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ORR CONTRIBUTION TO NIE 11-8-66

SOVIET CAPABILITIES FOR STRATEGIC ATTACK

CIA/RR MP SC 66-2

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CENTRAL INTELLIGENCE AGENCY

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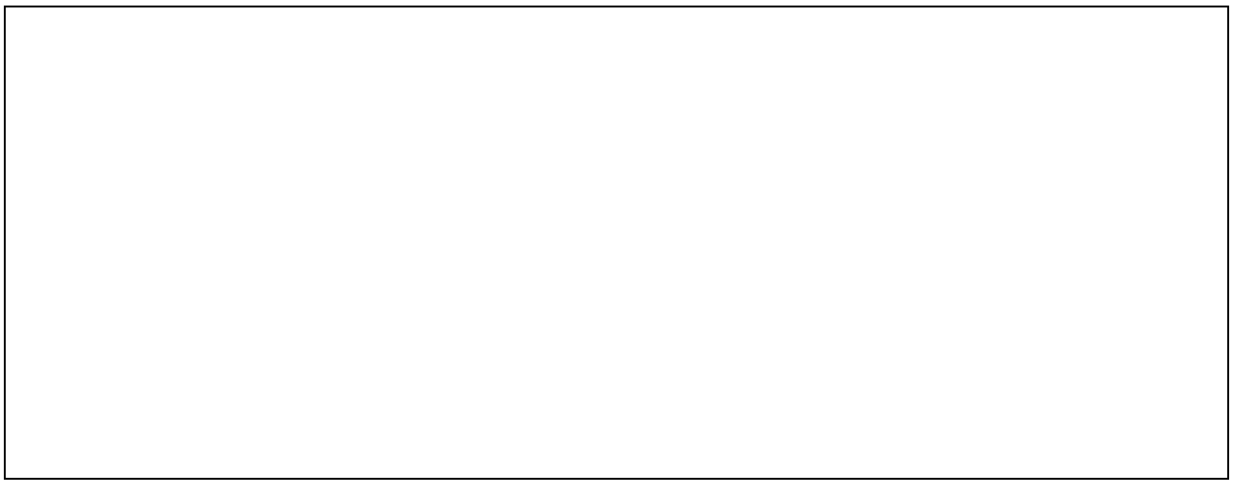

FOREWORD

This contribution has been prepared by the Office of Research and Reports in response to the Terms of Reference for NIE 11-8-66, Soviet Capabilities for Strategic Attack. It does not attempt to address all topics included in the Terms of Reference but focuses on a relatively detailed presentation of the major new evidence and trends of the past year and their effect on an assessment of the future strength and capabilities of the Soviet strategic attack forces.

The judgments presented in this contribution represent the current views of ORR and have not been coordinated with other offices of CIA. It is expected that some of the views expressed will be modified as new evidence is acquired or as new insights develop during the deliberations which will accompany preparation of the final estimate. The specific numbers of ICBM launch sites, by type, identified as under construction almost surely will be modified

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SOVIET CAPABILITIES FOR STRATEGIC ATTACK

Summary

The most significant development in Soviet strategic attack forces during the past year was a sharp increase, beginning in late 1965, in the rate of construction starts for launchers of both ICBM systems currently being deployed. In the small single-silo program, construction of at least 12 new launch groups (ultimately 10 launchers each) and a total of 85 new launchers were begun during the last quarter of 1965 and the first quarter of 1966, [redacted]. These rates are significantly higher than those attained during any previous six-month period in the small-silo program. [redacted]

The increase in the rate of starting new silos is attributable almost entirely to the expansion of the small silo program in late 1965 from five to nine complexes. Moreover, evidence of the beginning of six more new groups at both old and new complexes [redacted] together with the normal time-phasing of launcher starts within groups, indicates that during 1966 construction could begin on a total of at least 150 and possibly as many as 200 small silo launchers, compared with about 100 per year in the previous two years. [redacted]

With respect to the large single-silo program, in which launcher starts peaked sharply in the second quarters of both 1964 and 1965, there was an unusual increase in construction starts during the last quarter of 1965 and the first quarter of 1966. [redacted]

These developments lead to an estimate that there will be some 650 to 725 operational ICBM launchers in the Soviet force by mid-1968, of which about 600 were firmly identified by 1 July 1966 (including more than 300 in various stages of construction, virtually all of which should be completed by mid-1968). Barring a major disruption of the construction programs*, therefore, it appears that present force projections for mid-1968 (as reflected in NIPP-66) will be exceeded by more than 100 launchers although the projection for mid-1967 remains generally valid. It also seems clear that the ICBM force will be substantially higher than the 500 launchers estimated in NIE 11-8-65 as the low side of the range for the 1970's. For mid-1971, an operational force of 700 to 1,000 launchers is estimated. In recognition of the numerous changes in pace and direction that have occurred in past Soviet ICBM programs and the various economic, political, and strategic factors that may work to restrict the ultimate size of the force, the low side of this range represents a minimum estimate -- a force no larger than the number of launchers implied by evidence already available, although of somewhat different composition. Although it is possible that the high side of the range for mid-1971 could be exceeded, this is not considered to be likely.

A key element of uncertainty in projections beyond mid-1968 is whether the recent increase in the rate at which construction of new launchers was begun reflects a major change in Soviet policy and objectives and can be expected to be sustained in the future, or whether the increase represents a transitory fluctuation in tempo, similar to past

* Very recent evidence, which is not reflected in this contribution, indicates that some of the apparently completed small silos are being re-excavated.

spurts in Soviet ICBM deployment activity. This uncertainty will be reduced when [redacted] to determine whether new groups are still being started at both the original and new small silo complexes or at the new complexes only. In the latter case a reduction from the recent high rates would be indicated. It may require six months or more, however, to confirm a cessation of starts of single silo groups at the five original complexes because of the high number of groups started in the recent past and the vagaries of weather and other factors [redacted] It should be possible to judge the current pace of the large silo program somewhat earlier, but because of its smaller size, the status of this program has much less effect on future quantitative projections. [redacted]

Although it cannot be related directly to the future pace and magnitude of the ICBM program, there is some evidence that suggests the direction of current Soviet policy and military thinking. During the spring and summer of 1965, for example, statements by Soviet leaders increasingly referred to the necessary burdens of defense expenditures in a manner that implied some new or pending decisions with respect to the level of military requirements.* In retrospect, these statements appear to have foreshadowed the acceleration of the ICBM deployment program that began in late 1965 and may have been occasioned at least in part by decisions concerning the long-term course or objectives of that program. Moreover, the tone and character of current Soviet doctrinal discussions suggest a growing confidence in the availability of a more reliable Soviet deterrent and of the means to support a more flexible military strategy, presumably based on such a deterrent. These indications would be consistent with a Soviet commitment to an ICBM force that would provide a substantially higher level of deterrence than past programs have suggested. If the recent pace of deployment is sustained, it would appear that the USSR is seeking within the next few years to achieve an ICBM force approaching

* See CIA/RR MM 66-1, The Military Issue in Soviet Policy During 1965, February 1966, SECRET.

numerical parity with the present US force.

These developments may lead to a new round of MRBM/IRBM deployment activity, the first since the deployment of the current force of some 700 operational launchers was completed in 1964. As yet, it is not possible to judge whether new deployment will take the form of a mobile system, such as SCAMP, or the retrofit of a missile at existing SS-4 or SS-5 hard sites, or both. In any case, no significant increase in the total MRBM/IRBM force is anticipated.

Developments during the past year have strengthened somewhat the belief that a new class of ballistic missile submarine will appear in the next year or so, but the evidence remains inconclusive. Severodvinsk suggests that a new class of submarine may be under construction there but provides no indication of the type. Similarly, a re-analysis of the probable utilization of the shipbuilding facilities at Komsomolsk indicates that capacity may have been available for a new submarine construction program by early 1965, However, Soviet statements and the pattern of deployment of the current ballistic missile submarine force continue to indicate a strategic attack role for the Navy, suggesting that a new ballistic missile submarine will be forthcoming in the near future. The deployment of a force of advance ballistic missile submarines in the 1970's would represent another significant Soviet step toward the attainment of some form of parity with US strategic attack forces.

Operations of the heavy and medium bomber forces of Long Range Aviation (LRA) continue to reflect a primary mission of strategic attack and reconnaissance. There has been no significant change in the heavy bomber forces during the past year, but it

is believed that major changes are in progress in the composition of the medium bomber forces. It now appears that, in place of extensive Blinder deployment, a substantial portion of the Badger forces may be in the process of acquiring air-to-surface missiles (ASM). The ASM for the Blinder still is not operational and there are several indications that further deployment of this aircraft will be limited.

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I. Trends in Doctrine and Policy

It has become apparent over the past year that a new round of internal debate over military doctrine and strategy has begun in the Soviet Union. In contrast with the Khrushchev period, when discussions of military matters centered largely on the practical issues provoked by Khrushchev's policies of force reduction, the new discussions are assuming a broader, more theoretical character and are raising questions concerning the basic assumptions that have governed the development of the armed forces since the early 1960's. It is not fortuitous that military officers should be reexamining the premises of Soviet military policy at this time, because this is a period when important increments to the Soviet Union's strategic striking power are beginning to become operational. Seen in the light of this relationship, the new discussions assume more than routine intelligence interest, for they point to the directions in which military thinking is now exerting its influence in the policy deliberations that are determining the size and character of the strategic forces which will exist some years from now.

A. Criticism of the Strategy of Deterrence

Although Khrushchev has left the scene of Soviet policymaking, the heritage of his policies and ideas has continued to weigh heavily on Soviet doctrinal thinking. In a sense, military thinkers are as much preoccupied with Khrushchev today as they were before his political demise. Indeed, the effort to find ways of escaping the limitations which his policies had imposed on Soviet strategy has been a common denominator of much of the theoretical writing that has appeared in the Soviet press since he left the scene.

The military establishment which Khrushchev left to his heirs was a special-purpose organization whose value as an instrument of policy tended to vary with circumstances. By design and equipment, the armed forces were geared primarily to a deterrent role, which rested on the tacit assumption that general war was an unlikely contingency. For the sake of economy, combat branches and weapons systems were strengthened or reduced according to their effectiveness within the framework of this deterrent posture. Partly to reinforce

the deterrent effect, a doctrine was publicized which denied the possibility that any war involving a direct clash between the great powers could take place in any form short of an all-out nuclear exchange.

A few months after the removal of Khrushchev, while the new political leaders kept their counsel on defense questions, a gradual but unmistakable reaction to Khrushchev's policies began to be registered in the Soviet military press. The reaction condemned "subjective" methods of policy formulation and appealed for a strengthened, more balanced defense posture based on a more realistic strategy. The bellwether of the new movement in military thinking was the argument that military policy should be based not on the assumption that war was unlikely but rather on the assumption that war remained a real possibility in the contemporary world.

The first and most direct assertion of this argument was presented by two well-known military personalities, Major General K. Bochkarev and Colonel I. Sidelnikov, in an article in Red Star on 21 January 1965. They couched their argument in the form of an attack on unnamed comrades who, they said, stressed the "possibility of preventing war through the deterrent effect of nuclear-rocket weapons, rather than giving sufficient attention to the possibility that war might occur." The purposes underlying this attack on the premises of Khrushchev's military policy were probably mixed. Considerations relating to budgetary allocations may have played a part. Indeed, this aspect of the argument was made explicit later in the year by the same Sidelnikov when he wrote in Red Star on 22 September that the tendency to overemphasize the deterrent role of the armed forces could lead to questioning the "need to spend large resources on them." Yet, it is also clear that a main consideration underlying the attack was a genuine apprehension that the war-waging capabilities of the armed forces were being diminished by the doctrinal assumptions governing Soviet military policy. (C)

This aspect of the new line is revealed most clearly in the renewed attention that has been given in the Soviet military press to the question of whether war in the nuclear age can be contemplated as a rational instrument of policy. That this question is regarded as a practical one by Soviet military theorists, and not merely as a subject of theoretical interest, is clear from the way in which it has been treated.

Lt. Colonel Rybkin, whose article in Communist of the Armed Forces in September 1965 first raised the subject, emphasized the practical implications of the question. "To maintain that victory in nuclear war is impossible," he wrote, "would not only be false on theoretical grounds, but dangerous also from a political point of view." The burden of the argument developed by Rybkin and others is that nuclear war is susceptible to rational control and that it can be used as an instrument of national policy. The implication, it is clear, is that in a world in which nuclear war is possible the Soviet Union should put itself in a position to face this possibility with confidence.

The military writings of the past year have sketched only the broad outlines of the practical measures that are being proposed to translate these doctrinal injunctions into reality. One conclusion that military writers appear to have arrived at is that the Soviet Union should seek to broaden the range of options available to it in conflict situations. Accordingly, they have stressed the need for an improvement of Soviet capabilities to engage in conventional warfare. This conclusion appears to have received broad endorsement at the Soviet leadership level, and there is good reason to believe that practical measures are being taken to implement it.

But the increasing Soviet emphasis on the development of conventional capabilities does not give grounds for assuming that priority attention is no longer being given to the problems of nuclear warfare. While there is now some tendency among military spokesmen to concede that localized clashes between Communist and Western forces might take place on a limited basis and that even the introduction of tactical nuclear weapons in a limited war would not necessarily mean an automatic escalation to general nuclear war, the dominant view appears to remain that war on a European scale could not be conducted on a non-nuclear basis. Hence the main problem for Soviet military theory continues to be that of preparing the armed forces for nuclear warfare. As Colonel General N. Lomov put it in an authoritative article in Communist of the Armed Forces in November 1965, "the main direction" in the development of the Soviet armed forces is defined by "the requirements of world nuclear war."

B. Outlines of a New Doctrine

There has been considerable effort over the past year to flesh out the bare bones of this doctrinal assertion with practical recommendations as to how a nuclear war might actually be waged. Military writers have been at pains to reconcile the long-held tenet of Soviet doctrine that force superiority is a prerequisite of victory with the manifest facts of the present strategic relationship with the United States. The articles offer a number of theoretical solutions to the problems of achieving superiority, based on the exploitation of the special characteristics of nuclear-rocket war to achieve a favorable "correlation of forces." Several aspects of modern war which are believed to offer potential advantage in this respect have received particular emphasis.

First it is recognized that the USSR must be capable of detecting Western preparation for an attack. Marshal Sokolovskiy and Major General Cherednichenko, for example, writing in Communist of the Armed Forces of April 1966, observed that it is possible to detect in time not only the onset of an attack but also the "start of direct preparation" for an attack. In other words, they added, "there is a possibility of not permitting a surprise attack." There is an implicit assumption here that Soviet strategy will be able to rely on reconnaissance and detection techniques to recognize the threat of an impending world war.

Soviet strategy would further rely on a powerful strategic preemptive attack capability to exploit the advantages gained through early warning. The principle of preemptive attack, while not new to Soviet military doctrine, is politically sensitive and not appropriate for public discussion. Recent theoretical treatment of the importance of timely, surprise attack, however, has given implicit support to the desirability of such a strategy. In a discussion of "The Time Factor in Modern War," Colonel I. Grudinin, writing in Communist of the Armed Forces of February 1966, observed that the "first massive nuclear strikes" can possibly predetermine the entire outcome of the war. Thus, he concluded, combat readiness has come to mean in part the ability of the armed forces to "thwart any aggressive attempts to deliver a strike and achieve the decisive goals of war in the initial phase." Colonel P. Trifonenkov, writing earlier in Communist of the Armed Forces of January 1966, imputed even greater importance to this principle when he stated that timely nuclear strikes against the enemy will be a

"decisive" factor in the struggle for force superiority. Such strikes, he further contended, can "quickly and radically alter the correlation of forces."

The possibility of achieving victory in nuclear war must be predicated on a belief that damage sustained can be held to acceptable limits. Soviet military theorists apparently consider that the use of timely nuclear strikes will, to a considerable degree, result in the neutralization of the enemy's offensive capability. Two Soviet military theoreticians have stated this concept most succinctly. Lieutenant Colonel Ye. Rybkin in Communist of the Armed Forces of September 1965 observed that the "more decisively and quickly" the imperialist aggressive actions are stopped, "the less serious will be the unfavorable consequences of the war." And Colonel General N. Lomov, writing in the same journal in November 1965, stated that the ability of a country to resist an enemy nuclear strike depends first on how much his nuclear forces will be " neutralized or weakened."

Despite the advantages accruing to the side which is able to launch the first nuclear strike, the Soviet theorists recognize that the USSR is unable through such a strike to eliminate completely the ability of the US to retaliate. Consequently, military theorists argue that the USSR's strike capability must be accompanied by strong defensive measures. Colonel General Lomov, in addition to stressing the ability of the USSR to neutralize the enemy's striking power, emphasized defense "in the broad meaning of the term -- that is, air and civil defense." Rybkin, too, noted that destruction can be limited because it may be possible "to develop and produce instruments of war which can reliably parry an enemy's nuclear strikes." It is apparently believed that a defensive capability, such as an ABM defense, combined with a preemptive strategy, would go far to compensate for the present strategic superiority of the West.

These brief indications of trends in Soviet doctrinal discussion suggest a movement toward certain concepts which have been present in US strategy for some time. Although the efforts up to now have been modest, it is likely that these concepts will continue to be explored, possibly with increasing explicitness. Central Committee endorsement of such an inquiry was given at the 23d Party Congress in April 1966, when Army General Yepishev, chief of the Main Political

Directorate, said: "We are obliged to strengthen the scientific and technical elaboration of problems ... relating to the character of a possible thermonuclear war. There are still some false and fumbling judgments and sometimes extremes are reached in the interpretation of the possible consequences of employing new means of armed struggle."

C. Trends in Policy

The developments described above relate to one side of the policymaking process -- that is, they describe certain of the pressures that are being brought to bear on the Soviet leadership during a period when critical decisions affecting the security position of the Soviet Union will have to be made. What effect these pressures will have in influencing future decisions on resource allocations and on the development and deployment of major weapons systems remains uncertain. Thus far the Soviet leaders appear to believe that they can find ways of avoiding the hard economic choices which would definitely foreclose the chance of achieving one or more of the objectives outlined in the five-year plan.

The new regime's hopes for avoiding these hard choices appear to lie in the expectation of an increase in the overall national product through better management and planning techniques which would improve the "factor productivity" of capital-labor inputs into the Soviet economy. The result would be a larger pay-off in terms of production for given levels of capital investment, which would mean having a larger pie to cut among the other claimants on national resources, such as the consumer sector and defense. A key factor in this prospectus, obviously, is whether the international environment remains sufficiently calm to permit the Soviet leadership to postpone the satisfaction of some defense claims in the interests of achieving a balanced growth of the economy as a whole.

The evidence of the leadership's views on this question is far from conclusive, but such indications as have been given point to a heightening rather than a moderation of concern over national security. Several times in recent months there have been echoes of those regretful acknowledgements regarding the burdens of defense, which last year appeared to signal a shift in the regime's policy toward a greater satisfaction of military interests. In April at the 23d Party Congress, for example, Kosygin conceded that the relatively modest character

of the plans that were being projected for the growth of the economy had been caused by the threatening world situation. "If matters depended solely on us," he added, "we would surely have made substantial cuts in military spending." Similarly, in his election speech in June 1966, Brezhnev asserted that "expenditures for the army and armaments are a great burden for the budget, for our national economy." Claiming that the Party would like to drop "at least part of this load" from the people's shoulders, he went on to say that the "situation" did not permit this solution. In sum, judging by the tone of leadership statements at the present time, the recommendations of the military theorists appear to be receiving a favorable hearing in the policy councils of the regime. (S)

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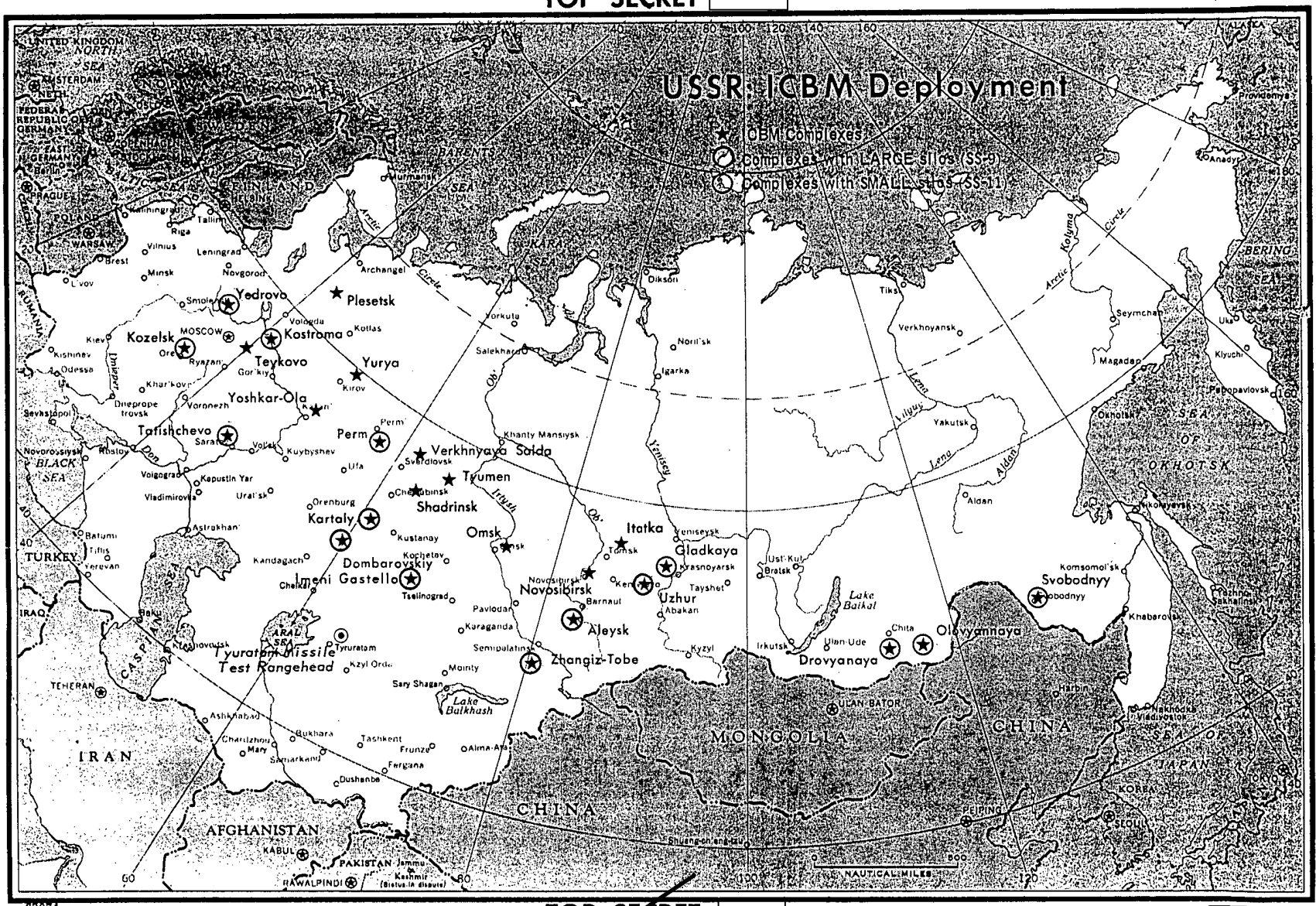

Figure 1

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II. Strategic Rocket Forces

A. ICBM Forces

1. Current Status

The principal new development in Soviet ICBM deployment since publication of NIE 11-8-65 has been the reversal of the downward trend observed in the rate of construction starts on small single silos during the first half of 1965. This rate was accelerated in late 1965, and the new trend has continued into 1966. However, the delay observed in the completion of these same small launchers appears to have continued, and, as a result, fewer sites of this type have become operational by mid-1966 than were previously estimated. * The large silo program has moved ahead about as estimated, although an increase in the rate of new starts in late 1965 and early 1966 [redacted] A slight speed-up in the pace of construction [redacted] at these latter sites also, and as a result, the large silo sites are achieving an operational status one quarter sooner than previously estimated. [redacted]

The duration of both the upward swing in the rate of deployment starts and the stretching out of the construction cycle for the small silos cannot be determined from available evidence. Although these factors have some effect upon the operational force levels for the next two years, the main impact would fall on projections for the period beyond mid-1968. In any case, the recent trends imply a Soviet goal substantially in excess of the 500 launchers estimated on the low side in NIE 11-8-65. [redacted]

Other elements of the Soviet ICBM force, the earlier generation SS-6, SS-7, and SS-8, remain essentially as estimated in NIE 11-8-65. No new evidence has been acquired concerning the last group of ten triple-silo sites completed in the last half of 1964, which may be equipped with either the SS-7 or SS-9. [redacted]

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* Very recent evidence, received after the completion of this contribution, indicates that some of the apparently completed small silos are being reexcavated. This evidence, which raises serious questions about the current status of the small silo program, is not reflected in the remainder of this contribution but its implications are currently being analyzed. [redacted]

The total number of ICBM complexes remains at 25 (see Figure 1). During the past year, however, the composition of four older complexes changed. Construction of small single silos began at three old SS-7 complexes (Svobodnyy, Yedrovo, Kostroma) and, for the first time, at an old SS-8 complex (Kozelsk). A detailed breakdown, by system and complex, of the currently identified Soviet ICBM force is shown in Table 1.

a. First- and Second-Generation Programs

Construction of launch sites for the initial deployment of first-generation intercontinental ballistic missiles (ICBM's) in the USSR began in 1958 when rail-served launch pads for the SS-6 missile were started at Plesetsk. Construction of this type of site was terminated in 1960 when the three sites with a total of four launchers became operational at this complex. Between 1959 and the end of 1964, soft launch pads and hardened silos were constructed for the second-generation SS-7 and SS-8 ICBM's. At the end of 1964, when both construction programs were complete, there were 167 operational launchers for the SS-7 missile at 77 sites (64 soft with two pads each and 13 hard with three silos each), and 23 operational launchers for the SS-8 missile at 10 sites (seven soft with two pads each and three hard with three silos each). In addition, there are 10 triple-silo sites that are equipped with either the SS-7 or SS-9.

All 224 of the first- and second-generation ICBM launchers are believed to be operational, except one SS-6 launcher at Plesetsk probably now allocated to the space program. Limited amounts of "housekeeping" construction continues to occur at all old complexes. With the exception of possible changes underway at the other SS-6 launchers at Plesetsk, there is no indication of a Soviet effort to change, modify, or phase out these older sites.

b. Large Silo Program

Construction of large single-silo sites began in early 1964 with simultaneous construction occurring at the Tyuratam Missile Test Center (TTMTC) and at three new ICBM complexes -- Uzhur, Aleysk, and Zhangiz Tobe. In March 1964, work began at the Imeni Gastello and Dombarovskiy complexes, and in May 1964 at Kartaly.

Table 1

USSR: Number of Launchers at Identified ICBM Complexes a/

[redacted]
June-July 1966

Complex	Under Construction		Operational							
	SS-9 Large Silo	SS-11 Small Silo	SS-6 Soft	SS-7 Soft	SS-7/9 Hard	SS-8 Soft	SS-8 Hard	SS-9 Large Silo	SS-11 Small Silo	Total
Total	85	229	3	128	69	14	9	22	40	599
Aleysk	9							2		11
Dombarovskiy	18							3		21
Drovyanaya		28		6	9				10	53
Gladkaya		24		4	3					31
Imeni Gastello	15							3		18
Itatka				6						6
Kartaly	13							5		18
Kostroma		4		12	3					19
Kozelsk		6				6	6			18
Novosibirsk				6	6					12
Olovyannaya		50			9				10	69
Omsk							3			3
Perm		26		10	3				10	49
Plesetsk			3	4	3	4				14
Shadrinsk					9					9
Svobodnyy		12		14	3					29
Tatishchevo		68							10	78
Teykovo				12						12
Tyumen						4				4
Uzhur	16							6		22
Verkhnyaya				14	6					20
Yedrovo		11		12	6					29
Yoshkar Ola				12						12
Yurya				16	9					25
Zhangiz Tobe	14							3		17

a. Confirmed and probable. These numbers will change on the basis of later evidence, before the final estimate is made. These figures do not include the 55 launchers operational or under construction at the Tyuratam Missile Test Center.

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The first large-silo site at the TTMTC was discovered after construction had been underway; a longer time was required to find the new complexes in the field, however. The three complexes that were begun in January were not discovered until construction had been underway for some four to seven months. Two of the later complexes were discovered in about four months, and the Kartaly complex was discovered the month after it was started. There is high confidence that there are no undetected large silo complexes in the Soviet Union.

Once started, the large-silo program proceeded at a deliberate pace for the first 21 months. (Figure 2 presents detailed information on the programming of Soviet large single-silo ICBM sites.) The rate at which sites were begun during this period averaged about 3.5 a month. During this period, a seasonal cycle in new starts became apparent. The second quarter of each year had a peak rate three times (21 sites) that of the remaining quarters of the year. In general cyclical pattern and pace during the first 21 months, the construction program for large silos was reminiscent of the SS-7 and SS-8 programs. During the last quarter 1965 and the first quarter 1966, however, starts for the large-silo program have remained high, compared with the corresponding previous quarters of the program. The rate at which sites were started during the six months in this later period averaged 5-1/2 starts per month, with 13 of the sites started in the last quarter of 1965 and 20 in the first quarter of 1966. Thus it appears that the large-silo program either reached its 1966 peak rate very early in the year or that the pace of the program was increased substantially at the turn of the year.

Observation of site starts during the second quarter will be critical to a proper appraisal of this change, but coverage of large-silo complexes has been so sparse that there is no direct evidence on which to make a firm judgment at this time. f the majority of these six complexes will be required to determine whether the large single-silo program has continued at the new higher rate.

The average elapsed time from start of construction of a large single silo until it appears externally complete is 21 months. Allowing an additional three months for fitting out, these silos will achieve an initial operational capability (IOC) sometime during the

Figure 2

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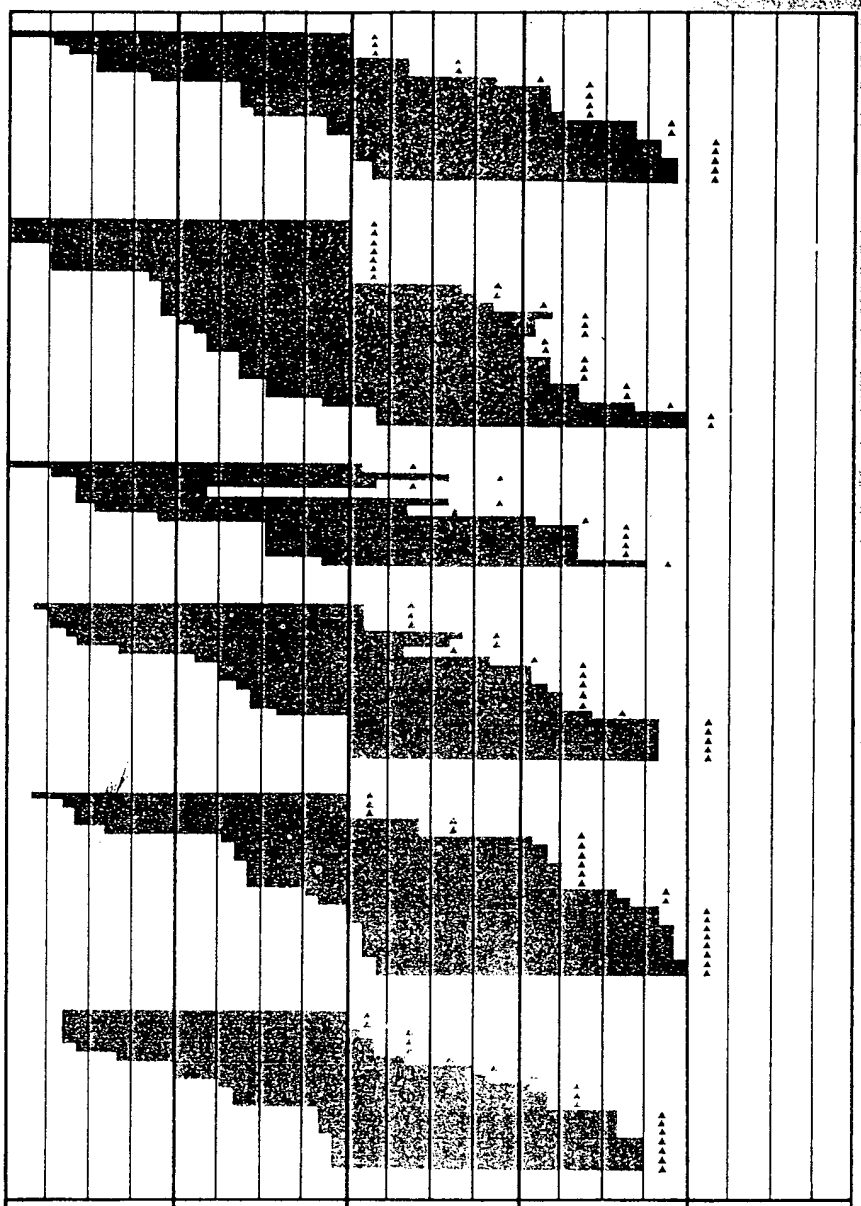
Programming of Soviet Large Single-Silo ICBM Deployment

Launcher Under Construction ▲ Estimated Date of Operational Capability *

Data in Parentheses Represent Number of Sites Identified as of 1 July 1966*



	1964				1965				1966				1967				1968			
Identified Launcher Starts	7	21	6	6	7	21	7	13	20											
Cumulative Starts	7	28	34	40	47	68	75	88	108											
Cumulative Estimated Operational Sites									14	22	29	36	42	67	74	87	107			

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21 to 24 month period. This represents a three-month reduction in the time to IOC below that indicated in NIE 11-8-65. This time reduction has not affected the number of operational launchers estimated for mid-1966, mid-1967, or mid-1968, however.

Some implications for the future of the large single-silo program may be derived from the deployment patterns at the six complexes. The immediately obvious implication -- that the ultimate number of sites will be a multiple of six -- arises from the apparent arrangement of the larger silos in groups of six, with each group having one L-shaped electronics facility co-located with a central silo. However, the number of such groups to be constructed in each complex is not obvious. The largest number of groups started has been four, at both Dombarovskiy in the west and at Uzhur in the east. Moreover, both of these complexes have a separate site, not associated with any group, that has tentatively been identified as a complex control site. If all six complexes are slated for four groups plus one complex control site, the ultimate number of sites would be an even 150. To date, however, three of the six complexes have only three groups.

The sixth complex, Aleysk, may be a special problem to the Soviet planners because of the earthquake damage that probably took place there in February 1965. At the time of the quake there was only one group of silos under construction. By late 1965, it was apparent that one of these silos had been abandoned and that a replacement was under construction nearby. At about the same time a second group of six silos was also started. it has not been possible to determine if a third or fourth group has been started at Aleysk, but if so they are somewhat behind the schedule of starts at the other five complexes. Moreover, whenever the existing silos have been seen at Aleysk, construction seems to be moving ahead at a slower pace than was anticipated. If the quake damage has been severe at Aleysk, the complex may not be enlarged beyond two groups.

c. Small Silo Program

The construction program for small single-silos differs from any previous Soviet ICBM program in several respects: (1) the silos are being constructed in greater numbers than in any other program; (2) the silos are smaller and less complex than those

in any other program; (3) there have been no seasonal peaks in the start rate similar to those of the second-generation triple-silo and the large single-silo programs; (4) construction of deployed sites began very

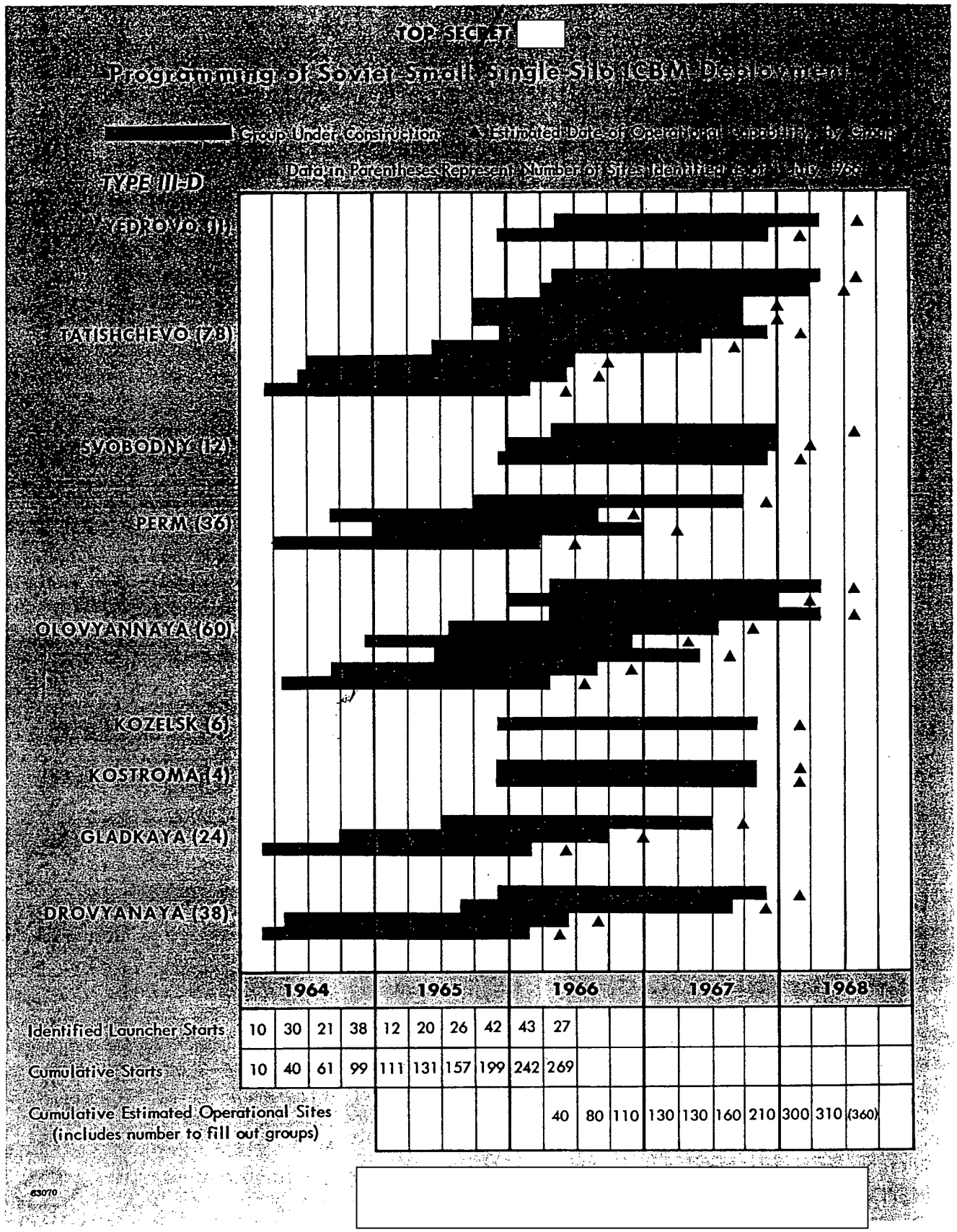
Construction of small single-silo ICBM sites was begun in March 1964 and has continued at a somewhat irregular pace to the present time. During 1964, about 100 sites were started at five complexes. Four of the five complexes -- Drovyanaya, Gladkaya, Perm, and Olovyannaya -- were previously known ICBM launch complexes for the SS-7 missile. The fifth complex, Tatishchevo, was new but used the support facilities of an abandoned IRBM complex.

In late 1965 and early 1966, four additional complexes were brought into the small-silo program. Construction of small single-silo sites probably began at Svobodny and Kozelsk in late 1965 and at Kostroma and Yedrovo in early 1966. Each of the four additional complexes was an existing ICBM launch complex, three having the SS-7 missile and one having the SS-8 missile. The use of Kozelsk (the SS-8 complex) is the only departure from the exclusive use of existing SS-7 complexes for additional deployment of the small single-silo sites.

At the nine complexes now in the program, some 170 small silos have been identified since January 1965. About 100 of these sites are estimated to have been started in 1965, while the remaining 70 sites are believed to have been started in 1966. Although the rate of construction of the small single silos is not consistent from month to month, the construction pace for the first two years, as reconstructed, shows a rate of about 100 silo starts per year. (Figure 3 presents detailed information on the programming of construction of small single silos.) The 1965 rate was achieved despite a definite and as yet unexplained slackening in the pace during the first half of 1965 that was noted in NIE 11-8-65. The pace of construction starts regained momentum in the last half of 1965, and since late 1965 a significantly higher rate of starts has been observed. In the fourth quarter of 1965 and the first quarter of 1966 --

-- silo starts totalled 85, or a rate of 14 per month.

Figure 3


TOP SECRET
Programming of Soviet Small, Single Silo ICBM Deployment
Group Under Construction
Estimated Date of Operational Capability, by Group
Data in Parentheses Represent Number of Sites Identified as of July 1968
TYPE II-D
YEDROVO (11)
TATISHCHEVO (78)
SVOBODNY (12)
PERM (36)
OLOVYANNAYA (60)
KOZELSK (6)
KOSTROMA (4)
GLADKAYA (24)
DROVYANAYA (38)
1964
1965
1966
1967
1968
Identified Launcher Starts
10 30 21 38 12 20 26 42 43 27
Cumulative Starts
10 40 61 99 111 131 157 199 242 269
Cumulative Estimated Operational Sites (includes number to fill out groups)
40 80 110 130 130 160 210 300 310 (360)
65070

Moreover, there were at least 12 group starts at this time, about twice as many as in any previous six-month period. These increases were effected almost entirely by the introduction of the four additional complexes to the program, for the rates of site and group starts were sustained at about the 1965 level at the old complexes as the new complexes were brought into the program. There is no way of knowing how long the higher start rates will continue, but there are reasons to expect them to apply through at least 1966. First, five group starts have been detected during 1966 at two of the original small-silo complexes. Second, it is only reasonable to expect additional new groups to be started at the four new complexes, Third, even if no more new groups are started this year, almost 90 more silos would be required merely to fill out those groups started since late 1965. These sites in addition to the some 70 sites already identified in 1966 assure the start of at least 150 silos during calendar year 1966. If additional new groups are started at both the old and new small silo complexes, the total number of starts in 1966 could reach 190 or 200.

The presence or absence of additional group starts after mid-1966 at the original small-silo complexes will be the best indication of whether the higher start rates are being sustained. However, because of the recent appearance of group starts at some of these complexes and the anticipated time-phasing of group starts at individual complexes, it may not be possible to determine for another six months or more whether groups will continue to be added at these small-silo complexes.

2. Projected Force Levels

a. Mid-1966 Through Mid-1968

The estimated number of Soviet ICBM launchers for the period mid-1966 through mid-1968 is shown in Table 2. In general, the current estimates for 1966 and 1967 compare favorably with those of NIE-11-8-65. However, for mid-1968 the estimated force level (650 to 725) is considerably above the projection for that year provided in NIPP-66 (514 to 582). In fact, by 1968 the number of estimated operational ICBM launchers will exceed the low side of the estimate for mid-1970 provided in NIE-11-8-65 (500 to 800). This change for the period after 1967 has been necessitated by the substantial increases since late 1965 in the rate of construction starts at both the large-silo and small-silo complexes. Because of lack of evidence

Table 2

USSR: Estimated Number of Operational ICBM Launchers a/
Mid-1966 - Mid-1968

Operational Systems	Mid-1966	Mid-1967 b/	Mid-1968
Total	285	415 to 440	650 to 725
Soft	145	142 to 145	142 to 145
SS-6	3	0 to 3	0 to 3
SS-7	128	128	128
SS-8	14	14	14
Hard (triple silo)	78	78	78
SS-7/9	69	69	69
SS-8	9	9	9
Hard (single silo)	62	197 to 217	430 to 500
Large (SS-9)	22	67	120 to 140
Small (SS-11)	40	130 to 150	310 to 360

a. In addition to these launchers there are 55 launchers at the TTMTC, completed or under construction. While under certain conditions any or all of these launchers could serve as operational ready launchers of the Strategic Rocket Force, this is not believed to be their normal role.

b. An additional four soft launchers will be operational at Plesetsk by mid-1967 (Sites G and H), but their purpose is not yet clear. It is possible that they are for deployment of the TT-4 vehicle, which was tested at the TTMTC during late 1965 and early 1966.

supporting the projected deployment of an SS- Very Large ICBM, this system is no longer included in estimates of future force levels. (

Second-generation systems (SS-7 and SS-8) continue to constitute the bulk of the operational ICBM force at the present time. However, during the next year significant numbers of single-silo sites will become operational, rapidly changing the number of hardened targets for US strike forces. Single silos already compose more than two-thirds of the hardened Soviet sites, and by 1967 the change in the Soviet force structure will have created a highly dispersed targeting environment.

Because of the lengthy construction cycle for both large and small silos and it is unlikely that the number of launchers for mid-1968 will fall outside ranges. At the pace of current construction (21 to 24 months), large silos started after mid-1966 as a general rule should not become operational until after mid-1968. The low side of the estimate for mid-1968 (120) therefore is based on the assumption that those large-silo sites firmly identified to date will be brought to operational status in 24 months and includes a number of sites on which construction is estimated to have started during the first half of 1966, based on the average start rate during the first two years of the program (3-1/2 to 4 silos per month). The high side of the estimate (140) is based on the assumption that sites will be brought to operational status in 21 months and that the higher start rate observed in late 1965 and early 1966 at large-silo complexes (six per month) will continue beyond mid-1966.

The estimate for mid-1968 for the small-silo program is based on the number of group starts and the estimated period of time required to bring a group of ten sites to operational status. This period is now estimated at 24 to 27 months. Accordingly, on the low side, all groups started by the close of the first quarter of 1966 (31) should be operational by mid-1968. The high side is based on the number of groups known to have started by mid-1966 (36). While it is to be expected that there would be some additional group starts in the second quarter of 1966, they probably would be few because of the relatively high number of group starts

already identified this year. For this reason, no allowance was made for additional undetected groups on the high side of the mid-1968 range.

It is anticipated that a firm number for the starts of individual sites and groups for both the large-silo and small-silo programs during the first six months of 1966 will be available by the end of the summer, at which time the high side of the projections may be adjusted.

b. Mid-1971 and Mid-1976

It is now estimated that the ICBM force levels will be 700 to 1,000 launchers in 1971 and 700 to 1,200 launchers in 1976, increasing in both cases the range of previous estimates by some 200 launchers. In view of the uncertainties beyond the current deployment program, no attempt was made to provide low and high extremes in the estimated ranges. In general, it is expected that the Soviet ICBM force level may fall somewhat to the higher side of these ranges. If this materializes, by 1971 the USSR will have reached approximate numerical parity with the currently scheduled US force of ground-based ICBM launchers.

It is believed that after 1971 the Soviet force will tend to stabilize and that the major efforts during the early 1970's will be toward greater mobility, increased accuracy, improved warhead technology, and system replacements. In this context, multiple, independently guided re-entry vehicles (MIRV) and suborbital or fractional-orbital long-range ICBM's may attain operational status. In addition, it is estimated that the USSR will develop a solid ICBM which will be deployed initially in a mobile configuration and later begin to replace the SS-11 system. It is likely that none of these systems will change appreciably the numbers of launchers in the Soviet ICBM force, but each could considerably affect the real capability of the Soviet forces by mid-1976.

The evidence is quite clear that the rate of ICBM site construction took a significant step forward at the close of 1965 and that this change affected both the small-silo and large-silo programs. When taken in the light of only limited evidence that new ICBM systems are scheduled for developmental testing at the

TTMTC in the next year or so, this seems to indicate that the USSR intends to go with the systems it now has, perhaps for some time. Other factors suggest the possibility of a concentrated Soviet effort in the near future that could result in a high level of site construction. The introduction of small silos at four additional ICBM complexes makes it unlikely that the rate of the small-silo program will fall below that of the 1964-65 period, while the continuation of group starts at the original small-silo complexes implies a total rate higher than that of the 1964-65 period for at least another year. On the basis of these factors -- continuing starts and the possibility of a high rate -- it appears that the USSR will have some 450 to 600 small-silos operational or under construction by the close of 1967, by which time it is expected that the new site-initiation phase of the program would be terminated.

Similarly, in the case of the large silo program there is momentum that suggests a continuation of the program during the next year or more to a level of some 150 silos. This number would fill out each complex to about 25, the highest number of silos at a single site indicated by the evidence to date. While it appears that about 150 sites is a reasonable minimum estimate, it is not certain that it is the ultimate Soviet goal for this system. However, because the demonstrated rate of construction starts is only 40 to 50 per year, it seems unlikely that the total number of silo sites will exceed 200.

For several reasons, it is not likely that the number of launchers in the SS-9 and SS-11 programs will exceed significantly the high side of the estimate. Even at the recent relatively high rates of deployment, for example, obsolescence will begin to apply as the force levels approach the size indicated above. Partly for this reason, neither Soviet nor US ICBM deployment starts for any one system have in the past extended beyond four years (the period used for this estimate). This time seems to define the general limits that these programs can attain, and it seems likely that both the SS-9 and SS-11 deployment programs, whatever their size, will be completed by mid-1970, with few, if any, new starts occurring after 1967.

Furthermore, the attainment of the high side of the estimated range will require a major sustained Soviet effort that, at its peak, would result in more than 400 launchers under construction at one time, a third again as high as the present level of activity and substantially higher than the combined ICBM/IRBM/MRBM construction

peak of 1962. Finally, on the basis of the Soviet experience in past programs, it would be unusual for a deployment program to be maintained uninterruptedly at a high level for an extended period of time. While there have probably been a variety of causes for fluctuations or even abrupt terminations of previous Soviet deployment programs, regularity has been the exception rather than the rule in the past.

Although there is some basis in current evidence for estimates of the extent of the SS-9 and SS-11 programs, the intended Soviet force levels are unknown for missiles with heavy and light warheads. These intended force levels might bring about continuing deployment of follow-on systems at the close of the current programs. It is assumed from the general level of construction on current systems that the desired force level is a moderate one and that the USSR is aiming for approximate parity with the US in numbers of ground-based ICBM launchers. Provided that all hard and soft SS-7 launchers were still operational in 1970, the construction of launchers now estimated for the SS-9 and SS-11 programs could raise the Soviet force to a level of 850 to 1,000 launchers. This number would fall short of the planned levels of deployment for the Minuteman and Titan (a total of 1,050 launchers), but the USSR may reason that its larger number of heavy-warhead missiles will then provide qualitative parity between the land-based missile forces. Alternatively, the USSR may choose to raise the number to some extent while continuing efforts for improved systems.

It is anticipated that, by 1971, a liquid-fueled follow-on system will be operational and that a small solid missile will be nearing operational status. While one or both of these programs could effect an increase in the total number of ICBM launchers, it is believed to be unlikely that they will be used to supplement the systems in the Soviet force at that time. Because of the possible phase-out of the SS-7 system, the Soviet force level in 1971 may not attain the 850 to 1,000 launchers discussed above. On the low side of the 1971 estimate, a good portion of the SS-7 soft sites probably will be deactivated without replacement. On the high side, it is estimated that the follow-on liquid-fueled system will be deployed in new single silos and that this program will be phased initially to the deactivation of soft SS-7 sites, and later to the deactivation of multi-launcher hard sites. Since some 200 launchers are involved in the

SS-7 system, a one-for-one replacement program would be a substantial undertaking by itself, and it is unlikely that this new system would result in a sizable net increment to the Soviet ICBM forces. On balance, it seems more likely that the SS-7 will not be deactivated without a replacement, and it would probably be prudent to plan for the Soviet attainment toward the middle of the range of 700 to 1,000 launchers by mid-1971.

After 1971, phase-out of all SS-7 launchers seems virtually assured, and deployment of at least one solid-fueled missile system should be completed by the mid-1970's. This program could take the form of a replacement for the SS-11 or could bring about a substantial addition to the ICBM force, deployed in a new single silo or a mobile mode. Unless the USSR is able to develop unusually high accuracies on its initial solid-fueled ICBM, early deployment of such systems probably will be in a mobile mode. A substantial increase in light warhead missiles above the level attained by 1971 does not seem warranted unless there are improvements in warhead and accuracy that permit the missile to be targeted on Minuteman silos. Barring this, the particular advantage of a solid-fueled missile is its reaction time and adaptability to a mobile environment. It is estimated therefore that the solid missile will be deployed initially in a mobile configuration but that, toward the mid-1970's, the original, small solid-fueled missile or its follow-on could be deployed in single silos as a replacement for the SS-11, which will then be approaching a maximum shelf life. Because of the possibility of a competing submarine-launched system, and because the advantages of mobility accrue with relatively small numbers of launchers, it is estimated that the mobile force will be on the order of 100 to 200 launchers by mid-1976.

By 1976, it is estimated that the total number of ICBM launchers will fall between 700 to 1,200. This force will be composed principally of large and small single, dispersed silos, using the SS-9 and SS-11 missiles or their follow-ons and by a modest number of mobile solid-fueled missile launchers. As part of the qualitative upgrading of the force during the 1970's, considerable improvement is anticipated in re-entry technology. By the close of the estimating period, some of the larger missiles will probably be equipped with MIRV or be adapted for suborbital

missile systems with ranges above 10,000 nautical miles (nm) or with considerably suppressed trajectories. Such systems would supply an additional flexibility for Soviet targeting but they need not, of themselves, require additional numbers of launchers.

B. MRBM/IRBM Forces

1. Current Status

Although no new construction of permanent MRBM/IRBM sites or other major changes in the force have been detected since the publication of NIE 11-8-65, the estimate of the number of launchers operational in mid-1966 has been modified somewhat to reflect uncertainty regarding the status of a special group of six soft sites (Type V) that are deployed singly instead of in the customary pairs. The decline of 24 launchers projected in NIE 11-8-65, from 733 operational in mid-1965 to 709 in mid-1966, was based on the judgment that these sites would be abandoned as other sites of the same variety had been.

The current estimate of 709 to 733 operational MRBM/IRBM launchers (see Table 3) has been ranged to reflect, on the high side, the possibility that these sites are still available for use by units of the Strategic Rocket Forces (SRF).

2. Major Trends and Developments

significant features were the continued absence of additional operational site construction, a decline in the rate of construction of fixed field sites, and the continued lack of firm evidence on field deployment of a mobile missile system such as the SCAMP. It is believed that the major Soviet effort in the MRBM/IRBM field is and will be directed toward greater survivability and shortened reaction time rather than toward an increase in force size. The obvious interest in mobile systems as well as in solid propellant missiles is an indication of this trend, and it is believed that efforts will continue in this direction.

Table 3

USSR: Identified Soviet MRBM/IRBM Launchers a/

Type	Under Construction	Operational
MRBM (SS-4)	0	612 to 624
Soft	0	528 to 540
Hard	0	84
IRBM (SS-5)	0	97 to 109
Soft	0	46 to 58
Hard	0	51
MRBM/IRBM	0	709 to 733
Soft	0	574 to 598
Hard	0	135

a. These figures do not include launch sites at the Kapustin Yar Missile Test Center or some 364 launch positions at fixed field sites.

a. Fixed Field Sites

Ninety-eight fixed field sites have been identified at or near existing MRBM complexes since 1961. This number reflects an increase of about 20 more than were identified at the time of NIE 11-8-65. Of these 20, however, only eight were constructed during the past year (the remainder being older sites newly identified). This is less than half the number constructed in the previous 12 months. This decrease in the rate of fixed field site construction implies that this program is nearing completion. To date, fixed field sites have been identified at 53 of the 67 deployed MRBM complexes.

Most of the sites have four launch positions and contain few permanent facilities. Tents, equipment, and wheel chocks or launch rings have been observed at some sites, but there is normally little sign of activity,

b. Test Range Activity

the USSR is now developing new missile systems at the KYMTC. At least one system, a solid-fueled missile, appears designed to augment or replace existing MRBM/IRBM's in the 1967-68 period. Other systems of MRBM/IRBM range may be under development, It is unlikely, therefore, that other systems could enter the Soviet arsenal before 1968.

(1) Construction Activity

Three major areas of construction at KYMTC have been noted during this past year: Area 4C1, Area H, and a new area under construction south of Area 5C.

The most significant activity is thought to be that at 4C1. That site, the prototype for the hardened MRBM sites, has been undergoing modification since 1964. Three of the four silos have been or are currently being modified, with work on the northeastern silo apparently complete. The southwest silo has been undergoing modification since at least April 1965. This work was possibly complete in October 1965, when a rail line was finished up to the silo, although some construction work is still visible. A loop road around this silo has also been built, and the silo diameter appears to have been reduced from about

Area H, a soft site under construction since mid-1 64, is still not complete; pad surfacing there began only in May 1966. The pad spacing of this site suggests design for an MRBM-size system, but there is no evidence, as yet, to allow identification of the system. Completion of this site is expected in the next few months.

A new area of activity south of Area 5C was noted in June 1966. A new road was observed under construction running south from the road serving launch area 5C and terminating just south of the abandoned launch site 5C2 and in line with all other sites in Launch Complex C. Construction activity is under way at this terminus. This activity may result in a new launch area, but as yet no identifiable features as to type or size are present.

(2) Firing Programs

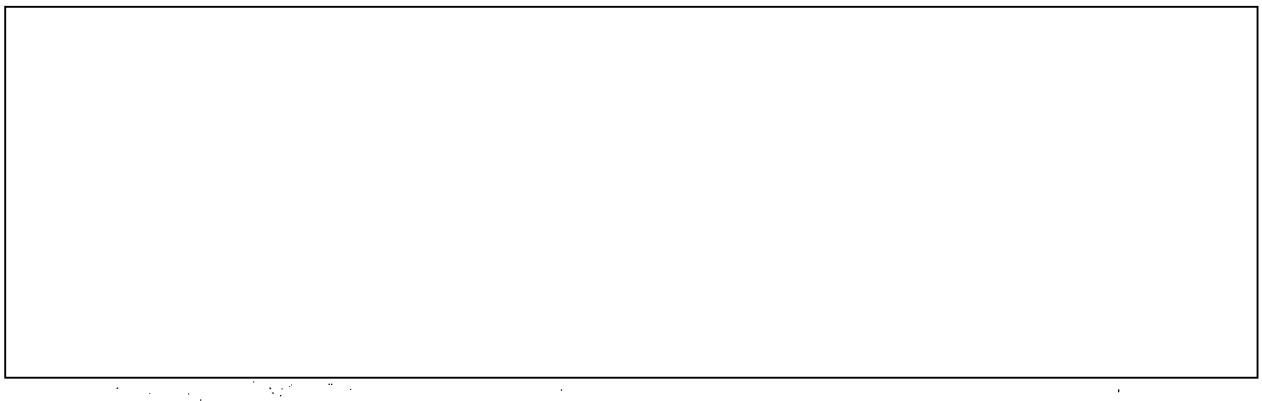
The KY-6, has been flown approximately 1,050 nm Although it has been fired only to the 1,050-nm impact area, suggests that the missile could have a range capability of at least 2,000 nm. it probably could not achieve an initial operational capability before mid-1967.

If the KY-6 has an operational range of over 2,000 nm, it could be identical to the SCAMP missile displayed in the 1965 Moscow Victory parade. The USSR claims the SCAMP to be solid fueled, with a range of 2,160 nm. This equation suggests that the SCAMP could enter the Soviet operational inventory some time after mid-1967. It should be noted, however, that no SCAMP-like vehicle has been firmly identified at the KYMTC, and the KY-6 is believed to be a three-stage vehicle, whereas the SCAMP in all likelihood has no more than two stages.

c. Evidence on New Deployment

Since the publication of NIE 11-8-65, no additional MRBM/IRBM sites have been detected, either under construction or operational. Changes observed at the existing sites appear to be of a general housekeeping nature, and all sites appear to be essentially unchanged. No mobile missile systems such as SCAMP have been identified at any of the deployed sites or complexes, strengthens our confidence in the ability to identify SCAMP-type systems if and when they are deployed at existing SRF bases in the field.

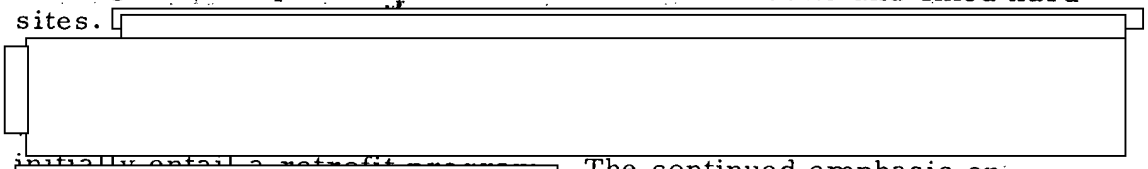
Mobility, as well as reduced reaction time, are still mentioned prominently in Soviet military publications and appear to have a place in Soviet long-range planning.



(1) Projected Forces

There has been no additional evidence that will significantly change the projections of force level as estimated in NIE 11-8-65. It is expected that the obsolescence of the SS-4 and SS-5 systems will require the USSR to replace a major portion of its MRBM/IRBM force during the next decade. Because of the vulnerability of soft, multilauncher sites, follow-on systems probably will emphasize dispersion, mobility, and hardness.

Although the exact nature of the eventual force desired by the USSR cannot be determined, there is continuing evidence leading to the expectation of a combination of mobile and fixed hard sites.



The continued emphasis on mobility in Soviet statements and the possible correlation of the SCAMP to the KY-6 system currently under test imply that the USSR considers mobility as an essential feature of future programs. Accordingly, it seems likely that the existing MRBM/IRBM soft sites will eventually be abandoned and that their mission will be filled both by additional hard launchers constructed after a retrofit silo program and by introducing a substantial force of mobile launchers. It now appears that both objectives might be accomplished by one missile system, the KY-6.

In general, it is expected that the total number of aiming points for Soviet MRBM/IRBM systems in Western Europe and the Far East will remain relatively stable through 1976, although

the structure of the target system may change. It is therefore estimated that the USSR will require a continuing and stable level of some 500 to 700 missile launchers in the MRBM/IRBM class throughout this period.

(a) 1966-68

It appears quite certain that no significant changes will be made in the existing level of Soviet MRBM/IRBM force through mid-1967. However, by 1968 the missile (KY-6) now undergoing testing at KYMTC could be operational. It is estimated that this missile will begin to replace SS-4 and SS-5 missiles at existing hardened sites by mid-1968, by which time a mobile version should also be operational in small numbers. The initial phase-out of SS-4 and SS-5 soft sites is expected to be concurrent with the introduction of a mobile system, and the total force level should not rise significantly.

(b) 1971-76

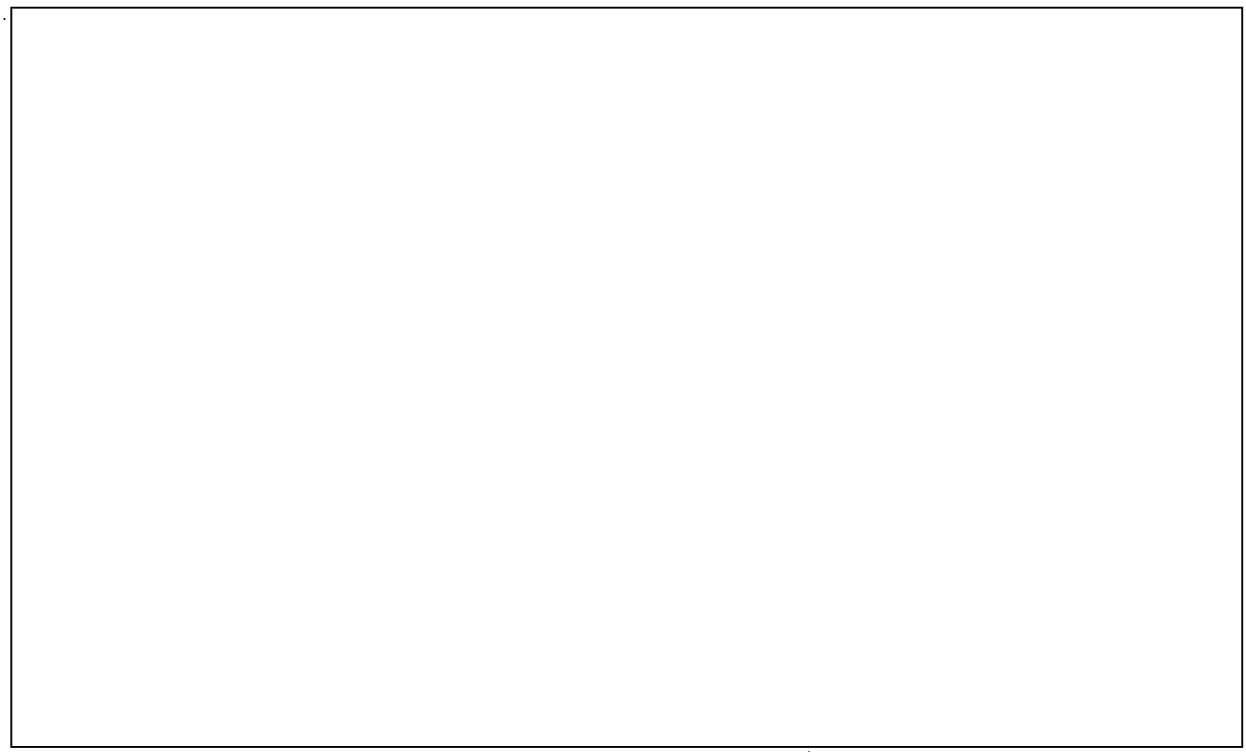
By 1971 the USSR should be well on its way toward implementing a mobile missile program while phasing out most or all of the soft sites from the operational force. Because many difficult and complicated problems, especially in command and control, are inherent in such a mobile deployment program, the degree of success or failure that the USSR may experience cannot be predicted with confidence. The retrofit program at the existing SS-4 and SS-5 hard sites should be completed by this time, and additional deployment of new fixed sites in a single-silo mode could be well under way. It is estimated that by 1976 the entire present force of SS-4 and SS-5 missiles will be phased out. At that time the MRBM/IRBM force would consist solely of multi-silo sites, hardened single-silo launchers, and a mobile missile system. As stated earlier, the total force, regardless of mix, will probably remain at some 500 to 700 missile launchers.

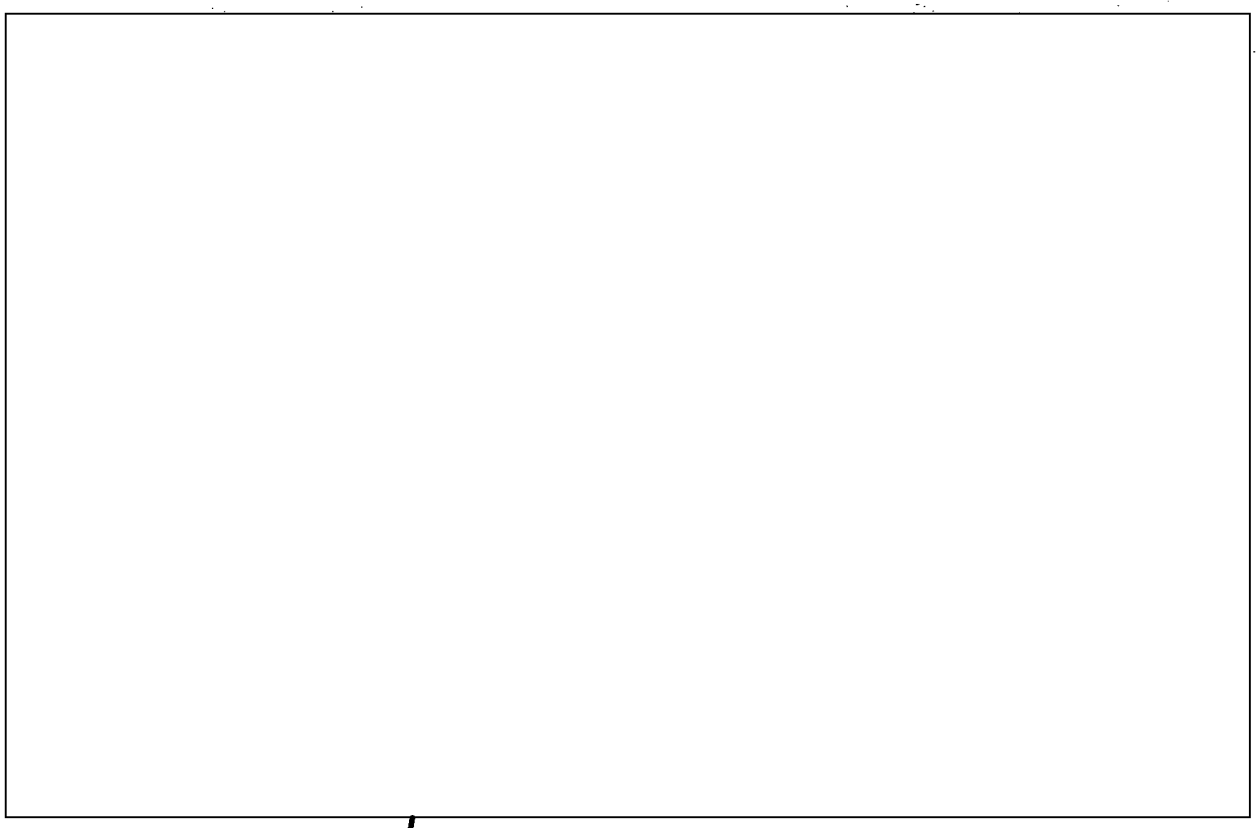
C. Operational Capabilities

There has been little new evidence uncovered during the past year on which to base a reassessment of the operational capabilities of the SRF. Current estimates on method of launch and silo hardness remain valid. Limited new information on complex control centers, command and control facilities, and communications, as well as some data on SRF supply depots is presented below.

1. Complex Control Centers

of SS-9 and SS-11 ICBM complexes during the past year reveals that at six of these installations there is one site that stands alone and does not conform to existing group patterns. These sites consist of a launch silo and a buried control bunker somewhat larger but similar to that at the group control sites, but they cannot be logically associated with any one group of sites in a complex. The appearance of one isolated site at each complex suggests that these sites serve as complex control centers. While there is no firm evidence, to prove this hypothesis, it appears to be a reasonable assumption and it is now anticipated that each complex will have such a hardened control center.





D. Evaluation and Prospects

Owing to the emphasis on preplanned action that has characterized the SRF command communications system, there is little question that some form of this system, if only the local command option to be used in extremes, would survive an attack of almost any intensity. Assessment of the degree to which the system would permit sustained, effective control of missile operations from Moscow, however, is less certain -- it is very likely that a nuclear attack on the USSR would leave SRF Headquarters capable of issuing its commands but largely uninformed as to the effectiveness or even the reception of these commands in the field. This isolation and command uncertainty would result from the probable early destruction of key segments of the common carrier systems used as primary media and the doubtful performance of HF radio in a nuclear environment. suggests that at least some steps have been taken to fill this gap in the command system. The hardened communications antennas at SRF command posts in European USSR are all buried in the earth, or perhaps even in concrete, and appear to be designed to provide information, or command feedback, to SRF Headquarters. The capability to act on this command feedback, moreover, will be

considerably enhanced by the addition of VLF stations distributed throughout the USSR, inasmuch as the more reliable signal emitted by these stations would give added assurance to SRF Headquarters that its commands were being received. A more definitive assessment of these new aspects of SRF command communications must await not only further technical analysis of the hardened antennas but also concrete indications of the role which the VLF installations will play in the plans of the SRF. Tentatively, however, photographic intelligence suggests that the prospects for survivable SRF command communications are considerably better than indicated

Through mid-1967, it is expected that there will be incremental rather than structural changes in the SRF command communications structure. The small balance of work required to complete the MRBM/IRBM contingency communications system of HF radio circuits probably will be soon completed. It is likely that at some time before mid-1967 the communications construction teams will move to the ICBM complexes, where thus far there has been relatively little activity in deploying backup radio facilities.

Over a longer period extending into the early 1970's, it is likely that SRF command communications will benefit more from systems installed primarily as common carrier facilities or for uses by other military forces rather than from systems controlled exclusively by the SRF. It is likely that the SRF will make extensive use of the buried multiconductor cable of the Ministry of Communications that reaches from Moscow to Vladivostok. Basic construction on this mainline communications route apparently has now been completed, and it is likely that large portions -- if not all -- of the cable will be passing operational traffic within the next few years. In addition, the Soviet Union has within the last year or so placed into orbit an experimental communications satellite system that has the potential to add further diversity to the SRF communications system. The most significant input into SRF command communications capability, however, probably will come from the completion of the tropospheric scatter network now under construction in the Soviet Arctic and Far East. Although the prime consumer of this costly, but much needed, network is expected to be the Air Defense Forces (PVO), the increased timeliness and quality of missile defense information will undoubtedly have a significant impact on the capability of the SRF command system to react efficiently to attack situations.

E. Regional Military Storage Depots

During the past year, large quantities of strategic missile equipment stored at six of the eight dispersed storage installations which were in the USSR some time ago. Although these installations have been designated as regional military storage depots, their association with strategic missiles was established as early as 1961. Their exact function in support of the SRF remains unclear, however. It seems likely that they have a variety of storage, maintenance, or repair responsibilities for general military equipment. However, the major responsibility of the main installation appears to be missile oriented because of the presence of large numbers of MRBM/IRBM transporters, erector-launchers, fuel transporters, oxidizer trailers, and other missile support equipment. As yet, no missiles and no ICBM equipment have been identified at these installations.

It has not been determined whether these eight storage depots, all near major Soviet rail lines, are responsible for supplying missiles and ground support equipment to the missile launch complexes as required or handle recycling and maintenance of this material, or both. It is difficult to comprehend the need for such quantities of material, as have been observed at these depots, so late in the deployment program. It is possible that some of this material could be utilized to provide missile equipment for the fixed field sites which to date appear to be devoid of permanent equipment.

Deployment concepts, equipment, and logistic requirements for the MRBM and IRBM systems appear to be similar. Because of the limited ability to store, maintain, and repair missiles and missile equipment at the launch complexes, the SRF apparently may be relying upon the eight regional military storage areas to fulfill these functions. Four of the depots -- Balta, Berdichev, Novaya Mezinovka, and Toropets -- are so geographically situated as to indicate a primary role in supporting the bulk of the SRF MRBM sites in Western USSR. Abundant strategic as well as tactical missile support equipment has been observed at these four locations. Similarly, SS-4 and SS-5 support equipment has been identified at Tambov and Surovatikha, whose geographical locations indicate primary IRBM or ICBM roles.

Although the remaining two military storage sites, Glazov and Donok, are not situated near any MRBM or IRBM complexes, they could have a storage and/or support role for ICBM complexes in their areas (especially Yurya, Yoshkar-Ola, Perm, Verkhnyaya Salda and Shadrinsk), a

III. Missile Submarine Systems

There has been little change over the past year in Soviet capability for strategic attack by means of missile-launching submarine systems. Construction of the G and H classes of ballistic-missile submarines was discontinued in 1962 and 1963; retrofit of earlier units of the H class with the SS-N-5 submerged-launch ballistic-missile system is proceeding slowly with no direct evidence of such a program for the G class. Cruise-missile submarines, with a primary role against surface forces and a secondary role against coastal targets, have been in production since 1960. With the phasing out of ballistic-missile submarines, the construction of cruise-missile submarines expanded considerably. Current emphasis still is focused on construction of the nuclear-powered E and the diesel-powered J classes that are equipped to launch cruise missiles. There is only tenuous evidence that the E-II class could be used to augment the ballistic-missile submarine force under certain circumstances. It is believed that the Navy regained and continues to have a strategic strike mission. Although there is no direct evidence that a new class of ballistic-missile submarine is under construction or that a new missile is being developed for its use, it is believed that a new class will appear during the next two years. Changes in shipyard facilities at Severodvinsk and Komsomol'sk and the extensive addition of new facilities at Gor'kiy may presage the appearance of such a new class by 1967. If a new class of ballistic-missile submarine is under construction, it is expected that the construction of cruise-missile submarines will be phased out.

A. Mission

Since NIE 11-8-65, Soviet statements continue to strengthen the view that the Navy has a strategic strike role. In the most recent pronouncement in June 1966, Marshal Malinovskiy indicated that special attention has been paid to the development of the Strategic Rocket Troops and atomic, rocket-carrying submarines as the chief means of conducting strategic warfare. The pattern of deployment of missile-configured submarines appears to further support public statements as to the strategic missile role of the Navy. Beginning at least in 1965 the USSR has deployed ballistic-missile submarines, both G and H classes, to patrol stations in the North Atlantic and North Pacific Oceans. During 1966 there has been a significant increase in the number

of submarines on patrol station in the North Atlantic. Patrol activity has been continuous, with at least one submarine on station at all times, and on two occasions there have been as many as three submarines deployed simultaneously. Both public statements and recent deployment patterns are compatible with earlier evidence which indicated that the Soviet Navy had regained a responsibility for striking targets deep in enemy territory. These developments also strengthen the view that a new class of ballistic-missile submarine will appear in the near future.

Soviet statements a [redacted] that the primary role assigned to Soviet cruise-missile submarines is that of tactical strike against enemy surface ships. These submarines probably have a secondary mission for strikes against coastal targets, [redacted] The nuclear-powered E class have been engaged in out-of-area operations but with only tenuous evidence that any of these deployments are associated with the patrol stations used by ballistic-missile submarines.

Evidence of Soviet views on requirements for missile submarines is acquired from fragmentary intelligence derived from statements, analysis of construction programs, shipyard improvement, and, in some instances, from reports on the development of new missiles. For example, the loss of the strategic strike function about 1960 was documented by statements indicating the loss of this role, and by analysis of construction programs which indicated the cessation of construction of the ballistic-missile submarines and an increased emphasis on the construction of cruise-missile submarines. The earliest indication of such requirements is expected to come from public statements, whereas the more positive indicators are acquired from the identification of new classes of submarines.

B. Current Status

The present Soviet missile submarine force is composed of 92 submarines and is about equally divided between ballistic-missile and cruise-missile types. Of this force, 32 units are nuclear-powered, including 10 ballistic-missile submarines and 22 cruise-missile submarines. Of the 60 diesel-powered submarines, 35 units are ballistic-missile types and 25 units are cruise-missile submarines. About

one-half of the H-class and all except one unit of the G-class ballistic-missile submarines are equipped with the SS-N-4 missile system. This missile, which became operational in late 1960, is fired from a surfaced submarine to a distance of about 350 nautical miles.

The SS-N-5 is a follow-on missile system which became operational in 1964. This missile has a range of about 700 nautical miles and is fired from a submerged submarine. The SS-N-5 system is installed in the G-class test bed and in the retrofitted H-II class submarines.

C. Operations and Training

Soviet submarine operational activity during 1965 and 1966 has shown a marked increase in the deployment of nuclear-powered submarines beyond local waters. The level of such deployments in 1965 and the first half of 1966 was double the level observed in 1964. Soviet missile submarines, which now operate without benefit of surface support units previously observed, are deploying to patrol stations in the Atlantic and Pacific with a regularity approaching continuous on-station patrol. In the Atlantic, H-class submarines have been employed frequently, but it is possible that at least one E-class cruise-missile submarine has also occupied this station. In the Pacific area, conventional-powered G-class submarines have usually been employed. There were two unusual deployment operations by Soviet nuclear submarines during 1965. In one case a Northern Fleet N-class submarine carried out a five-week deployment to the Mediterranean -- the first substantiated deployment of such a unit to this area. The second operation involved a sortie of another Northern Fleet nuclear-powered submarine into Atlantic waters off Bermuda, probably for the purpose of testing US antisubmarine warfare capabilities along the East Coast. Two surface units accompanied the submarine, probably in order to provide support and to gather information. The most impressive operation by Soviet submarines during the past year, however, was the covert transfer of at least two nuclear submarines from the Northern Fleet to Pacific Fleet waters via Cape Horn. This operation, which lasted 51 days, also involved four surface support ships. Although out-of-area operations appear to have involved only about 25 percent of the Soviet nuclear submarine force, it is apparent that the increasing tempo of operations is at least a partial realization of the Soviet objective for

more frequent and sustained naval operations and training on the high seas. The USSR now appears to have gained considerable confidence in the reliability of its nuclear submarines, as evidenced by the number of long-distance patrols undertaken.

D. Construction Programs

Although information available during the first half of 1966 indicates continued construction of cruise-missile submarines -- the nuclear-powered E-class at Severodvinsk and Komsomol'sk and the diesel-powered J-class at Gor'kiy -- there are a number of indications, including construction of new facilities, which, taken together, suggest that a major change may be under way in the programs at all three yards. None of these indications is conclusive, however, with respect to either the timing or the nature of possible new programs, and the first firm evidence is not likely to be received until new units are launched a

Evidence from Soviet statements that a strategic strike role for Soviet nuclear-powered submarines was probably regained in 1963 led to the conclusion in NIE 11-8-65 that the first unit of a new class of ballistic-missile submarine could appear as early as 1967 and become operational during 1968. Since last year's estimate, further evidence has been acquired which strengthens this belief somewhat. At the Severodvinsk Shipyard, which was the lead yard for the production of the N, H, and E-II classes of nuclear-powered submarines and would be expected to continue as the lead yard for a new class of ballistic-missile submarine, there is a possible indication that a new class of nuclear-powered submarine is under construction.

A hull diameter of about 30 feet, taking into account the range of error, is not inconsistent with the estimated diameters of submarines of the E and N classes currently being constructed at Severodvinsk.

This hull section will be part of a submarine that is unlikely to be completed until some time during 1968; however, if it is the estimated new class of ballistic-missile submarine, it does not necessarily represent the lead unit, which could be in a more advanced stage of construction within the covered assembly facility without being observed.

A new ballistic-missile submarine construction program may involve Komsomol'sk in addition to the lead yard, Severodvinsk, and there is now reason to believe that building capacity for a new class could have been available at Komsomol'sk since about the beginning of 1965. If this capacity was allocated to a new ballistic-missile submarine, the first unit could be launched by late 1967 or early 1968. From a reanalysis of the delivery of ships from Komsomol'sk Shipyard since 1958, it is concluded that Komsomol'sk used one hull assembly facility for nuclear-submarine construction and a separate facility for G-class ballistic-missile submarines, in much the same manner as Severodvinsk Shipyard. Construction of guided-missile destroyers appears to have taken place on one of the building ways in the nuclear-submarine facility. With the removal of an uncompleted Krupnyy hull to the launching basin about late 1964 or early 1965, this space would have been available for a new class of submarine. In light of the foregoing considerations, it is believed that the construction of E-class cruise-missile submarines may be phasing out at Severodvinsk and Komsomol'sk in favor of ballistic-missile submarines, and the projections of the submarine forces are based on this judgment.

New shipyard facilities have been built or are still under construction that will improve procedures for material handling and assembly at Severodvinsk, Komsomol'sk, and especially Gor'kiy. Although construction of facilities at Severodvinsk and Komsomol'sk is not necessarily related to new programs at those yards, the construction of large new ship assembly/fabrication shops at Gor'kiy Shipyard since 1964, concurrently with the construction there of large transporter docks and nuclear support ships, suggests that the Gor'kiy yard is about to begin constructing nuclear submarines. If so, it will become the third such facility in the USSR, and its participation in the nuclear program would indicate that the limitations imposed on the construction of nuclear submarines in the past by the availability of reactors have been overcome. The new facilities at Gor'kiy imply

an increase in annual Soviet output of nuclear-powered submarines beginning in about 1969, as well as the possibility of a new class of submarine. If a new ballistic-missile submarine program emerges at Severodvinsk and Komsomol'sk as projected, the most likely type to be constructed at Gor'kiy would be a new class of torpedo-attack submarine.

A conversion program on the H-class submarine for the SS-N-5 missile system probably was begun in 1963 at the Severodvinsk Shipyard. The identification of H-II class submarines in the Northern Fleet Missile Test Range confirm this conversion program. a conversion rate of probably one unit per year, rather than the previous estimate of two units per year for a total of 3 to 4 units by mid-1966. The apparent slow pace of retrofitting the SS-N-5 system may indicate some dissatisfaction with the system and raises the question as to whether all submarines of the H-I class will be retrofitted.

No direct evidence of conversion of additional units of the G-II class exists other than the original test bed. Extensive modification work to G-class submarines, however, is under way at Severodvinsk and Vladivostok, involving at least four submarines. This work involves extensive changes in the area of the missile tubes. There is as yet no evidence that this modification is related to the SS-N-5 missile system.

E. Missile Systems

In July 1965 a Soviet Admiral indicated that the USSR has under development a solid-fuel submerged-launch submarine missile with a range in excess of 540 nautical miles. There is no direct intelligence to support this claim. It is believed, however, that a new missile would be developed for a new class of ballistic-missile submarine and that such a missile is likely to be a submerged-launch solid-fueled vehicle with a range exceeding 1,000 nautical miles. With the estimated timing on the appearance of the submarine, the missile should be undergoing testing now, [redacted] If a new submarine missile follows the pattern of the SS-N-5 missile development, there may be little or no advance indication prior to the appearance of such a missile on the Northern Fleet Missile Test Range.

Most cruise-missile submarines now carry the 270-nautical-mile, low-altitude version of the SS-N-3 missile, which entered service in 1961. It is possible that a high-altitude, longer range version of the SS-N-3 missile finally will enter service in the next year or two.

F. Projected Forces

1. 1966-68

The Soviet missile submarine force is expected to be augmented during the next two years by the addition of about eight E-II-class nuclear-powered submarines and possibly four additional diesel-powered cruise-missile submarines of the J class. There will probably be little change in the ballistic-missile submarine forces, although the first unit of a new class could be in service by mid-1968. Estimated strengths for the missile submarine force are shown in Table 4.

2. 1969-76

By 1970, it is believed that the production of both E and J classes of cruise-missile submarines will have been terminated and that by 1971 production of the new class of ballistic-missile submarine will have reached about 15 units. By 1976, it is expected that the Soviet Union will have a nuclear-powered ballistic-missile submarine force of about 45 units, including about 35 of the new class.

Table 4

Estimated Soviet Missile-Submarine Force
Midyear 1966-68

	Mid-1966	Mid-1967	Mid-1968
Ballistic missile	45	45	45 to 47
Nuclear	10	10	10 to 12
H-I	5	3	1
H-II	5	7	9
New class			0 to 2
Diesel	35	35	35
G-I	27	27	27
G-II	1	1	1
Z-conversion	7	7	7
Cruise missile	47	54	59
Nuclear	22	27	30
E-I	5	5	5
E-II	17	22	25
Diesel	25	27	29
J	12	14	16
W-conversion	13	13	13
Total	92	99	104 to 106

IV. Strategic Bomber Forces

The manned bomber forces of Long Range Aviation (LRA) continue to provide a significant contribution to Soviet capabilities for strategic attack. Both the heavy bomber forces and the medium bomber forces of LRA have primary missions of strategic attack and reconnaissance, and it is believed that most LRA aircraft would be employed in these roles. Secondary missions, such as support of the Soviet Naval Air Forces (SNAF) probably would not involve any substantial number of aircraft. It is believed that LRA will continue to have a primary mission of strategic attack and reconnaissance throughout the period of this estimate.

The heavy bomber forces of LRA are believed to be directed almost exclusively toward intercontinental operations, primarily against the continental United States, whereas medium bomber forces are believed to be directed mainly toward operations in Eurasia, with only a small number of medium bombers programmed for operations against North America. Because of this basic difference in targeting, the heavy bomber forces and medium bomber forces are discussed separately in this estimate.

A. Heavy Bomber Forces

1. Missions

The primary wartime missions of the LRA heavy bomber forces are believed to be the delivery of nuclear strikes and the performance of strategic reconnaissance against targets in the continental United States. The secondary missions are believed to include support of the SNAF in the reconnaissance role and by the provision of tankers for SNAF long-range reconnaissance aircraft.

2. Current Status

The heavy bomber forces currently consist of about 110 Bear (Tu-95) four-turboprop heavy bombers and about 90 Bison (3M/M-4) four-jet heavy bombers. About 75 of the Bear aircraft are equipped with the Kangaroo (AS-3) air-to-surface missile (ASM),

a few are specialized reconnaissance variants with no weapons-delivery capability, and the remainder are free-fall bombers. All of the Bison aircraft are capable of free-fall bombing, but no ASM has been provided for this aircraft.

About two-thirds of the Bear ASM carriers, the Bear reconnaissance variants, and all of the Bison bombers are believed to be equipped for aerial refueling. Bison aircraft are used as tankers for the refuelable Bear and Bison, and about 50 Bison -- there is no firm evidence of the actual number -- are believed to be equipped for this role. It is estimated that Bison serving in the tanker role can be converted to the bomber configuration in the field, but these aircraft are not believed to retain a bombing capability while equipped for the tanker mission.

Heavy bombers are assigned to all three of the Long-Range Air Armies (LRAA). Table 5 shows the current distribution of these forces.

Table 5

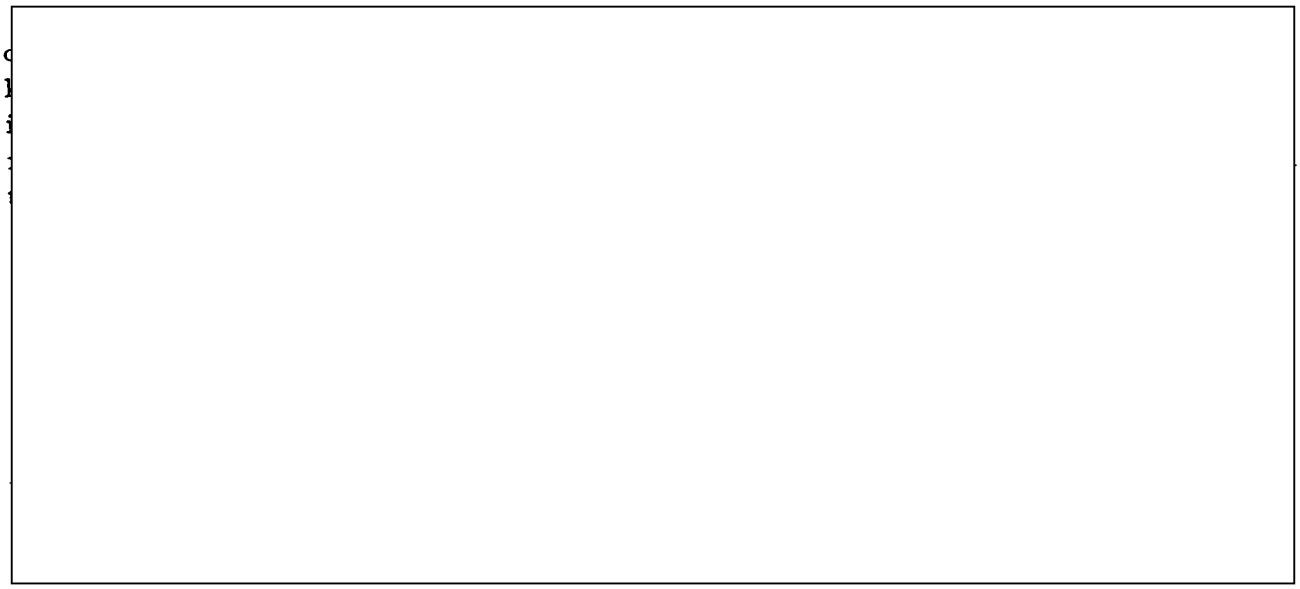
Soviet LRA: Distribution of Heavy Bombers
Mid-1966

European USSR	1st LRAA	2 Bison regiments 1 Bison squadron
	2nd LRAA	1 Bear bomber regiment 2 Bear ASM regiments
Central Siberia	3rd LRAA	1 Bear bomber regiment 1 Bear ASM regiment
Soviet Far East	3rd LRAA	2 Bison regiments

Heavy bombers are based on six airfields, four in European USSR and one each in Central Siberia and the Soviet Far East. Five of these airfields have runways of 11,500 feet, and the sixth, in Central Siberia, has a 12,300-foot runway.

3. Operations and Training

a. Aerial Refueling



c. Maritime Operations

Bear aircraft of LRA and, to a lesser extent, Bison aircraft continue to engage in maritime operations, but this activity still constitutes only a small portion of overall heavy bomber operations. Most of this activity has been directed against US surface forces, although in some cases the main mission possibly has been ELINT reconnaissance of land targets. It is anticipated that the extent of LRA involvement in overflight operations gradually will decrease as the Bear aircraft assigned to the SNAF become fully operational.

SNAF Bear aircraft have been identified in flights involving US forces on only a few occasions during the past year. This general lack of overflight activity by SNAF Bear is not surprising. Delivery of the Bear to the SNAF proceeded slowly, and only five aircraft were deployed by mid-1965. It is unlikely, therefore, that the SNAF Bear units would have obtained a significant operational capability before the end of 1965 or early 1966. Furthermore, during the first three months of 1966 the principal SNAF Bear unit appears to have ceased operations for about seven weeks, suggesting some difficulty with the aircraft or, more probably, its reconnaissance systems. By mid-1966 the SNAF had acquired more than 15 Bear aircraft, and it is believed that these aircraft soon will assume the primary responsibility for long-range maritime reconnaissance.

4. Capabilities

It is believed that the major part of the LRA heavy bomber forces remains committed to intercontinental operations, although it is possible that a few aircraft might be diverted to maritime missions in support of the SNAF. LRA capabilities for attack on the continental United States are limited, however, by the range characteristics of current heavy bomber aircraft. The refuelable Bear ASM carriers have the greatest capability for intercontinental attack and could reach most targets in the United States directly from their home bases with a single inflight refueling. The nonrefuelable Bear ASM carriers and bombers also could strike some US targets directly from their home bases, but would have to use Arctic bases to achieve coverage of most of the United States. Bison aircraft require both Arctic staging and refueling to reach most US targets, but could attack the western United States from Arctic bases without refueling.

5. Production Programs

indicates a continued increase in the number of Bear aircraft assigned to the SNAF, and it now is estimated that reconnaissance variants of the Bear are being produced at a low rate at Kuybyshev Airframe Plant No. 18. Previously it was believed that the aircraft assigned to the SNAF were originally produced as Bear "A" bombers -- the basic bomber version -- and later modified for use in the maritime reconnaissance role. The number of Bear deployed with the SNAF now exceeds the number that could reasonably be accounted for by earlier production, however,

The number of Bear assigned to LRA is estimated to have remained unchanged for the past two years, but it is believed that a number of LRA Bear have been modified at Kuybyshev during this period. coverage of Kuybyshev continues to reflect modification activity. for example, two of the five Bear at the factory were identified as probable "A" models. It is highly unlikely that the Bear "A" would be in production at this time, and it is probable that these two aircraft were returned to the factory for modification to one of the later configurations. This

activity could include the conversion of "A" models to the ASM-carrier configurations, as well as the addition of an aerial refueling capability to Bear "B" ASM carriers and the modification of some aircraft for reconnaissance missions. [redacted] of LRA bases in [redacted] revealed that more than one-half of the Bear "B" already had been modified for aerial refueling. [redacted]

The presence of this modification activity at Kuybyshev precludes a direct correlation between the number of aircraft at the factory and the buildup in the number of Bear assigned to the SNAF. The present estimate of resumed production assumes that all of the SNAF Bear, with the exception of one or two prototypes, represent new production. It is possible that the SNAF Bear force consists partly of new aircraft and partly of older aircraft, or, if Bear aircraft have been withdrawn from LRA during the past year, that all SNAF Bear are modified aircraft as previously estimated. In either case the estimate of total production -- about 150 aircraft by mid-1966 -- is believed to be essentially correct, although there is considerable uncertainty as to the production schedule. [redacted]

A [redacted] indicates that about 130 Bear aircraft had been produced by the end of 1962. This production total provides enough aircraft to cover the estimated Bear strength in LRA, and it is believed that production of Bear bombers and ASM carriers for LRA ended in 1962. In addition, it is estimated that production of reconnaissance variants for the SNAF began in the last half of 1964, with about 20 of these aircraft having been produced as of mid-1966. The current rate of production is estimated to be slightly less than one aircraft per month. [redacted]

6. Projected Forces

The following projections of force levels for the LRA heavy bomber forces are based on the belief that the USSR will maintain manned bomber forces capable of operating against the continental United States throughout the period of this estimate. [redacted]

a. 1966-68

LRA heavy bomber forces appear to have stabilized at their present level, and it is estimated that there will be no major

change in these forces during the next two years. Estimated force levels through mid-1968 are given in Table 6.

Table 6

Soviet LRA Heavy Bomber Forces:
Number of Aircraft, by Model
Midyear 1966-68

Units

	Mid-1966	Mid-1967	Mid-1968
Bear			
Bomber	35 to 40	35 to 35	30 to 35
ASM carrier	70 to 75	70 to 80	70 to 80
Total	105 to 115	105 to 115	100 to 115
Bison			
Bomber	40	35 to 40	30 to 40
Tanker	45 to 55	45 to 55	45 to 55
Total	85 to 95	80 to 95	75 to 95
Grand total	190 to 210	185 to 210	175 to 210

b. 1971-76

It is estimated that the LRA heavy bomber forces will decline gradually to a strength of some 150 aircraft by 1971. It is believed that the number of Bear ASM carriers and Bison tankers will remain essentially unchanged during this period, with the reduction in the total force resulting from the phasing-out of the older Bear and Bison free-fall bombers.

During the early 1970's it is believed that Bear ASM carriers will be gradually phased out of the force, with Bison being retained only for the tanker role. By mid-1976, normal

attrition of the Bear and Bison aircraft would reduce the total force to only some 50 aircraft. A force of this size would be at or below the minimum practical level, and continued attrition after 1976, unless offset by new programs, would result in the complete elimination of LRA heavy bomber forces within another two years or so.

It is believed, however, that the USSR will maintain manned bomber forces capable of operating against the continental United States throughout the 1970's. The manned bomber is the only strategic weapons system capable of performing simultaneous reconnaissance and strike missions, enabling it to search out and attack mobile targets and targets of uncertain location. Strategic missile forces, in contrast, are dependent on other systems for reconnaissance information; in the absence of manned bomber forces, Soviet operations against the United States would be wholly dependent on satellite reconnaissance systems for damage assessment and retargeting data. Other advantages of the manned bomber include its ability to deliver very large weapons and its ability to deliver weapons with a high degree of accuracy. It is believed that the USSR would plan for the heavy bomber forces to reach the United States after the initial missile strikes, enabling these aircraft to operate in a degraded defense environment. This is no reason to believe that such operations would be any less effective or any more vulnerable during the 1970's than in the 1960's.

For these reasons it is believed that a new heavy bomber may be introduced into the LRA inventory during the 1973-74 period in order to maintain a force with a significant capability for intercontinental operations. It is believed that a new heavy bomber program would be detected some three or four years before the aircraft became operational. If, therefore, the USSR intends to maintain its heavy bomber forces by the deployment of a new aircraft in 1973-74, the development of this aircraft should become apparent in the 1969-71 period. The introduction of this new aircraft, which also would be available for use by the SNAF in the maritime reconnaissance/strike role, could be expected to result in a total LRA heavy bomber force of some 100 aircraft by 1976, with about equal numbers of the new bomber and Bear ASM carriers and a small number of Bison continuing in service as tankers for the Bear.

B. Medium Bomber Forces

1. Missions

The primary wartime missions of the LRA medium bomber forces are believed to be the delivery of nuclear strikes and the performance of strategic reconnaissance against targets in areas peripheral to the USSR, especially the European NATO countries. A small portion of the force is believed to be programmed for similar missions against targets in Alaska, Northern Canada, Greenland, and Iceland. Secondary missions are believed to include support of the SNAF and the Tactical Air Forces (TAF). LRA medium bomber support of SNAF and TAF operations probably would be mainly in the reconnaissance and possibly electronic warfare roles, but might also include strike missions.

2. Composition and Deployment

The LRA medium bomber forces currently consist of about 650 Badger (Tu-16) twin-jet medium bombers and about 100 Blinder (Tu-22) twin-jet supersonic-dash medium bombers. At the present, neither of these aircraft is believed to have an operational ASM capability. An ASM is known to have been under development for the Blinder, however, and there is a good possibility that a substantial portion of the LRA Badger force may be in the process of acquiring ASM's. A small number of the Badger probably are configured exclusively for reconnaissance missions, with no weapons delivery capability. The great majority of the Badger aircraft are believed to retain a bombing capability, although in some cases only as a secondary mission. All of the Blinder aircraft are credited with a free-fall bombing capability, although most of the Blinder currently deployed are assigned to units that have a primary mission of reconnaissance.

All Badger aircraft are estimated to be capable of refueling inflight from other Badger that have been equipped to serve as tanker aircraft. There is no reliable evidence as to the number of Badger tankers, but it is believed that the ratio of tankers of bombers is about 1 to 3 and it is estimated that the present force includes some 150 Badger tankers. The Blinder aircraft currently deployed are not believed to be equipped for aerial refueling.

Medium bombers are assigned to all three of the Long Range Air Armies (LRAA), but about 80 percent of the force -- including all of the Blinder -- are based in European USSR. Table 7 shows the present distribution of LRA medium bomber forces.

Table 7
Soviet LRA: Distribution of Medium Bombers
Mid-1966

European USSR	1st LRAA	3 Blinder regiments 8 Badger regiments 1 Training division (equivalent to about two regiments; mostly Badger, a few Blinder)
	2nd LRAA	1 Blinder regiment 7 Badger regiments (one possibly converting to Blinder)
Central Siberia	3rd LRAA	2 Badger regiments
Soviet Far East	3rd LRAA	3 Badger regiments

LRA medium bomber regiments are based on 21 airfields: 17 in European USSR, one in Central Siberia, and three in the Soviet Far East. In addition, a small Badger detachment operates from an airfield in the Eastern Arctic. These airfields, with the exception of the Arctic base and one that is shared with the SNAF, may be grouped into two classes according to the length of their runways -- 8,200 feet or 9,800 feet. This distinction is significant because Blinder aircraft have been based only on the airfields with 9,800 feet runways, and the majority of LRA medium bomber bases have 8,200 feet runways. Table 8 shows the distribution of LRA home bases, including heavy bomber airfields which fall into a third class with runways of 11,500 feet and longer.

Table 8

Soviet LRA: Distribution of Home Bases by Length of Runway
Mid-1966

		11,500 Feet or More	9,800 Feet	8,200 Feet
European USSR	1st LRAA	2	3	7
	2nd LRAA	2	2	5
Central Siberia	3rd LRAA	1		1
Soviet Far East	3rd LRAA	2	2	

All of the airfields with runways of 11,500 feet and over are currently occupied by LRA heavy bomber units, with the exception of one of the airfields in the Soviet Far East. The latter is shared between LRA and the SNAF, and supports two Badger regiments (one from each service) and a SNAF Bear reconnaissance unit. This airfield was extended to its present length during 1965, prior to the delivery of SNAF Bear.

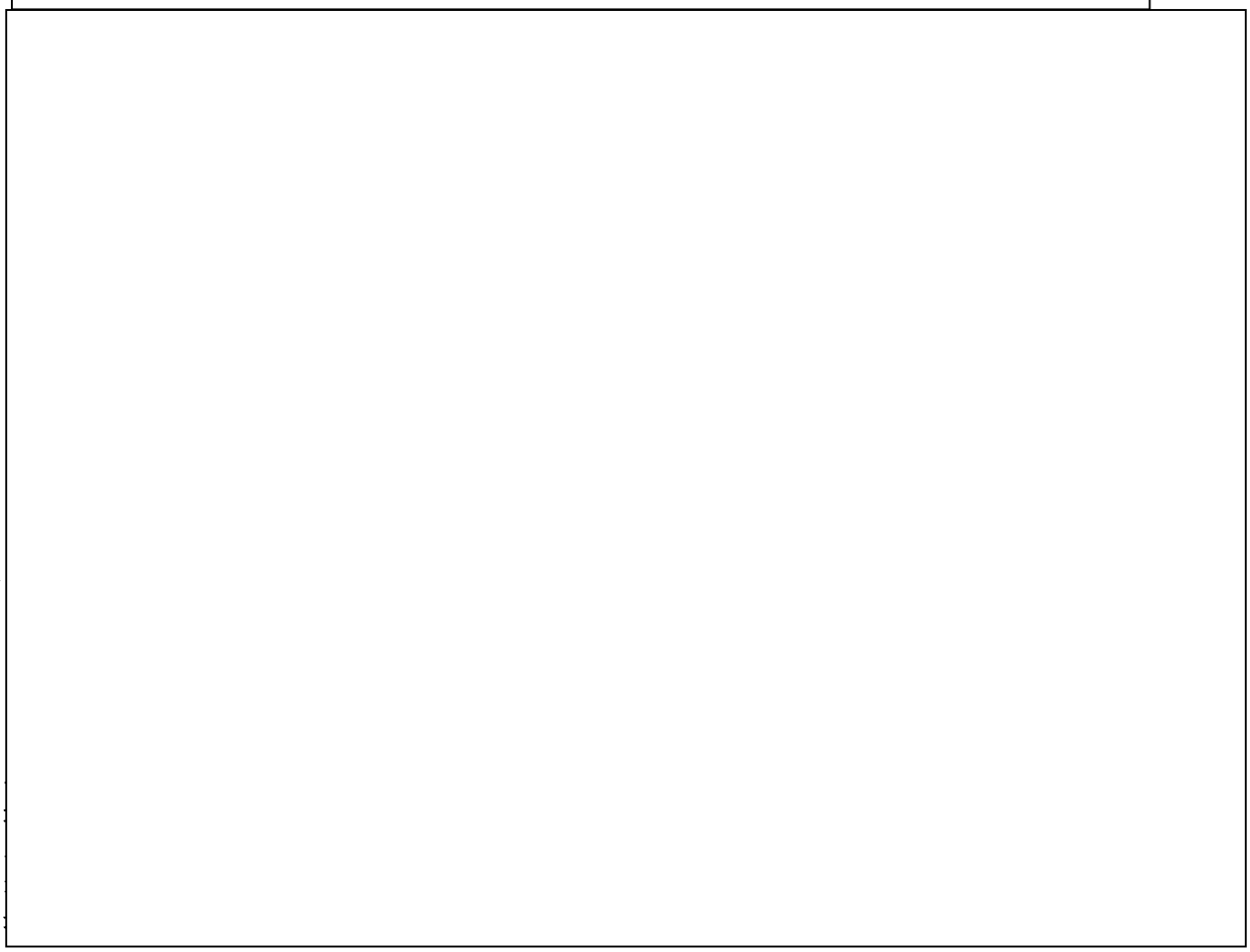
In the European USSR, all of the airfields with 9,800 feet runways in the 1st LRAA support Blinder regiments, as does one of the two airfields of this class in the 2nd LRAA. Before 1964, three of these five airfields had 8,200 feet runways, and in two cases there is a close correlation between the extension of the runways and the initial deployment of Blinder. The other base where the runway has been lengthened since 1964 has been used as a deployment airfield by Blinder aircraft, and it is possible that the Badger regiment stationed there is in the process of converting to Blinder. Only Badger units are stationed on the 12 airfields in the European USSR having 8,200-foot runways.

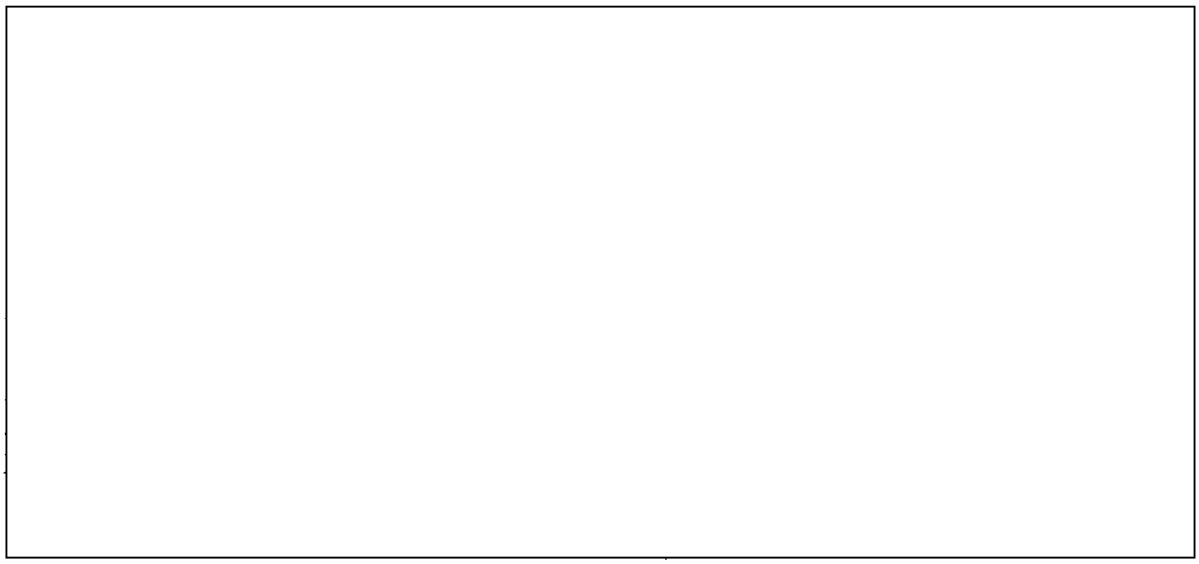
At present the only medium bomber base in Central Siberia has a runway of 8,200 feet and supports two Badger regiments. Until 1965 a Badger squadron also was based in this area, at an

airfield with a 9,800-foot runway. This unit has been deactivated, however, and LRA aircraft are no longer based at this field.

In the Soviet Far East, LRA medium bomber regiments are based at two airfields with 9,800-foot runways and at one base with a runway of more than 11,500 feet. The latter base is shared with the SNAF, as noted above, and the extension of the runway to its present length is clearly associated with the deployment of SNAF Bear. The two bases with runways of 9,800 feet each support one LRA Badger regiment. One of these bases was extended from its former length of 8,200 feet during the past year.

3. Operations and Training





4. Capabilities

The LRA medium bomber forces have a significant capability for operations against probable target areas in Eurasia, but only a very limited capability for operations against the United States.

LRA Badger and Blinder bombers on two-way unrefueled missions from home bases in European USSR could reach all major targets in the United Kingdom, Western Europe, North Africa, the Near East, and the Middle East. Badger bombers based in the Soviet Far East would be capable of two-way unrefueled missions against Japan, South Korea, Okinawa, and Formosa, and, with a single inflight refueling, could fly two-way missions against Guam, the Philippines, South Vietnam, and Thailand. Badger bombers from the Soviet Far East and Central Siberia also could operate throughout Communist China.

By deploying to Arctic bases or refueling, Badger bombers from European USSR could conduct two-way missions against Iceland, Greenland, and Northern Canada. It is believed that one or possibly two Badger regiments might be employed for such missions. It is

unlikely that the Blinder -- which has a shorter combat radius than the Badger, no aerial refueling capability, and no record of deployments to the Arctic -- would be used against these target areas. Badger bombers from the Soviet Far East could conduct two-way unrefueled missions against Alaska and Northwestern Canada, and, with inflight refueling, could reach the extreme northwestern corner of the continental United States from bases in the eastern Arctic. It is unlikely that more than one Badger regiment would be used in this area.

5. Major Developments

Events during the past year suggest that there has been a major change in Soviet programs for the modernization of LRA medium bomber forces, and it is unlikely that these forces will develop in the manner previously estimated. It had been expected that the Blinder would become the main strike aircraft over the next few years, with the Badger shifting to a support role. The Blinder program has developed slowly, however, and recent intelligence indicates that this aircraft may be phased out of production much sooner than anticipated. In addition, it appears that LRA may be preparing to equip a substantial portion of its Badger forces with an unidentified ASM. This could significantly improve the strike capability of LRA Badger aircraft, extending their useful life into the early 1970's. It is possible, therefore, that the USSR has decided to limit the deployment of the Blinder and to provide the Badger with an ASM delivery capability so as to maintain the striking power of their medium bomber forces.

a. Blinder Deployment

indicates that only some 25 Blinder have been delivered to LRA units during the past year -- about the same number introduced during each of the three preceding years. To some extent, this slow rate of deployment has reflected difficulties with the aircraft itself -- during 1964, for example, Blinder aircraft in operational units were grounded for about six months because of engine troubles. It is believed that another reason for the relatively slow pace of Blinder deployment probably was the lack of a suitable ASM.

There has been no evidence of ASM activity by operational Blinder units, however, and recent coverage of Blinder bases -- both LRA and SNAF -- did not reveal any indication of the construction of ASM facilities. It is unlikely, therefore, that deployment of a Blinder ASM system is imminent, The fact that only a few medium bomber bases have had their runways extended to the length associated with Blinder also suggests that further deployment of this aircraft will be limited.

b. Badger ASM Associations

suggest that LRA is preparing to equip a substantial portion of its Badger forces with an unidentified ASM system. Indications of such a program include the construction of possible ASM facilities at LRA Badger bases, the sighting of ASM-equipped Badger at LRA bases, and a new Badger modification program.

indicates that possible ASM storage/handling facilities are under construction at nine LRA Badger bases in European USSR. The construction of this type of facility that several sites probably are nearing completion. There is considerable variation in the arrangement of the facilities at the different bases, but each site obviously is intended for the same function. A typical site contains two large drive-through buildings and is located in a secured area near the aircraft parking aprons or hardstands. Each of the drive-through buildings is approximately 75 feet wide and 175 feet long, although one has four drive-through bays and the other only three. The four-bay building also has a two-story office-type building attached to one side, giving it a distinctive "T" shape. Roadways within the site link the drive-through buildings with a parking ramp and two large concrete pads. Access from the site of aircraft parking areas is provided by a single road,

The drive-through buildings appear to be suitable for the storage, assembly, and checkout of a medium-size ASM, and there is no other apparent function for a facility of this nature at a bomber base. Sites of this type have been seen only at LRA Badger bases, and the nine bases involved support 11 Badger regiments -- some 330 aircraft, or about one-half of the total LRA Badger force. These bases all have runways of 8,200 feet and are not considered as candidates for Blinder deployment.

The ASM's known to be carried by the Badger are the Kennel (AS-1) and the Kipper (AS-2). The Kennel has about the same cruising speed as the unidentified ASM, but a range of only 55 nautical miles. The Kipper has a range comparable to the unidentified ASM, but an average cruising speed of about 800 knots.

There have been several reports of ASM-equipped Badger at LRA bases. In March 1965 a Badger equipped with the Kennel missile was reported as operating from one of the bases of the LRA bomber training division, and in May 1965 there was a similar report of a Kennel-equipped Badger landing at another of the LRA medium bomber bases. Although both of these reports indicate that the missile was a Kennel, the sightings were made from a distance and the identification cannot be considered firm. Neither of these bases has one of the possible ASM facilities under construction.

of Kennel or Kennel-type missiles at yet another LRA Badger base. one Badger with a probable Kennel installed, one probable Kennel being towed along a taxiway, and two or three probable Kennel missiles One of the possible ASM facilities is under construction at this base, and the Badger with the probable Kennel was parked near this site.

6. Production Programs

Production of the Blinder is estimated to continue at Kazan' Airframe Plant No. 22. It is believed, however, that the Blinder will be phased out of production within the next year or so.

Recent intelligence indicates that the Classic (Il-62) four-jet passenger transport is entering production at Plant No. 22. It would be possible for the Blinder and the Classic to be produced simultaneously at Kazan', but this is considered unlikely. If, for example, the plant facilities were divided equally between the two programs it would be possible for production of the Blinder to continue at a rate of about four aircraft per month, but production of the Classic would be limited to little more than one aircraft per month. If the USSR intends to use the Classic extensively, as reports indicate, it is unlikely that such a low rate of production would be considered acceptable.

Between mid-1964 and mid-1966, only about 50 Blinder were delivered to the LRA and few, if any, to the SNAF. The current estimate that about 210 Blinder had been produced by mid-1966 is based on a peak rate of three aircraft per month. This is a slight reduction from earlier estimates based on a peak rate of four aircraft per month.

the relative numbers of Blinder bombers and ASM carriers produced, but suggests that the Blinder "B" ASM carriers are not being produced at any substantial rate. suggests that 11 of the Blinder at Kazan' were "A" models (bombers) and only four were probable "B" models (ASM carriers).

also indicates that Kazan' is engaged in a new Badger modification program. Through at least 1963, Plant No. 22 modified Badger bombers to the Badger "C" (Kipper ASM-carrier configuration) for the SNAF. More recently the plant is believed to have modified a small number of Badger for special missions, such as the Badger "D", a reconnaissance variant. These later programs involved relatively small numbers of aircraft.

a new Badger modification program has begun.

show 11 or 12 Badger located in the same area previously used for the modification of Badger bombers to Badger "C" ASM carriers.

7. Projected Forces

The current status of LRA medium bomber programs is uncertain. The following projections are based on the belief that Blinder will be phased out of production within the next year or so and that a number of Badger units are in the process of acquiring an ASM-delivery capability. Because of these factors, the composition of the projected forces is considerably different from previous estimates. Overall force levels, however, are similar to those previously estimated.

a. 1966-68

It is believed that the composition of LRA medium bomber forces will undergo major changes during this period. Further deployment of the Blinder probably will be limited, and the rate of delivery is unlikely to exceed the average of 25 aircraft per year achieved during the past three years. It is possible that some Blinder may eventually be equipped with the Kitchen ASM. There are no indications that the deployment of this system is imminent, however, and it is probable that most Blinder will be employed in the bomber/reconnaissance role.

The most significant development projected for this period is the modification of LRA Badger for the delivery of ASM's. [redacted] suggests a missile of the Kennel type, although it is possible that a completely new missile is involved. The rate at which it is estimated that this system will be deployed is relatively high, but is comparable to the rate at which modified Badger ASM carriers were introduced into the SNAF in 1960-61. It is possible that a few Badger ASM carriers already are assigned to LRA units, but it is unlikely that a significant operational capability exists at present. Estimated force levels through mid-1968 are given in Table 9. [redacted]

Table 9

Soviet LRA Medium Bomber Forces:
Number of Aircraft, by Model
Midyear 1966-68

Units

	Mid-1966	Mid-1967	Mid-1968
Badger			
Bomber	500 to 525	300 to 325	150 to 175
Tanker	125 to 150	125 to 150	125 to 150
ASM carrier		75 to 125	150 to 200
Total	625 to 675	500 to 600	425 to 525
Blinder	100 to 110	125 to 150	125 to 150
Total	725 to 785	625 to 750	550 to 675

b. 1969-76

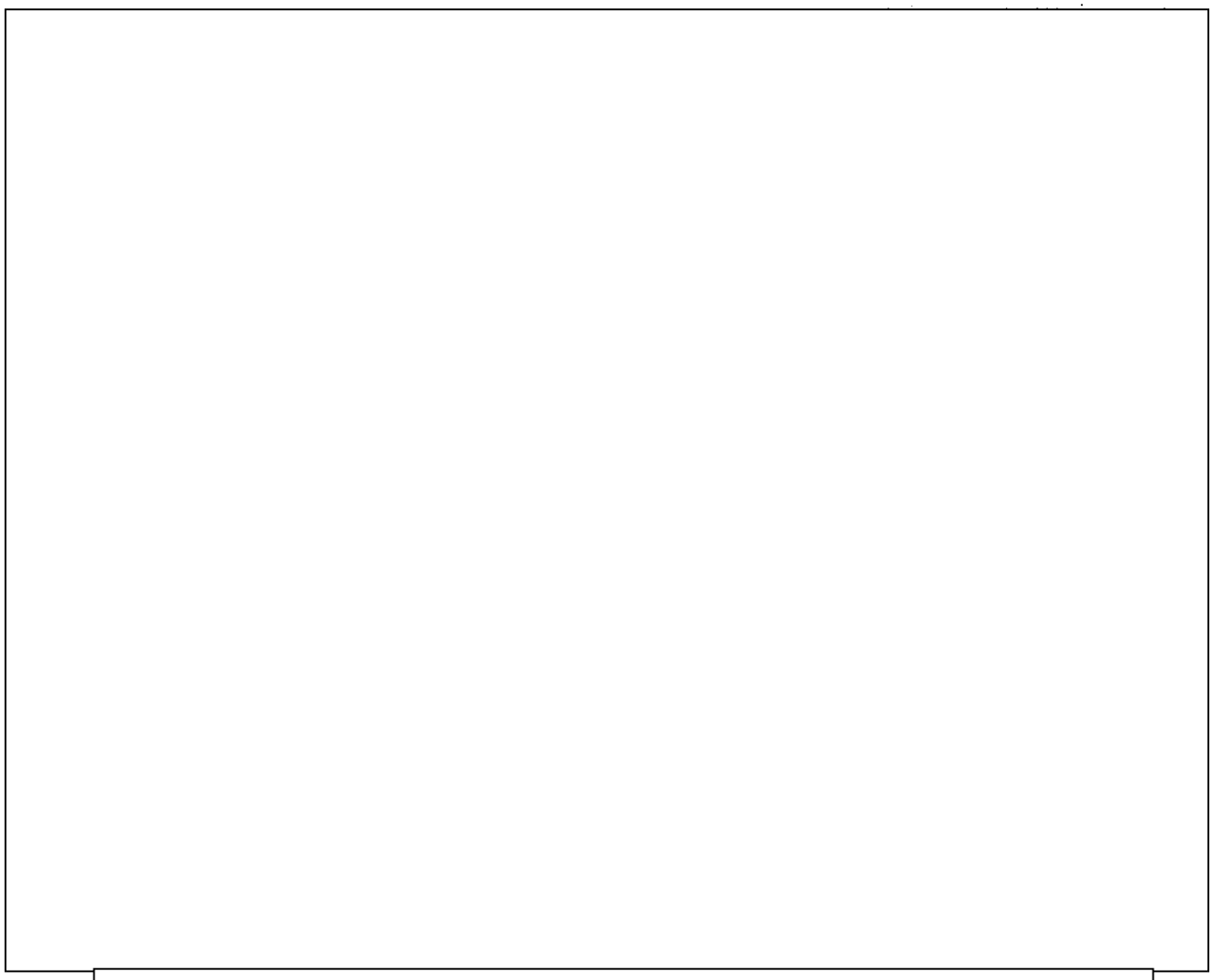
It is estimated that the principal change in the composition of the medium bomber forces during the first part of this period will be the phasing out of most Badger bombers and some of the Badger tankers. The number of Badger ASM carriers and of

Blinder probably will remain relatively stable at the mid-1968 levels, resulting in a total medium bomber force of some 400 aircraft in the early 1970's.

It is believed that the limited deployment of the Blinder will lead to the introduction of a new medium bomber in the 1972-73 period. By this time the phasing out of the Badger ASM carriers could be expected to begin, and the deployment of a new system would be necessary to maintain an acceptable force level. It is believed that the development of such an aircraft would be detected in the 1968-70 period, several years before it became operational. By the 1975-76 period, Blinder aircraft also would begin to phase out, resulting in a total force of some 350 aircraft -- about 100 new medium bombers, 100 Blinder, and some 150 Badger ASM carriers and tankers.

V. Military Space Systems

A. Trends



B. Military Support Systems

Soviet reaction to announcements that the United States is proceeding with the Manned Orbiting Laboratory (MOL) program indicates that the leadership is very much concerned with US military space developments and will act to maintain parity in this area. Much of the activity in the Voskhod program -- shirtsleeve environment and extravehicular activity -- has provided necessary background for developments in this directionn, and the development of the large Proton booster indicates a capability to place in orbit relatively large, man-rated capsules in the near future. Whether by their own initiative or in reaction to the MOL program, it is expected that the USSR will orbit manned vehicles capable of carrying out military missions over some extended period of time. Such missions might well include space reconnaissance, real-time damage assessment, surveillance of mobile weapons of various types, and inspection and destruction of artificial satellites as well as the general and myriad activities necessary to advancing space technology and exploitation. [redacted]

C. Space Weapons Systems

The official policy of the USSR on space, like that of the United States, is that space should be used exclusively for peaceful purposes and kept free of military weapons. For a number of years, however, Soviet officials, expressing deep concern over US military space activities, have asserted the willingness and ability of the USSR to use space for military purposes should the need arise. [redacted]

[redacted]

Aside from the parading of a "global rocket," the SCRAG, the most direct public statement of intent to produce space weapons was contained in the Soviet rejoinder to a US accusation that the possession of "orbital rockets" contradicted the spirit of the UN resolution against neclear weapons in space. The Soviet reply stated that the resolution did not ban development, production, and acceptance of such weapons as equipment of the armed forces. Although this statement ignored the issue of operational deployment, it did suggest the likelihood of Soviet interest in developing orbital weapons during the years to come. For the foreseeable future, however, it appears that offensive multiple orbital weapons will not compare favorably with ICBM's in terms of effectiveness, reaction time, targeting flexibility, vulnerability, average life, and positive control. In view of these factors, plus the far greater cost of such weapons, it is unlikely that the USSR will deploy an offensive multiple orbital weapon system within the next five to ten years, although it almost certainly will carry out expermintal test flights of space vehicles convertible to weapon systems. It is not definite that the TT-4 launches are not a step in this direction, although this is considered to be unlikely on the basis of available information.

On the other hand, the TT-4 may be either the long-touted Soviet "global rocket" -- a fractional-orbital weapon with ranges up to 16,000 or 18,000 nm -- or a suborbital system for precursor weapons of shorter range. Because of the accuracy limitation on a fractional-orbital system, it is believed that the weapon under development is more likely to be of the suborbital type. Lacking other evidence on the system to be deployed at the four new soft launchers at Plesetsk (Sites G and H), it would be prudent to plan on the possibility that the TT-4 system may be deployed there by mid-1967. The Plesetsk complex is the only close-range launch area that now appears to have a capability to launch the SS-9 vehicle. For this reason, it is estimated that any deployment of this system in the near future will be quite limited.

VI. Command and Control Systems

Command and control is an amorphous concept which embraces all the factors that affect the ways in which a national leadership copes with problems involving the use or potential use of military force. It includes, but is not identical with, the functional performance of the facilities -- the technical mechanisms and the organizational procedures which constitute the nervous system of a military organization. More than this, command and control includes the capabilities of the forces themselves, since the ways in which a leadership can respond to crises depend upon the means at its disposal. In brief, command and control refers to the potentialities for action which govern the management of military forces in war situations.

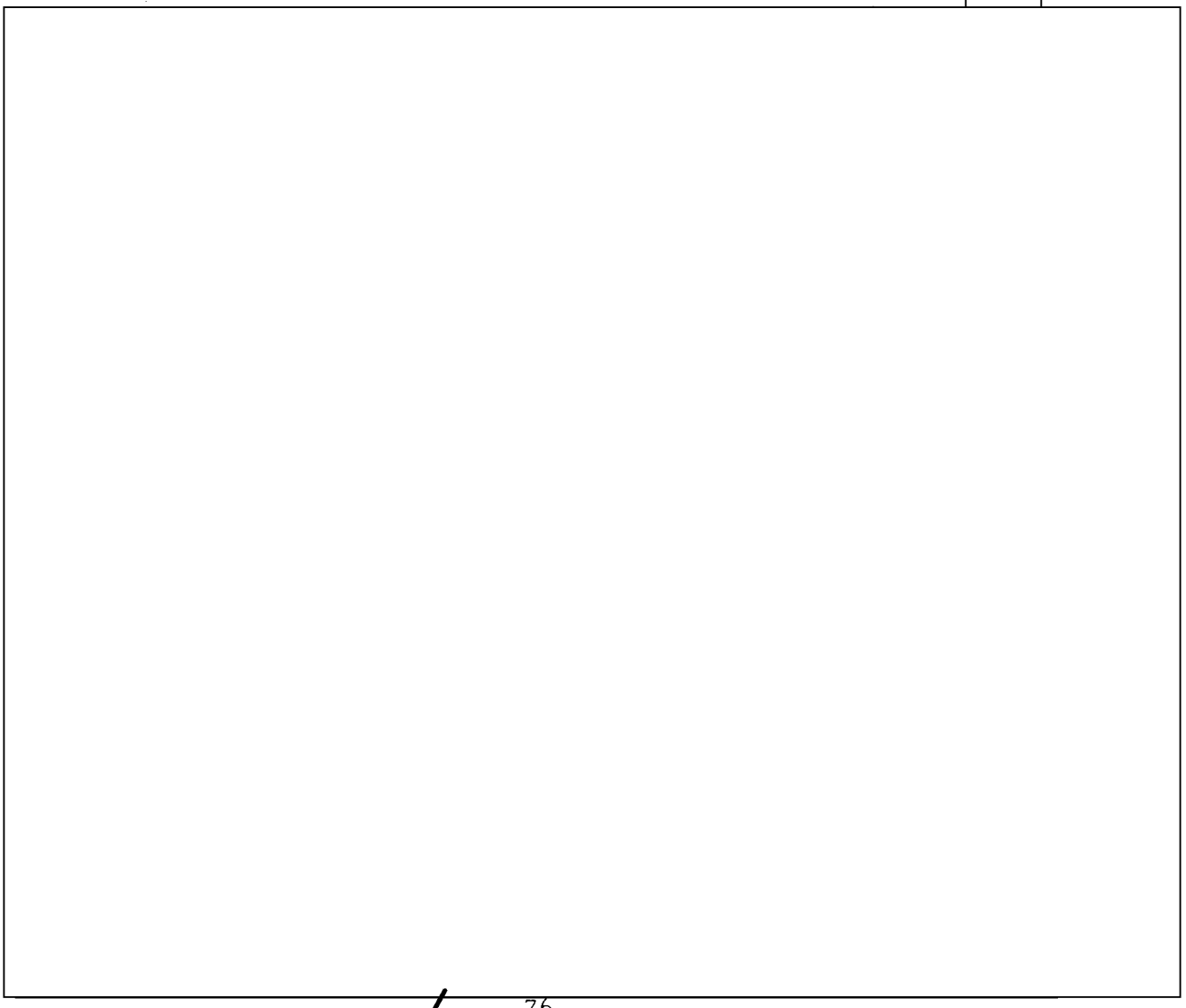
Soviet preparations for the contingency of war are still affected by the particular view of general nuclear war which prevailed in the Soviet military establishment during the early 1960's. Variously labeled in the West the "one-act war," "the short war," or the "nuclear spasm," this view held that the initial nuclear exchange would largely determine the outcome of war and that theater operations would be of secondary importance. Although this view has since been modified substantially, the Soviet Union has optimized its preparations for a general nuclear war in Europe at the expense of preparations for conflicts of lesser intensity.

The decisions regarding force structure and doctrine which were made under the influence of these views of the early 1960's affect the range of options available to the Soviet command and control system today. The technical apparatus of the Soviet command and control system and the capabilities of the Soviet leadership to cope with various wartime situations are analyzed in the following paragraphs.

A. The Technical Apparatus

General nuclear war would obviously introduce factors that a command and control system has never faced. Modern weapons are capable of placing all rear areas under attack from the outset of a war. The widespread destruction would be of unprecedented magnitude. Such disruption of the traditional sanctuaries could forestall mobilization, jeopardize central government control over the country, and

make civil defense an acute national problem. In contrast to situations of the past, where breakdowns of command channels have affected mainly field commands rather than central headquarters, nuclear war could bring about a complete collapse of the whole national command network. This prospect poses the most perplexing problem to confront the national leadership: how to maintain central control over a myriad of separately developing actions, any one of which might carry broad strategic implications, while adequately insuring the ability of field commanders to operate in conditions of temporary isolation from the center. At the heart of this politico-strategic problem is a technical one -- the question of the adequacy of the communications and data-handling capabilities to cope with the problems of nuclear war.



A critical factor affecting the adequacy of Soviet command and control capabilities is the extent to which the system is equipped with automatic data-handling facilities. We know that Soviet proficiency in the technology of automation is high, but there is reason to doubt that the military application of data processing has been developed as rapidly as might have been possible. It is clear, at least, that Soviet military spokesmen themselves are dissatisfied with the rate at which these advanced techniques are being assimilated by the forces. A recurrent complaint in the military press over the past year or two has been that commanders and staffs have been slow to take advantage of the possibilities afforded by the new computer techniques. In view of these complaints, we believe that the introduction of data-processing facilities in the Soviet armed forces has been proceeding unevenly, with priority undoubtedly assigned to the Air Defense and Strategic Rocket Forces.

In general, the limited evidence on the technical capabilities of the Soviet command and control system is consistent with what we would expect in the light of the general level of Soviet technical proficiency. The operational capabilities of the system, however, depend not only on technology but on the ways in which the Soviet leaders are prepared to use their forces. From this standpoint, certain weaknesses in the Soviet command and control system become apparent. Having predicated their preparations on the assumption that the next war would be nuclear, they may find themselves less than well prepared for other contingencies.

B. Operational Capabilities

The USSR has been improving its forces to maximize its chances for survival in a nuclear environment. Military leaders have placed increasing stress on mobility, dispersion, hardened facilities, and the pre-positioning of stocks and equipment, while insisting, at the same time, on the maintenance of high standards of combat readiness and an ability to react rapidly. Both the direct evidence available to us and our general knowledge of Soviet capabilities and planning concepts give reason to believe that the command and control procedures associated with these forces are tailored to the same requirements.

Moreover, we believe that command facilities are reliable and that alternate facilities are available in the event that

regular channels are disabled. Classified documents mention the use of preplanned instructions for force commanders -- a system calculated to insure the maximum economy of time in getting forces into action. In the event that hostilities were to commence according to the patterns foreseen in Soviet doctrine -- a full-scale nuclear exchange -- the subsequent control procedures would probably operate much in the way they have been planned. That is, they would be directed at assuring the Soviet Union the initiative in a nuclear exchange.

However, there are other possible scenarios for the beginning of a general nuclear war for which the USSR may be less well prepared. For example, a war might begin as a conventional conflict and then only much later, or unevenly, escalate to the nuclear stage. In such circumstances, extremely complex problems of war management might arise. Theater forces would have to be set new tasks in accordance with the changed situation. War plans would have to be adjusted to take account of the gains and losses registered in the conventional phase; IR/MRBM forces might have to be retargeted depending on the results of prior ground operations; planned employment of tactical aircraft for nuclear strikes might have to be discarded because of losses in conventional operations. Such contingencies as these would obviously impose extraordinary burdens on Soviet data-processing and data-dissemination capabilities.

The USSR also appears to be poorly prepared to deal with the problem of tactical nuclear war. Tactical nuclear weapons can be delivered by the artillery rockets and tactical aircraft of the Soviet theater forces. Judging by statements made by Soviet officers in the classified doctrinal debates of the early 1960's, authority over the targeting of weapons and the timing of strikes would devolve on field commanders once the order to employ nuclear weapons is issued. This appears to involve a degree of decentralization of command over the use of nuclear weapons that is not paralleled in US practice. The implications of these procedures for close political control in an escalating situation are apparent.

the confidence of the national leadership in its ability to exert discrete gradations of military pressure must be very low in circumstances where the command options are simply either to commit or to withhold nuclear weapons.

Large-scale conventional war would also face Soviet command and control with problems which it might find difficult to handle. The Soviet theater forces which exist today were structured in the early 1960's under the influence of Khrushchev's view that the next war would be short and would involve mainly strategic nuclear weapons. The theater forces were motorized and reorganized to improve their mobility and their capabilities for independent action in a nuclear environment. Integral supporting elements were minimized, and the required stocks and materials for a rapid advance against light opposition were pre-positioned. The role of reserves from the western military districts of the USSR was greatly reduced. These changes were accompanied by a revamping of the Warsaw Pact command arrangements so that Eastern European forces were more closely integrated into Soviet operations and -- with the reduced emphasis on Soviet reserves -- bore greater responsibility for the discharge of their own specific tasks. To prepare them better for this new partnership, Eastern European forces were reequipped and reorganized.

The principal effect of these structural changes was to greatly increase the speed and maneuverability of Soviet theater forces. While these qualities were intended mainly to improve the capabilities of the theater forces to operate in a nuclear environment, they contributed also to Soviet conventional warfare capabilities -- particularly for conflicts which might develop rapidly, and quickly assume a highly dynamic character. For more sustained action, however, Soviet conventional warfare capabilities were reduced by the structural changes of the early 1960's. A principal reason for this is that many of the support elements that would be needed for protracted theater force operations were removed in the interests of streamlining the forces for rapid advance with nuclear support. Moreover, many of the support elements that were retained have been kept at reduced strength.

Soviet capabilities to cope with the problems of conventional warfare, consequently, would probably vary greatly depending on the magnitude and nature of the conflict. If the conflict were relatively limited -- as, for example, a field army operation -- Soviet capabilities would probably be excellent. If the conflict were to become more widespread and protracted, relative Soviet capabilities would diminish.

Finally, Soviet capabilities to manage crisis situations or to engage in strategic maneuvering with the West are also limited. Lacking the depth and variety of strategic capabilities available to the United States, the Soviet Union is correspondingly lacking in the range of policy options which these capabilities afford. The negative reaction which the Soviet Union has thus far displayed toward efforts to invite a dialogue on the concepts of nuclear restraint and selective targeting is one notable symptom of this limitation.

C. Prospects

Many of the potential weaknesses in the Soviet command and control system noted above may be corrected as Soviet forces acquire new capabilities and as Soviet doctrine adjusts to take account of the possibilities inherent in these improvements. It is possible, for example, that the increasing strength of the Soviet ICBM force could give the Soviet leadership greater confidence in the efficacy of their deterrent and lead them to consider a wider array of strategic responses in the event of a conflict with the United States.

The USSR has given increasing evidence of an awareness that capabilities for conventional warfare could play an important role in its confrontation with the United States in the future. Soviet military leaders have indicated in their doctrinal writings and in private conversations that they no longer categorically reject the possibility of non-nuclear warfare in Europe. Moreover, they have taken practical measures to improve their capabilities to meet this

kind of contingency. A number of exercises over the past two years have appeared to be based on the assumption that military operations could take place in Europe without immediate, automatic escalation to nuclear war. Over the next five years, we expect to see a gradual improvement in Soviet capabilities to deal with limited war situations, and a consequent broadening of the options available to the Soviet command and control system.

Increasing evidence has accumulated over the past year, as discussed in section I, above, that the problems of Soviet strategy -- including the limitations on command and control options imposed by the existing force structure and doctrinal concepts -- are being given a new and extensive scrutiny by Soviet military thinkers. It is already apparent from the published writings that have emerged from this scrutiny that the major issue that is being posed is whether the USSR can successfully extricate itself from the "all or nothing" dilemma imposed by Khrushchev's view of the nature of a future nuclear war. The message conveyed by these writings is that there is a way out, that nuclear war need not be thought of as a mere prelude to disaster, that it can be contemplated as an instrument of policy, and that it is susceptible to rational control. How these military thinkers propose to translate these assertions into practical measures is not yet apparent. But it is clear that there is new movement in Soviet military thinking, and that the objective of this military thinking is to broaden the options that are now available to the Soviet policymaker in confronting the issue of war.