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OPERATIONAL LEVEL LOGISTICS:
AN EXAMINATION OF
U. S. ARMY LOGISTICAL DOCTRINE FOR THE
OPERATIONAL LEVEL OF WAR

by

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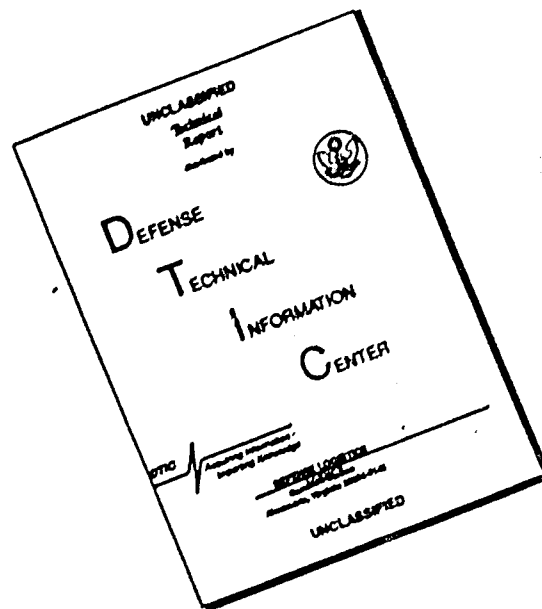
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logistical units will facilitate cross attachment of tactical units.

The monograph concludes that the selective addition of a few personnel and pieces of equipment will enhance forward support and main support battalions support for the heavy division.

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ABSTRACT

Operational Level Logistics - The need for a logistical doctrine for the operational level of war. A historical illustration of the operational logistical tenets of Field Manual 100-5 and review of logistic Field Manuals 100-10 and 100-16.

→ This monograph examines three World War II campaigns. The 1941 German Operation "Barbarossa" (Central Army Group), Soviet Belorussian Campaign of 1944, and Soviet invasion of Manchuria in 1945 are used to illustrate five operational logistics tenets: lines of support, staging, altering lines of communication, sustainment priorities, and force expansion. The doctrinal analysis compares current U.S. logistics doctrine in Field Manuals 100-5, 100-16 and 100-10 to determine if U.S. doctrine adequately addresses the operational level of logistics.

Conclusions derived from this study include: the five tenets are valid, but a sixth, logistical preparation, is needed. U.S. Army doctrine needs to address operational level logistics more completely.

This monograph concludes that greater understanding of operational level logistics is required. Understanding can be increased by teaching operational level logistics in the logistical schools and expanding logistical field manuals to include application and planning of logistics at the operational level of war.



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CHAPTER 1

INTRODUCTION

The campaigns of World War II are well documented examples of the operational level of war. The operational level of war is defined as the employment of military forces to attain strategic goals by the design and conduct of major military operations within a theater of war or theater of operations.¹ The operational level of war was formally adopted by the United States Army with the publication in 1982 of Field Manual 100-5, Operations. The ongoing development of U.S. doctrine for the operational level of war has been accompanied by development of manuals addressing echelons above corps. While these manuals address the organization and combat operations of large army organizations, they fail adequately to address large scale logistics operations. Operational level logistics must be understood to employ effectively limited logistical resources at the campaign level. Failure to understand the dynamics of operational logistics may result in future defeat.

Current logistics doctrine generally addresses retail and wholesale sustainment at the strategic level, or combat service support (CSS) at the tactical level. A large gap exists between national level wholesale sustainment (strategic) logistics and the CSS of tactical units. This gap should be filled with a concept for operational level logistics. This apparently has had a low priority in U.S. Army logistical doctrine development.

The thesis of this paper is that there is an operational

level logistics perspective which has not been fully developed in U.S. Army doctrine. Logistics at the operational level should be oriented toward support of operations rather than support of units. The critical planning considerations of an operational logistics doctrine are expressed in Field Manual (FM) 100-5, Operations (pre-publication edition), and consists of basing, lines of support, staging, altering lines of communication (LOC), sustainment priorities, and force expansion.

This study will examine the logistics aspects of three World War II campaigns: the 1941 German Operation "Barbarossa" (Central Army Group), the Soviet Belorussian Campaign of 1944, and the Soviet invasion of Manchuria in 1945. These were large operations which employed army, army group, and front formations. Two of these campaigns represent the maturation of Soviet operational art against the Axis powers during late World War II. There are other campaigns which could have been reviewed, such as operations in North Africa, Italy, or Northwestern Europe, but space precluded examining more than three campaigns.

The case studies will examine operational and logistic planning and conduct in light of the operational logistics principles of FM 100-5, with special emphasis on lines of communication and staging. The analysis will then concentrate on current U.S. logistics doctrine in two principal manuals (FM 100-16, Support Operations: Echelons Above Corps and FM 100-10, Combat Service Support) to determine if these manuals adequately address the operational level of logistics.

CHAPTER II

PRINCIPLES OF OPERATIONAL LOGISTICS

FM 100-5 contains descriptions of operational warfare principles with some discussion of operational logistics. The description of operational logistics in FM 100-5 should provide the basis for developing more detailed logistical doctrine.

Operational logistics consists of logistical and support organizations and operations which are required to support campaigns and major operations.^a The area of operations for logistical and support organizations extends from the theater support bases to the combat service support areas. While planning is required to synchronize the logistical and support organizations, the key areas of emphasis can be summarized as follows:

The first consideration is lines of support. Roads, canals, rail lines, and air routes must be kept open to allow movement of transportation assets. Failure to keep routes open will result in decreased sustainment of the force. Different modes of transportation should be used to augment each other, depending upon availability of assets, the threat, and terrain.^b The options for lines of support are along ground, air, or sea routes which may further result in a choice of interior or exterior lines of support. Interior lines radiate outward from a central point or area behind the supported force. This rearward centralization allows more efficient utilization of limited assets through increased integration, consolidation, and rapid shifting of logistical resources.^c However, two problems may develop:

increased opportunity for the enemy to interdict the lines of support due to consolidation at central points, and divergence during offensive operations.⁵ On the other hand, exterior lines converge from several points in the rear toward a centralized point directed at the enemy. This requires more assets because points of entry from the friendly communication zone into the operational area are widely dispersed. There are, under the concept of exterior lines, more basing facilities, ports, and transshipment points which require more infrastructure to sustain the force. However, the enemy will have more difficulty in interdicting this sustainment structure because of multiple lines of support.⁶ On the other hand, as convergence on the enemy occurs, the requirement to shift assets among these widely separated lines of support decreases. This decreases vulnerability to unanticipated enemy actions.⁷

The second consideration, staging, as described in FM 100-5, consists of the movement and massing of support in forward areas when lines of communication become overextended during the campaign.⁸ The movement forward of the sustainment structure may require construction, movement control, and detailed planning, to include decisions on how close to the front the forward bases should be located. There develops a relationship among the factors of time, lines of support, and combat power. If time and resources required for stockpiling are adequate, staging forward can result in greater future capability, but this must be weighed in view of current requirements. It is of little benefit to prepare in detail for protracted operations if striking a rapid

blow is required. As lines of support lengthen, more assets are required to keep the lines of communication functioning properly, because it takes longer for the supplies to arrive at the front and more resources to support the required assets. This may require adjusting the location and/or mission of the support bases during the campaign.⁹ These potential adjustments require a continuous exchange of logistical and combat operations data to facilitate the planning and execution of sustainment. Planning becomes critical in fast moving operations where the lack of logistical support structure can quickly erase the capability to sustain combat.¹⁰

The third consideration is altering lines of communication (LOCs). The fluid battlefield requires an ability to move LOCs. Moving an LOC can easily result in a dangerous interruption of support during an operation, if not properly planned and executed.¹¹ Thus, the decision to alter an LOC must be weighed in view of current operations, the sustainment posture, and the overall operational objectives. To overcome this difficulty the operational logistical system requires flexibility, emphasis on rehearsal, contingency planning, and integration of all possible resources, including air, host nation support, and tactical combat assets.¹²

The fourth consideration concerns sustainment priorities which are utilized to conserve resources and to route sustainment to vital units in an operation.¹³ Logistical planners develop priorities based on the commander's intent which the logistical operators implement. Shifting of priorities between operational

units or between operational areas, while accomplishing the mission, creates problems for logisticians. This may require reallocation of stocks, resources, personnel, and material.¹⁴ During reallocation, support rendered to priority forces must not be allowed to fluctuate.

The concept of prioritization is based on the theoretical proposition that war is a type of organized confusion. If there existed such a thing as a frictionless, perfect campaign, we might be able to plan without regard for unforeseen occurrences. Prioritization establishes, ahead of time, what is important and gives the operator a gross management tool for dealing with that confusion. Prioritization depends on resources being available which can be directed toward critical areas at critical times in the operation.

The last consideration is force expansion. A proper ratio should be maintained between combat, combat support, and combat service support forces. Combat units should not exceed the logistical system's capacity for support. This requires that logistical assets be integrated into the force buildup. As the force expands, support infrastructure, stockage, services, assigned missions, and terrain requirements of logistical units must expand accordingly.¹⁵

The five considerations discussed above are critical for logistical operations at the operational level of war. Integration of the considerations can result in efficient and effective logistical operations. The validity of these considerations can be established by an examination of historical

case studies.

CHAPTER III OPERATION "BARBAROSSA" (1941)

Operation "Barbarossa" was Hitler's effort rapidly to defeat the Soviet Union. His strategic goal was destruction of the Soviet state through destruction of the Soviet Army and seizure of Leningrad, Moscow, and the Ukraine (see map 1).¹⁶ Operational plans, in June 1941, called for rapid destruction of the Russian army within 300 kilometers of the Soviet-Polish border. Seizure of Moscow would then occur after a three week pause for resupply of the Central Army Group, and before winter set in.¹⁷

Soviet plans called for a forward defense. Forces were to defend from prepared positions close to the German-Polish border and conduct quick counterattacks with armored forces to stop German penetrations. If the forward defense failed, then the Stalin line (Pskov-Kiev-Odessa), which was not fortified, would be defended.¹⁸

German logistical support plans were tailored to the operation. The planning required the creation of supply depots in the vicinity of Warsaw, formation of army supply bases, additional supply vehicles which would operate in front of the German infantry to resupply Panzer units, rapid gauge changes of Russian rail lines, and capture of Russian rail cars for German use. These actions would allow the forward movement of stocks and supply bases in a timely manner. The plan called for Central Army Group to pause for three weeks near Minsk to permit the resupply of combat units and then to seize Moscow before winter set in.

In early 1941, German field supply bases were formed near Warsaw, heavy truck transportation regiments were assigned to support Panzer divisions, stockpiling commenced in late March 1941, and the German armies established their own forward supply points.¹⁹

The German Central Army Group's conduct of the operation, beginning on 21 June 1941, did not proceed as planned. The Germans initially had great success, but failed to achieve decisive success as planned. The short pause for resupply took almost three months, instead of three weeks, and Moscow was not taken.

Initially, Soviet defenses were overwhelmed. There was little air and tank support, and Soviet ground forces were quickly surrounded.²⁰ However, the extended German pause allowed the Russians to fortify, to create additional forces, and to receive additional war materials. These actions permitted a successful defense of Moscow.

Logistical execution during the campaign did not go as the Germans planned. The three week pause became almost a three month pause (from 20 July to 2 Oct 1941) because of inadequate logistical build up and the strong Soviet resistance.²¹ Panzer units tore up the few roads available, resupply vehicles for the Panzer units were held up by German infantry units, rail gauge changes were slowed due to a lack of resources, few Russian rail cars were captured, rains slowed down road movement, and strong Russian counterattacks caused unexpected German ammunition expenditures.²² However, the most important reason for the German

failure was the lack of rail capacity. There were too few trucks to handle German transportation requirements. This transportation problem was further complicated by a German division of authority between the Quartermaster General and the Chief of Transportation.²²

Lines of communication (LOCs) were a critical factor in the failure of this operation. The Germans' inability to move stocks by rail led to increased delays and subsequent supply difficulties during the assault on Moscow.²⁴ German General Paulus had documented LOC problems in pre-war maneuvers, but Hitler and the German General Staff failed fully to appreciate the supply problems caused by lack of roads and railroads in Russia.²⁵ Interior lines of communication became a problem with the expansion of frontage as the German forces approached Smolensk. This required flexible use of LOCs, which was not possible due to difficult terrain and the poor transportation network. The assertion that additional trucks could have contributed to the support of operations is questionable since German petroleum production capability was hard pressed to maintain the vehicles already assigned. In fact, there were occasions when stocks were at railheads and resupply vehicles had no fuel.²⁶ The ability to create alternate LOC's was not contemplated, except for some very limited aerial resupply. Forward staging of supplies was planned for, but failed to reach acceptable proportions because of the lack of movement along the LOCs.

Despite the logistics delay of almost three months before attacking Moscow, the stocks concentrated prior to that operation

were inadequate. Lack of spare parts, tires, and fuel was critical.²⁷ There was a lack of repair parts because of Hitler's priority for more weapons systems, not repair parts.²⁸ To further complicate matters, the logistical estimates used were based on tonnage that could be carried, not on the requirements of the operation. This resulted in reduced planning quantities.²⁹ Lack of winter clothing was not the result of poor supply planning, but rather lack of transportation to insure timely delivery.

Sustainment priorities went to Panzer units. This resulted in some rapid tactical successes. However, poor pre-operational staging and movement forward along LOCs resulted in an acute shortage of resources which failed to continue adequate support of high priority recipients. Failure to maintain stocks to support prioritization was the result of poor movement forward of resources because of few transportation assets. The Germans had supplies to support the operation, but their failure to prioritize LOC reconstruction resulted in a delayed flow of stocks to the unit level.

Force expansion was accomplished by adding heavy transport regiments, but planners failed further to increase assets to meet new requirements. Continued lack of additional personnel to effect transshipment from rail cars to trucks resulted in transshipment bottlenecks which were pushed eastward instead of being resolved.³⁰ Lack of engineer support also slowed rail gauge changing and reconstruction of bridges, roads, and culverts.

In summary, Operation "Barbarossa" was flawed by poor logistical planning and objectives based on short time tables.

Lack of adequate lines of communication and less than optimum stockpiling caused German forces to operate within a narrow range of success. The fact that they came so close illustrates the fine state of training German soldiers had achieved by 1941.

CHAPTER IV

SOVIET BELORUSSIAN CAMPAIGN (1944)

By early 1944 the Soviets had the upper hand in combat power, but were uncertain where to start their summer offensive that year. The operational objective selected was the elimination of the German salient of Vitebsk-Babruisk, in the central sector of the Eastern Front, and the possible liberation of Minsk. The operation was to be conducted under some restraint to prevent exceeding the offensive culminating point. Success of this campaign would not end the war. The Soviet Army would continue the attack later to seize Poland and Germany.

Operational plans called for a staggered four front attack to conduct shallow and deep envelopments. The Russian 1st Baltic and 3rd Belorussian Fronts, known as Group A, would conduct the northern pincer, while preventing reinforcements from the German Northern Army group reaching the German Central Army group. This attack would start first. The Russian 2nd and 3rd Belorussian Fronts, Group B, would conduct the southern pincer (see map, page 32), while pressuring the German 9th Army and then the German 4th Army to prevent their withdrawing. This attack would start one day after the 1st Baltic Front attack which was to occur on 18 June 1944.²¹ In order to maximize secrecy, German air

reconnaissance would be eliminated and all movements would be made under radio silence, at night, and well behind front lines.²² Russian partisans would attack two days prior to the 1st Baltic Front attack to disrupt the German rear area.

The German Central Army Group planned a forward defense, yielding no ground to the enemy. Mobile forces would counterattack against penetrations, and forces in fortified villages would delay Soviet attacks and allow Panzer units time to regroup for attacks.²³

Soviet logistical planning for the operation was initiated in early April to develop necessary bases to support the campaign.²⁴ The logistical concept called for stockpiling before the start of the operation. If a tank division was in heavy combat for five days, the division was to be pulled out of the line, refitted, and reinserted when needed.²⁵ Civilians in liberated areas would assist by sending supplies forward by hand further to support the operation.

Logistical buildup prior to the operation was extensive. All nonessential rail movements were curtailed to maximize rail movements for stockpiling and movement forward. Further to facilitate logistics movement, supplementary rail sidings and platforms were constructed, even in division rear areas, to speed up deliveries. Additional rail sections were assigned, and a uniform number of trains were allocated for the last 21 days before the operation in order to build up a ten day stockpile of supplies and equipment.²⁶ All transportation assets within the Soviet armies were consolidated at front level. Logistical assets

were massed in the vicinity of the main effort to maintain the momentum of the attack. Even truck refueling points and hotels for drivers were constructed, as were many bridges and roads.³⁷

The start of the Russian attack was delayed from 18 June to 23 June.³⁸ Initial reconnaissance attacks of 22 June became a general Russian offensive.³⁹ By 28 June the 9th German Army was surrounded and the Soviets moved deeper to surround the 4th German Army, which surrendered on 8 July. Minsk was liberated and the Brest-Grodno-Kaunas line was occupied by 12-15 July (see map 2).⁴⁰

Logistical support of the Eastern Russian Campaign was based on a planned ten-day stock of supplies which was almost achieved.⁴¹ Advanced supply points were generally maintained 60-90 miles to the rear of the advancing troops and were positioned to support the armies. Engineer support allowed sustainment by repairing railroad tracks, and constructing roads and support facilities along LOCs. Local labor was recruited to move supplies.⁴²

The support effort became strained 270 miles into the German rear.⁴³ This strain was the result of inefficient regulation of traffic, breakdown of trucks, and difficulties in distribution of supplies to tank corps.⁴⁴ The difficulties were soon overcome by the following expedient measures taken during the operation: special traffic organizations, construction of repair facilities 100-120 kilometers apart along resupply routes, circumvention of intermediate levels of command to deliver directly to forward combat units, consolidation of infantry units' transportation assets to support tank units, and limited aerial resupply.⁴⁵

Lines of support and staging were important for this

campaign. Lines of support were well organized, as illustrated by the wide use of trucks prior to completion of the rail lines and the ability to sustain the operation to a depth of 500 - 600 kilometers. Buildup prior to the campaign had perhaps the greatest impact. The ability to move additional forces of two tank armies, three infantry armies, three tank corps, one rifle corps, and three cavalry corps illustrates the complexity of this buildup.⁴⁶ The Russians were able to conduct these movements in secret. The Germans learned only a few details, knew an attack was imminent, but not the location or objective of the attack.

Russian force expansion was illustrated by the increase in engineer, rail, and truck units to support a larger operation. A large number of engineer units were assigned prior to the operation. More important, they were further expanded in early July to increase the rate of rail repair. The increase in rail units in mid July enabled quicker resumption of rail deliveries and movement of depots forward.⁴⁷ This enabled the operation to consolidate at the 600 kilometers depth.

Sustainment priorities went to exploiting armored forces. Truck support was massed for these efforts, as stated previously, but efficient utilization in support of the main effort depended on non-divisional transportation assets obtained from supporting infantry units. This resulted in reducing the combat power of supporting infantry units because of supplies diverted to the main effort. Truck assets taken from the infantry units were returned after the rail lines were repaired. Once the trucks were returned, supplies started flowing to the infantry units which

increased their combat power. The logistical assets massed to support the exploitation did not deploy prior to the penetration, as was done previously, but continued in march column behind the exploiting mechanized/tank forces, which were basically operational maneuver groups.⁴⁰

In summary, the availability of support depended upon planning, buildup of resources, movement along the lines of communication, staging, and rigorous adherence to sustainment priorities. Although there were some problems, improvisation allowed the operation to continue, albeit at a slower rate of advance. These operational methods became the standard for the Soviet Union for the rest of World War II.

CHAPTER V

SOVIET MANCHURIAN CAMPAIGN (1945)

The Manchurian Campaign of 1945 was the graduation exercise for the Soviet Union in World War II. It represented the full extent of operational learning and improvisation within the Soviet Army. The Soviet strategic goal was to increase their control and influence in the Far East by seizing the Manchurian central valley (Harbin-Changchun-Mukden-Port Arthur), and destroying the Japanese Army in Manchuria and other Japanese forces on South Sakhalin and Kuril Islands.⁴¹

Operational plans called for a three front and one army attack to seize objectives through surprise attack, rapid advance, and envelopments to destroy the Kwantung (Japanese) Army.⁴² The main effort was to be the Trans-Baikal Front. Its mission was to

seize Hailar and Wuckakow, cross the Grand Khingan Mountains on the western edge of Manchuria, and destroy Japanese forces. Supporting attacks were to be conducted by the Russian 1st and 2nd Far Eastern Fronts to prevent reinforcement against the main effort (see map 3).⁵¹ The 16th Soviet Army was to seize the Sakhalin and Kuril Islands in a separate operation. Just prior to the attack, a Soviet theater of military operations (TVD) was created to increase command and control during the campaign.⁵²

The Japanese planned to defend within fortified zones. Approximately one-third of the Japanese force was to delay along the borders and then withdraw to the central Manchurian valley.⁵³ Japanese forces would eventually withdraw into a redoubt along the Korean border and continue to resist. Most of the Japanese defenses were positioned in the northeast against the Russian 1st Far Eastern Front. There were only weak Japanese defenses in the western sector of the Grand Khingan Mountains. The Japanese expected the difficult terrain of the mountains and deserts in the western areas bordering Mongolia to provide a natural defense against attack from that direction. Hailar, which was well defended, was along the main Russian invasion route from the northwest and gave the Japanese a false sense of security.⁵⁴ Consequently, all defenses in the west were on the eastern slope of the Grand Khingan Mountains.

Soviet logistical planning for Manchuria started early and was extensive. At the Tehran Conference in 1943 and in another Allied meeting in October 1944, Stalin stated he would fight Japan.⁵⁵ Logistical planning was underway before 30 June 1944

when the Fourth Lend-Lease Protocol was presented.⁵⁶ Logistical preparation required movement of large formations and supplies to the Far East in total secrecy.

Buildup prior to the campaign was generally completed before the attack. Between May and late July 1945, 30 Soviet divisions and nine brigades, plus selected headquarters from Europe, were moved over approximately 10,000 kilometers by rail to the Far East.⁵⁷ Engineer units constructed roads, storage facilities, rail lines, and bridges. Fording sites were also developed by engineer units.⁵⁸ Additional trucks and aircraft were provided to the priority area of the Trans-Baikal Front. In order to insure surprise, Soviet movements were conducted at night and forces were camouflaged during the day. Forces were staged 70 to 100 kilometers behind the front further to enhance secrecy.⁵⁹

The Soviets achieved surprise, and seized most of their initial objectives within six days of the beginning of the attack on 9 August 1945.⁶⁰ At this point, additional directives were sent to the fronts denoting specific objectives within the Manchurian central valley, and orders were sent to the 16th Army to seize the offshore islands. Forward detachments and airborne forces were employed to seize most of these objectives. From 22 August to 2 September, when the Japanese government formally surrendered to the allies in Tokyo Bay, Soviet operations consisted mainly of mopping up isolated Japanese garrisons.⁶¹

Although the Russian logistical buildup for this operation was not entirely complete prior to the attack on 9 August 1945, the buildup was far enough along to support the operation due to

its short duration.⁶² The priority Trans-Baikal Front was the most difficult area because of terrain and distances involved. During the attack, the 6th Guards Tank Army was transported from Changchun and Mukden to Port Arthur by rail because of lack of fuel. The Cavalry-Mechanized Groups had difficulty finding food, fuel, fodder, and water, and 17th Army suffered a shortage of water.⁶³ The fuel problem was so widespread on 13 and 14 August that the 5th Guards Tank, 7th Mechanized, and 9th Guards Mechanized Corps could not advance until fuel could reach them from depots 700 kilometers to the rear.⁶⁴ Lack of water caused the diversion of some ammunition trucks to carry water forward.⁶⁵

In analyzing the campaign, the painstaking care in building up the forces stands out. Use of Lend-Lease supplies delivered directly to Vladivostok on the Asian Pacific coast of Siberia relieved some pressure on the long Trans-Siberian rail shipments from the west. The 22-33 trains per day transiting from European Russia built up the Far Eastern Command's stocks to 33-100 days rations (depending on type of food), 5-10 days of ammunition, and 15-20 refuelings, but did not achieve the original stockage objectives.⁶⁶ Poor roads and lack of railroads in Manchuria resulted in increased fuel usage. During the campaign, the majority of available fuel went to advanced detachments while fuel shortages existed in the main body.⁶⁷ Aerial resupply of fuel required half of an aircraft's carrying capacity just to refuel for the return flight.⁶⁸

This campaign is a good example of exterior lines of communication. Each of the three fronts had LOCs which converged

on the Manchurian Central Valley. The LOCs were utilized to the best extent that terrain, resources, and manpower allowed. The fact that the Japanese did not defend the difficult passes of the Grand Khingan Mountains was critical. Because the Soviets did not meet heavy resistance in the west, they were able to concentrate vehicles to move fuel and water instead of ammunition. Lengthening ground LOCs, coupled with the attrition of transport vehicles, caused increased time to deliver required supplies. This occurred in spite of the additional battalion of vehicles created for each motor transport regiment.⁶⁹ Two air transport divisions delivered almost 3,000 tons of fuel, over 500 tons of ammunition, and almost 1,500 tons of other supplies.⁷⁰ In this operation, LOCs converged on the objective. Thus, we see that alternate LOCs were attempted, utilizing air transport to compensate for poor ground LOCs.

Force expansion was planned for during preparation of the offensive. Increased numbers of engineer, motor transport, air transport, and railway units, as well as combat forces, resulted in almost doubling the Soviet Far East forces. Increases in combat support and combat service support forces, which totaled almost one-third of the Soviet force, enhanced logistical sustainment. Increased numbers of vehicles resulted in a vehicle density of one vehicle for every 15 men, a very high percentage for the Soviet Army in World War II.⁷¹ These added vehicles presented a dilemma to Soviet planners. The added vehicles made up for lack of rail and allowed more responsive supply lines to be developed, but the added vehicles increased fuel consumption and

maintenance requirements.

An excellent example of prioritization occurred during this campaign. Sustainment priorities had to be implemented to correct errors in estimation of fuel usage and lack of fuel availability. Low fuel availability on 12 and 13 August resulted in advanced detachments being formed from all units, not just the exploitation force. The advanced detachments were formed to maintain the attack in an economical fashion despite a lack of fuel. Fuel was first allocated to the advance detachments, allowing the continuation of attacks which brought victory.

Nearly all available vehicles were supporting combat operations and few were available for moving supply points forward. This created long LOCs. The lack of transportation may, in fact, be the most glaring error in logistical planning for the operation. Many problems were manageable during the Manchurian Campaign because the operation ended quickly.

CHAPTER VI

THE WORLD WAR II LOGISTICAL EXPERIENCE

In summarizing these selected campaigns on the Eastern Front of World War II, several things stand out. The Soviet ability effectively to plan logistical support improved over the course of the war. There developed a better ratio of sustainment capability to operational requirements, as illustrated by the increased capability to support operations deeper into enemy territory. More effort was devoted to preparing logistical support. Greater integration of engineer, transportation, and supply assets created

more efficient sustainment. Sustainment operations became more mobile with increased utilization of rail, trucks, and aircraft, and stockpiling forward prior to operations which shortened lines of communication.

As the war progressed, there was an increased emphasis on the lines of support and the ability to move supplies forward. Greater utilization of motor and air transport provided previously unknown flexibility for routing and time of delivery. Buildup and staging requirements became larger and more complex to meet the increased mechanization of forces, increased size of armies, and increased consumption rates on the battlefield. Buildup was made even more difficult because of the need for security and surprise.

Establishing sustainment priorities was critical. The Germans attempted prioritization in Operation "Barbarossa", but failed due to clogged LOCs and poor staging. The Soviets ruthlessly employed prioritization in both the Belorussian and Manchurian Campaigns and were able to sustain operations 600-800 kilometers deep into enemy territory.

Force expansion required allocation of resources to sustain the large formations that fought the three campaigns reviewed above. These increased assets, however, were not enough to do the job without full synchronization of operational level combat support and combat service support assets. In addition, the efficient use of LOCs, forward staging, and force expansion proved critical to sustaining these campaigns. The necessity for engineer support was reflected in all of the campaigns, as was the dependence on motor and/or rail support.

These historical case studies have illustrated the five critical decision areas of operational level logistics. The logistics considerations in FM 100-5 provide a structure for the thinking and planning of operational logistics. Any flaws in the planning or execution of operational logistics will be transmitted to tactical logistics.

Operational plans and support structure must be relevant to the campaign. The Manchurian Campaign was a quick operation, aimed at defeat of all Japanese forces in the Far East, therefore construction of rail lines or roads was not attempted during the campaign and rapid movement of advanced detachments was utilized. On the other hand, rail lines and roads were constructed during the Belorussian campaign because the operation was part of the ongoing continuous operations on the Eastern front in World War II. Large Soviet forces would later continue the attack into Poland and Germany. Thus, logistical support of operational plans may require different structures and operational concepts appropriate to the aims and means of the campaign.

The structure of logistics should result in a continuous flow of sustainment. This flow is a result of connecting strategic, operational, and tactical logistics. The connection is caused by three operational logistics considerations which are common to all logistics levels. They are lines of support, altering lines of communication, and force expansion.

However, there are two operational level logistics considerations which have a greater relevance to tactical logistics and little impact on strategic level logistics. Staging

and prioritization result in an increased likelihood of resources supporting critical tactical operations in war. In Operation "Barbarossa", the lack of staging delayed tactical operations, while prioritization in the Belorussian and Manchurian Campaigns resulted in support of the main effort in the depths of the enemy rear.

Examination of the historical case studies shows that a new operational logistics tenet, logistical preparation, is needed. All three historical case studies had logistical preparation or buildup prior to the start of the campaign. This new tenet applies to both planning and execution.

Planning considerations of logistical preparation, as illustrated by the campaigns, are: time, ability to enact preparation (resources, movement, and storage), secrecy, and sufficiency. Time reflects that logistical requirements for an operation cannot be automatically collected. Ability to enact preparation notes the need for resources, personnel, and equipment to be assembled from operational and strategic sources, and moved to the points required prior to commencement of operations in order to sustain the forces. Secrecy is important because assemblage of forces and sustainment resources can alert the enemy regarding location and time of attack, and prevents the enemy from knowingly massing forces against friendly attacks. The need for sufficient stocks is well illustrated by the campaigns examined. Logistical preparation allows for shorter lines of communication and quicker staging, thus enhancing responsiveness for the combat forces. Yet, logistical preparation must be weighed against

operational requirements, such as security and timing.

In conclusion, the tenets of FM 100-5 provide a general framework for analysing planning, executing, and sustaining operational level logistics. The addition of logistical preparation recognizes the need for extensive planning and resource collection prior to campaign execution. At the operational level of war, logistics dominate day to day considerations. Planning will not insure efficient utilization of assets, but failure to plan may result in the attack stalling short of what might otherwise be achieved. Logistical assets can be massed to support the main effort, and synchronization allows more to be done with fewer resources.

CHAPTER VII

U.S. ARMY LOGISTICAL DOCTRINE

The main U.S. field manual addressing support operations above corps is Field Manual 100-16, Support Operations: Echelons Above Corps. This manual addresses both combat service support and operational level logistics considerations.

FM 100-16 sets forth general principles for logistical support of forces. These include providing adequate sustainment with limited logistical resources, full utilization of all possible sources of support, restricting supplies only to essential forces, and concentrating maintenance efforts on repair and return of major end items.^{7a} Follow-on forces should reflect a balanced logistical capability, be transportable, and provide for rapid resupply.^{7b}

In addition, FM 100-16 contains five logistical concepts: fight anywhere, austerity and efficiency, maximum use of all resources, operations on a nuclear battlefield, and maximum use of automatic data processing (ADP) and communications.⁷⁴ These concepts are primarily tactical level logistics considerations, not operational logistical concepts. Yet, maximum use of resources, austerity, and efficiency apply to both tactical and operational levels of war.

Much of FM 100-16 addresses combat service support (CSS) issues. It stresses the need to tailor forces, to conduct CSS planning, to provide timely support, and to make efficient and effective use of CSS assets.⁷⁵ Interdependence of tactics and logistics is discussed because the battlefield of today requires more fuel, stocks, ammunition, and specialized maintenance to maintain a force in the field.⁷⁶ This field manual describes the logistical infrastructure, and requisition/resupply processes that will support large unit operations, but fails to address the planning considerations. It addresses execution of logistics procedures for certain commodities such as fuel or ammunition. These procedures are depicted in the manual with pictures of requisition and resupply processes for the different logistical commodities. While informative, this doctrine fails to assist in developing logistical concepts in support of specific type operations. It is primarily a manual addressing how to support units, with little regard for the operations conducted by logistical units.

The other primary logistical manual to be discussed is Field

Manual 100-10, Combat Service Support. This manual discusses tactical level logistical support. Today's battlefield is discussed as being non-linear.⁷⁷ CSS planners should stress responsiveness, flexibility, and initiative to insure support of the tactical commander. This requires anticipation of the commander's intent in order to meet CSS requirements.⁷⁸ Often there is not enough time to react to circumstances, so the CSS planner must respond to the commander's needs, not just the commander's orders. Risk analysis is required in all CSS planning because of limited resources. This increases the importance of decisions about location of stocks, tailoring of forces, and deployment of assets.⁷⁹

FM 100-10 characterizes logistics at the operational level of war as logistics at the "intermediate echelon," between wholesale and direct support/use echelons.⁸⁰ It further classifies the intermediate level as being those units providing general support supply, maintenance, transportation, facilities, and services at theater and corps. Field Manual 100-10 further lists the type of units found at the intermediate echelon of logistics.⁸¹ While FM 100-5 is oriented to functions or concepts of warfare, FM 100-10 is oriented to unit or echelon.

FM 100-10 addresses combat service support (CSS) operations and planning. Interest in operational level logistics exists only as movement or requisitioning of resources. A general view of the field manual is that the CSS (tactical logistics) and support of unit functions are central to all operations and that operational level logistics is strictly the middle area responsible for moving

items forward. While FM 100-10 should address CSS in some detail, it should also include the major tenets of operational level logistics as contained in FM 100-5.

Two terms have been presented which require further discussion. They are "intermediate echelon logistics" and "operational level logistics". The term "intermediate echelon" denotes that this level of logistics is at the middle place or middle stage between two areas, while the term "operational level" (as contained in FM 100-5) indicates planning and execution at a particular level of ability.^{ee} The former addresses logistics as a pipeline between two areas with little control of what occurs. On the other hand, "operational level logistics" denotes greater responsibility for logistical planning and execution at this level of warfare, not just management of a pipeline of sustainment. The campaign studies have illustrated the importance of operational planning and execution in order effectively to support campaigns. Manchuria's rapid operational requirements versus Belorussia's stages of a continued campaign, as discussed previously, illustrates the complexity of operational level logistics. Logistics at this level of war requires extensive planning and synchronization of combat support and combat service support assets to sustain armies. Failure properly to plan, structure, and execute logistical support can result in failure. Operational level logistics is a structured approach to war, and its aim is to sustain forces to achieve victory, not just supply resources for combat. Thus, the term "operational level logistics" is a more precise description of the

extensive actions required to sustain forces at this level of war.

A comparison of the above two logistical manuals to Field Manual 100-5 and the historical case studies in this paper shows that the operational level logistics considerations contained in FM 100-5 have not been included in other logistical manuals. However, the two logistic manuals discuss force expansion and sustainment priorities to some extent. In addition, FM 100-10 discusses staging to a degree. Neither logistic manual addresses lines of communication, altering lines of communication, nor logistical preparation. This lack of coherent logistical doctrine addressing operational level logistics is a serious void in our doctrine.

In summary, the lack of a coherent operational level logistics doctrine should be addressed. Development of coherent doctrine should start with FM 100-5 being incorporated into other field manuals in varying degrees. FM 100-16 should conform to FM 100-5's operational level logistics tenets, because FM 100-16 addresses large unit sustainment. On the other hand, FM 100-10 should address the operational level logistics tenets in FM 100-5 to a lesser degree because FM 100-10 deals with CSS. Simply describing logistical organization and requisition/resupply processes does not constitute the development of operational level logistics doctrine.

CHAPTER VIII

CONCLUSION

Operational level doctrine is under development. Publica-

tion of the AirLand Battle Doctrine has led to the examination of the operational level of war in many areas. FM 100-5, Operations has provided a starting point for examination of logistics at the operational level of war. The starting point consists of five considerations: lines of support, staging, altering lines of communication, sustainment priorities, and force expansion.

The five considerations were examined within three campaigns -- Operation "Barbarossa", the Belorussian Campaign, and the Manchurian Campaign. These campaigns tended to validate the five considerations and further illustrated their application in warfare. However, the campaigns illustrated the need for a sixth consideration, "logistical preparation". Logistical buildup prior to each of the campaigns was extensive and necessary for sustaining the operations into the depths of enemy rear areas. Logistical preparation planning considerations are: time, ability to enact preparation, secrecy, and sufficiency.

Examination of FM 100-16 and FM 100-10 shows a lack of coherent operational logistical doctrine. Operational level logistics is found in FM 100-5, but has not been incorporated within FM 100-16 which deals with support of large operations. FM 100-16 also fails to provide planning or execution guidance at the operational level of logistics, except for requisition and resupply processes. On the other hand, FM 100-10, which addresses tactical logistics, needs to include the operational level logistics tenets to assist in the interface of tactical and operational logistics plans and operations.

Logistics at the operational level of warfare is not just

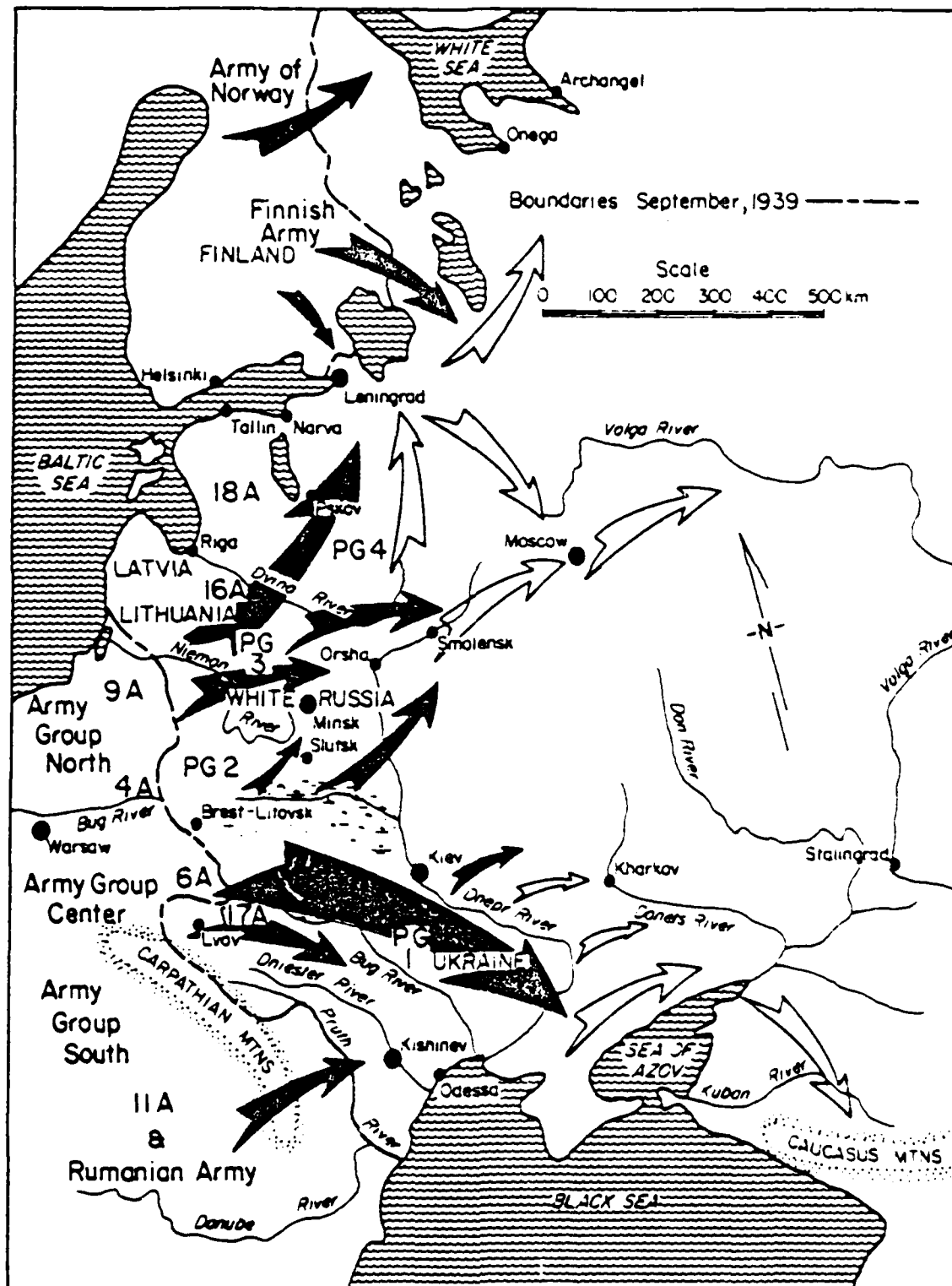
intermediate logistics. It entails much more than a center part of the logistics spectrum. The extensive planning, time, and resources required for executing the sustainment for large operations is more complex than most U.S. Army officers imagine. This complexity requires more than an understanding of the organizations and flow of supplies at the operational level of war. It requires a full understanding of planning and execution of logistics to include timing and consumption factors in varying terrain. The effect of terrain, roads, rail, weather, and resources must be understood to properly plan logistics. These factors are not taught today in our logistical courses.

The operational level of logistics is too complicated to leave to on-the-job training. The army must develop field manuals and training courses to prepare officers for sustaining operations at the operational level of war.

MAP 1: OPERATION BARBAROSSA

Dark arrows - Phase I Operations

Lighter arrows - Phase II Planned Operations

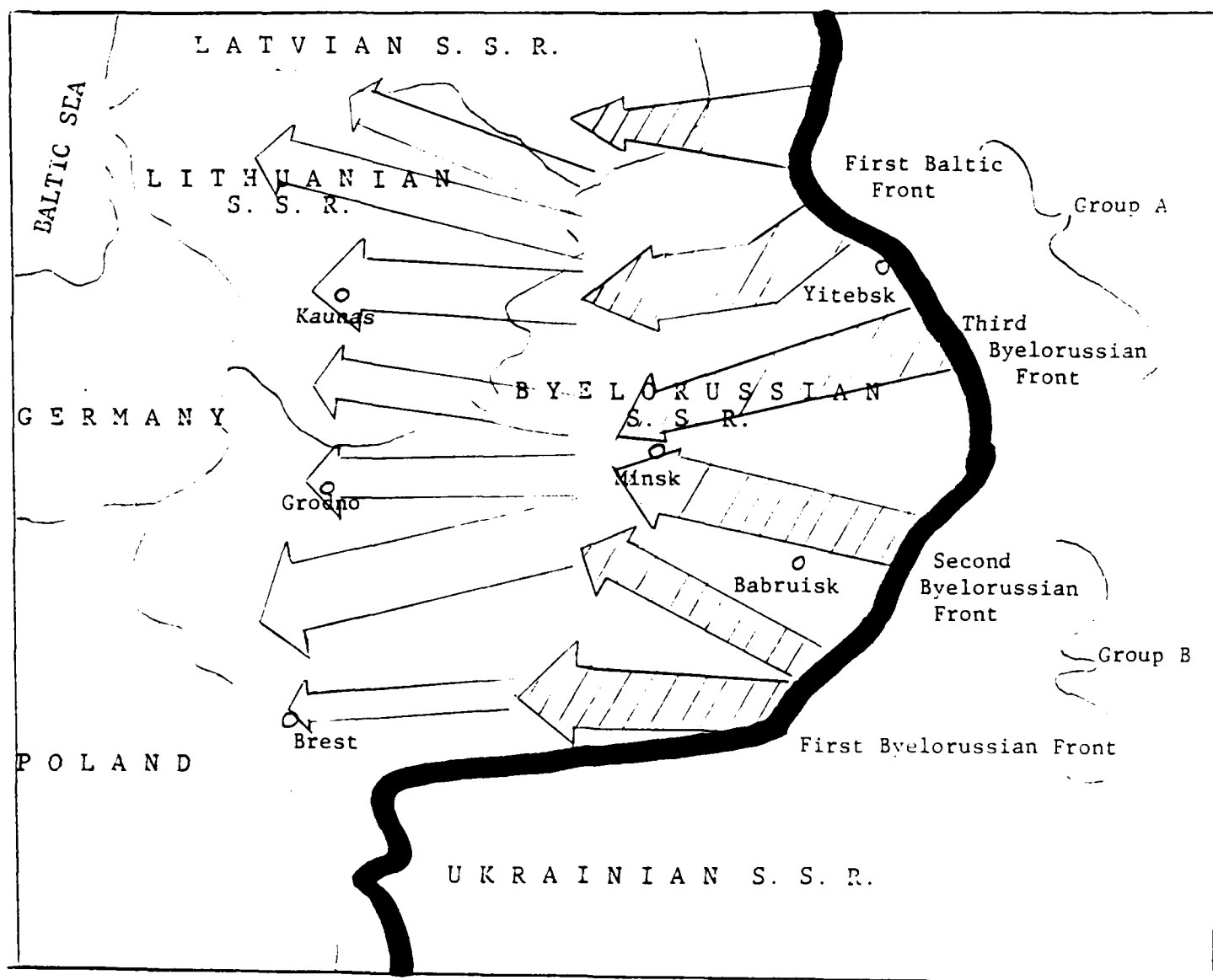


MAP 2: BELORUSSIAN CAMPAIGN

Striped arrows - First Phase Attacks

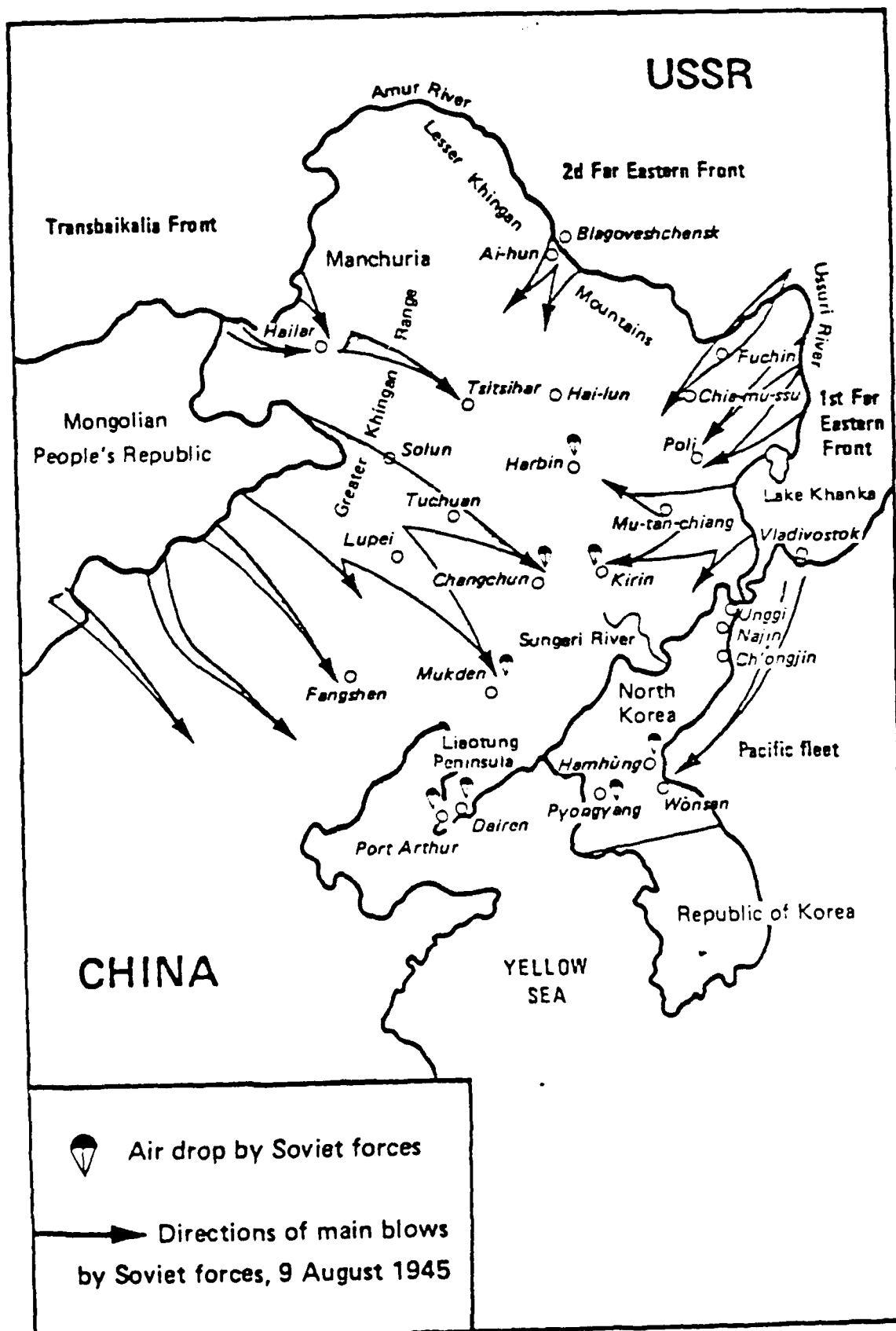
Outlined arrows - Subsequent Operations

Solid black line - Front line on 23 June 1944



MAP 3: MANCHURIAN CAMPAIGN

Arrows - Direction of the attacks



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