack missile systems. The fixed part of the force probably will be made up of the SS-4, SS-5, and the SS-11, while the mobile portion may be composed of the SS-12 Scaleboard and possibly an improved version of the SS-14 Scamp or SS-X-15 Scrooge. The number of land-based missiles assigned to peripheral targets probably will not decrease significantly during this period.

Ballistic Missile Submarines: The submarine launched ballistic missiles which are believed to be intended primarily for peripheral attack are carried on diesel powered G class submarines assigned to the Northern Fleet. These submarines began entering service in 1958. They originally were built with three launch tubes fitted with the 300-nm SS-N-4 missile, which is launched while the submarine is surfaced. In 1963, the Soviets began converting the G class to carry three 700-nm SS-N-5s, which can be launched while submerged. (The submarines fitted with the SS-N-4 are called G-Is; those armed with SS-N-5s have been designated G-IIs.) The Northern Fleet force currently consists of six operational G-I class and four G-II class submarines.

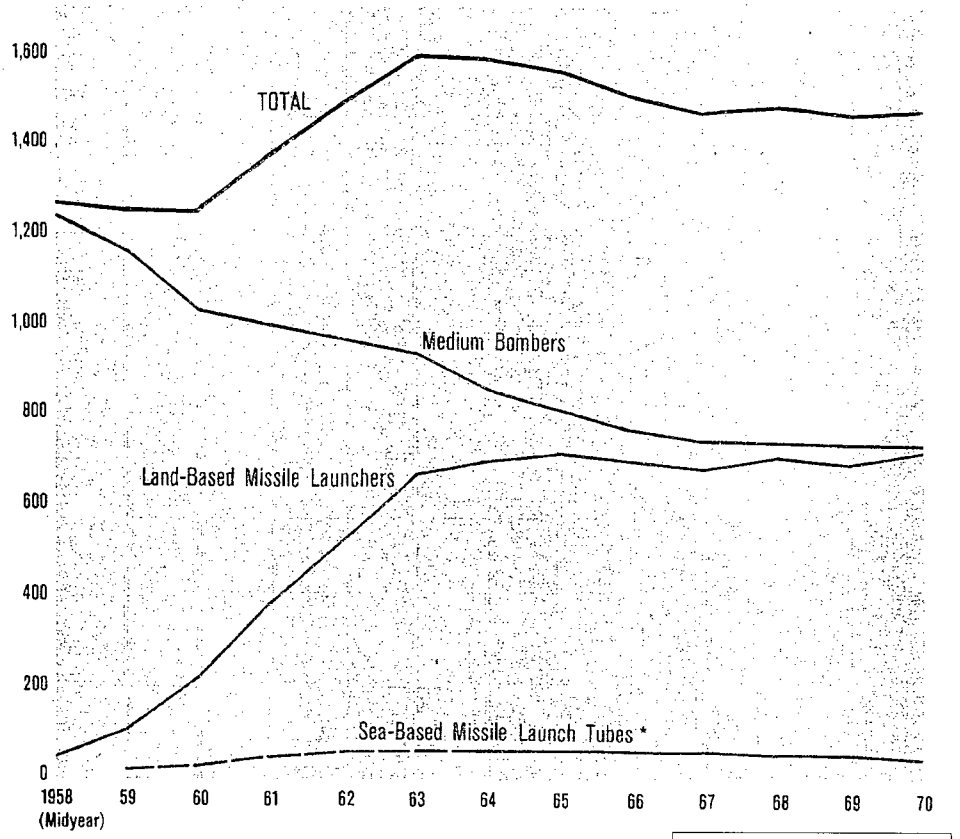
In the Atlantic, G class patrol areas are almost equidistant from targets in the US and Europe. Because only one G class submarine is maintained at sea continuously, the number of targets the force could engage during a normal alert is small--normally no more than three. In addition, the relatively short range missiles carried by these submarines are suitable only for use against soft targets because of their large CEP. Despite its shortcomings, however, the G class fleet does add a degree of mobility, survivability, and flexibility to the peripheral strike forces.

Four G-I class submarines currently are undergoing a conversion which may be a part of a program to equip all of the G-I class units in the Northern Fleet with more launch tubes and a longer range missile--probably the 1,300-nm range SS-N-6 or the new 3,000-nm SS-NX-8. If so, these units would have a significantly increased strike capability and subsequently might be used primarily in an intercontinental attack role. But the growth of the Y class ballistic missile submarine force probably will free the eight G-II class submarines in the Pacific Fleet and all eight of the Soviets' H-II class submarines from the intercontinental attack mission for use in a peripheral attack role. This may lead to an expansion in the size of the present peripheral missile submarine force.

Spending for Peripheral Attack Forces: Since 1958, deployment and operation of peripheral strategic attack forces have cost an estimated 18 billion rubles (the equivalent of about 35 billion dollars), and annual spending reached a high of about 2 billion rubles (nearly 4 billion dollars) in 1962 during the buildup of the land-based missile component. Projections of the size and composition of the future peripheral attack forces indicate that expenditures probably will average about 700 million rubles (1.6 billion dollars) a year through the mid-Seventies--about 25 percent less than for the last five years.

* * * * *

SOVIET PERIPHERAL STRIKE FORCES, 1958-1970



*Prior to 1964 the ballistic missile submarines are believed to have been assigned to intercontinental targets and are excluded from the totals for 1958 through 1963.

Evolution and Missions of the Peripheral Strike Forces

After World War II, the Soviets began to build forces capable of strategic attack against targets on the periphery of the USSR. A variety of factors influenced this buildup: the technology which was available at the end of the war, the perennial Soviet fear of attack from Europe, the growth of NATO forces, and the hope that holding Europe hostage to Soviet peripheral strike forces would deter a US nuclear attack until strong intercontinental attack forces could be developed in the USSR.

As Soviet intercontinental attack capabilities grew, the importance of the peripheral strike forces as a deterrent to general nuclear war declined, but their overall importance, especially in Soviet plans for a campaign in NATO's Central Region, apparently has not diminished. The total number of weapons in the force has remained fairly constant since about 1963 (see the chart opposite). The size and variety of the forces ensure that a large number of potential targets can be attacked by one or more elements and that targets not destroyed initially can be attacked in follow-up strikes.

Medium Bombers

The peripheral strategic strike forces originated after World War II with the TU-4 Bull medium bomber (a copy of the US B-29). They comprised only bombers until the late Fifties. Bomber strength grew from 375 piston engine aircraft in 1950 to a high of 1,350 piston and jet bombers in 1956 but began to decline thereafter as older aircraft were phased out and medium range ballistic missiles began to be deployed.

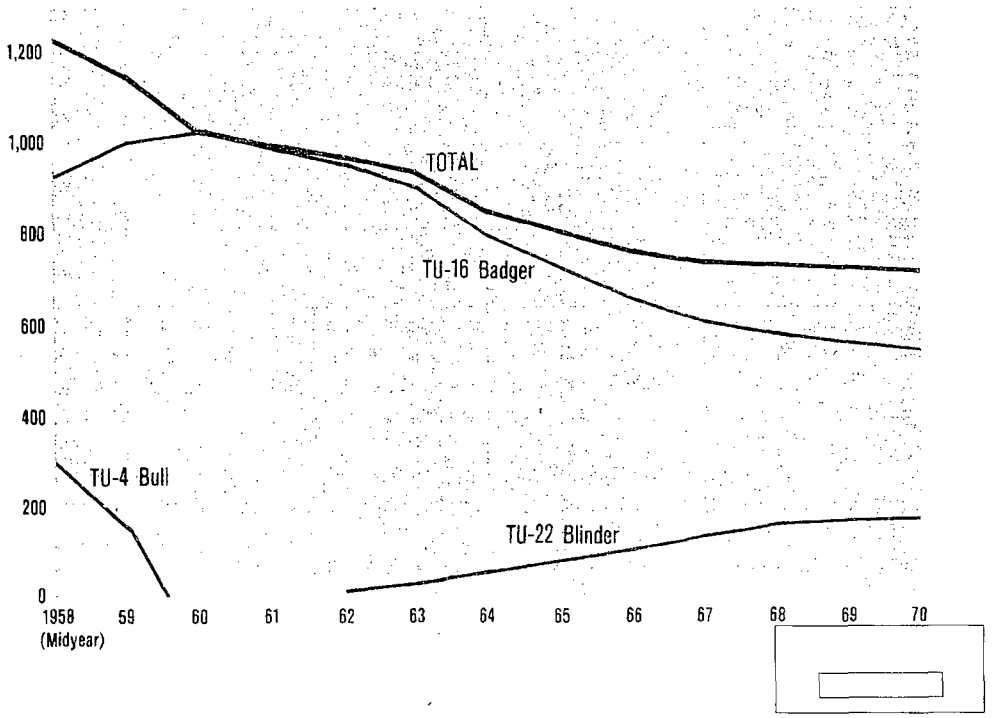
By mid-1958 the medium bomber force of Long Range Aviation totaled some 1,225 aircraft, including about 925 TU-16 Badger twin-jet medium bombers and about 300 TU-4 Bull piston engine

bombers. The Bulls were phased out over the next two years, and LRA entered the Sixties with a force of slightly more than 1,000 Badgers.

Production of Badgers ended in 1959, and the force declined steadily during the early Sixties--largely as a result of the transfer of aircraft to the Soviet navy. By 1966, the size of the force had decreased to about 75 percent of what it was in 1960, despite the introduction of the supersonic dash TU-22 Blinder in 1962. The bomber force has declined only slightly since 1966, however, as small reductions in the Badger complement have been largely offset by new deployment of the TU-22 Blinder.

By 1966, LRA had begun to equip many of its Badgers with air-to-surface missiles. The ASMs enabled LRA to maintain the strike capabilities of the aging medium bomber force. (The strength of the force from 1958 through mid-1970 is shown in the chart below.)

SOVIET LRA MEDIUM BOMBER FORCE, 1958-1970



Although the medium bomber force has a limited capability for intercontinental attack, it is equipped and trained primarily for operations in Eurasia, and the bulk of the force is probably assigned to the peripheral attack mission. In the late Fifties and early Sixties, a number of medium bombers may have been assigned intercontinental strike missions against the US mainland. indicate that this no longer is the case,

The medium bombers also have the mission of supporting Soviet theater forces. This would involve nuclear or conventional strikes on tactical targets as well as reconnaissance and electronic countermeasures support. Some elements of the bomber force might be allocated to ground force commanders for front operations, and other units could be diverted to naval missions as required.

Medium bombers probably would be used primarily against targets that did not pose an immediate strategic threat to the USSR--for example, industrial centers, reserve airfields, and troop concentrations. With these targets covered by bombers, the ballistic missile forces would be free to concentrate on time-urgent strategic military targets such as enemy nuclear delivery forces and command and control centers. Bombers also would have an important role in post-attack armed reconnaissance and in follow-up strikes on targets not already destroyed by ballistic missiles.

Land-Based Ballistic Missiles

The land-based missile element of the peripheral attack forces first became operational in early 1958 with the deployment of the SS-3 MRBM. Deployment of

this 620-nm range system was limited to about 60 launchers at 15 soft sites with four launchers each. After the 1,020-nm range SS-4 MRBM became operational in 1959, about half of the SS-3 sites were converted to the SS-4 system. The remaining SS-3 launchers were deactivated between 1965 and 1967.

The SS-4 became the principal element of the land-based missile component during the early Sixties. It was deployed principally in the western USSR at both soft and hard sites with clusters of four launchers each. At the peak of deployment in 1965, there were 492 soft launchers and 84 silos for the SS-4. Since 1967, however, 72 soft launchers have been deactivated, 40 in the western USSR and 32 in the Far East. Despite these deactivations, the SS-4 remains the largest component in the peripheral land-based missile force.

The SS-5 IRBM, with twice the range of the SS-4, was deployed during the early Sixties. One site for this missile system was located at Ugol'nyy (across the Bering Strait from Alaska), which extended coverage of the peripheral missile force to the northwestern corner of the US. SS-5 deployment was limited to 50 soft launchers at 13 sites and 51 hardened silos at 17 sites. All SS-5 soft sites have four launchers, except for one site which has two. Hardened SS-5 sites contain a cluster of three silos. Since the completion of SS-5 deployment in 1965, three sites (11 launchers) in the Far East have been deactivated--the soft site at Ugol'nyy and the soft and hard sites at Novosysoyevka--bringing the current total down to 42 soft and 48 hard launchers.

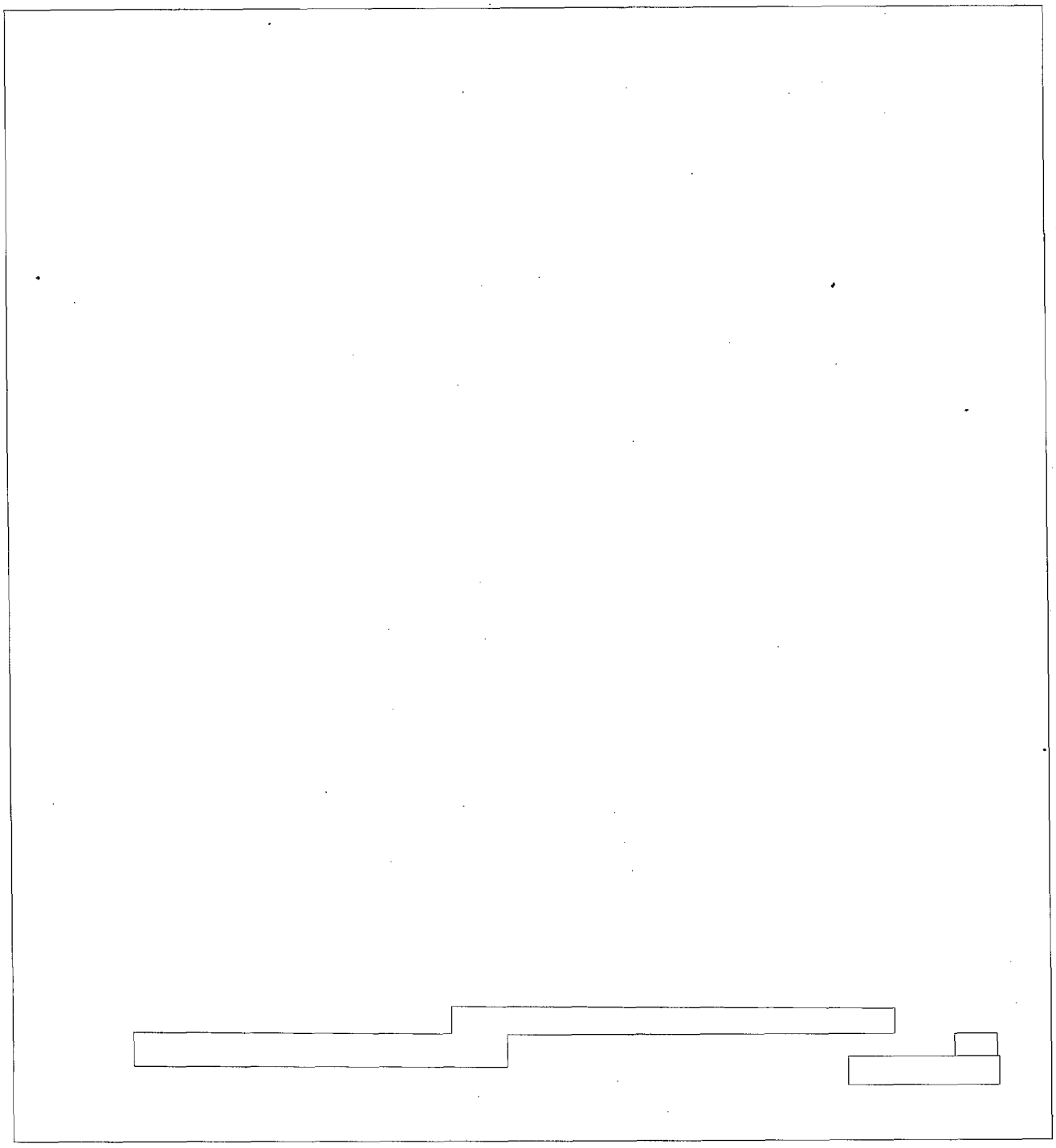
A mobile land-based missile system, the Scaleboard SRBM, was deployed for peripheral attack purposes in 1967 at three Strategic Rocket Forces (SRF) facilities near China. The SS-12 missile believed to be associated with this system has a range of about 500 nm, so the total of 27 to 36 Scaleboard launchers based at these three sites could cover the major invasion routes from China. One of the sites was deactivated in 1970 and taken over by the

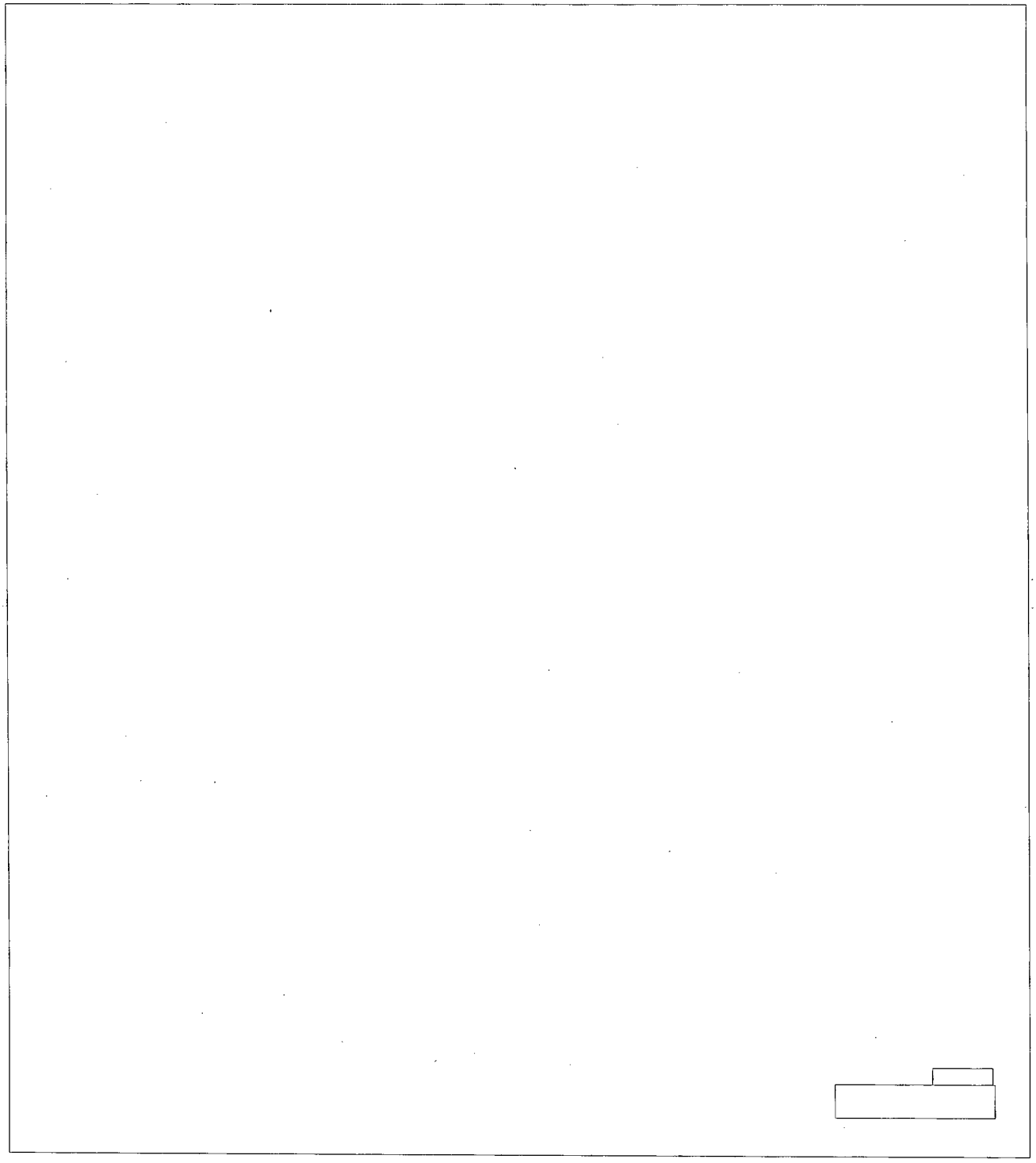
ground forces, but the Scaleboard unit previously based there apparently was moved nearby to the deactivated SS-5 site at Novosysoyevka.

Additional Scaleboard deployment may be under way in the western USSR where Scaleboard equipment has been observed at two and possibly three locations Some of the equipment was seen at ground forces installations, indicating that if Scaleboard units have been deployed in that part of the USSR, they may be subordinate to the ground forces rather than the SRF.

The recent deactivation of all MRBM and IRBM units in the maritime territory suggest that the Scaleboard unit at Novosysoyevka in the maritime territory, and possibly the other two Scaleboard units near China, may be subordinate to the ground forces. Earlier, during parades in which the Scaleboard launcher was displayed, Soviet commentators had stated that it was a strategic missile system, and the launchers themselves appeared in the strategic missile portion of the line of march. Although the SS-12 has been tested once to a range of 540 nm--meeting the Soviet criteria for a strategic missile--more than half the firings have been to a range of less than 400 nm. This, along with the uncertain subordination of the deployed units, makes it unclear whether Scaleboard is assigned to a strategic or tactical role.

Since mid-1968 SS-11s have been deployed at the Pervomaysk SS-5 and Derazhnya SS-4 complexes in the western USSR under circumstances which indicate that they probably are intended primarily for a peripheral attack role, even though they could also reach targets through most of the US. The beginning of this deployment roughly coincided with a brief series of tests of the SS-11 to ranges of about 550 nm. In addition these silos are oriented toward Europe and the Mediterranean littoral rather than the US.





A total of 12 groups of ten launchers each has been identified at these two complexes, and all 120 launchers now are believed to be operational. These SS-11 silos are deployed in the same general area in which at least ten SS-4 soft sites (40 launchers) have been deactivated since early 1969, suggesting that the SS-11s deployed at Pervomaysk and Derazhnya are replacing some of the deactivated SS-4 launchers. (The growth of the land-based peripheral missile force through mid-1970 is shown in the chart opposite).

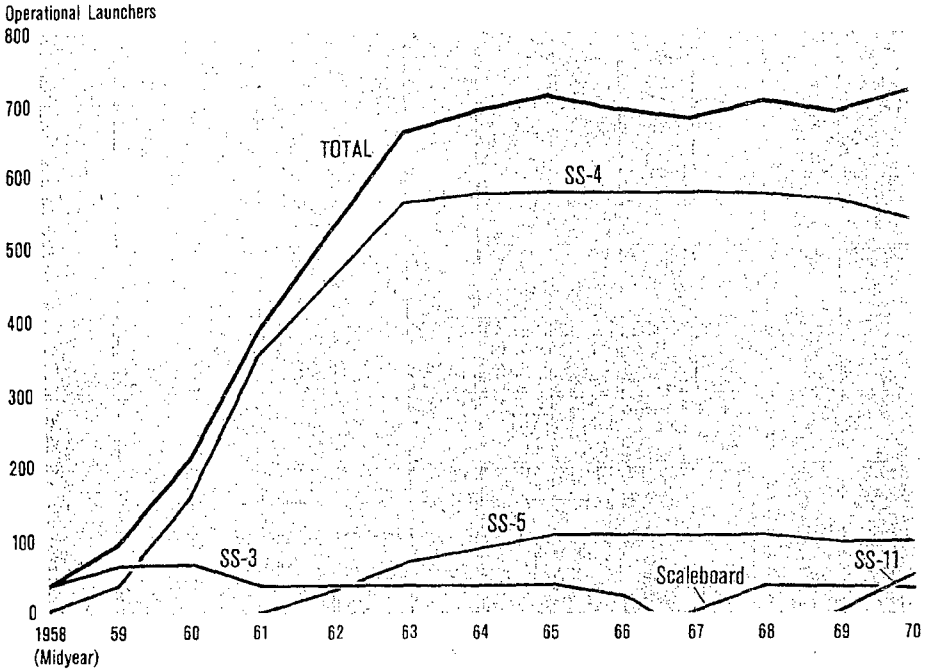
According to classified Soviet documents of the early Sixties, the mission of the peripheral strategic missile force was destruction of nuclear delivery systems and other strategic targets, such as nuclear production and storage facilities, arsenals, communication networks, and centers of political and military administration. The secondary mission of the force was to support Soviet theater forces.

The types of targets assigned to the force are almost certainly the same now as they were then, although many of what probably were the original targets for the force, such as US bomber and missile bases in Europe and the Far East, have been deactivated. The SS-11 ICBMs deployed for peripheral attack may have secondary targets located beyond the Eurasian land mass. The 5,500-nm range of the SS-11 is more than double that of the SS-5, the system with the longest range in the original peripheral missile force, and brings all of China as well as many targets in the US within range.*

Because the SS-11 is more accurate at shorter ranges, it would have some capability against hard targets on the periphery of the USSR, and that

** The SS-11 Mod 2 now being tested appears to have a range capability about 500 nm greater than the Mod 1 missile deployed at Pervomaysk and Derazhnya. If the Mod 2 is deployed at these two complexes, it could cover virtually the entire US in addition to targets on the periphery of the USSR.*

GROWTH OF THE SOVIET LAND-BASED PERIPHERAL STRATEGIC MISSILE FORCE, 1958-1970



Deployment of the initial peripheral missile force began in 1958 and was completed in early 1965 with a total of about 700 MRBM and IRBM launchers deployed in hard and soft modes. The force included a few SS-3 MRBMs, over 570 SS-4 MRBMs, and about 100 SS-5 IRBMs. In mid-1970 the peripheral missile force contained about 630 SS-4 and SS-5 launchers. In addition, at least 50 SS-11 launchers were operational at peripheral missile complexes with 70 more under construction, and three Scaleboard mobile missile units with a total of 27 to 36 launchers were deployed near the Sino-Soviet border.

mission may now have been given to some SS-11s. At a range of 500 nm, for example, the SS-11's CEP* is estimated to be --sufficient to destroy some hardened targets with a warhead.

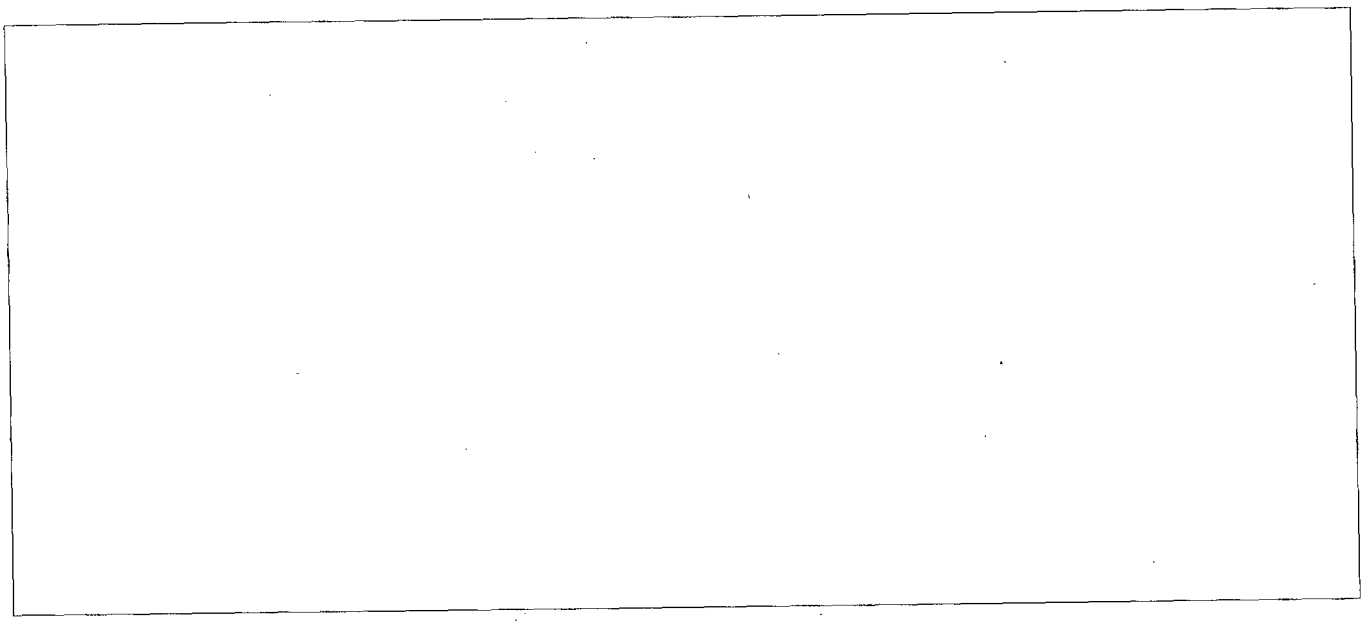
Deployment of the short range Scaleboard system in the peripheral attack role indicates increased emphasis on the ability to strike close-in targets in support of theater forces. The Scaleboards deployed near China, for example, probably are intended primarily for use against troop concentrations and likely avenues of attack from that country. Such targets are mentioned in Soviet publications as having strategic significance, but they are of primary concern to the ground forces.

Submarine Launched Ballistic Missiles

The Soviets began construction of diesel powered ballistic missile submarines in late 1955 or early 1956. The first units were operational by 1958. In all, 23 of these G class submarines were built before the program ended in 1962. Since 1968 the number of G class submarines in the Northern Fleet has been 14 and the number in the Pacific Fleet, 8. These totals reflect the loss of one Pacific fleet unit at sea in 1968 and the transfer of two units from the Northern to the Pacific Fleet that same year.

The G class submarines originally were built with three launch tubes and were fitted with 300-nm SS-N-4 ballistic missiles. In 1963, the Soviets began converting the G class to carry the 700-nm SS-N-5 which, unlike the SS-N-4, can be fired while the submarine is submerged. The units converted to the SS-N-5 have been designated G-II class submarines; those still armed with the SS-N-4 are called G-Is

** Circular Error Probability - the radius of a circle centered on the intended target, within which 50 percent of the arriving missile warheads are expected to fall.*



Unlike the bomber and missile elements of the peripheral strategic strike forces, diesel powered ballistic missile submarines probably were initially designed for intercontinental rather than peripheral strike, and apparently served in this role until about 1964. This may still be the role of the eight G class units in the Pacific Fleet. Until recently, G class submarines conducted patrols in the eastern Pacific, indicating that they were assigned to targets in Hawaii and on the US west coast. These submarines augmented the two nuclear powered H class units in the Pacific which could not by themselves maintain continuous coverage of their assigned intercontinental targets.

This suggests that these units soon will be shifted from an intercontinental to a peripheral attack mission.

In the Atlantic, until 1970, most of the known G class patrols were conducted in areas which were a few days' sailing time from Polaris missile submarine bases This suggested that Polaris bases were among the intended targets

for Northern Fleet G class units. During the past year, most patrols in the Atlantic have been in a holding area almost equidistant from targets in the US and Europe, indicating either a peripheral or intercontinental attack role. The tabulation below shows the midyear strength of the Northern Fleet G class force--through mid-1970 (number of submarines):

	59	60	61	62	63	64	65	66	67	68	69	70
G-I	2	6	12	15	15	15	15	15	14	13	11	6[a]
G-II					1	1	1	1	2	1	3	4
Total	2	6	12	15	16	16	16	16	16	14	14	10

a Excludes four units presently undergoing conversion.

Spending for Peripheral Attack

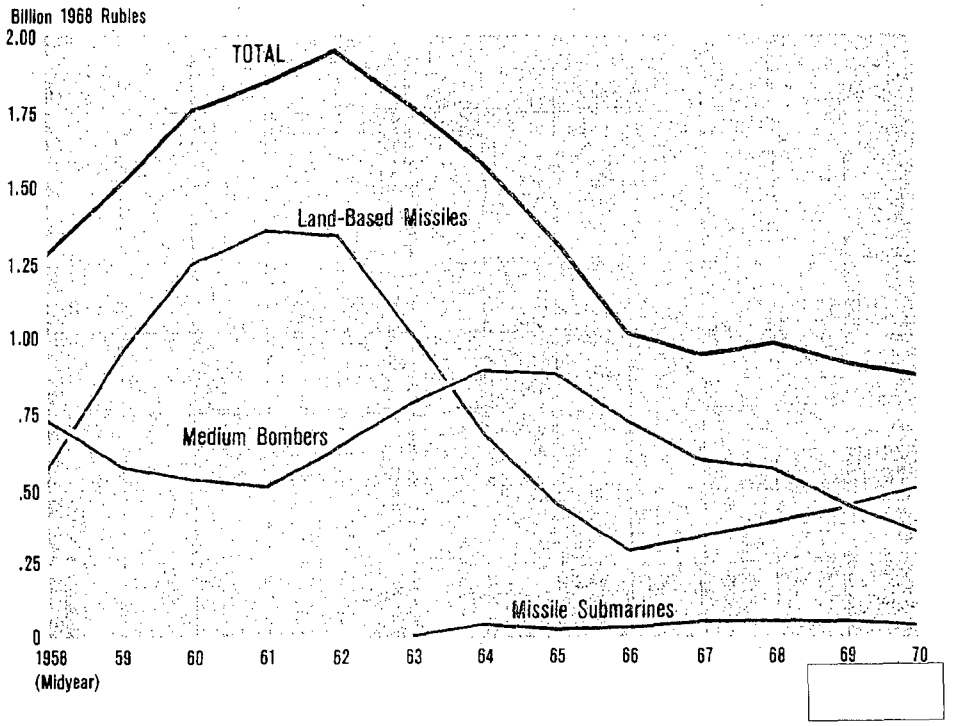
Since 1958, deployment and operation of the Soviet peripheral strategic attack forces have cost an estimated 18 billion rubles (the equivalent of 35 billion dollars).* The estimate of combined annual expenditures for these forces reached an annual high of about 2 billion rubles (nearly 4 billion dollars) in 1962 during the buildup of

** All expenditure data presented herein are estimates of Soviet investment and operating costs. Costs for research and development are not included. Investment costs include expenditures for procurement of equipment and construction of facilities. Operating costs include expenditures for personnel and operations and maintenance of equipment.*

The dollar figures (appearing in parentheses after the rubles) are approximations of what it would cost in the US to purchase and operate the estimated Soviet programs. A specific ruble-dollar ratio is used for each resource input to Soviet military programs. As the mix of these resources changes, different ruble-dollar relationships occur in total spending.

the land-based missile component. Since then, most spending has been for operating expenses. In 1970, expenditures declined to the lowest level since 1958 (see the chart below).

ESTIMATED SOVIET EXPENDITURES FOR PERIPHERAL STRIKE FORCES, 1958-1970



The peripheral forces' share of expenditures for the total Soviet strategic attack mission dropped from about 70 percent in 1958 to less than 30 percent last year. This decline reflects the completion of initial deployment of peripheral systems in the mid-Sixties and the subsequent build-up of Soviet forces for intercontinental attack.

Within the estimated total, there have been substantial shifts in the annual expenditures for aircraft and missiles. With the start of SS-4 deployment in 1959, spending for land-based missiles exceeded that for the medium bomber element for the

first time. As the SS-4 and SS-5 deployment programs neared completion in 1963, spending for the missile force declined sharply. Spending for the bomber element declined through 1960 and then increased steadily to a peak in 1964-65 as the Blinder and its nuclear weapons were added to the force.

During the late Sixties, when peripheral strike expenditures were mostly for operating costs, spending for medium bombers accounted for more than half the average annual mission outlays. In 1970, however, expenditures for the land-based missile element again became the highest of the mission, reflecting the deployment of the SS-11 system in a peripheral role.

Spending for diesel powered ballistic missile submarines has averaged less than 5 percent of the total expenditures for the peripheral attack forces from 1964 through 1970.*

Current Forces

Medium Bombers

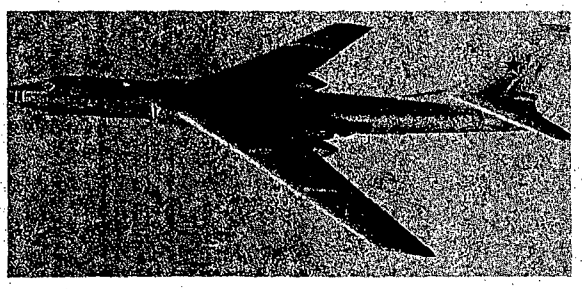
Force Levels

The medium bomber force of Long Range Aviation now consists of about 175 Blinders and 535 Badgers. Some 70 to 80 of the Blinders are equipped with AS-4 Kitchen air-to-surface missiles. Most of the remaining Blinders are capable of free-fall bombing. About 15 probably are special reconnaissance aircraft with no weapons delivery capability. About

* *Expenditures for diesel powered submarines are included beginning in 1964. Prior to that time it is believed that these systems were assigned to intercontinental targets.*

LRA MEDIUM BOMBER PERFORMANCE CHARACTERISTICS

TU-16 BADGER



Gross weight: 167,000 lbs

COMBAT RADIUS

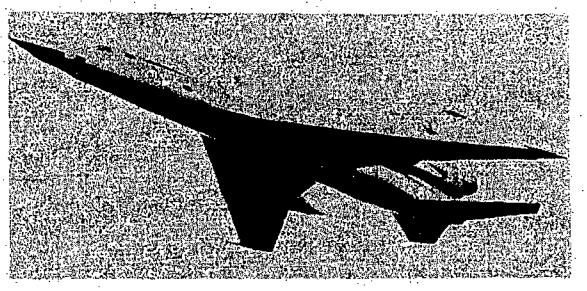
1,200 nm with two AS-5 Kelt ASMs and a speed of 440 kts at missile launch

1,650 nm with 6,600 lbs of bombs and a speed of 475 kts over the target

AERIAL REFUELING

Some LRA TU-16s are capable of aerial refueling, but LRA has only about 10 suitable tankers (modified TU-16s) and makes little use of this capability. With one refueling, a TU-16 bomber could carry 6,600 pounds of bombs to a radius of 2,300 nm.

TU-22 BLINDER



Gross weight: 185,000 lbs

COMBAT RADIUS

1,000 nm with one AS-4 Kitchen ASM, including a 100-nm dash at 860 kts

1,300 nm with 6,600 lbs of bombs, including a 100-nm dash at 860 kts.

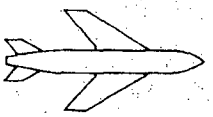
Radii given would be increased by 500 nm without a supersonic dash; this would limit target speed to 560 kts with bombs or 525 kts with an ASM.

AERIAL REFUELING

Although most TU-22s have aerial fueling probes, inflight refueling is seldom practiced. If the Soviets were to develop a TU-22 refueling capability, it could be used to extend the TU-22s' combat radii by about 500 to 600 nm with one refueling.

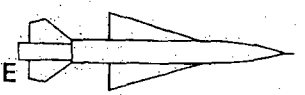
RANGE MISSIONS

It is unlikely that LRA medium bombers would be employed on one-way range missions. If the Soviets were to use this tactic for some special mission, the TU-16 could go as far as 2,100 nm with two AS-5 missiles or 3,200 nm with 6,600 pounds of bombs, without refueling. One-way missions for the TU-22 could extend its unrefueled range to as much as 2,800 nm with one AS-4 missile or 3,450 nm with 6,600 pounds of bombs, if the aircraft did not use its supersonic dash capability.



AS-5 KELT MISSILE

Launch weight	10,000 lbs
Warhead weight	[redacted]
Maximum range	80-120 nm
Maximum speed	Mach 0.9-1.2
Accuracy	[redacted]



AS-4 KITCHEN MISSILE

Launch weight	14,000 lbs
Warhead weight	[redacted]
Maximum range	230-300 nm
Maximum speed	Mach 2.5-3.5
Accuracy	[redacted]

200 Badgers are equipped with AS-5 missiles but these also retain a bombing capability. indicates that bombing would be a secondary mission, however. The ASM-equipped Blinders apparently do not retain a bombing capability. About 40 Badgers are configured exclusively for reconnaissance missions. (See preceding page for the principal operating characteristics of LRA medium bombers.)

About 85 percent of the medium bomber force (some 600 aircraft including all of the Blinders and nearly all of the ASM-equipped Badgers) is assigned to two bomber commands in the western USSR. The remainder is deployed with the Long Range Air Army in the Trans-Baikal and Far East military districts.

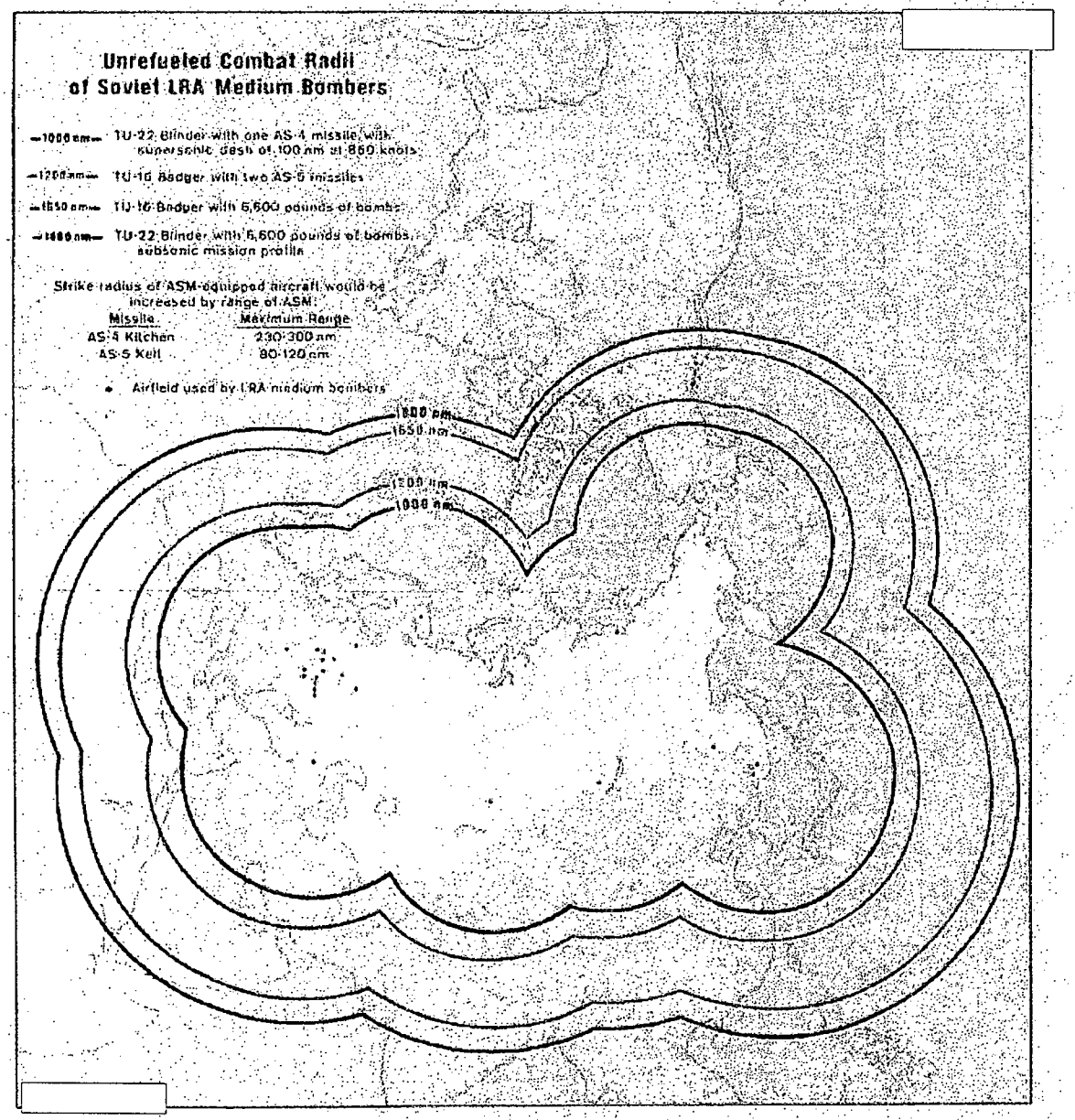
Capabilities and Limitations

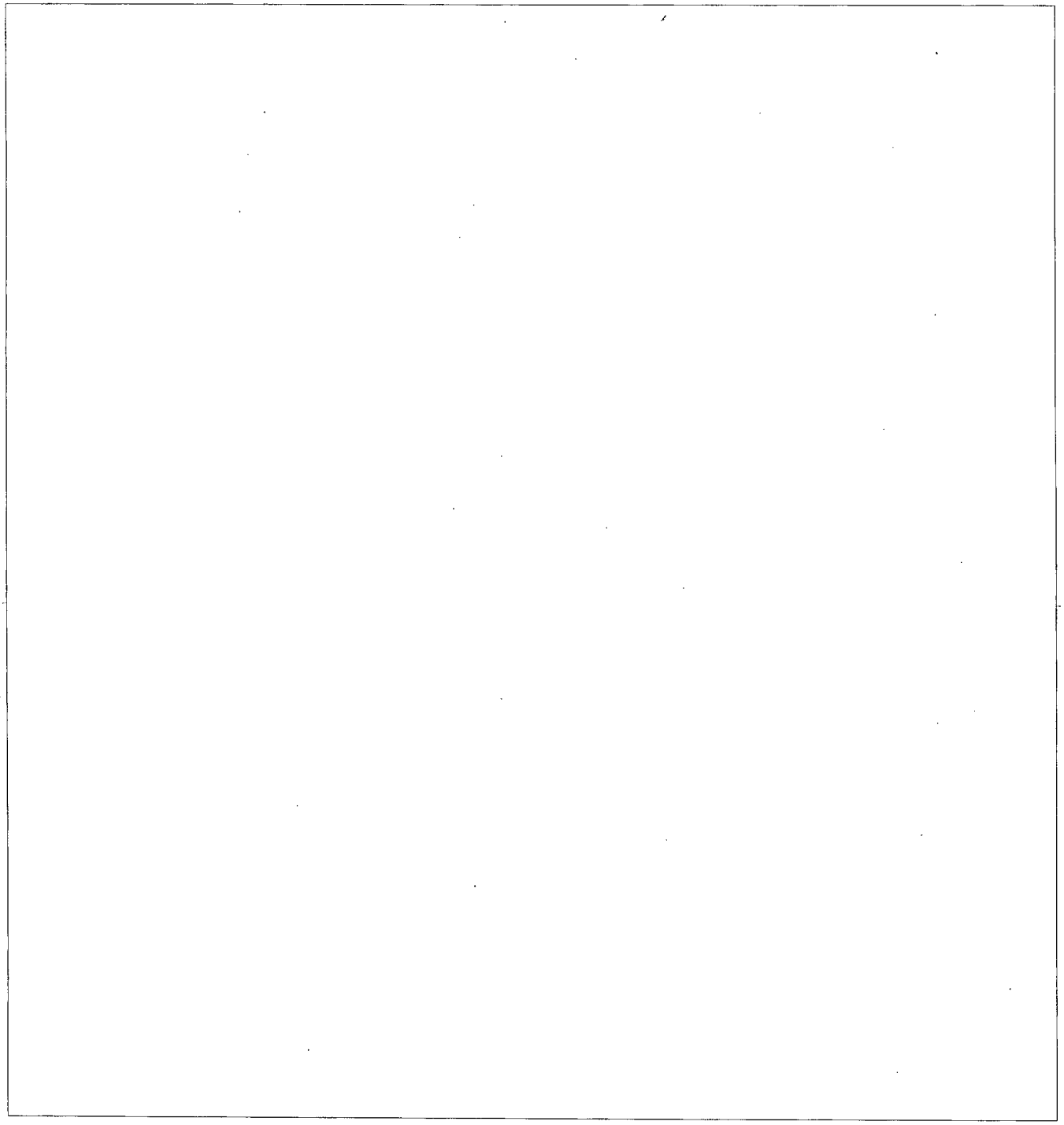
The LRA medium bomber force can perform a variety of tasks in peripheral areas, including delivery of nuclear weapons against strategic targets, provision of conventional tactical support, reconnaissance, and electronic warfare.

Both the Badger and Blinder could reach most potential targets directly from their home bases carrying either bombs or ASMs. For most of these targets, particularly those in Europe, the unrefueled combat radius of the Badger and Blinder would permit the use of indirect routing and low level flight profiles to evade air defenses.

Although most Blinders and some 110 Badgers are capable of aerial refueling, the LRA medium bomber force contains only about ten tanker aircraft, and aerial refueling does not play a major role in medium bomber operations. Aerial refueling is practiced routinely by only one medium bomber unit--a reconnaissance regiment based in the Far East. (The map opposite illustrates the unrefueled radius of action of LRA's medium bombers.)

The ASM carriers amount to about 40 percent of the aircraft currently in service. They have


Unrefueled Combat Radii
of Soviet LRA Medium Bombers
1000 nm
TU-22 Blinder with one AS-4 missile with supersonic dash of 100 nm at 860 knots
1200 nm
TU-16 Badger with two AS-5 missiles
1850 nm
TU-16 Badger with 6,600 pounds of bombs
1660 nm
TU-22 Blinder with 6,600 pounds of bombs, subsonic mission profile
Strike radius of ASM-equipped aircraft would be increased by range of ASM:
Missile
Maximum Range
AS-4 Kitchen
230-300 nm
AS-5 Kelt
80-120 nm
Airfield used by LRA medium bombers
1850 nm
1660 nm
1200 nm
1000 nm



been equipped to carry one or two nuclear armed ASMs. These stand-off missiles enable the bomber to launch an attack without having to penetrate the close-in air defenses around a target. Free-fall bombing is more accurate, however, and would permit precision strikes against specific targets with either nuclear or conventional weapons.

LRA has emphasized the use of electronic countermeasures as a means of overcoming air defenses, and LRA bomber attacks would be strongly supported by such measures. Electronic countermeasures also are used in support of the theater forces.

The medium bomber force possesses several capabilities which the other peripheral strike forces do not, including the ability to perform armed reconnaissance missions. This would permit strikes against mobile targets, as well as rapid restrikes against targets not destroyed by a previous attack. The medium bomber force also is capable of being recalled or retargeted after launch, and can be redeployed rapidly to meet changing threats. The relatively small force deployed in Siberia and the Soviet Far East, for example, could be reinforced in a matter of hours by bombers based in the European USSR.

The bombers' nonnuclear delivery capability would be useful in the event of a limited conflict which threatened to escalate to the nuclear level. Bombers armed with conventional weapons could attack enemy nuclear strike forces, reducing the opponent's nuclear strike capability without necessarily raising the conflict to the nuclear level.

One of the major weaknesses of the medium bomber force is that an increasing number of its aircraft are obsolescent. The Badger, which still forms about three-fourths of the force, first entered service in 1954 and has been out of production since early 1959. The Blinder is a design of the late Fifties and began to enter service in 1962. Blinder production probably ended in late 1969. By present standards, LRA's medium bombers are large, slow, and relatively vulnerable to attack by modern air-to-air and surface-to-air missiles as well as advanced interceptor aircraft.

Research and Development

Efforts have been made to extend the useful life of the Badgers by equipping them with new or modified ASMs, indicating that the Soviets intend to retain medium bombers as an element of the peripheral strategic strike forces for the foreseeable future.

The only new bomber known to be under development is a swing-wing strategic aircraft now being flight tested. This aircraft could be available for service by the mid-Seventies. Soviet intentions for its employment are not yet clear, however. Its estimated range exceeds that of existing medium bombers and approaches that of the M-type Bison heavy bomber. It has less range than the TU-95 Bear heavy bomber, however, and its potential payload is substantially less than that of the Bear or the Bison. The new bomber probably is designed for low altitude, high speed penetration of target areas, and it probably could be employed most effectively in the peripheral attack role. It will also have a potential for naval and intercontinental attack, however.

Land-Based Ballistic Missiles

Force Levels

The number of operational launchers currently in the land-based peripheral strategic missile force and the areas they are believed to be targeted against are shown in Table 1, opposite. The areas of deployment of these launchers are shown in the map on page 32.

Capabilities and Limitations

In a first strike, the present Soviet land-based peripheral missile force probably could neutralize or destroy most targets of strategic significance in areas adjacent to the USSR. More than 700 launchers with warhead yields of one or more megatons would be available for use in such a strike. Assuming an average force reliability of about 70 percent, some 500 warheads in the initial strike could be expected to detonate within 3.5 CEPs of their targets.* Most targets in peripheral areas are unhardened and probably would be destroyed or severely damaged in such a strike.

The capabilities of the peripheral missile force would be substantially reduced if attacked preemptively, however. About two-thirds of the launchers are deployed in a soft mode and all silo launchers except those for the SS-11 are deployed in clusters. As a result, the force of more than 700 launchers presents only about 275 aiming points to a potential attacker. If all of these points were attacked in a nuclear strike, most soft launchers and many of the 252 silos probably would be destroyed. Nevertheless, if only 100 launchers

** Force reliability is the percentage of the operational missiles that would successfully detonate within 3.5 CEPs of their intended targets in the absence of countermeasures. Force reliability is the product of countdown, inflight, warhead, and alert reliabilities.*

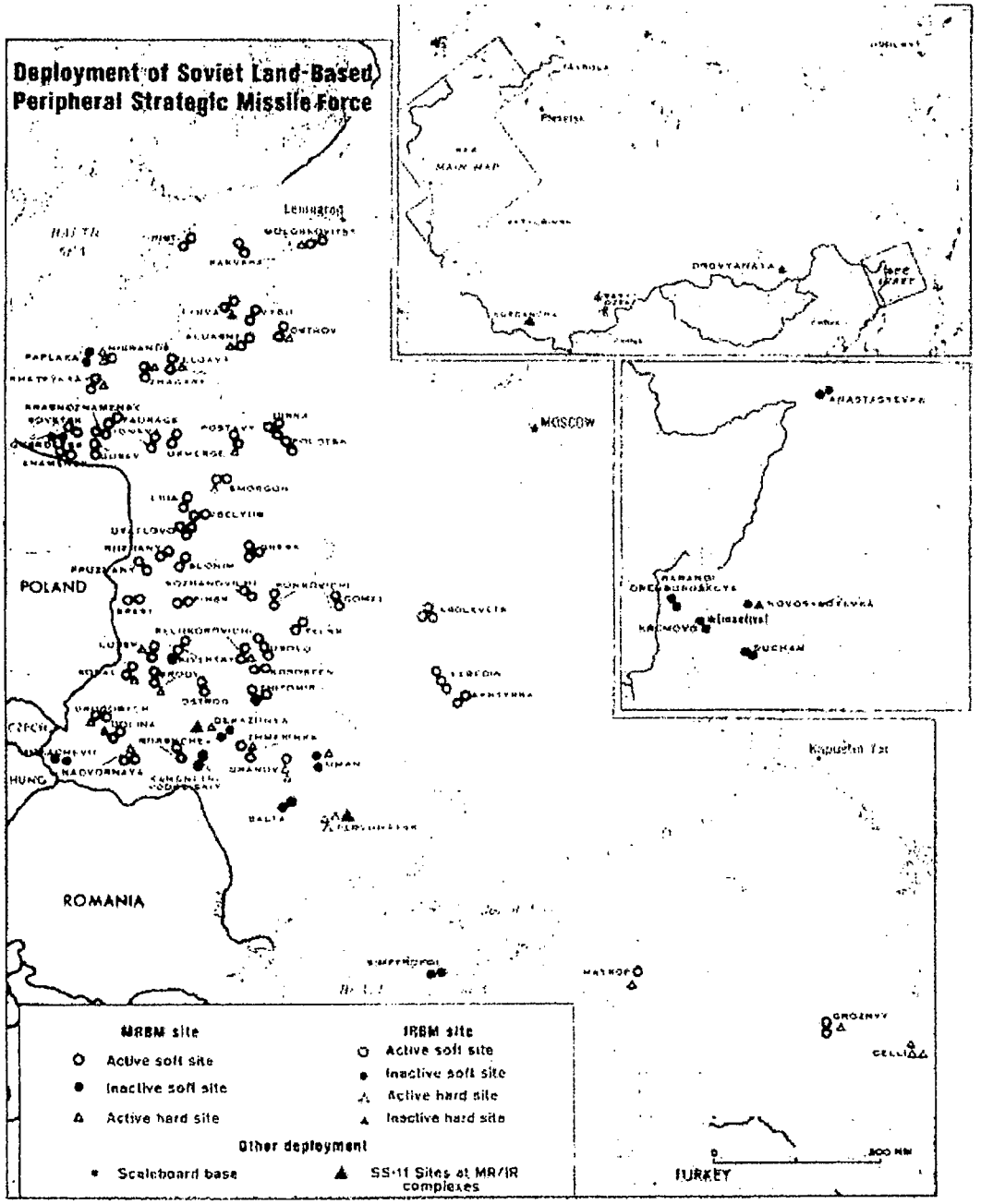
Table 1

Operational Land-Based Missile Launchers
1 May 1971

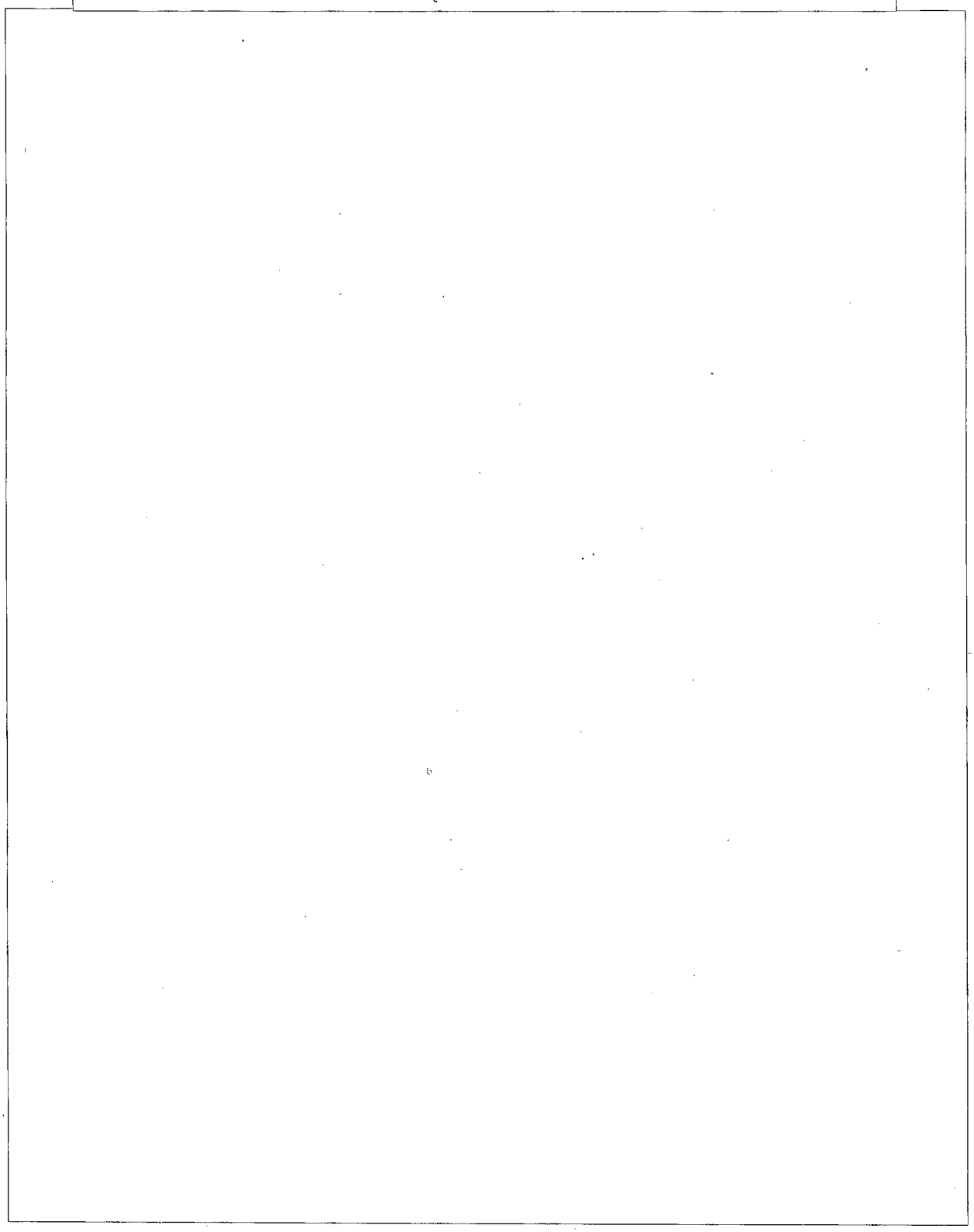
Soft multilauncher	Total Operational	Targeted on NATO	Targeted on Far & Middle East
SS-4	420	404	16
SS-5	42	38	4
Total	462	442	20
Hard multilauncher			
SS-4	84	76	8
SS-5	48	33	15
Total	132	109	23
Hard single silo			
SS-11	120	120	0
Mobile*			
SS-12 (Scaleboard)**	27-36	**	27-36
Total	741-750	671	70-79

* *Several launchers for the mobile SS-14 (Scamp) system may be operational but none have been detected in the field.*

** *A small number of Scaleboards have been seen in the western USSR which, if operationally deployed, may be subordinate to the ground forces. There also is evidence that at least some of the 27 to 36 launchers in the Far East may be subordinate to the ground forces.*



The initial Soviet peripheral missile force was deployed mostly in the western USSR, with some complexes in the Far East and central portions of the country. Since 1966 a major changeover has been under way in the composition of the force—the SS-3 has been phased out and some sites for the SS-4 and SS-5 have been deactivated. The Scaleboard mobile missile has been deployed at three bases near China, and the SS-11 ICBM has been deployed in a peripheral role at two complexes in the western USSR.



survived such an attack, the Soviets probably could still destroy most key strategic peripheral targets such as bomber bases and nuclear storage depots in a retaliatory strike.

Scaleboard and SS-11 missiles greatly improve Soviet peripheral attack capabilities. Both systems are less vulnerable to attack than the SS-4 and SS-5. When on alert, the Scaleboard would be deployed to unimproved presurveyed positions that are difficult to detect and target. In addition, Scaleboard units can be moved to new positions after firing. (Although some or all Scaleboard units may be subordinate to the ground forces--see pages 14 and 15--they presumably would be used against strategic as well as tactical targets.) Furthermore, with the single-silo deployment of the SS-11, each silo presents a separate, hardened aiming point.

In addition, the estimated accuracy of the SS-11 when fired to medium ranges provides the force with some capability to destroy hardened targets on the periphery of the Soviet Union. The SS-11 also has an estimated reaction time of less than three minutes from alert to launch under normal readiness conditions. This compares to reaction times of one to three hours for soft launchers and five to 15 minutes for hard launchers for the SS-4 and SS-5 systems.

The SS-4 and SS-5 soft launchers do have one advantage in a first strike situation--they have a refire capability. For the SS-4, the refire missile can be launched from the permanent site or the launch equipment can be moved to field sites some 2 to 10 nm away. Because SS-5 units do not have alternate field launch positions, their refire missiles would have to be launched from the permanent soft sites. (See Table 2 on the next page.)

Research and Development

The Soviets have tested two new mobile missile systems--the SS-14 Scamp and the SS-X-15 Scrooge--which may have been designed for the peripheral attack role.

Table 2

Estimated Performance
Capabilities of Operational Missiles

	SS-4 MRBM	SS-5 IRBM	SS-12 SRBM (Scaleboard)	SS-11 ICBM
Maximum range (nm)	1,020	2,200	500	500-5,500*
CEP (nm)				
Warhead yield (MT)				
Force reliability (percent)	70	70	60	75
Time to fire:				
From normal readiness conditions (soft/hard)	1-3 hrs/ 5-15 min	1-3 hrs/ 5-15 min	***	0.5-3.0 min
From peak readiness conditions	3-5 min	3-5 min	1 min	0.5-3.0 min
readiness (soft/hard)	hrs/days	hrs/days	1 day	unlimited
Refire time (soft only)	2-4 hrs	2-4 hrs	1 hr	none

* *The Soviets have been testing a modified version of the SS-11 which may have a range of about 6,000 nm (nonrotating earth). At ICBM ranges the SS-11 has a CEP of about 1.0 nm.*

** *This CEP is that estimated at ranges of 500 to 3,000 nm.*

*** *Reaction times are estimated from about 15 to 30 minutes after arrival at a presurveyed site.*

The SS-14 is a solid propellant MRBM which has been undergoing sporadic flight testing since 1965.

and the absence of any SS-14 firings for more than a year suggests either that the system is undergoing extensive field evaluation prior to deployment or that the program has been canceled. It also is possible that deployment has been delayed pending some improvement in the missile or in the associated ground equipment.

The SS-X-15, with an estimated range of about 4,000 nm, may also have been intended for a peripheral attack role. Use in an intercontinental role against the US would require deployment in the far northern USSR, which would create serious operational and maintenance problems. Of the eight SS-X-15 firings identified since the test program began in 1968, only five were successful,

suggests that the program has been delayed or canceled. Some modification of the SS-X-15 test pads at Plesetsk is under way, however, which could relate to a resumption of SS-X-15 testing or to development of a follow-on peripheral missile system. If the Soviets decide to complete the SS-X-15 program, at least another year of testing would be required before the system would be ready for deployment. Like the SS-14, the SS-X-15 probably would be deployed initially in a mobile mode if it were brought into service because construction on prototype silos was halted in mid-1968 and has not been resumed.

Ballistic Missile Submarines

Force Levels

The current naval forces for peripheral strategic attack consist of G class submarines as follows:

Class	Number	Launch tubes	Missile
G-I	6*	18	SS-N-4
G-II	4	12	SS-N-5
Total	10	30	

** Excludes four G-I class submarines in the Northern Fleet which have been undergoing conversion since late 1969 and are not available for deployment. The eight G class units in the Pacific are not included in this table because they have not yet been detected operating in a peripheral attack role.*

Capabilities and Limitations

The estimated characteristics of the G class submarine are as follows:

Submarine

Length	320 feet
Displacement	2,300 tons
Propulsion	diesel
Speed--maximum submerged	13.7 kts
Speed--normal transit	5 kts
Patrol	60 days
Launch tubes	3

Missiles

	SS-N-4	SS-N-5
Launch	surface	submerged
Range	300 nm	700 nm
Warhead yield		
Time to fire from normal readiness	20-25 min	15-20 min
Force reliability	75%	75%

Only one G class submarine normally is kept on patrol in the North Atlantic and no patrols have been noted in the Pacific since the initiation of Y class patrols there in October 1970. This low level of activity probably results in part from the large number of G class units in conversion or overhaul. Normally one-third of the force is undergoing such work and is not available for patrol. In addition, frequent mechanical failures with G-I class units--including the loss of one of these units at sea in 1968--probably have contributed to the decline in G class activity.

Patrol activity also is limited by the operating characteristics of the G class submarine. The slower, diesel powered G class takes longer to travel to patrol areas than nuclear powered units--which reduces its time on station--and diesel propulsion restricts the normal radius of G class operations to about 3,000 nm. Even with these limitations, the Soviets could maintain at least two G class units continuously on patrol in the Atlantic, but they have not done so for more than a year.

Because only one G class submarine is maintained at sea continuously, the number of targets which the force could engage during a period of normal alert is small--usually no more than three. In addition, the large CEP of both the SS-N-4 and the SS-N-5 limits them to use against soft targets. Furthermore, the 300-nm and 700-nm ranges of these missiles require the submarine to move close to shore to launch its missiles--increasing the possibility of enemy detection. In the case of the G-I submarines, which must surface to launch their missiles, the likelihood of detection is even greater. Finally, the estimated 75-percent force reliability of the G class indicates that only about two of each submarine's three missiles would be expected to detonate within [redacted] of their intended targets.

Despite the shortcomings of G class submarines, they add a degree of mobility, survivability, and flexibility to the peripheral strike forces. The mobility of this system makes it more difficult to detect and destroy than land-based systems, despite the potential vulnerabilities cited above. Submarines at sea are better able to survive an initial nuclear exchange and, therefore, would also provide the Soviets both an assured retaliatory capability and the option to delay retaliatory use of these missiles for many days.

Research and Development

Satellite photography of August 1970 indicates that a new program may be under way to increase the capabilities of G-I class submarines. This photography revealed the start of a new type of conversion for this class which involves lengthening the submarine by nearly 60 feet and installing a new missile bay area. This conversion may be the first of a series intended to equip the ten G-I class submarines in the Northern Fleet with a longer range missile than the SS-N-5--probably the 1,300-nm SS-N-6 or the 3,000-nm SS-NX-8, which is now being flight-tested. This raises the possibility that the converted G-I units will be used primarily in the intercontinental attack role.

Future Force Capabilities

The addition of new weapon systems to the peripheral strike forces over the next few years probably will provide those forces with increased range, greater survivability, and more flexibility. In addition, elements of the force may acquire a greater intercontinental attack capability as

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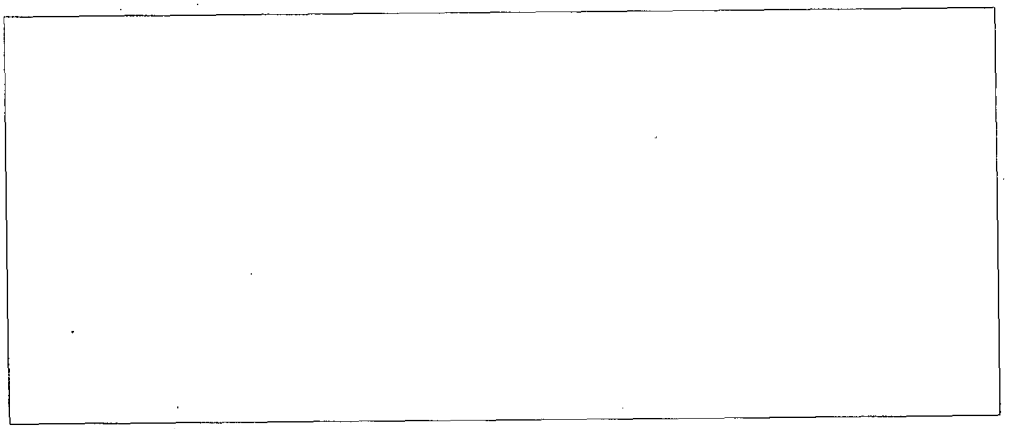
weapon systems capable of being used against targets at both intercontinental and peripheral ranges begin to replace less versatile systems.



Although many of what probably were the original targets for peripheral attack forces--US bomber and missile bases in Europe--have been deactivated, continuing Soviet concern for forward based US weapon systems and expanding strategic attack capabilities in such countries as France and Communist China will lead the Soviets to maintain their overall peripheral attack capability at about the level which has prevailed since the early Sixties. The total number of individual weapons may decrease slightly during the next 3 to 5 years, but qualitative improvements resulting from the introduction of more advanced weapon systems will more than offset any quantitative decrease.

Medium Bombers

The size of the medium bomber force probably will decrease over the next few years as more Badger aircraft are withdrawn from service. This decrease most likely will be offset by the deployment of new ASMs and by an increase in the strike capability of the Soviet tactical air forces as new

Foxbat fighter-bombers come into service to replace IL-28 Beagle and YAK-28 Brewer light bombers. The deployment with LRA of the new swing-wing bomber in the mid-Seventies, coupled with an increased capability of Soviet tactical air forces, would enable the Soviets to maintain or even increase their peripheral air strike capabilities, despite the increasing number of obsolescent LRA aircraft. In addition to its peripheral attack role, the new swing-wing bomber probably will have some intercontinental attack capability.

Missiles

Changes in the structure of the missile element will provide future peripheral strike forces with greater targeting flexibility, more destructive potential, less vulnerability to attack, and shorter reaction time.

The use of Scaleboard and the SS-11 in a peripheral role extends the upper and lower range capabilities of the force from targets directly on the border of the USSR to those at intercontinental ranges. The SS-11s already deployed at Pervomaysk and Derazhnya provide complete coverage of Europe, all of China, and most of the US. If SS-11 Mod 2s are deployed there, virtually all targets in the US will be within their reach as well, although the primary mission of these missiles probably would continue to be attack on peripheral targets. As noted earlier, SS-11s used against targets at medium ranges probably have a capability against hardened installations.

These newer missile systems also enhance the survivability of the peripheral forces. Because they are deployed in clusters, several SS-4 and SS-5 launchers could be destroyed by a single incoming warhead. With dispersed SS-11 silos and mobile missile systems, however, each launcher becomes a separate aiming point for enemy warheads. When on alert, mobile launchers such as Scaleboard have the additional advantage of being able to disperse quickly to avoid detection and targeting.

refire plays a role in Soviet peripheral attack plans. Accordingly, because the SS-11 silo launcher cannot refire, the future force may contain a greater proportion of mobile launchers which do possess such a capability.

Through 1975 the Soviets probably will have a mix of four, possibly five, missile systems for strategic peripheral attack. Some of the 132 silo-launched SS-4s and SS-5s presently in the force probably will be retained. Barring deployment of a follow-on system, some additional ICBMs, either newly deployed or reassigned from the intercontinental attack role, probably will be given a primary mission for peripheral attack.

In addition, at least 40 silos of a new type are being deployed at Pervomaysk and Derazhnya--complexes presently considered to be assigned to a peripheral mission. It is not yet known what type of missile will be deployed in the new sites, but it may be intended primarily for peripheral attack.

Finally, the SS-12 Scaleboard, and possibly an improved version of the SS-14 Scamp or SS-X-15 Scrooge, may comprise the mobile portion of the force. If Scaleboard is deployed with the ground forces, it probably will be used for front operations, in which case deployment would be more widespread than if the system remained subordinate to the SRF.

The number of missiles assigned to peripheral targets probably will not decrease significantly during the period. Old launchers probably will not be deactivated until new ones enter service--although there will not necessarily be a one-for-one replacement. By the mid-Seventies, the number of launchers in the force probably will level off between 500 and 700 and remain at about that level through 1980, tending toward the low side if missiles with multiple independently targetable reentry vehicles are added to the force by then.

Submarines

The ballistic missile submarine element of the peripheral strike forces probably will increase in size during the next few years as the result of the reassignment of units which presently have a primary intercontinental attack role. As a result, the composition of the force is likely to change and its capabilities improve.

Although the ten G-I class submarines in the Northern Fleet may be converted to carry a longer range missile and be assigned an intercontinental attack role, the growth of the Y class ballistic missile submarine force probably will free the eight G-II class submarines in the Pacific Fleet and all eight H-II class submarines for use in a peripheral attack role. The lack of G class patrols in the eastern Pacific since the first Y class patrols there (see page 37) suggests that a shift in mission for these G-IIs from intercontinental to peripheral attack is imminent if it has not already occurred. Such a shift would offset the possible loss of the converted Northern Fleet G-I class units to the intercontinental attack role.

The addition of the eight G-II class submarines in the Pacific and the eight H-II class units to the force of four G-II class units now in the Northern Fleet would bring its strength up to 20 units. This force would have a total of 60 launch tubes, compared to its current strength of 10 units with 30 launch tubes. Assuming 20 percent of the force is undergoing repair or overhaul at any one time, 16 units (compared to eight at present) could be available for operational patrols. This increase in numbers of submarines will be complemented by the improved capabilities of the units that are likely to join the force--including nuclear propulsion for some and a 700-nm submerged-launch missile for all.

Expenditure Implications

Current projections of the size and composition of the Soviet peripheral attack forces indicate that expenditures will total about 3 billion rubles

(approximately 8 billion dollars) from now through the mid-Seventies.* For the years through 1975, annual spending implied by the projected peripheral forces probably will be relatively stable and average only about 700 million rubles (1.6 billion dollars), compared with average outlays of nearly 1 billion rubles (2 billion dollars) during 1966-70. These expenditures probably will result in the peripheral attack share of strategic attack spending remaining at less than 30 percent of the total through the mid-Seventies.

Expenditures for projected new missile deployment, such as additional use of the SS-11 system in a peripheral role and a new mobile system, are small and probably would be accompanied by savings from deactivation of SS-4 and SS-5 sites. Expenditures for the missile element are expected to be about one-third less than the 1970 level. That element probably will account for less than half the costs of the total peripheral attack forces for this period.

Annual expenditures for the existing force of medium bombers are expected to continue to decline, but spending for the element will increase in the mid-Seventies as the new swing-wing bomber enters production. Average annual expenditures for medium bombers through 1975, therefore, probably will be at about the 1970 level.

It is almost certain that no new diesel powered missile submarines will be built, and expenditures for this element will be limited to the overhaul and operation of existing units. Even if the eight G-II class submarines in the Pacific Fleet and the eight H-II class nuclear submarines are transferred to the peripheral strike forces, annual outlays for the submarine element will remain small.

** The forces costed through the mid-Seventies include all of the projected production of the new swing-wing bomber and a shift of the eight G-II class submarines in the Pacific Fleet and all eight H-II class submarines to a peripheral attack role. The new type of silos currently under construction at Derazhnya and Pervomaysk have not been included in these forces.*

[redacted]