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CENTRAL INTELLIGENCE AGENCY

BOARD OF NATIONAL ESTIMATES

24 July 1953

MEMORANDUM FOR THE EXECUTIVE SECRETARY, NATIONAL SECURITY COUNCIL

SUBJECT: SE-36/1: Soviet Capabilities for Attack on the US through Mid-1955

1. The attached text has been approved by the Intelligence Advisory Committee, except for paragraph 9 which is under urgent reconsideration.

2. The present text is identical with that of SE-36 (published 5 March 1953), except as follows:

a. Paragraphs 8 and 9 have been extensively revised to bring the discussion up to date and a new para. 13 has been added for the same purpose.

b. The last half of para. 21 is new, obviating the footnote in SE-36.

c. Paras. 28-33 and 42 are extensive revisions of the corresponding passages of SE-36, for clarification.

d. Consonant verbal changes occur in paras. 1, 3, 16, and 40 b.

[redacted]
Executive Secretary

cc: DCI
D/DCI
DD/I

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S P E C I A L E S T I M A T E

SOVIET CAPABILITIES FOR ATTACK ON THE US THROUGH MID-1955

Advance Copy for the NSC

SE-36/1

C E N T R A L I N T E L L I G E N C E A G E N C Y

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C E N T R A L I N T E L L I G E N C E A G E N C Y

14 July 1953

SUBJECT: SE-36/1: SOVIET CAPABILITIES FOR ATTACK ON THE US THROUGH MID-1955

THE PROBLEM

To estimate the capabilities of the USSR to attack the continental US by open or clandestine means, through mid-1955.

SCOPE

This estimate is concerned solely with Soviet gross capabilities for attack on the continental US during the period mid-1953 to mid-1955. It does not attempt to assess whether the USSR intends to attack the US during that period or what courses of action the USSR would adopt before, along with, or after such an attack. Furthermore, the paper estimates Soviet gross capabilities for attack on the US without reference to any commitments of military forces which the USSR might make elsewhere and without reference to any advantages which the USSR might gain for an attack on the US by previously occupying territory that is not now within the Soviet Bloc.

PART I

SOVIET GROSS CAPABILITIES

SOVIET MASS DESTRUCTION WEAPONS

Atomic Weapons

1. General: The Soviet atomic energy program has been given and almost certainly during the period of this estimate will continue to receive, one of the highest priorities in the allocation of resources available to the USSR. The emphasis of the program continues to be on weapon development with the objective of furthering their atomic weapon capability and thereby reducing the relative advantage which the US has in atomic weapons development, production, or stockpiles. The USSR has made substantial progress toward this objective. The development of new sites indicates that its atomic energy program is continuing to expand. By mid-1952 the USSR had established a substantial plutonium production capacity, and a major increase in plutonium production probably became effective during the latter part of 1952. The USSR has achieved the production of weapon grade uranium-235. Uranium reserves available to the USSR appear to be sufficient

to support a large program, but the rate of exploitation of these reserves will depend on the balance decided upon between atomic energy and other Soviet activities. In fission weapons the USSR has reached the point in technology at which the types of weapons can be dictated by military requirements rather than by technical limitations.

2. Atomic Weapons Stockpiles: While estimates of Soviet plutonium production during the period up to mid-1955 are considered reasonably firm, a relatively large uncertainty exists with respect to installed or planned uranium-235 production capacity. Furthermore, other than some evidence of the composition and efficiencies of the three bombs tested by the USSR, there is no specific information concerning the characteristics of weapons presently stockpiled or likely to be stockpiled. In converting fissionable material stockpiles to weapons stockpiles it has been assumed that both composite (i.e., containing U-235 and plutonium) and all-plutonium weapons will be fabricated. On this basis, the estimate of the cumulative Soviet atomic weapon stockpile for the period mid-1953 through mid-1955 is as follows:

Date	Number of Bombs (30-100 KT)
Mid-1953	120
Mid-1954	200
Mid-1955	300

3. Variations and Uncertainty in Stockpile Estimates: In view of the uncertainty in the evidence concerning the production of fissionable material, the stockpile for future dates may be as low as one-third less than the figure given (i.e., 200 for mid-1955), or as high as twice that figure (i.e., 600 for mid-1955). It also should be noted that by changing weapon components it is possible to increase or decrease the number of weapons in the stockpile substantially. Such changes would, however, alter the kilotonnage yield according to the quantities of fissionable material used in the individual weapons. It is estimated that the USSR is probably capable of producing fission weapons yielding 200-500 kilotons, but in so doing would reduce the number of weapons in stockpile. On the other hand, the USSR could also make smaller yield weapons (as low as 5-KT) than those used in calculating the stockpile estimates given above.

Thermonuclear Weapons

4. It is believed that the USSR has not conducted thermonuclear tests, and consequently is not stockpiling

this type of weapon. Research which may be relevant has been noted, but there is no evidence of development activity at the present time. There is no direct evidence on which to base an estimate of the lead the US may have in this field; nevertheless, there is a growing Soviet capability for quantity production of thermonuclear materials, and therefore more advanced research and development, and even field testing by mid-1954, are possible. It would be unsafe to assume that the USSR will not have a workable thermonuclear weapon by mid-1955.

Radiological Weapons

5. It is most unlikely, for technological reasons, that the USSR will have the capability to produce militarily significant quantities of radiological warfare agents during the period of this estimate. However, the USSR will have available small quantities of gross or separated fission products which might be employed as RW agents.

Biological Warfare

6. The USSR has extensive knowledge of botulism, plague, tularemia, brucellosis, various quick-acting

intestinal diseases, and some virus diseases. No information is available regarding the production or the stockpiling of BW agents. The USSR could probably mass-produce such agents if it so desired.

Chemical Warfare

7. The USSR can probably engage in chemical warfare on a large scale. We assume that the stockpile of standard agents and munitions accumulated during World War II has been maintained and will be available for use during the period of this estimate. In addition to these standard agents, the USSR may have been producing at least one of the nerve gases since 1949 and may have developed one other nerve gas through the pilot plant stage. By mid-1955, stocks of nerve gases may be available for limited operational employment.

DELIVERY OF CONVENTIONAL AND MASS DESTRUCTION WEAPONS BY AIRCRAFT

8. Present Strength of Long Range Aviation: Long Range Aviation, consisting essentially of three Air Armies, one in the Far East and two in the western USSR, constitutes the strategic striking force of the USSR. The TU-4, which was copied from the American B-29, is the only Soviet bomber, known to be in operational

use, capable of carrying atomic weapons to distant targets. As of 1 July 1953 a total of about 1,050 TU-4's was estimated to be available for operational use. (Table of Equipment strength of Soviet air regiments known to be equipped with or in process of being equipped with TU-4 aircraft totals 1,220 aircraft, but the TU-4 regiments are currently estimated to be at only 85 percent of T/E strength.) As of 1 July 1953 approximately 180 TU-4's (seven regiments with an aggregate T/E strength of 220) were located in the Far East). It is believed that deliveries of TU-4's to the Far East are continuing.

9. Future Strength and Composition of Long-Range Aviation: The future strength and composition of the Soviet long-range bomber force is difficult to estimate. We have very little information on Soviet development work on new types of medium or heavy bombers. There is strong evidence of the development of a German-designed jet medium bomber, and a prototype of such an aircraft may have been flown. A prototype heavy bomber has been observed and was probably powered by piston engines. It may ultimately be powered by turbo-jet engines.

This type of aircraft is not known to be in series production. A recently reported sighting of several of these aircraft is not yet fully confirmed. This sighting, if fully confirmed, would indicate that at least pre-series (i.e., experimental) production has begun. It seems safe to assume that the USSR is planning to replace the TU-4 piston medium bomber with aircraft of higher performance characteristics. The following table of the estimated actual strength and composition of the Soviet long-range bomber force through 1955 is based, therefore, on the assumption that the USSR has begun production of a heavy bomber and that it will initiate production of a jet medium bomber during the period of this estimate.

ESTIMATED ACTUAL STRENGTH#

	Mid-1953	Mid-1954	Mid-1955
Medium Bomber			
Jet	Prototype	Prototype	50
Piston	1,050	1,220	1,100
Heavy Bomber	Few	30	150
Total	1,050	1,250	1,300

See footnote on next page (8a).

*SE-36, dated 3 March 1953, presented the following tabulated estimate of Soviet bomber strength:

ESTIMATED ACTUAL STRENGTH

	Mid-1953	Mid-1954	Mid-1955
Medium Bomber			
Jet	Possible Prototype	10/20	120
Piston	1,000	1,250	1,100
Heavy Bomber	Few	40/80	180
Total	1,000	1,300-1,350	1,400

The Deputy Director for Intelligence, The Joint Staff, considers that the intelligence developed since 3 March 1953, warrants no decrease in the estimate of Soviet medium jet bomber or heavy bomber strengths but, on the contrary, suggests that these programs may be further advanced than is contemplated in the 3 March estimate.

10. TU-4 Aircraft Characteristics: The TU-4, under normal operating conditions, is estimated to have a combat radius of 1,700 nautical miles and a combat range of 3,100 nautical miles with a 10,000 pound bomb load. Under cruise control conditions necessary to reach distant target areas, its speed would be approximately 175 knots at an altitude of about 10,000 feet. However, it is capable of attaining a maximum speed of 347 knots at about 32,500 feet for short intervals. Although there is no intelligence to indicate that it has done so, the USSR is considered capable of modifying the TU-4 to increase its range in the same manner that the American B-29A was stripped to produce the B-29B. This modification involves removal of defensive armament, except for the tail turret, and increase in the fuel capacity, with a net weight reduction of 2,600 pounds in take-off weight. So modified, a TU-4 would have markedly reduced defensive capabilities against interceptor attack, but its combat radius would be increased to 2,150 nautical miles and its combat range to 4,000 miles carrying a 10,000 pound bomb load.

11. With moderate technical advances, it is possible that by mid-1955 the USSR may be able to improve performance characteristics of the TU-4 to

some degree, but there is no current evidence of Soviet development or production of the more powerful piston engines which would be essential to major improvement. We consider it more likely that the USSR would devote its efforts to developing an aerial refueling capability for TU-4's and to the creation of a heavy bomber force.

12. No intelligence is available concerning Soviet inflight refueling capabilities. However, inflight refueling techniques do not impose serious technical problems, and the USSR has had access to the techniques and equipment employed by the US in this field. With one refueling of a stripped-down TU-4, its combat radius could be increased from 2,150 nautical miles to approximately 3,000 nautical miles, and its range to 5,600 nautical miles.

13. Future Jet Medium Bomber Characteristics: It is estimated that a jet medium bomber based on a presently known project could appear in operational use some time in 1955. Such a bomber would have improved altitude and speed characteristics. It is estimated that it would have a combat radius of 1,500 and combat range of 2,900 nautical miles carrying a

4,400 pound bomb load. A Soviet jet medium bomber having these characteristics could reach targets in the United States only on a one-way mission from the Chukotski base area. On such a mission it could reach targets located north of an arc roughly passing through Los Angeles, Denver, and Minneapolis.

14. Future Heavy Bomber Characteristics: The prototype heavy bomber, assuming it is put in series production and equipped with a turboprop power plant, could have a combat radius of 3,420 nautical miles and a combat range of 6,600 nautical miles with a bomb load of 10,000 pounds. By mid-1955 technical modifications and improvements on such a heavy bomber might permit a combat radius of 3,700 nautical miles and a combat range of 7,000 nautical miles with a bomb load of 10,000 pounds.

15. Base Areas for Direct Air Attack on the United States: Three base areas, the Chukotski Peninsula in Northeast Siberia, the Kola Peninsula in Northwest USSR and Soviet and Soviet-controlled territory along the Baltic and in Eastern Germany, are the closest to the United States. From any of these base areas the stripped-down TU-4 on a one-way

mission with one inflight refueling could reach any target in the United States. TU-4's employed in this manner, having the 5,600 nautical mile range, could also operate from bases in the interior of the Soviet Union for strikes against the US.

16. Of the three base areas mentioned, the Chukotski Peninsula is nearest to the United States. The standard TU-4 (with no inflight refueling) on a two-way mission could not reach the United States. On a one-way mission it could reach targets within an arc drawn from San Diego to Lake Superior. The stripped-down TU-4 on a two-way mission could reach Seattle without inflight refueling. With outbound inflight refueling on a two-way mission, this type of aircraft could reach targets within an arc San Diego-Lake Superior. A one-way mission, without inflight refueling, would permit the stripped-down TU-4 to reach targets in all parts of the United States except Florida from the Chukotski base area. Soviet heavy bombers, when produced, could operate from Northeast Siberia on a two-way basis with one refueling against targets anywhere in the United States, and even without refueling,

against targets located north and west of an arc drawn generally from central Texas through central New York.

17. Logistics problems are difficult in the Chukotski Peninsula, but these could be minimized by advance stockpiling and use of the area for staging bases only. Bombers attacking the United States from Northeast Siberia would have favorable tail winds most of the year. There are now no known first-class airfields which could be used for sustained operations, and airfield information is not sufficient to enable positive identification of any specific installation as a launching site or staging base for medium bombers. Markovo (65-41N 179-15W) and Anadyr/Mys Wizmenny (64-48N 177-33E) could possibly support staging operations by TU-4's, at least during nine months of the year, if adequate advance preparations took place. Other similar possibilities are Velkal, Tamyurer, Magadan, and Petropavlovsk. It is possible that new airfields have been built without detection. The USSR has emphasized use of frozen surfaces in the Arctic, which makes possible the wintertime use of airfields with a minimum of preparatory effort.

18. TU-4 aircraft sorties from the Kola Peninsula and Baltic-East German areas could not reach the United States and return to their bases, even with one outbound refueling. The principal TU-4

threat to the United States from these base areas would stem from one-way missions flown by stripped-down aircraft possessing a combat range of 4,000 nautical miles. From the Murmansk area, such a range would permit Soviet bombers to reach targets roughly north and east of a line from Charleston, South Carolina, to southern Oregon. From the Baltic area, such a range would enable TU-4's to attack targets north and east of a line drawn generally from Charleston, South Carolina, through Montana. All of the northeastern industrial centers of the United States could be reached from either area. The estimated characteristics of heavy bombers should enable them to reach the New York-New England area on two-way missions from either the Kola Peninsula or the Baltic area. With one outbound refueling they could attack any target in the industrial northeast and return to home base.

19. There are now no known airfields in the Kola Peninsula area capable of launching TU-4 sorties. However, Alakurtti, at the base of the peninsula, and Murmansk-Vayenga, nine and a half miles northeast of Murmansk, could readily be adapted to accommodate TU-4's. Eight other airfields in 1945 offered runways or take-off areas 4,500 feet or more in length. It is possible that some or all of these bases could have been improved to accommodate medium bombers.

As elsewhere in the Soviet Arctic, virtually all of these airfields are extensible and all will bear the weight of TU-4's during the six or more months of the year the ground is frozen. During the spring thaws and summer months, permanent all-weather runways of suitable length would be necessary. Both Alakurtti and Murmansk-Vayenga are favorably situated logistically, and great circle routes from this area would avoid initial overflight of nations friendly to the United States. The Baltic-East German area has adequate bases to support large numbers of medium bombers. These bases are favorably situated with respect to communications and weather and are adequately served by existing transportation facilities. A major disadvantage is that great circle routes to the United States pass over portions of Western Europe or Scandinavia, and any attempted air strike might be detected early enough to provide warning.

20. Crew Proficiency: Achievement of a high-level of combat effectiveness has been retarded by lack of combat experience and by restrictions upon flying. Intensive training has been underway for five years, but there is no evidence of extensive training in long-distance flying and navagation. It is probable, however, that by mid-1955 some of these deficiencies will be removed. It is also probable that even now a limited number of crews has been given sufficient training to undertake an attack against the US.

21. Targeting and Bombing Accuracy: The USSR is able to obtain the data necessary for identification of most targets in the US under visual and blind-bombing conditions. The USSR possesses optical bombsights equivalent to US World War II-type models. Soviet aviators could therefore be expected to execute satisfactory bomb placement under visual conditions. The USSR has produced, and is equipping its TU-4 and IL-28 (light jet) bombers with blind-bombing and navigation type radars of the US AN/APS-15 and AN/APQ-13 variety. It is estimated that a sufficient quantity of this equipment is available for use in aircraft employed in attacks on the continental US. The inherent error of the Soviet TU-4 blind-bombing system itself (the radar and bombing equipment alone) is estimated to be 50 feet per 1,000 feet of altitude against an easily defined point target. There is no information available on the ballistic characteristics of Soviet atomic weapons, but it is considered that the inherent ballistic error might range from 3 feet to 25 feet per 1,000 feet of altitude. The base error (the combined errors inherent in the bombing system and the bomb) might thus range from 50 to 75 feet per 1,000 feet of altitude. We have insufficient evidence to estimate with confidence the degree of accuracy which Soviet crews might actually achieve. On a highly tentative basis, we estimate that the median of all aiming errors would be about 4,000 feet when easy radar targets are bombed from

altitudes of 25,000 feet or above. On an equally tentative basis, we estimate that the median of all aiming errors, when bombing difficult targets from an altitude of 25,000 feet or above, might be about 7,000 feet.

22. Availability, Abort Rate, Replacement Factor: From a variety of circumstantial evidence, including US experience, it is estimated that the USSR could have about 90 percent of its TU-4 strength operationally available for an initial, deliberately-prepared surprise attack. However, the number actually sortied would depend upon a multiplicity of other factors. The abort rate on those staged against US targets is estimated at 20-25 percent without consideration for interception and poor navigation, and with variations in either direction according to season, weather, extent of preparation, and other factors. In view of the fact that most US target areas could be reached only by one-way aerially-refueled missions, the attrition rate would be extremely high. No appreciable reserves of TU-4's are believed available. (The same would apply to any new types of aircraft introduced during this period). At present, TU-4 production is estimated at about 30 planes per month, a figure which could probably be increased slightly in the short run.

23. Weather: The USSR has consistently devoted considerable emphasis to both short and long period meteorological forecasting. Special techniques for upper air research and improved synoptic methods are being developed for use in weather forecasting for periods longer than one month, although we cannot estimate the degree of success which will be achieved during the period of this estimate. By 1955 it is believed that the USSR will have achieved a short period prediction capability in at least the European USSR of 85 percent reliability as compared with the present reliability of 60 precent. This prediction capability plus extensive experience in meteorological research in the extreme northern latitudes, good weather reporting facilities in Siberia, availability of records of weather conditions which have prevailed throughout North America for many years, and constant access to current North American weather conditions and forecasts should enable the USSR to predict both route and target weather with reasonable accuracy.

24. Electronic Countermeasures: The USSR has had access to a wide variety of US defensive radar and to US jamming equipment. The USSR is apparently well aware of the tactical advantage to be gained by jamming defensive radar and other communications. We estimate that today the USSR can seriously disrupt long-range

radio communications between the continental US and its overseas facilities. We further believe that the USSR will increase the effectiveness of its jamming equipment as well as the proficiency and number of its trained personnel throughout the period of this estimate. It is believed probable that the USSR has produced sufficient electronic countermeasures devices to equip some TU-4 aircraft. It is not known whether Soviet TU-4's have in fact been equipped with such jamming equipment, or what would be the effectiveness of those devices against US defensive radar. Use of effective jamming equipment might require the employment of extra aircraft equipped specially for this purpose.

DELIVERY OF CONVENTIONAL AND MASS DESTRUCTION WEAPONS BY OTHER MEANS

Guided Missiles

25. General: There is no positive information that the USSR now has any guided missiles in an operational status. It is known that the USSR has been conducting an intensive research and development program. The V-1 and V-2 type weapons, which were used operationally by the Germans during World War II, are estimated to be the only missiles presently available. These types probably have been improved, and may be available in limited numbers. Neither is known to be in series production.

26. V-1 Characteristics: The USSR has continued development on the V-1 missile. A single pulse-jet version could carry a 2,000 pound warhead to a range of 210 nautical miles at a speed of 370 knots. A twin pulse-jet version has been developed which could carry a warhead up to 4,500 pounds for shorter distances. Launching an improved V-1 from a submarine is considered currently feasible and within Soviet capabilities. However, to date, no launching equipment, stowage facilities, or missiles have actually been sighted on Soviet submarines. While a few intelligence reports are available indicating that the USSR has launched guided missiles from submarines, these reports are of low or undetermined reliability and have not been confirmed. It is conceivable that the V-1 type could be fitted with an atomic warhead, although there is no indication that the USSR has either developed such a warhead type or incorporated it in a guided missile. It is estimated that the USSR would not attempt to improve this missile type in regard to range or speed, but would accent the factors of reliability, load-carrying characteristcs, accuracy, and the techniques of rapid preparation and firing from the launching craft.

27. V-2: The USSR has carried forward the development of the German V-2 type ballistic missile; however, this missile could not produce a threat against the continental US during the period of this estimate.

CLANDESTINE DELIVERY

28. Atomic Weapons: The USSR is capable of producing atomic weapons which could be smuggled into the US either as complete assemblies or as component parts or subassemblies. The assembled devices could range from small-yield weapons (5KT or less) weighing a few hundred pounds to larger-yield weapons (possibly up to 500 KT) weighing several thousand pounds. Their size could range from that of a package small enough to fit into the luggage compartment of an automobile to that of a packing case large enough to contain an automobile.

29. All of these weapons could be designed to break down into a number of relatively simple and readily transportable components. Those designed to give a relatively low kilotonnage yield would not require much labor or technical training to assemble. Somewhat more labor and training would be required to assemble weapons designed to give high yields, and, once assembled, they would be more difficult to transport.

30. It is conceivable that only the fissionable material, in small pieces, need be smuggled into the US, since other components

could be fabricated or procured in this country. This scheme, however, would require careful advance planning and coordination by supervisory personnel with engineering skill and familiarity with the US sources of needed components, and would take a longer time to carry out. It would probably result in a reduced yield for a given amount of fissionable material. It would incur a substantially greater security risk than the clandestine introduction of all components.

31. A variety of forms of clandestine delivery suggest themselves. Assembled weapons could be dropped by apparently friendly aircraft, could be detonated in the hold of a merchant ship, or could be sown as underwater mines. Either components or assembled weapons could be brought in under diplomatic immunity, smuggled across land or sea frontiers, introduced through normal import channels, or brought in as bonded merchandize awaiting transshipment. The selection of the method of introduction and of transport and assembly within the US would depend on the Soviet objective and the risk of detection which the USSR was willing to accept.

32. Considering the known limitations of the means of physical detection, it is probable that the USSR could introduce into the US and detonate in place a considerable number of atomic weapons by clandestine means. However the USSR would have to take into account not only the estimated chances of detection, but also the consequences of possible detection in forfeiting the element of surprise in any intended overt attack and in provoking US counteraction. As the number of weapons clandestinely introduced was increased the risk of compromise would increase. This increased risk would be less a function of US capabilities for physical detection than of the scope and complexity of the clandestine operations, particularly insofar as larger numbers of Soviet agents became involved. Considering the consequences of a breach of security, the USSR would probably be unwilling to risk the use of even selected and trained agents in such numbers as would be involved in a clandestine attack on a scale comparable to that which might be delivered overtly by aircraft. We conclude, therefore, that, although clandestine attack with atomic weapons might occur against specially selected targets as a supplement to overt delivery by air, such an attack, on a scale comparable to that which might be delivered overtly by air, would probably be precluded by security considerations.

33. We have no evidence to indicate whether or not the USSR has actually made any plans or preparations for the clandestine delivery of atomic weapons.

34. Biological Weapons: Some BW agents are peculiarly adaptable to clandestine introduction. The introduction of small amounts of BW agents would be difficult to detect or identify as to source, but Soviet operatives would be required for their dissemination. A large number of people would be required for extensive dissemination of BW agents, and Soviet security considerations would be a limiting factor in the scale and timing of such an attack.

35. Chemical Weapons: CW agents are not easily adaptable to clandestine use. In addition to the limitations noted above as applicable to BW attack, CW agents are easily identifiable by their immediate effects and it probably would not be feasible to build up sufficient supplies or to procure the means clandestinely for their dissemination against large population centers. The most practicable use would be against personnel in key installations, but even this would be difficult. We have no evidence to indicate whether or not the USSR is developing the means for the clandestine delivery of chemical weapons.

ATTACK ON THE US WITH CONVENTIONAL NAVAL AND AIRBORNE FORCES

Conventional Naval Attack

36. Soviet capabilities for attacking the US with naval forces employing conventional armament are low. The Soviet surface fleet is geographically divided, lacks advance bases, has limited operational experience, and does not possess a shipborne air arm. Its minor combatant vessels, including amphibious types, are entirely unsuited for transoceanic attack. The Soviet merchant marine, which would be called upon to provide the lift, could not be developed into an efficient auxiliary element to amphibious operations on any significant scale. The only substantial naval threat to the US which the USSR could muster would be that of its submarine force. In addition to its potential in connection with the delivery of mass destruction weapons, the submarine force could, at least in the initial phases of a conflict, inflict serious damage on US overseas communications and carry out offensive mining in the shipping approaches to principal US harbors. It is expected that during the period of this estimate the submarine force will be enlarged and improved by the introduction of additional numbers of improved ocean patrol types, by the progressive modernization of existing types, and by the possible adaptation of submarines to missile launching.

Airborne Attack

37. Soviet capabilities for airborne attack upon the continental US (except Alaska) are also very limited. TU-4's could be adapted for troop-carrying service and operate within the same limits and under the same conditions as the TU-4 bomber. We have no evidence to indicate whether or not the USSR has made any plans for the dropping of airborne forces in the US, but the USSR could, if it chose, drop specially trained assault and sabotage forces for attack upon important but difficult bombing targets.

PART II

CERTAIN FACTORS AFFECTING SOVIET EMPLOYMENT OF THE FOREGOING CAPABILITIES ASSUMING A SOVIET DECISION TO ATTACK THE U.S.

38. The Soviet rulers would expect a direct attack on the United States to precipitate general war. In such a war the Soviet rulers would expect to have an initial preponderance of military power on the Eurasian continent, but in their attack upon the continental US would be concerned to prevent: (a) US retaliatory air attack on the Soviet Union with weapons of mass destruction; (b) mobilization of the superior war potential of the Western

allies, particularly that of the United States; and (c) US reinforcement of anti-Soviet forces in Eurasia.

39. The Soviet rulers have demonstrated their sensitivity to the danger of US air attack with weapons of mass destruction by the high priority which they have given to the development of defenses against such an attack. Despite the substantial progress already achieved in building up their defenses, it is unlikely that they would regard their defensive capabilities as adequate to prevent substantial numbers of attacking aircraft from reaching strategic targets in the USSR. It is likely, therefore, that in initiating atomic warfare the USSR would be concerned: (a) swiftly to destroy or cripple US capabilities for retaliation in kind, with particular reference to SAC continental and overseas bases; (b) to deliver such an attack on industrial and psychological targets in the United States as would prevent, or at least hinder, the mobilization of the US war potential; and (c) to retain the means to counter any US reinforcement of Eurasia.

40. As among the available forces and weapons for attacking the continental US, the USSR's highest capability lies in open military attack with atomic bombs delivered by TU-4 type aircraft, for the following reasons:

a. The low capabilities of conventional naval forces and airborne forces.

b. The security difficulties inherent in the delivery of comparable numbers of atomic weapons by clandestine means.

c. Other methods of delivery of atomic weapons are insufficiently developed for large-scale use.

d. Other mass destruction weapons are insufficiently developed or subject to other handicaps in their large-scale use.

41. The Soviet rulers might, however, employ other methods of attacking the US concurrently with or immediately following an open and direct atomic attack. In the cases of guided missiles, airborne attack, submarine bombardment, and biological warfare, Soviet capabilities at best appear to be severely limited. They have a greater capability for chemical attack in connection with, or subsequent to, atomic bombing.

42. Clandestine attack in the form of sabotage or small-scale biological warfare might occur at any time, and without an overt attack ever being launched. The USSR must weigh the timing

and value of the sabotage in relation to their complete plan of attack and its effect upon the capability of the United States to launch a retaliatory military attack. Clandestine attack with atomic weapons might occur against specially selected targets as a supplement to overt delivery by aircraft. Subsequent to an overt attack, clandestine attack in any form could be expected to the maximum practicable extent.

43. We believe that the considerations affecting Soviet employment of their capabilities will remain throughout this period essentially the same as those outlined above.