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# SPECIAL ESTIMATE

## SOVIET CAPABILITIES FOR A MILITARY ATTACK ON THE UNITED STATES BEFORE JULY 1952



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The intelligence organizations of the Departments of State, the Army, the Navy, the Air Force, and the Joint Staff participated in the preparation of this estimate. All members of the Intelligence Advisory Committee concurred in this estimate on 18 October.

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# SOVIET CAPABILITIES FOR A MILITARY ATTACK ON THE UNITED STATES BEFORE JULY 1952<sup>1</sup>

## THE PROBLEM

To estimate the capabilities of the USSR to launch a military attack on the United States<sup>2</sup> before July 1952.

## ASSUMPTIONS

For the purpose of this estimate it is assumed that:

- a. A Soviet attack on the US would be designed to cause the maximum possible reduction in the capability of the US to wage offensive war.
- b. The USSR would not avoid employing any weapon and tactic because of US capabilities for retaliation in kind.

## ESTIMATE

### Direct Military Attack

#### AIR ATTACK

1. Atomic bombardment with long-range aircraft is the most threatening of the various types of potential military operations against the US within Soviet capabilities during the period considered in this estimate.
2. The Soviet Air Force is capable of attempting a strategic air offensive against the United States while simultaneously providing adequate tactical support for all campaigns which the USSR might launch against continental Europe and the Near and Middle East (except India and Pakistan).
3. During the period of this estimate other types of air attack,<sup>3</sup> with the possible excep-

<sup>1</sup>The effects of US countermeasures upon Soviet capabilities have not been considered in this estimate.

<sup>2</sup>Including Alaska and the Panama Canal Zone.

<sup>3</sup>Such as conventional bombing with high explosives, guided missiles launched from Soviet-controlled territory and the employment of free balloons.

tion of conventional bombing with high explosives against Alaska, will not constitute a serious threat. Although chemical and biological weapons might be delivered by long-range aircraft, these weapons are better suited to clandestine or sabotage attack. It is considered unlikely that the USSR will possess a hydrogen bomb during the period of this estimate.

#### *Soviet Atomic Weapons*

4. The limiting factor in the scale of atomic attack would be the stockpile of bombs available to the USSR for use against the US. The USSR possesses sufficient aircraft, trained crews, and base facilities to enable it to attempt delivery against the US of the full stockpile of atomic bombs that will be available in the period covered by this estimate.

5. The Soviet atomic stockpile for 1951 and 1952 has been estimated as follows:

Mid-1951	45
Mid-1952	100

The following factors must be considered in connection with this estimate of Soviet atomic capabilities:

(a) The number and/or size of the production facilities postulated as a basis for this estimate may be incorrect. The minimum program, which is not inconsistent with the information available, would provide a stockpile of about one-half the number of weapons indicated. On the other hand, from the information available at the present time, the possibility that additional or expanded production facilities will be constructed during the period under consideration cannot be precluded.

(b) The type of weapon postulated for calculating the stockpile figures may be incorrect. It is possible by changing the weapon design to substantially increase or decrease the number of weapons in the stockpile, given a certain quantity of fissionable material. Such changes, however, alter the kilotonnage of the individual weapons accordingly.

6. The 1951 weapons could range up to 70 kilotons TNT equivalent. Weapons produced after 1951 may run to 100 kilotons. Preliminary analysis of the recent Soviet atomic experiment does not as yet warrant modification of this estimate.

#### *Soviet Long Range Aviation*

7. Atomic attack is the principal military means by which the Soviet Union could achieve maximum results in the reduction of the US war effort. Therefore, the Kremlin might decide that a number of atomic weapons could be utilized best in surprise attacks at the outset of hostilities. In that case, it is estimated that the major portion of the Soviet atomic stockpile would be employed against the US. It is considered that the Soviets would expend aircraft and crews, as necessary, in order to deliver atomic bombs on important US targets.

8. Soviet study of possible target systems may have led to an appreciation of the difficulties of locating and destroying each individual target in a system. This would be particularly true if night or bad weather operations were contemplated. Accordingly the Soviets might

not select industrial targets as such. They might instead elect to attack large centers of population, counting upon destroying a substantial portion of their industrial capacity. The Soviets might also consider that attacks on population centers would have adverse effects on political and military control. The extent of air attack on US retaliatory capacity would depend on Soviet assessment of the relative probability of successfully blunting the US atomic counterattack by this or other means, such as sabotage.

9. Very little information is available on the tactical doctrine of Soviet Long Range Aviation. It is considered that the Soviets would attempt to deliver the maximum possible weight of attack within the shortest possible period of time, although they would be expected to reserve a portion of the Soviet atomic stockpile for re-attack of the United States.

10. It is believed that the Soviets have a fairly comprehensive knowledge of the Western Powers' air defense systems. The Soviets would avoid passing over the effective detection areas of radar nets, if at all feasible, in order to achieve surprise. Against targets where range is not a critical factor it is considered that deviations in route and altitude to avoid detection would probably be attempted.

11. During World War II, the Soviet Union had no strategic air arm as the term is understood in the United States. Soviet Long Range Aviation operated primarily against targets which directly supported German Armies in the field. The course of events during the war undoubtedly influenced the Soviets, and immediately after the war they began to develop a strategic air arm with the mission of long range strategic bombing, reconnaissance and participation in airborne operations. The Soviets have spent the post-war period in developing and training this strategic air arm on a priority basis.

12. However, the development of this force has been handicapped by the Soviet's lack of staff personnel experienced in long range operations, and it is probable that the over-all competence of the force is well below the standards

established for the US Strategic Air Command. Nevertheless, the level of proficiency is sufficient to pose a serious threat to the North American Continent.

13. Soviet Long Range Aviation is estimated to consist of a TO & E strength of some 2,000 aircraft divided among the 1st, 2nd, and 3rd Long Range Air Armies. Of these aircraft, the TU-4 (Soviet version of the United States B-29) is the only known bomber in operational use capable of reaching the United States with an atomic bomb from present Soviet bases. Considering present estimates of production and present TO & E strength of about 700 TU-4 type aircraft, it is estimated that approximately 1,000 TU-4's will be in units by mid-1952. Although the Soviets have displayed a new heavy bomber, little is known about this aircraft, and it is unlikely that it will appear in operational numbers during the period covered by this estimate.

14. The TU-4, carrying a 10,000-pound bomb load, is estimated to have a combat radius of 2,150 nautical miles and a combat range of 3,960 nautical miles.

15. No information is available regarding Soviet development of aerial refueling techniques, but it is considered within Soviet capabilities to develop the equipment and techniques for operational use of in-flight refueling. It is believed that the importance of US targets to Soviet war plans, plus present range limitations of Soviet long range bombers, warrant the assignment of a high priority to the development of operational aerial refueling techniques and equipment.

16. Maximum ranges of refueled TU-4 missions might theoretically be as follows:

On a one-way mission, with the tanker and receiver taking off together, the tanker could refuel the bomber at approximately 1,600 nautical miles from the take-off point thus giving the bomber a total range from point of take-off of over 5,000 nautical miles.

On a two-way mission, in order to effect a maximum radius of action for the bomber, the outbound refueling could take place

about 1,600 nautical miles from the point of take-off and the return refueling could take place at approximately 2,100 nautical miles from the point of take-off. Successful execution of both outbound and inbound refueling could extend the bomber's combat radius to more than 3,700 nautical miles.

#### *Air Base Areas*

17. The three base areas considered most important in assessing Soviet air capabilities against the US are:

(a) Soviet-controlled territory along the Baltic

(b) the Kola Peninsula area in northwest Russia

(c) the Chukotski Peninsula area in northeast Siberia.

It must be noted that the following discussion of these three areas is based on information which is far from adequate.

*The Baltic Area.* Favorably situated with respect to transportation and communications, weather, and distance to the United States, the area along the Baltic from Leningrad to the British Occupation Zone in Germany contains at least 15 air bases which might be employed by TU-4 bombers against the United States. It is estimated that each of these bases could handle at least one regiment of 32 TU-4's, with some of them capable of handling a considerably larger number. The total capacity, for operations involving a small number of landings and take-offs by each aircraft involved, is estimated at a minimum of 500 aircraft. Weather conditions would be generally those of the North Temperate Zone and it is unlikely that weather considerations would impose any unusual difficulties. Transportation and communications facilities are adequate in the area and supply would present only the normal transportation problems. However, due to the proximity of Norway and Sweden the risk of detection of Soviet flights from bases in this area is greater than of flights egressing over Soviet-controlled territory.

*Kola Peninsula Area.* For purposes of this discussion, the Kola Peninsula area is defined to include that portion of the USSR sit-

uated north of Lake Ladoga and west of the White Sea. Weather conditions in this area, such as extremely low temperatures, would impose operational difficulties which could be overcome at the expense of some loss of operational efficiency and/or an increase in personnel. The area is favorably situated with respect to distance from the United States and offers the additional advantage of permitting routes which avoid overflight of countries friendly to the United States. Relatively old information indicates that, of the 50-odd air facilities which were known to exist in the region in 1945, two airfields, Varlamovo (69° 03'N, 33°16'E) and Alakurtti (66°58'N, 30°21'E), appear suitable for TU-4 aircraft. In addition, eight airfields had in 1945 runways or take-off areas 4,500 feet or longer in length. They are as follows:

Varlamovo/Southeast	69-01N, 33-17E
Laplandiya	68-17N, 33-14E
Afrikanda	67-27N, 32-46E
Mikkolya	65-12N, 31-39E
Belomorsk	64-30N, 34-46E
Yendoguba	64-00N, 35-00E
Tiksbozero	64-05N, 31-56E
Olonez/Nurmalitcy	61-03N, 32-59E

Very little information is available on the present status of these airfields. Some may have been improved to accommodate medium bombers. Scattered and unconfirmed reports of base improvements have been received and there have been many indications that the area is closely guarded.

The area is served by the Kirev Railroad, which connects Murmansk with Leningrad and with the Finnish and Soviet rail system. Electrification of the entire line is scheduled, although completion date is not known. While some stockpiling in advance might be necessary to avoid overburdening facilities, there is no doubt that the present rail transportation facilities are adequate to support a large-scale air attack from this area.

*Chukotski Peninsula Area.* The Chukotski Peninsula area is, from the purely geographical standpoint, favorably situated for aerial attack on the United States. From this area, two-way missions against the Seattle-Hanford area and one-way missions against all

major targets in the United States could be launched. However, intelligence on the air facilities which might be available for launching such missions is, in most cases, either entirely lacking or dates back to 1946. Although it is at present impossible to identify positively any specific air installation as a launching site or staging base for Soviet atomic attacks against the US, there are several bases which could be considered by the Soviets as the most likely sites to develop for TU-4 operations.

Tanyurer (64°51'N, 174°13'E) which was built in 1946 is the only airfield in the Chukotski Peninsula area known to have been developed since the end of World War II, but the extent of this development is unknown. At Velkal (65°31'N, 179°15'E) several large buildings are known to have been erected but there is no evidence of runway extension or improvement. There are unconfirmed reports that the airfield at Markovo (64°41'N, 170°25'E) was improved in 1948, but whether it has been improved sufficiently to support even limited TU-4 operations is not known. While strategic stockpiling, sufficient to support minimum medium bomber operations at Velkal or Markovo, could be accomplished, it must be borne in mind that the severe weather conditions in this area at certain times of the year would seriously hamper this accomplishment. Airfields at Magadan (59°38'N, 158°31'E) and at Petropavlovsk (53°38'N, 158°31'E) offer the best potential sites for development as medium bomber bases. Due to range considerations, airfields at these locations could be used for attacks on the US only by utilizing one-way missions. Finally, the Soviets have placed considerable emphasis upon the use of frozen surfaces in the Arctic, which makes possible a potentially large number of airfields which could be placed in operation during the winter with a minimum of preparatory effort. For example, virtually unlimited extension of the take-off run at Velkal is possible by this method.

Operations against the US from the Chukotski Peninsula area, in which there are no known roads or railroads, would unquestionably be more difficult to supply than operations from other potential base areas of the

Soviet Union. It is estimated that for each medium bomber staged through the area, a maximum of 45 short tons of supplies would be adequate to provide the required logistical support plus storage loss. This would include 35 short tons of aviation fuel in drums, 5 short tons of bomb load and 5 short tons of other supplies. However, bomber aircraft staged through these fields would probably have significant quantities of unburned fuel in their tanks upon landing, thus requiring considerably less fuel to be prestocked than the maximum. Thus, a strike mounted with 200 aircraft might require 5,000-9,000 short tons of supplies, of which 1,000 short tons would be bomb load, probably flown in by the staging aircraft. The remaining deficiency would have to be brought in by ship, barge, caterpillar train, or transport aircraft. Barge traffic, which would presumably be used to supply both Markovo and Tanyurer during the ice-free months, is capable of moving large tonnages provided sufficient equipment is available. Barge and caterpillar train traffic would move inland from the port of Anadyr, which is open to shipping during the period May-November, up the Anadyr and Tanyurer rivers. Anadyr could be supplied with relative ease, although aerial photographs indicate that lighters are used at least a part of the time in unloading. This may represent direct unloading into river barges destined for up-river points. Air bases up the Anadyr and Tanyurer rivers, and on the coastal regions, can be stockpiled with the equipment which is known to be available or which may reasonably be considered to be available to the Soviets. Additional equipment as required could be transported by airlift and caterpillar overland trains during periods of iced conditions.

#### *Attacks Against the US*

18. TU-4's operating at maximum range (without refueling) on one-way missions could reach all important US targets from bases in the Chukotski Peninsula area; all targets within an arc from Portland, Oregon, to Charlotte, North Carolina (approximately), from bases in the Kola Peninsula area; and all targets within an arc from Charleston, South

Carolina, to Bismark, North Dakota (approximately), from bases in Soviet-controlled territory along the Baltic. Bases further in the interior of the Soviet Union could be utilized to launch attacks against those US targets located at less than maximum range from the three base areas mentioned above. For instance, the Seattle-Hanford area is within one-way range of the excellent field at Kuibyshevka, just north of Manchuria. The extension of the range of the TU-4 by aerial refueling would permit aircraft to operate from as far away as the Moscow area in the west and the Yakutsk area in the east against targets in almost any part of the US. Under such circumstances, a large number of base combinations could be selected which would permit compromise between such factors as maximum range, ease of logistic support and surprise.

#### *Attacks Against Alaska*

19. The proximity of Alaska to Soviet air bases in northeast Siberia, both actual and potential, would permit the USSR to utilize a wide variety of aircraft in attacks against Alaska. Soviet light bombers such as the TU-2 or IL-4 might be used from Siberian bases against targets in the Fairbanks-Anchorage-Kodiak area. It is estimated that the Soviets could operate approximately 12 air regiments (400-500 aircraft) from these bases. In addition, Soviet long range aircraft could utilize interior bases in attacking Alaska.

#### *Attacks Against the Panama Canal Zone*

20. It is remotely possible that the Panama Canal Zone (range 5,250 nautical miles) could be attacked by TU-4's after one aerial refueling. However, the extreme range and the risk of early warning due to over-flight of friendly countries, might cause the Soviets to consider the Panama Canal an unattractive target for air attack.

#### *Mechanical Condition of Aircraft*

21. There is no intelligence available concerning the actual serviceability rate or the mechanical condition of the TU-4 aircraft in Soviet units. However, at the end of the war the Soviets retained in service the best maintenance personnel and have since conducted

an intensive training program aimed at improved maintenance throughout their air forces. The high priority given the development of Long Range Aviation, the presence of TU-4 aircraft in operational units for more than three years, and the combination of previously skilled maintenance personnel and an intensive training program should, by this date, have enabled the Soviets to achieve a satisfactory serviceability rate. It is believed that this rate is and will continue to be below that of US units operating under similar conditions because of the greater length of time the United States has had to train maintenance personnel on large bombardment aircraft, the more highly developed US supply system, and the development in the United States of maintenance staff personnel through extensive war-time experience with large bombardment aircraft. However, Soviet competence to conduct air operations against the United States does not require that US standards be met, and it can be expected that for an initial TU-4 operation of high priority practically all TU-4 aircraft in operating units could be made serviceable.

#### *State of Crew Training*

22. It is probably the objective of the Soviet High Command, that Long Range Aviation shall eventually be capable of undertaking strategic bombing missions by day or night in any weather. The deficiencies of Soviet pilots in night and instrument flying have been recognized by tactical and training commanders, and this fact is reflected in the comprehensive training directive given by the Soviet Ministry of War. There is no doubt that great emphasis is being placed on the development of proficiency in these fields through an intensified training program and development of new equipment. There are indications, however, that the standards of training are not equal to those of the United States in the techniques of all-weather and mass formation flying, radar navigation, and high altitude bombing.

23. The average Soviet medium bomber crew is still considered to be less skilled than the average US four-engine bomber crew of World War II. Nevertheless, it must be emphasized

that an atomic attack on the United States would involve only the best of Soviet crews. It is considered that the limiting factor in the operational capabilities of Soviet Long Range Aviation will lie in the performance capabilities of aircraft component equipment rather than in any shortcomings in training and techniques.

#### *Navigational Ability and Available Aids*

24. Lack of World War II experience in navigation and bombing techniques required for modern high altitude operations, together with corollary deficiencies in equipment and systems, are handicaps which the Soviets are attempting to overcome. Although polar navigation poses problems more difficult than temperate zone navigation, the USSR was the first nation to give active support to polar navigation and the first comprehensive and authoritative treatment of polar navigation was published in Moscow in 1940. In addition, the Soviets have engaged in extensive Arctic flights in connection with both surface craft navigation of the Northern Sea Route and civil air operations in that area.

25. Photographs of TU-4 aircraft confirm the presence of a blister identical in size and position to the radome of US B-29. No information is available concerning the actual radar equipment, if any, installed in this radome. The USSR acquired several sets of AN/APQ-13 radar under Lend-Lease during World War II, and in addition obtained at least two British and three German search and bombing radars. It is also possible that the Soviets acquired AN/APS-15, a later navigational and bombing radar, from damaged US aircraft during World War II. The Soviets have had access to many captured German documents, and have had a number of German scientists working in the USSR since World War II. It is probable, therefore, that the Soviets may have developed navigation and blind bombing radar comparable in performance to the AN/APQ-13.

26. On the basis of available evidence it is estimated that Soviet bombers could fly Arctic routes and stay on course with the equipment now available.



*Ability to Identify Targets*

27. The information necessary for the development of target folders on most target areas within the United States is readily available through public sources. All the navigational charts and radio facility information necessary to navigation in the United States and Canada are for sale to the public by the respective governments. Aerial photographs of large cities and industrial installations are likewise sold publicly. It is therefore considered that public sources provide all the information necessary for the Soviets to identify assigned targets correctly under visual conditions. The nature of most US targets is such that little difficulty would be experienced in identifying them with the AN/APQ-13 or an equivalent radar. The possibility also exists that Communist agents might set up covert facilities (radar reflectors, radio homers, and beacons) as an aid to identification of targets. Most of the attacking Soviet aircraft should, therefore, be capable of locating and identifying selected targets.

28. The Soviets are known to possess optical bomb sights with performance characteristics at least equal to those of the Norden and Sperry sights used by US forces during World War II. While there is no factual evidence concerning the accuracy of Soviet bombing, it is likely that they could attain an accuracy under visual conditions comparable to that of US crews during World War II.

29. Radar bombing equipment is known to be in service but the degree of bombing accuracy which may be obtained by the Soviets with this equipment is not known. Although the effectiveness of Soviet blind bombing attacks could be increased by the use of radar responder beacons clandestinely placed on or near the target, accuracy of radar bombing would probably be generally lower than that of visual bombing. It is believed that the Soviets would not hesitate to bomb at lower altitudes, if necessary, to insure accurate bomb placement, regardless of the safety of the crews.

*Electronic Countermeasures*

30. On the basis of available intelligence data concerning Soviet training and concepts, it is

considered that the Soviets are well aware of the tactical advantages to be gained from the use of electronic countermeasures equipment. It is believed that Soviet knowledge of offensive countermeasures techniques is based on information of the countermeasures employed by the Germans during World War II. In addition, both US and British war surplus equipment for use in electronic reconnaissance aircraft have been purchased by the Soviet Union. The Lend-Lease program supplied the Soviets with samples of US "window" and specifications for its use. Technical information on the TDY-1 jamming transmitter and the RDO wideband search receiver was made available to the Soviets. The Soviets have knowledge of US and Allied World War II radar search receivers. American airborne ECM equipment interned by the Soviets during World War II included AN/APT 5 (Jammers), AN/APR 5A (Ferret Receiver), AN/APA 11 (Pulse Analyzer), AN/APQ-ZQ (200-500 Mcs Jammer).

31. Actual evidence of Soviet postwar progress in countermeasures has been detected. The Soviets have demonstrated a high level of capability in jamming communication frequencies of the Voice of America. The Soviets are capable of jamming operations at frequencies up to 20 megacycles. Airborne jammers may be available, utilizing the same spectrum scale as airborne passive ECM. Since specimens of German World War II VHF jammers are considered available to the Soviets, this capability may well extend as high in frequencies as the VHF band. Directional equipment utilizing the common S and X bands, and possibly some of K band,\* may be available but large gaps in the spectrum will not be covered.

32. Other measures of passive defense may include directional radio equipment capable of intercepting any type signal in the frequency spectrum from very low to about 300 Mcs. VHF. Simple Soviet airborne intercept receivers may be anticipated at frequencies on which the US has active radars. Soviet TU-4 aircraft may use false radio identification as well as USAF markings in an effort to evade detection as

\* It is the view of the Director of Naval Intelligence and the Assistant Chief of Staff, G-2, that jamming at the K band is unlikely.

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enemy. Soviet infrared camouflage paint for use on aircraft, similar to British paint covering optical wave-lengths from 0.7 to 1.3 microns, has been found. No anti-jamming devices are known to be on Soviet equipment; however, the USSR can be expected to possess some knowledge of German anti-jamming techniques. Although there is no evidence of large-scale production of radar magnetrons it is believed that the Soviets are capable of equipping some Soviet Long Range aircraft to conduct countermeasures operations.

#### *AIRBORNE ATTACK*

33. The Soviet Union was the first major nation to display an interest in airborne forces and, although it conducted no airborne operations in World War II on the scale of those accomplished by the Germans and the Western Allies, its interest since World War II has been demonstrated by the training of large numbers of airborne troops. However, the Soviet air forces are not known to possess any operational transport aircraft with range characteristics which would permit two-way airborne operations against the United States. The TU-70, a transport with range characteristics similar to those of the TU-4 bomber, appeared several years ago in the Moscow Air Show. Although it is not known whether a four-engine type transport aircraft has been placed in series production, the possibility cannot be discounted. A TU-4 could be modified to carry approximately 40 paratroops subject to the limitation imposed by temperature and altitude. The range and radius of action would be similar to that for the TU-4 carrying a bomb load. Although it is highly improbable that TU-4's would be employed on airborne operations, such operations, employing specially trained assault and sabotage teams, might conceivably be directed against such important and difficult bombing targets as atomic bomb storage sites.

34. In view of the logistic difficulties involved in maintaining a large combat force in North-eastern Siberia, plus prevailing adverse weather conditions, it is considered that any Soviet campaign against Alaska during the period of this estimate would be of limited scope. Soviet operations could include an air-

borne assault against the Fairbanks-Anchorage-Kodiak area, initially employing a maximum of about 4,000 troops with fighter support in a surprise assault or following a bombing attack. Such an attack would require approximately 200 aircraft of the IL-2 type. Range limitations would prevent airborne operations with full loads on targets as distant as Fairbanks and Anchorage, Western Canada, and Western United States; but such targets could be attacked if one-way missions were flown with four-engine aircraft. Seizure of such facilities as Point Spencer, Marks, Galena or Walseth Air Force Base might provide the Soviets with intermediate airfields for transports returning from operations against Fairbanks or Anchorage. If the attack succeeded in capturing US stores of food and/or POL, additional airborne troops could be brought in as reinforcements.

35. Base facilities in the Chukotski Peninsula area, unless considerably expanded beyond present known status, would restrict the employment of transport aircraft for airborne operations against targets in Alaska, since Soviet bombers and fighters would require concurrent use of all these facilities. Furthermore, airborne operations would be seriously hampered by adverse weather conditions prevailing in this area a substantial portion of the year. Gliders might be used in periods when icing is not hazardous. Support shipping operations would be limited to the favorable weather period from June to October.

36. The objectives of Soviet operations against Alaska would be neutralization of base areas from which the USSR could be attacked, diversion of Allied military resources to the area, and disruption of Allied sea communications. The Soviets might also hope to seize and hold, at least temporarily, bases from which to mount air attacks against the United States.

#### *NAVAL ATTACK*

37. The operating forces of the Soviet Navy are divided into four major fleets and four flotillas, maintained in a fair to good state of readiness. The Soviet Navy's greatest capabilities are in submarine operations, mine warfare, and in Arctic cruising. It is handi-

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capped by wide geographical separation of its maritime frontiers, limited operational experience, and lack of shipborne aircraft.

#### *Surface Fleet*

38. During the period under consideration, the capability of the Soviet surface fleet and merchant marine for participating in an attack on the continental United States is considered to be negligible. Soviet surface units will not present a serious threat or challenge to Western naval power or to the security of the continental US.

#### *Amphibious Forces*

39. The Soviet force of minor combatant vessels, including amphibious types, is entirely unsuited for a transoceanic attack. Any substitute for amphibious lift would require calling upon the Soviet Merchant Marine. The Soviet Merchant Marine is a heterogeneous collection of vessels, many obsolescent, and is critically lacking in tankers for overseas operations. This largely precludes the possibility of its employment in any large-scale transoceanic attack on Canada, the Panama Canal, or the continental United States. It is estimated that the Soviets could launch against Western Alaska approximately 6,000 troops in an amphibious assault coupled with an airborne attack of initially 4,000. Such assault would probably be directed at: (a) the Seward Peninsula; (b) the Anchorage-Fairbanks area; (c) the Aleutian Chain; or (d) Kodiak Island.

#### *Submarines*

40. The major naval threat to the US during this period is that of the Soviet submarine fleet. The USSR will have during the period a total of 370 submarines, of which 104 will be capable of launching a direct attack against the United States. Assuming that present dispositions remain unchanged, nineteen ocean patrol submarines will be available to the Soviet Pacific fleet for attacks along the west coast of the United States, and four high submerged speed and 81 ocean patrol submarines will be available from the Baltic, Northern and Black Sea fleets for attacks along the east coast. The Soviets should at all times be able to employ more submarines in offensive mining and in torpedo attacks than the

Germans and Japanese did during World War II. The probable uses of Soviet submarines are:

(a) Attacks on merchant shipping and naval vessels.

(b) Offensive minelaying along shipping routes in the approaches to principal harbors.

(c) Landing of saboteurs and agents.

(d) Undetected reconnaissance and radar picket duty.

(e) Guiding long-range bombers.

(f) Launching of guided missiles and rockets with conventional or atomic warheads, against coastal targets.

#### *Clandestine Attack With Weapons Of Mass Destruction<sup>1</sup>*

41. Clandestine attack<sup>2</sup> with atomic, biological and chemical weapons<sup>3</sup> offers a high potential of effectiveness against a limited number of targets, particularly when employed concurrently with, or just prior to, the initiation of full-scale hostilities.

#### *CLANDESTINE ATOMIC ATTACK*

42. The USSR is capable of clandestine delivery of atomic weapons by disguised aircraft, merchant ships, smuggling, and guided missiles.

#### *Disguised Aircraft*

43. Because of its resemblance to the US B-29, the Soviet TU-4 could be disguised with US markings and employed for clandestine atomic attacks. A small number of disguised TU-4's, by taking advantage of the gaps in our radar screen, might escape detection. This would greatly increase the probability of a successful attack on high priority targets, such as the Washington area, for the purpose

<sup>1</sup>This section is a summary of NIE-31 (published 4 September 1951), which may be consulted for a more detailed discussion of this subject.

<sup>2</sup>For the purpose of this estimate, the term "clandestine attack" does not include the employment of conventional sabotage.

<sup>3</sup>Only atomic, biological and chemical weapons have been discussed, since the state of development of other conceivable weapons of mass destruction is such that their employment during the period of this estimate is considered most unlikely.

of paralyzing the top military and civil command a few hours prior to the initiation of hostilities elsewhere. Soviet capabilities for clandestine air attack correspond to those for overt air attack discussed in paragraphs 7-32 above.

44. The USSR also could undertake clandestine attack with civilian aircraft of a type used by US or foreign transoceanic airlines. Such aircraft would have a greater chance of escaping detection and identification inasmuch as civilian aircraft are not equipped with IFF. However, employment of civilian aircraft is less probable than the use of military craft since, at present, neither the USSR nor any of the Satellites are known to possess suitable aircraft, and acquisition from either a US or foreign concern would increase the risk of compromising the operation.

#### *Merchant Ships*

45. An atomic weapon could be detonated in the hold of a ship or laid as an underwater mine. Detonation of an atomic weapon in the hold of a ship would not involve any special engineering problems, nor need the crew be aware of the presence of the weapon. Laying an atomic weapon as a mine would require encasing the weapon in a watertight container and might also require special laying equipment. The USSR is capable of meeting these requirements as well as providing an accurate time-delay mechanism to permit laying the weapon several days, weeks, or months in advance of D-Day.

46. During the first quarter of 1951, the Soviet orbit (including China, but excluding Finland) had under charter more than 140 Western ships.\* In addition, the chartering of Western ships by non-Soviet countries often leads to their sale to the USSR or the Satellites. Soviet possession of a number of ocean-going fishing trawlers similar in type to US vessels and capable of transporting atomic weapons constitutes a particular threat.

47. Examination of a ship's papers is not always a reliable method of determining

\* These figures do not include the additional Western ships engaged in trade with the Soviet orbit but not under direct charter to the Soviet orbit.

whether a ship is actually under Soviet control.

(a) The Soviets enforce secrecy for their ship chartering by maintaining their own charter and insurance agencies which enable them to by-pass the usual commercial channels.

(b) In many instances, intelligence information indicating Soviet charter or purchase has not been received until more than sixty days after the transaction occurred. Therefore, it is within Soviet capabilities to obtain and employ a foreign ship for clandestine delivery before the US could learn that the ship was under Soviet control.

48. Because of the above factors, the USSR must be considered capable of utilizing a merchant ship for delivering an atomic weapon into a key US harbor with a relatively good chance of escaping detection.

#### *Smuggling*

49. An atomic bomb, including the fissionable material, could be broken down into relatively small components\* which could be smuggled separately into the US. Unusual handling precautions would not be required and radiation detection would be most improbable. Assembly of the bomb would present certain difficulties but none of an insuperable character.

50. Under the cover of diplomatic immunity, components for an atomic bomb or, less probably, even an assembled bomb could be consigned to Soviet diplomatic representatives in the US as household effects or supplies without fear of official inspection by US authorities. In addition, no government agency is specifically charged with the responsibility for observing the offloading, processing, and disposition of such shipments. This method would require the closely coordinated effort of several individuals in the US to acquire the weapon and deliver it to the target area.

51. It is feasible to smuggle an atomic bomb through Customs as a commercial shipment,

\* Although it would be theoretically possible to manufacture clandestinely within the US all the components of an atomic weapon with the exception of the fissionable material, it would be difficult to procure and process the necessary material.

and many types of imports from the Soviet Satellites could be used as a "cover" for such an act. Furthermore, the number of importing firms in the US is so large that the appearance of a new firm or a change in the imports of an old firm would not automatically arouse the suspicion of the Customs authorities. Theoretically, there are numerous methods by which the USSR could endeavor to circumvent thorough Customs inspection; however, they would involve elaborate arrangements as well as the existence within the US of an efficient organization to establish dummy corporations, subvert employees of bonded carriers, etc. These requirements greatly increase the risk of detection.

52. A more serious threat, well within Soviet capabilities, is the smuggling of an atomic bomb, especially if disassembled, from a Soviet port into an isolated section of the US. Such an operation could involve the transfer of a bomb from a Soviet-controlled merchant vessel or submarine to a small boat which would bring it ashore. Here it could be loaded into a truck for assembly and subsequent delivery to the target area.

#### *Guided Missiles*

53. It is estimated that the USSR has V-1 type missiles with ranges of at least 100 miles which could be launched from merchant ships or submarines. Such missiles could operate at low altitudes and could have considerably better accuracy than the German operational missiles of World War II. Although there is no conclusive evidence that the USSR has an atomic warhead suitable for use in a ship-launched guided missile, the construction of such a warhead is estimated to be within Soviet capabilities.

54. A Soviet merchant ship or submarine could reach its launching position with little chance of detection by maintaining radio silence and avoiding normal shipping lanes. Therefore, this method of clandestine attack appears well suited for employment of atomic weapon against critical near-coastal targets, including key harbors.

#### *CLANDESTINE BIOLOGICAL WARFARE\* ATTACK*

55. It is estimated that the USSR is capable of producing a variety of BW agents in sufficient quantities for extensive clandestine employment against man, animals, and plants.

56. Many types of BW agents are well suited for clandestine attack, and could be employed by the USSR even well in advance of D-Day as part of an over-all plan to impair the military effectiveness of the US. In contrast to clandestine attack with atomic and chemical weapons, clandestine employment of certain BW agents would entail much less risk of identification as enemy action.

a. Very small amounts of these agents would be required initially. Such amounts would be almost impossible to detect when being brought into this country under the cover of diplomatic immunity or through smuggling operations. In addition, it would not be difficult to have some BW agents procured and cultured locally by a trained bacteriologist.

b. The effects of BW agents are not apparent until hours or days after dissemination.

c. The results of many BW agents resemble natural outbreaks of disease, and it would be difficult to connect clandestine employment of such agents with a hostile act.

#### *BW Attack Against Personnel*

57. In clandestine attack, it probably would not be feasible to build up sufficient concentrations of BW agents to produce large numbers of casualties in urban areas. However, BW agents could be employed clandestinely to incapacitate key individuals and personnel in vital installations. Dissemination of some airborne BW agents within a building probably would cause casualties among a large portion of the personnel. Similar results probably could be obtained from agents disseminated outside of a building and carried into the building by air currents soon after dissemination.

\* Biological warfare is the employment of living microorganisms, their toxic products, or chemical plant growth regulators to produce death or casualties among personnel, livestock or crops.

58. It is likely that the only anti-personnel BW agents which the USSR would employ prior to D-Day would be those causing diseases common to the US, since the outbreak of an unusual disease would probably arouse suspicion as to its source. The statistics of the Public Health Service on the incidence of various diseases in the US are made public and undoubtedly are known to the USSR.

*BW Attack Against Livestock*

59. In a clandestine attack against animals, foot and mouth disease constitutes the most serious threat to this country. The disease is highly contagious, and there is a relatively long period during which an animal with this disease is capable of infecting other animals before the symptoms become apparent to anyone but an expert. Individual herds could easily be attacked, but more widespread dissemination could be initiated by infecting animals in "feeder" stockyards. Widespread outbreaks of disease could also be brought about by contaminating the anti-toxins, vaccines, and other biologicals manufactured in the US for the inoculation of animals.

60. The USSR could smuggle viruses of animal diseases into the US or might possibly obtain them in this country. In the former case, the virus could originate in the USSR or could be prepared by Soviet-controlled personnel from infected animals in South or Central America.

*BW Attack Against Crops*

61. It is estimated that the USSR might possibly employ some form of cereal rust in a clandestine BW attack against US crops. However, such attack is unlikely because of the uncertainty that this disease would spread over a wide area.

62. Other possible BW agents might be effective against US crops to a lesser degree. However, it is considered that the results of an attack with these agents would not be serious.

63. A variety of chemical growth regulators could be employed against crops as BW agents. These chemicals are disseminated by spraying them on the area under cultivation. This type

of attack would be impractical against large areas because of the amount of chemicals required.

64. It would be possible to employ as BW agents insects which are in themselves harmful or which spread crop diseases. However, there is no indication that the use of insects as BW agents has been developed and such employment is considered unlikely.

*CLANDESTINE CHEMICAL WARFARE ATTACK*

65. Although the Soviets have large stockpiles of standard CW agents,\* these agents are not well suited for clandestine attack and their employment for that purpose is highly improbable. The CW agents most likely to be used for clandestine attack are the nerve gases, GA and GB, primarily because of their extreme high toxicity which is considerable greater than that of other known CW agents. The USSR probably has sufficient quantities of nerve gas for fairly extensive clandestine attacks. In common with atomic weapons, nerve gases are not suited for employment prior to D-Day inasmuch as their characteristic physiological effects would make their identification as enemy action relatively easy.

66. GA and GB are odorless, colorless liquids which become effective anti-personnel agents when dispersed as a fog or an invisible vapor. GB is approximately three times more toxic than GA. Exposure to a lethal concentration usually causes death within an hour. About one-fifth of a lethal concentration is sufficient to cause incapacitation for several days. In general, the persistence of nerve gases is a matter of hours rather than days.

67. In clandestine nerve gas attack, it would not be feasible to build up the concentrations

\* The term "CW agents" as used herein refers to those toxic chemical agents suitable for employment in mass quantities for chemical warfare. These agents are to be distinguished from the almost countless number of poisonous chemical compounds which are readily available to Soviet personnel from commercial sources and are suitable for contaminating food and water supplies and for poisoning key individuals. Employment of such commercial chemicals is considered to be conventional sabotage and is not included in this estimate.

required for employment against population centers or other targets of a sizable area. However, clandestine attack is well suited for employment against personnel in key installations when the objective is immediate incapacitation of a high percentage of the personnel, and physical destruction of the installation by an atomic weapon is not paramount.

68. Effective clandestine attack against personnel in key installations would require precise timing and positioning in disseminating relatively small quantities of nerve gas. The gas could be released within a building by means of an aerosol bomb similar to those used for insecticides and equipped with a time mechanism. It would also be feasible to at-

tack buildings by spraying nerve gases in the vicinity.

69. The USSR could attempt to bring nerve gases into the US by any of the methods of smuggling already discussed in connection with clandestine atomic attack, viz., diplomatic immunity, smuggling through Customs, or introduction at a point outside Customs surveillance. In all instances, the successful smuggling of nerve gas or of the complete aerosol dispensers would be considerably easier than the smuggling of atomic weapons. Nerve gas could be easily disguised as one of any number of commercial exports from the Soviet orbit or transmitted in a diplomatic pouch.

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~~TOP SECRET~~

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