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USSR ATTACK PLANNING PLAN

ONE PHASE IN THE METHODOLOGY FOR DETERMINING THE IMMINENCE OF AN AIR ATTACK ON THE UNITED STATES

PREPARED BY DEPUTY CHIEF OF STAFF / INTELLIGENCE
HEADQUARTERS, AIR DEFENSE COMMAND

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USSR ATTACK PLANNING PLAN

Common sense dictates and history has proven that any military power anticipating an offensive operation must take certain basic steps in preparation for such an action. The type and scope of such preparations will be dependent upon the type and scope of the anticipated offensive, whether air, ground, or naval, with additional considerations as to the type of terrain, climate, etc, to be encountered and the time span of the operation. Certain of these steps will be common to all powers, while others will be based upon an individual power's theories on weapon utilization, force deployment, etc. Additionally, many of these steps will be of such nature as to be most unnecessary and uneconomical unless taken in preparation for actual hostilities rather than practice maneuvers or exercises.

Provided accurate, timely information can be collected on these steps taken by the enemy, it is logical to assume that this information, properly applied, can indicate with a relative degree of accuracy the time the enemy will initiate an offensive. Further, it may actually indicate the "Where" of such action as well as the type of action being planned.

This is the basic concept for one phase in the ADC-ICS/I methodology in attempting to determine the "When" of an air attack against the United States.

Our approach to this matter has been to lay out what, for the purpose of this paper, we call the "USSR Attack Planning Plan." This plan incorporates some of what we consider are the probable steps the Soviet will take prior to the initiation of hostilities and a time span for each step, based on the "D-minus" method of planning actions. See Tab A for a list of the actions accepted and the approximate time prior to D-Day we believe such actions will take place. In selecting these actions, our criteria were: (1) The action be one the USSR must take, or probably will take, prior to initiating hostilities; and (2) There must be reasonable assurance that we can gain information on the action.

For the present our plan covers the time from D-120 to D-Day with 1 June 1953 as D-Day.

Selection of this particular time span was prompted by our discussions on the theoretical advantage accruing to the Soviet by initiating hostilities in the spring or summer of 1953, and supported by a letter written by Doctor E. W. Paxson of the Rand Corporation wherein he states his belief, and reasons for that belief, that 1953 is "the" year and June 1953 "the" month. (See Tab B) An additional factor considered was the paper prepared by the Special Study Group in AFOIN, commenting on Dr. Paxson's letter. (See Tab C)

Although our present plan is based on this time span of 1 February to 1 June 1953, the span of D-120 to D-Day may be applied at any point in time.

The list of actions is extremely flexible and may be expanded or contracted as more information becomes available. The same is true for the tentative time span assigned to each action.

Attached as Tab D is a photograph of the Plan as presently laid out.

As is true of most Indications efforts today, the success or failure of this approach to the problem will, to a large extent, be determined by the following factors:

1. The validity of the actions chosen.

2. The scope and success of the collection effort devoted to this project, and most important of all,

3. The effectiveness of the evaluation placed on the information collected and subsequently applied to the planning plan.

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TENTATIVE ACTIONS

	ACTION	APPROX TIME SPAN
A.	**Armed Forces General**	
1.	Shorten courses at technical schools.	D-120 to D-110
2.	Build up Armed Forces to full TO&E strength.	D-120 to D-60
3.	Recall recently demobilized personnel.	D-120 to D-60
4.	Conduct joint exercises at corps or army level.	D-120 to D-30
5.	Increase supply of arms to Satellites.	D-120 to D-30
6.	Joint conferences of Air, Ground & Naval Comdr.	D-90 to D-30
7.	Combat readiness inspection of all units.-	D-10
8.		
9.		
10.		
B.	**Air**	
11.	Withdraw spare aircraft from storage.	D-120 to D-Day
12.	Complete special training of navigators.	D-120 to D-30
13.	Establish fighter defenses in depth along possible SAC approach routes.	D-30 to D-15 Air Ech D-60 to D-30 Grd Ech
14.	Establish 24-hour schedule at LRA maintenance shops.	D-60 to D-Day
15.	Curtail civil air flights in favor of military missions.	D-60
16.	Complete check and overhaul of airborne electronic equipment.	D-50 to D-Day
17.	Reassign mission of Long Range and Special Air Mission transport divisions to provide additional logistic potential.	D-30
18.	Move Long Range Aviation aircraft to staging areas.	D-30 to D-20 Grd Ech D-20 to D-15 Air Ech
19.	Fill all POL storage tanks at staging areas.	D-30 to D-10
20.	Move filler aircraft to staging areas.	D-25 to D-15
21.	Maintenance stand-down of LRA units.	D-20 to D-5
22.	Effect an aircraft call sign or communications change.	D-20 to D-5
23.	Move weapons of mass destruction to staging areas.	D-15 to D-10
24.	Maintenance stand-down of PVO units.	D-15 to D-5
25.	Deploy transport aircraft to vicinity of airborne troop centers.	D-10
26.	Place all PVO and supporting units on full alert	D-10
27.	Restrict aircrews to LRA bases.	D-5
28.	Issue navigational and target materials.	D-5 to D-2
29.		
30.		
31.		
32.		

	ACTION	APPROX TIME SPAN
C.	Ground	
33.	Redeploy ground forces for maximum combat effectiveness.	D-60 to D-Day
34.	Full manning of field hospital units.	D-60 to D-30
35.	Full stocking of Army level depots.	D-60 to D-30
36.	Bulk issue of maps to divisional level.	D-40 to D-30
37.	Issue of 200 tons, or more, of ammunition per mechanized division.	D-10 to D-5
38.	Issue special camouflage clothing to troops.	D-10
39.	Issue extra AAA ammunition to AAA units.	D-10 to D-5
40.	Issue gasoline to mechanized divisions in excess of 500,000 gallons each.	D-10 to D-5
41.	Assemble 1,000 flat cars per division in division areas.	D-15 to D-10
42.		
43.		
44.		
D.	Naval	
45.	Install anti-submarine nets.	D-50 to D-30
46.	Restation naval vessels out of land-locked seas.	D-30 to D-15
47.	Position submarines offshore of U.S.-U.K.	D-30 to D-5
48.		
49.		
50.		
51.		
52.		
53.		
E.	Miscellaneous	
54.	Intensify intelligence collection.	D-120 to D-Day
55.	Issue external "Peace" propaganda.	D-120 to D-Day
56.	Issue internal "War" propaganda.	D-120 to D-Day
57.	Increase security on information going out of orbit	D-120 to D-Day
58.	Assign additional Soviet personnel to Satellite units.	D-120 to D-60
59.	Increase precautions to prevent defections.	D-90 to D-Day
60.	Assume control of communications in Satellites.	D-30
61.	Increase number of air and civil defense exercises.	D-120 to D-Day
62.	Restrict civilian use of communications.	D-60
63.		
64.		

	ACTION	APPROX TIME SPAN
65.		
66.		
67.		
68.		
69.		
70.		
71.		
72.		
73.		
74.		
75.		

23 October 1952

MEMORANDUM FROM: E. W. Paxson

WHEN SHOULD STALIN PUSH THE BUTTON?

It is always to the point to attempt an estimate of the intentions of an unquestioned enemy. I wish to develop here in some detail certain views on Soviet intentions that I have held for several years. In my opinion, the Soviet Union should initiate World War III in June of 1953. This does not imply, of course, that war in 1953 is certain. It is a statement that mid-53 is the best date from the Soviet point of view during the period from 1945 to the technological and political horizons, which may be placed at about 1965.

In my own defense, I will say that this has been an estimate held to firmly. It has not been moved ahead by yearly increments as time has gone on. The view has been continually confirmed, and it appears to me wise to present it to you gentlemen at this time because of its direct connection with the developments of the Study Group BAKER evaluation. I shall defer explaining this connection until the end of this memorandum.

My purpose is to attempt herein a reconstruction of the reasoning and calculations of the Soviet control group. It is worth noting that calculation in this sense is one of the primary tenets of Soviet doctrine. It will not be necessary to adduce either Russian persecution psychoses or to propose that an aging Generalissimo wants ultimate glory and ultimate power during his life.

Soviet policy has two essential features. Complete control of the homeland is of primary importance, and the ultimate goal--to dominate the world--is always the determinant of behavior.

Control at home could be lost under successful atomic attack by the Strategic Air Command of the United States Air Force. It follows that a serious blunting of this United States capability is foremost in Soviet thinking. This is, in fact, the argument which we have heard so often about the deterrent power which our strategic bombers and weapons have exercised from the end of the last war until the present time.

Attrition rates inflicted by the usual interceptor and gun and rocket defenses are not high enough to insure adequate blunting. The weapon which will inflict completely unacceptable losses on current bomber types is the ground-to-air missile. The Wasserfall missile,

taken from the Germans at about the X-model stage in 1945, has had top priority in Soviet research and development. German scientists and engineers originally concerned with the program have been used. Judged entirely on the basis of a liberal time scale for the development of such weapons to the operational readiness point, it is asserted that this weapon can be in large-scale operational use for the defense of Soviet cities by mid-1953. This view is confirmed by the timetable of our Nike missile, which started about 1946 and which has within the past quarter been most successfully demonstrated as a complete weapon system. We can expect Nike to be a key component of the United States defense network by 1956. We repeat that Wasserfall was already in the flying stage by 1945. In addition to the weapon itself, a well-knit electronics network is essential on home defense. From our Ferret operations, from our observations of the improvements in native vacuum tube manufacture, and from the massive, efficient and synchronized Soviet jamming programs, we can infer that the electronic capability will be perfectly adequate by mid-1953.

If in calculating the outcome of a major war Russia is to see success, in addition to home defense, she must assume the necessity of inflicting grievous blows on the United States homeland. Our war production capability has demonstrated its fantastic efficiency. Moreover, a psychological response can be expected, based on the ever-dormant American predilection toward isolationism. Admitting this, the Soviet Union must not initiate all-out war until her stockpile of atomic weapons is large enough to achieve such damage. I estimate that about 100 weapons on target in the United States would reduce our munitions production capability to about 50% of its planned value during the first two years of war. Even with 50% wastage in delivery and bombing errors this requires a stockpile of 150 weapons. Based on conservative production estimates, this is within the Soviet capability by mid-53, but not until that date.

The arguments above attempt to explain why major hostilities have not occurred between 1945 and today. Minor additional reasons can be given. A primary reason in this category is the success of Soviet cold war tactics. In addition, the Soviet Union has had to engage in a massive capital construction program and has had to build up the strength and integrity of satellite buffer states.

Turn now to a consideration of the disadvantages seen by the Soviet mind in deferment of World War III past mid-1953. This discussion can be divided into three parts by dismissing first the argument that the Soviet Union is getting everything that she wants by cold and lukewarm war techniques, then by considering the position during the period 1954 to 1956, and finally by estimating military technology from 1956 on through to the 1965 horizon.

Let us address ourselves first to the cold war argument. Even with the admitted slippages and inefficiencies in building NATO, military power is developing. As a most pessimistic estimate, NATO air and ground vis a vis the Soviet formations would be about in the ratios respectively of 2 to 1 and 3 to 1 by mid-1954. Thus, even under conventional arms, the Soviet would be on the margin of doubt as to the success of operations, even though she can keep the war in Korea going through the spring of 1953, thereby draining United States strength further at the expense of NATO buildup. But considering the increased United States stockpile of atomic weapons, it is my expectation that containment is feasible in mid-1954. This I expect to be the outcome of the evaluation now being conducted by Study Group BAKER.

Now the Soviet must not be on the margin of doubt. This is an unacceptable calculation (and I assume that the Soviet can calculate this outcome as well as the BAKER group can), because action based on such an estimate would be adventuristic. Adventurism, in this sense, is a cardinal sin to the Soviet elite. In addition to these points, the Soviet always expects attack by world capitalism, since it is invertedly argued that war is essential for the preservation of the capitalistic system. Consequently, increased NATO strength in the period 1954-1956 can be viewed as a serious danger. War in this period would be yielding to provocation, a second major sin in the Soviet code. Yielding to provocation means here yielding the initiative to the enemy and accepting battle on terms of his choosing. I buttress the immediately preceding logic with a final remark. In spite of the French, it does seem perfectly clear that German divisions will be formed in increased strength during the period 1954-1956. Fear of German military might is one of the most outstanding characteristics of the Soviet mind. I use all of the above reasons to suggest that the Soviet will not in fact rest content with gains to be achieved by cold and lukewarm war techniques.

In mid-53, however, because of the weak NATO forces, including our own tactical atomic bombing capability, the Soviet could well calculate that a quick seizure of all of Europe, including our flanking positions in Scandinavia, in the United Kingdom, in Africa and in the Near East, would be perfectly feasible. Combine this with the previous ideas that damage to Mother Russia can be minimized so that political control is not lost. The physical damage done, including Soviet casualties, is completely irrelevant. Loss of production capability and military stocks is again unimportant if a quick seizure of Europe is assumed.

Consider a plausible consequent pattern of events. We are denied all peripheral footholds in Europe, a Europe which the Soviet Union is integrating into her economy. Russia continues nuisance atomic attacks on the United States Zone of the Interior. Under the strongest pressures from our citizens, all our resources are diverted to the

The above are my views and I believe them firmly. I have tried to show that 1953 should be considered by all odds a most critical year. In view of its proximity, I must also indicate why June of that year is nominated. The reasons are partly connected with the timetables discussed above in regard to Soviet offensive and defensive capabilities. But technically, choosing June minimizes the cover of darkness required by our strategic air command, and thus minimizes Soviet airborne electronic requirements and maximizes the efficiency of conventional ground defenses. In the technical realm, maneuver for ground forces, including low water levels in the river barriers and maximum light for superior Soviet tactical air are present.

How is all of this connected with the Study Group BAKER evaluation? First, I believe that our analysis for mid-1954 will lead to requirements which will turn out to be feasible ones. Feasibility may, however, demand a reduction in the number of weapons allotted to the strategic attack (and I believe an excellent case can be made out for deletions from the target list) and a diversion of strategic carriers to the tactical role. If this is the outcome of our study, then it follows, to my mind, that we must at the earliest possible moment attempt to see if our methods could possibly demonstrate containment in mid-53. Here, there is no idea of recommending new weapons or trying to increase the forces which would be in being. Instead the entire question reduces to a study of the strategies of allocation which would permit containment in mid-53. This implies that the BAKER study should immediately continue along these lines during the first quarter of 1953 if any contribution is to be made to the fighting of a war which, as I explained in the preceding material, seems to me most terrifyingly likely.

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construction of an impenetrable air defense umbrella. Remember at this point that 100 weapons have already been placed on the war-making and capital-making elements of the American economy. Crediting us with recuperation during the third and fourth years, we now find ourselves facing an integrated Soviet Europe possessing a total war potential very much in excess of that of the isolated United States. It is difficult to see how we could then contemplate offensive operations at inter-continental distances. I suggest that we would quit, even with the prospect of a later World War IV before us.

Let me turn now to the situation obtaining if the Soviet decides to delay World War III until the post-1956 period. A strong reason for such deferment is the expectation that fusion weapons would be available to Russia in quantity. Against this must be balanced the consideration that the United States also has this weapon as well as an excellent home defense system and has succeeded in building adequate NATO defense forces. These considerations in themselves are perhaps sufficient to demonstrate the undesirability of war in the post-56 period to the Soviet Union. But there is a far stronger line of technical argument which can be given. I now turn to this argument.

Not only will both sides have fusion weapons in 1956, but because of the continual growth of the stocks of fissile material it is perfectly feasible to contemplate the use of atomic warheads in ground-to-air missiles. This immediately denies to an attacker saturation or cell tactics which in normal air doctrine are employed to achieve a high probability of weapon delivery even in the face of relatively high attrition levels. If the attack must then be made by singles, the attacking aircraft should be very easy prey for improved conventional defenses.

Later in this decade another technique presents itself. Low-flying aircraft or missiles will to a certain extent nullify the value of ground-to-air missiles and other conventional means of defense. But it is not at all incredible to conceive of neutron generators held aloft by barrage balloons and causing pre-detonation of weapons attempting to come through. At this point in time, the late 50's and the early 60's, we have probably reached the era of the long-range, high altitude ballistic or glide rocket. Because of the extremely high speeds of such weapons, an even higher premium is now placed on the lethal radius of the warheads in the defending ground-to-air missiles. But, a fortiori, a most adequate stockpile of fissile material is at hand.

It follows that delaying war after 1956 leads to the possibility of mutual blows exchanged, perhaps inconclusively, on the Russian and American homelands with either a stalemate or the impossibility of conventional ground operations in Europe because of the threat of the tactical use of fusion weapons. Contemplating such a state is then once more adventuristic.

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SSG Memo No. 239

COMMENTS ON

"WHEN SHOULD STALIN PUSH THE BUTTON"

In an informal paper entitled "When Should Stalin Push the Button?", dated 23 October 1952, Dr. E. W. Paxson of RAND stated that in his personal opinion, the Soviet Union should initiate war in June, 1953. From the Soviet point of view, he thinks that this date would be the best time for attack throughout the entire period of 1945-1965. Dr. Paxson has held to this opinion for several years. He reiterated it at the beginning of the current year which, according to him, is a most critical date.

A few preliminary words should be said about Dr. Paxson's method. Dr. Paxson assumes that in each military situation, there are a limited number of dominant factors on which hinges the decision to fight or to stay home. An estimate of great reliability can be made by restricting the analyses to these key factors rather than trying to assess a multitude of unmanageable data. In the past this method has been applied most effectively. For example, Admiral Lord Fisher estimated in 1910 that the Germans would go to war in 1914 and based this estimate on nothing but the date of the completion of the Kiel Canal. In 1939, Hitler's decision to go to war was influenced by his estimate of when the western air forces would acquire strong striking power. Hence, Dr. Paxson's method appears sound and will be accepted as a valid approach to the problem. The question is merely whether his facts are right and substantiate his conclusion.

Dr. Paxson's argument is based on the following points:

1. The initiation of hostilities at dates subsequent to 1953 would put the Soviet Union at great risk through the development of American armaments, the emergence of H-weapons, the strengthening of NATO, etc. This point will not be discussed in this paper.

2. By mid-1953, the Soviets will have an atomic stockpile adequate to reduce American munitions production capability by approximately 50 per cent during the first two years of war. Assuming a 50 per cent wastage of bombs, the Soviets, according to Dr. Paxson, would need a stockpile of 150 weapons. This point also will not be discussed in detail.

Undoubtedly, 100 bombs on American targets would cause a great deal of damage. However, it is unlikely that the Soviets, with their professed fear of "adventurism" would rely on a minimum stockpile. They might do so under strong compulsion, but considering the size of

the American target system--especially if we include in it SAC and other atomic air bases--and considering the Soviet intent to minimize the risk in their ultimate "great gamble," it seems more likely that they would choose D-Day at a time when their stockpile is more adequate.

As a guess, the Soviets will tend to consider 500-1,000 bombs as a minimum stockpile they must have before initiating global war. Furthermore, should the Soviets elect to utilize fissionable materials in the development of their antiaircraft defenses in order to bolster the doubtful effectiveness of their system, the availability of suitable numbers of nuclear weapons for offensive weapons would be delayed. In this connection, it would be a mistake to consider bombs independently from carriers. Without going into details, it is at least questionable whether the Soviets would consider that their present TU-4 capability is good enough for operations against the U.S. If they were to rely on submarines, and assuming that they have an operational pulse jet or rocket, the difficulties of designing an effective missile warhead and the coincident penalty in the economical use of fissile materials probably would delay their acquisition of a "sufficient" stockpile.

3. Dr. Paxson's third point, which is really the crux of the argument, is that by mid-53, the Soviets will have an air defense system capable of neutralizing the SAC offensive. Conversely, according to him, American air defense will become truly effective only by 1956 when Nike will be a key component of the U.S. defense network. Hence, the Soviets will have in 1953 a capability to attack the U.S. while they also will possess a capability to defend themselves effectively; they could deliver their stockpile on U.S. targets, while SAC could not deliver the U.S. stockpile on Russian targets. At later dates, the American defense and offensive capabilities would increase, and while this also would be true of the Soviet atomic strength, the war would become less of a one-way street and become more of a slugging match of mutual exhaustion.

Dr. Paxson's estimate about the operational availability of Wasserfall is based on the assumption that this missile, or missiles of a similar type, "have had top priority in Soviet research and development. German scientists and engineers originally concerned with the program have been used." While these assertions cannot be proved with certainty, they undoubtedly are excellent assumptions and in the absence of contrary intelligence, should be considered as relevant. Dr. Paxson goes on to say: "Judged entirely on the basis of a liberal time scale for the development of such weapons to the operational readiness point, it is asserted that this weapon can be in large-scale operational use for the defense of Soviet cities by mid-1953."

It is at this point that the argument becomes questionable. Soviet ability to undertake research and development and to build prototypes in

complete security cannot be doubted. But it is an entirely different matter to assert that a weapon can be put in units and be deployed all over the Soviet Union without American intelligence getting even an inkling of the event.

Let us see what an operational availability of Wasserfall would require in numbers. The Germans worked out several systems of Wasserfall deployment. They calculated the requirements for an area defense of Germany alone, for the area defense of Germany and France, and the requirements of a point defense of 60 cities. They concluded that area defense requires three parallel lines of deployed units at a maximum distance of 50 miles between lines, and a maximum interval of twelve and one-half miles between each battery of four launching sites within each line. Point defenses would require three rings around each city, or a total of 113 batteries per target. Since this requirement is prohibitive, the Germans were willing to settle for two rings of 25 and 50-mile radius, which would necessitate 38 batteries per defended town.

The German figures are based on accuracy requirements as calculated in 1943. If the Russians were to achieve better accuracies and ranges the number of missiles could be reduced. On the other hand, it is probable that the Soviets will be restricted to far lower accuracies, not necessarily because their technology would not be advanced beyond the German level of 1943, but because operational degradations would be more significant in Russia than in Germany. If so, these German figures would have to be considered to be conservative.

The German calculation also was based on the assumption that the defense system would be based entirely on missiles. The availability of fighters was ignored, although it is conceivable that an existing all-weather fighter capability could reduce the requirement for missiles. It is, however, doubtful that this actually would be the case. Given the very low kill rates of fighters, there would be no point in diluting the missile system with an unproductive fighter capability. Fighters would remain in the game as an added reinsurance factor, as a mobile defense which could be thrown into the breach, and particularly for low level defense, but the existence of fighters per se hardly would reduce the requirements for an all around missile system.

German calculations are valid for a speed of 335 miles/hour on the part of the attacking bombers. Should the speed of the attack system increase, Wasserfall requirements would go up.

The geography of Russia does not lend itself as easily to area defense as do Germany and France. For one thing, the area is much larger. Second, many of the presumable targets are really "points" in the middle of nowhere inasmuch as large portions of the USSR are uninhabited. Third, the requirements of Wasserfall are such that

railroads are necessary as an integral part of the logistics system. Missile sites would have to be located close to rail lines; thus, there would presumably remain many gaps in an area defense established on the basis of the inadequate Russian railroad system. On the other hand, there exist in the Soviet Union certain areas such as Central Russia, the Urals, and the Central Asia industrial towns which could be defended by an area system.

It would be necessary for the Soviets to combine the area and the point defense systems. On this basis, a rough calculation shows that the perimeter of the territories to be defended by an area system is about 6,000 miles long. There are, in addition, about 15 cities outside of these areas which would have to be defended by a point system. Also, the five Russian cities which contain the most important targets would have to be defended through an additional point system even though they are situated within the assumed area system. This means that the presumed Russian defense system would consist of an area with a perimeter of 6,000 miles plus 20 point targets. This does not include at least 20 vital air bases and atomic installations requiring point defenses.

Assuming that the German force requirements were on the high side, we could reduce the area defense from a triple to a double line and space the missile batteries at 20 rather than 12 1/2 miles. This means that 600 batteries would be required for the area defense. Reducing the requirement as estimated by the Germans of 38 missile batteries per city to 30 batteries, there would be a minimum need for 600 batteries for point defenses. Allocating arbitrarily five batteries for 20 key military installations, there is a requirement of 100 batteries. Thus, the entire system would need 1,300 batteries.

Conversely, if we assume that the Russians would discard the area system as inapplicable for their purposes and would decide to defend 100 cities with an average of 20 batteries each, the requirement would be 2,100 batteries.

Speaking in more general terms we can estimate that Soviet air defense requirements lie between 1,500 and 2,000 batteries, not counting satellite areas and China.

Fifteen hundred batteries would require 6,000 missiles for one full salvo. Assuming that there must be a minimum reserve of at least two additional salvos, we would have a requirement of 18,000 missiles, to which must be added a reserve for mal-functioning missiles of about 10 per cent, or a total of 20,000 missiles at the battery sites.

The Germans calculated that they need 129 officers and enlisted men in the T/O of each battery. This would mean that, exclusive of

support organizations and higher staffs, approximately 200,000 men would have to be assigned to the batteries.

Considering the novelty of the weapon and the highly technical services required, a rather intensive training program would have to be operated. This program would include practice firings. Although a large percentage of these could be done through simulation techniques, a certain minimum would have to be actual firings. Assuming one such firing per each ten batteries, there would be 150 training shots and coincidental destruction of a number of drones. Actually, we have some knowledge of Soviet missile firings, but it is believed that these were in the nature of test rather than practice shots. There are no indications that Wasserfall type missiles were used for practice.

The storing of the missiles close to the battery sites will require a rather elaborate supporting system. While in storage, the missiles require continuous attention. They must be maintained in dry, well-ventilated and heated storage rooms where constant temperatures are necessary. Hence, heating plants must be available to each storage area. The storage bunker for each battery must be large enough to hold at least 12 missiles.

On the basis of German data, it can be calculated that the construction of the storage sites alone will consume close to one and one-half million tons of wrought iron. There also is a heavy requirement for reinforced concrete. The Germans calculated concrete needs at 800 square meters per battery and of a thickness sufficient to carry a load of one ton per square meter. There are numerous other requirements of substantial dimensions, some of which would be difficult to satisfy, especially rocket fuels and electronic gear.

Equipment is needed to transport missiles from the railhead to the storage site and to move them rapidly from the storage site to firing points. This requires special trucks, hoists, cranes, and similar equipment. The rocket fuels must be carried in special anti-corrosive tank cars and stored in corrosion-resistant containers. There is a requirement to keep batteries charged while at the site. It follows that the sites probably would have to be serviced by power or power relay stations.

The deployment of these missiles would necessitate fairly heavy railroad traffic, which hardly could go entirely unnoticed. Each missile is transported in one railroad car and it is probable that special cars would be required. Even after the missiles are in place, quite a number probably will have to be returned to central maintenance and repair shops so that, once the system has been organized, a continuous flow of rail traffic would be expected to occur. The chances are that in areas with poor road facilities, special railroad

sidings and spurs would have to be built. The logistic requirements would be somewhat reduced if the Soviets were to use solid rather than liquid fuels.

This does not necessarily mean that the Soviets would be unable to provide the complicated logistics and procure the necessary materials, but simply marshals support for the contention that American intelligence should detect and possibly identify some indicators if the Russians really were in the process of building an operational antiaircraft rocket system.

The latest intelligence indicates merely that the Soviets are still developing Wasserfall and that they seem to have worked out a usable guidance system.

Admittedly, we should not be blind ourselves to the possibility of technological and operational surprise. If it is conceivable, but highly improbable, that by a very astute, although costly and cumbersome system of camouflage, the Soviets may succeed in overcoming these various difficulties. Even so, it would be a mistake to become paralyzed with a thought of a fully effective Wasserfall defense. For the time being, it must be assumed that the Russian Wasserfall will have the same basic defect which was characteristic of the German Wasserfall; its ineffectiveness in the so-called "dead space" up to 18,000 feet. This zone of ineffectiveness proves to be the area where, so to speak, the "flank" of Wasserfall can be turned. It also will be necessary for the Soviets to protect missile sites against attacks at low altitude. Regardless of the technological difficulties of such a defense, this means that the whole Wasserfall system must be wellnigh duplicated by a low level defense system protecting Wasserfall as well as strategic and other air defense targets. The procurement of effective air defenses requires the pyramiding of several systems upon each other. Hence, even under the worst conceivable conditions for the U.S., wide gaps will be left open for the prosecution of air opportunities within the Soviet Union.

Reverting for a moment to the psychology implicit in Dr. Paxons's paper, we would have to assume that the highest bolshevik leaders who are not technical men would (1) understand the significance of the Wasserfall argument; and (2) accept the experts' word at face value. We also would have to assume that (3) the experts would dare, despite the hazards of the Stalinist regime, to stick their necks out to the point of claiming full effectiveness for Wasserfall and (4) that the test firings would be a 100 per cent success. This is all very unlikely. If American test firings are at all indicative of what could happen in the Soviet Union, the chances are that the Wasserfall technicians will be highly cautious in their predictions to the Soviet elite concerning the effectiveness of this weapon.

In the absence of indicators and other convincing intelligence to the contrary, the probable state of Soviet missile-air defense developments is summarized as:

a. The Soviets possibly are nearing the end of the Wasserfall development period;

b. Wasserfall will not be an operational capability during 1953, except perhaps in a few locations to which the Soviets ascribe particular strategic value; and

c. It is highly doubtful that even if the Soviets were in possession of an operational Wasserfall system, they would ascribe to it a present-day effectiveness of such magnitude that they would be willing to discount the threat of an American atomic offensive.

4. Turning to the U.S., it is apparent that, technologically, American air defenses are approximately in the same situation which we impute to the Russians. The NIKE missile was test flown, and while it could be easily jammed from the target aircraft, the U.S. Army asserts that the operational model will be far less "jammable." (Wasserfall's susceptibility to jamming also would be debated hotly. In any event, it is not a foregone conclusion that an operational Wasserfall cannot at least in the first period of its existence be handled quite comfortably with our ECM--assuming fair intelligence on frequencies.)

As presently scheduled, and disregarding any cut-backs, the first NIKE missile units would become operational by December 1953, which date is subject to possible further changes. NIKE has a speed of 1.2 to 2.5 Mach, and reaches an altitude of 60,000 feet. The Navy's TERRIER may become operational by July 1954, and while designed primarily for use from ships, it also could be employed from the ground. TERRIER will have a speed of 1.8 Mach and a ceiling of 40,000 feet. The air-to-air FALCON of the USAF is estimated to become operational by May 1955. It will develop a speed of 3.0 to 1.2* Mach and its altitude will depend on the altitude of the mother ship. In June 1956, the first BOMARC unit will become operational, to be followed in December 1957 by the Navy's TALOS. It is believed that this latter date does not refer to the missile as such, but to the atomic warhead which it is designed to carry.

In a pinch, it should be possible to employ MATADOR for anti-aircraft use. MATADOR is going into production at the rate of ten a month and is scheduled to become operationally usable by July 1953.

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*FALCON reaches its highest velocity shortly after firing, and decelerates gradually to two-fifths of its original speed.

The planned output in case of mobilization is 540 a month with single shift production. If it were necessary to use MATADOR temporarily for antiaircraft purposes, production could be upped by triple shifts to about 1,200 per month. MATADOR'S accuracy is not good enough for antiaircraft purposes but to a degree, this deficiency might be overcome through the use of atomic warheads.

It should not be forgotten that conventional antiaircraft artillery has made rather considerable progress since the end of the war and that the fighter defense system, including all-weather fighters, has been materially increased since the Korean war. Whether or not we are highly conscious of our deficiencies, the significant question is "How does the U.S. air defense system look to the Soviets?" They hardly will be inclined to write it off as ineffectual.

The point is that during 1953, the Soviets would not have anything like a free passage to the target, provided, of course, our equipment would have been deployed in time. Furthermore, from 1954 onward, U.S. air defenses will incorporate increasingly more ground-to-air missiles. If the above estimate of the Russian timetable is anywhere near accurate, it would follow that the Russians should gain a Wasserfall capability approximately at the same time when the U.S. acquires a considerably stronger defense posture through NIKE, TERRIER, FALCON, and BOMARC. Unless the Soviet atomic program is increased to very much higher levels, the U.S. should obtain a decisive defense advantage from 1957/1958 onward. At that time, surface-to-air missiles with atomic warheads will become available.

If by 1955 or so, the Soviets acquire a strong Wasserfall system, they may make it far more difficult for our bombers to reach their targets. However, by April 1955, an operational air-to-ground missile, RASCAL, becomes available. RASCAL has a range of 100 miles, which would allow our bombers to attack targets from outside the range of Wasserfall point defenses. There is no intelligence on a similar Russian weapon which could be used against the U.S., although the Germans developed HS-293, FX-1400, and other air-to-ground weapons. On the other hand, the Soviets might be able to launch fighters from large mother ships as an intermediary technique.

The conclusion is that the current period still must be considered critical in the sense that if current American programs are carried through, Soviet opportunities for a successful air war will progressively decline until a new technological cycle emerges. Mid-1953 indeed would be one of the last dates where the Soviets could risk an air war against the U.S. But such a choice would be the "least bad" and certainly not a favorable choice. For the time being, indications

are that Soviet air defenses are based exclusively or predominantly on fighters and conventional antiaircraft guns. Such a defense system will not prove effective enough to turn back the SAC offensive.

s/t/ CHARLES Y. BANFILL
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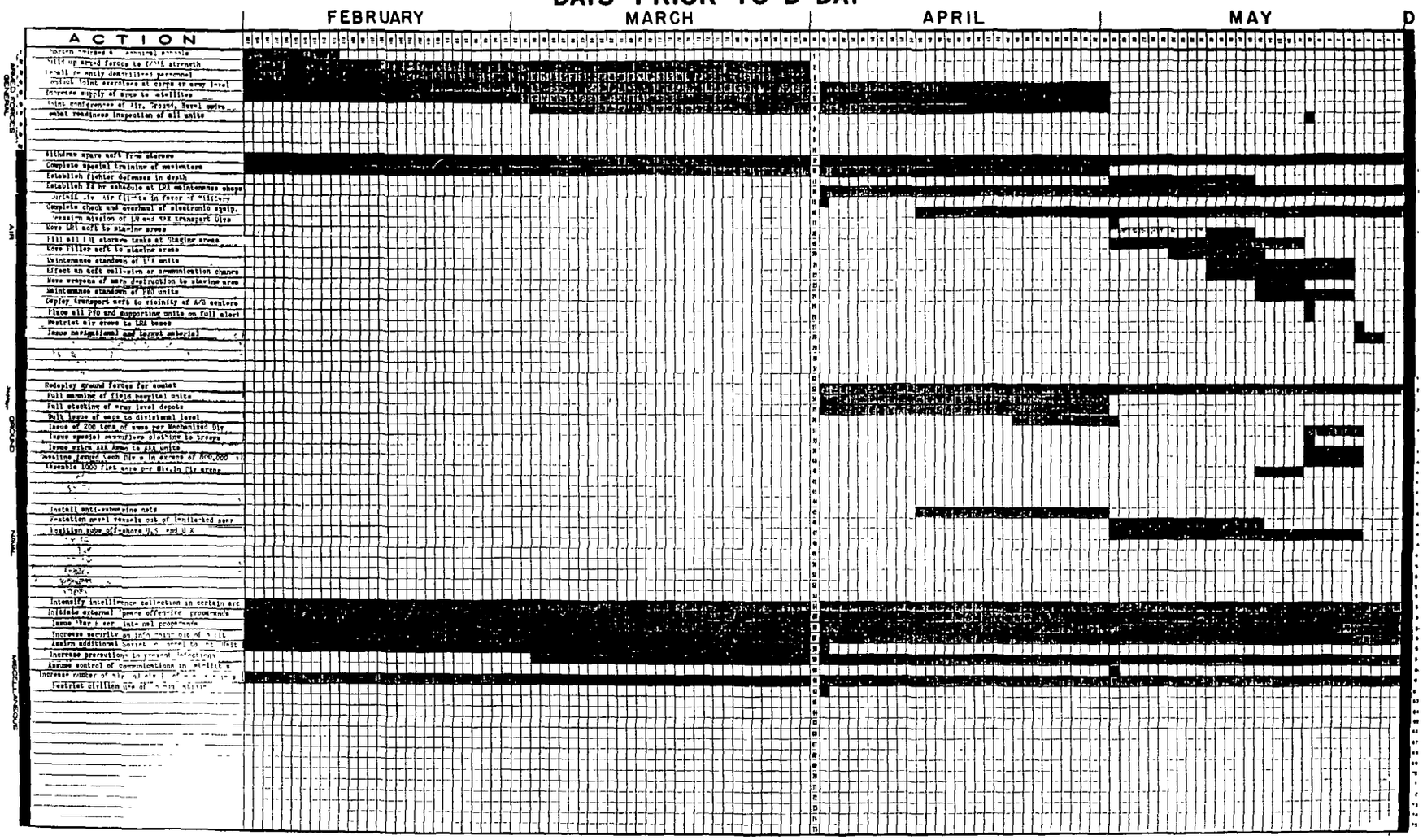
USSR ATTACK PLANNING PLAN

DAYS PRIOR TO D-DAY



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