

## Chapter 6

OPERATIONS IN THE NORTHERN AND FAR  
NORTHERN AREAS IN 1943The Defensive Battles of Army Group North

At the turn of the year 1943, Army Group North, under Field Marshal Georg von Kuechler, held a line extending from the area east of Nevel to Demyansk to Lake Ilmen to Petrokrepost (Schluesselburg), with the Sixteenth Army (Field Marshal Ernst Busch) on the right wing, and the Eighteenth Army (Generaloberst Georg Lindemann) on the left. These positions had changed very little in the past year, and since the opening of the winter battles of 1942-43 Army Group North had held its lines against all attacks.

The First Air Fleet (Generaloberst Alfred Keller) had been highly successful in supporting the Sixteenth and Eighteenth Armies in their defensive battles, in spite of the weak air forces available for these operations. 1 In January 1943 the initial main emphasis in air operations centered upon aiding the northern (left) flank of the Eighteenth Army, anchored on the southern tip of Lake Ladoga.\* Here, the Russians, after a heavy artillery preparation, had launched on 12 January two simultaneous attacks against the XXVI Corps, one by units driving from the west across the Neva River, the other by massed forces on a narrow front coming from the east along the shore of Lake Ladoga.

The weak defending ground forces were unable to resist such a powerful and determined pincers attack and were forced to fall back from the lake. On 18 January the Red Army captured Petrokrepost and succeeded in establishing and holding a corridor of 4 to 6 miles in width between its lines and the German forces enveloping Leningrad. † Until

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\*See Maps Nos. 1 and 14.

†Editor's Note: The reestablishment of land contact with Leningrad had a tremendous effect upon the Finns, who had begun to lose confidence in their German ally after Stalingrad, the outcome of which was no longer subject to speculation. In February the Finnish Parliament was told that Germany could no longer win the war, and a month later the U. S. State Department offered to establish contact between Finland and the U. S. S. R. The Wehrmacht then tried to hang on to its very effective Finnish units, but was soon forced to give many of them up, including the Finnish SS Division.

that time the Soviet Union's only contact between the city of Leningrad and the rest of the Red Army front had been by way of the ice road across Lake Ladoga.\* Nevertheless, despite all of the terrible privations the populace of the city kept up its resistance with fanaticism. Death and disease had become commonplace to the people of Leningrad, yet, under the iron discipline of Party leaders (who controlled the city), they continued to work in the factories and to turn out war materials even under the harshest of living conditions.†

During operations in the Petrokrepost area it became necessary for the First Air Fleet to airlift supplies to a temporarily enveloped German force until that unit was able to fight its way out toward the south. Weak air forces were also continuously committed in interdiction operations against the traffic on the ice road across Lake Ladoga. In actual fact, the road itself was attacked, since most of the Soviet columns moved at night and the available means to effectively counter this were insufficient. German bombers tried to temporarily sever the routes across the frozen lake by using large-caliber demolition bombs or by attempting to melt the ice with oil bombs.<sup>2</sup> The German Command realized, of course, that the effects of such action were questionable.

Later, attempts were made to interrupt traffic by dropping small-caliber bombs (painted white) fitted with stabilizing vanes and highly sensitive point-detonating fuzes. The writer cannot state with certainty whether it was ever possible to estimate the success of these operations. Perhaps they were merely shots in the dark.<sup>3</sup> The holes melted by the oil bombs usually froze over very quickly, but the small caliber bombs armed with their super-quick detonators were practically invisible in the snow and therefore produced some good results. Scattered repeatedly in large numbers, they had the effect of a minefield.<sup>4</sup>

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\*Editor's Note: See Generalleutnant Hermann Plocher, The German Air Force versus Russia, 1941, USAF Historical Studies No. 153, Maxwell AFB, Alabama: USAF Historical Division, ASI, July 1965, pp. 146-150. See also Generalleutnant Hermann Plocher, The German Air Force versus Russia, 1942, USAF Historical Studies No. 154, Maxwell AFB, Alabama: USAF Historical Division, ASI, June 1966, pp. 90-92.

†Editor's Note: For an excellent account of conditions within the besieged city of Leningrad see Leon Gouré, The Siege of Leningrad, Stanford, California: Stanford University Press, 1962.

In February, under the 3rd Air Division (Generalmajor Herbert J. Rieckhoff),\* units of the First Air Fleet were again employed almost exclusively in direct support operations, concentrating mainly against the Russian troops attacking south of Lake Ladoga and south of Lake Ilmen. †

In order to straighten the front and thereby allow a more economical use of manpower, Hitler approved in mid-February the evacuation of the Demyansk bridgehead, a salient which jutted far out in front of the general main line of resistance. The tactical withdrawal from this bridgehead commenced on 21 February 1943 and proved to be an extremely difficult operation, since all of the divisions in the sector had to pass one after the other through the narrow corridor east of the Lovat River in full view of the Russians and under constant enemy pressure. Nevertheless, the movement was accomplished smoothly, and in early March the Sixteenth Army had its forces firmly reestablished in a line extending from Kholm to Staraya Russa. From this new line the Sixteenth Army then repelled massive Soviet breakthrough attempts on both sides of Staraya Russa, inflicting heavy casualties upon enemy forces. 5

In connection with this operation special mention must be made of the 21st Luftwaffe Field Division, which held a sector of the line south of Demyansk, a frontage of 62 to 66 miles in breadth. With its back to a virtually impassable area, this division held its lines with meager forces which could not have resisted a serious enemy attack. The German Command feared that as soon as the Russians noticed the evacuation of the Demyansk pocket they might launch an attack in the direction of Dno-Pskov to outflank this division. Fortunately for the Wehrmacht, the Soviet Command failed to exploit its opportunity, as a result of which the 21st Luftwaffe Field Division, in spite of its overextended lines, was able to repel all attacks until forces released from the Demyansk sector arrived in the area. 6

Tactical support units of the First Air Fleet provided effective assistance to German ground forces during this withdrawal, so that the Red Army could make only a slow follow-up. Luftwaffe units concentrated primarily upon operations in support of the Army all along the front in Combat Zone North until well into April, when more or less

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\*Organized in January 1943 from the air command staff which was established in August of 1942 for the attack upon Leningrad. Generalmajor Rieckhoff was, until 15 March 1943, also the Chief of the General Staff of the First Air Fleet.

†See figure 38.



Figure 38  
Soviet ground-attack planes are repelled by  
an 8.8-cm. Luftwaffe flak section on the  
Lake Ladoga front, 3 February 1943

continuous bad weather hampered, and sometimes altogether stopped, air operations. Whenever conditions permitted, however, they flew support missions, especially for the LIV Corps south of Leningrad, which was then struggling to hold back Soviet forces trying to break out of the city area.

On 13 March 1943 Hitler ordered Army Group North to make preparations to recapture the positions surrounding Leningrad and to take the city itself. There was a serious danger that the Russians would soon take steps to push the Germans far back from the city or would strike south of Lake Ilmen between Army Groups North and Center, thereby splitting the two and forcing Army Group North to retire toward the Baltic coast. In the ensuing weeks Field Marshal von Kuechler formulated a plan to take Leningrad, which was named Operation PARKPLATZ. In accordance with this plan the siege artillery on hand would have been adequate, but 8 or 9 additional divisions were required, divisions which could not be made available until after the Kursk offensive.\*

Between January and April 1943, whenever the situation seemed to be promising, the Luftwaffe attacked Soviet rail traffic and installations, airfields, and even a few industrial targets. In January, for example, strong air forces concentrated primarily against the Shum-Tikhvin rail line, and in the following month against the Ostashkov and Toropets rail depots. In March, German squadrons struck the Bologoye, Tikhvin, and Volkhov railroad depots, as well as two airfields which served the Soviet flying units that operated against the Sixteenth Army. German units destroyed 40 Soviet aircraft on the ground in these attacks and caused large fires in the shelters and billets. They also attacked an aircraft engine factory in Rybinsk, two electric power stations in Leningrad, and an oil refinery.† April air activities included a number of attacks upon the Shum-Tikhvin railroad line, a concentrated strike upon two airfields on which large numbers of enemy aircraft were standing, and aerial mining missions by a number of bombers over the coastal waters around Kronstadt.

Soviet ground attacks in the northern area slackened considerably in May, for which reason the Luftwaffe gave more attention to Soviet supply

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\*See p. 72. These forces were never to be available for such an undertaking, since crises in the Orel-Kursk areas prevented any weakening of the German positions there.

†Probably a refinery located near Novaya Ladoga.

movements. Elements of the 53rd Bomber Wing attacked with good effects the Tikhvin and Volkhov railroad depots, supply traffic moving across Lake Ladoga for Leningrad (including the landing stages), an aircraft engine factory in Rybinsk, a cellulose processing factory in Seyastroye, and a number of supply dumps and fuel depots.

In June main emphasis remained on railroad interdiction missions. In Combat Zone Center a few units of the bomber forces controlled by the Sixth Air Fleet carried out successful attacks against the rubber processing combine in Yaroslavl, causing serious destruction to industrial installations and fires of long duration.<sup>7</sup> In addition, some squadrons attacked the locks at Novaya Ladoga and a large oil depot at that place, while other units repeatedly attacked partisan camps which were reported southwest of Wilna and in the rear of the German Volkhov River front.

Early in July most of the First Air Fleet units were transferred to the Sixth Air Fleet in Combat Zone Center, where they were committed in support of Operation ZITADELLE.<sup>8\*</sup> The only air forces remaining in the First Air Fleet sector were a bomber squadron and a fighter-bomber squadron, and the harassing units. For the time being these weak forces were concentrated primarily for direct support missions in the XXVI Corps sector, south of Lake Ladoga. In the meantime, von Kuechler became more pessimistic about the prospects of launching an operation for the seizure of Leningrad, and, with the opening of the Soviet offensive on 22 July, which aimed to throw German forces even farther back from the city, the entire idea of PARKPLATZ was jettisoned.

On 28 July General der Flieger Guenther Korten replaced Generaloberst Alfred Keller as Commander of the First Air Fleet. Korten remained in command of this organization for only a short while, however (until 23 August 1943), since on 19 August he was appointed Chief of the General Staff of the Luftwaffe to replace Generaloberst Hans Jeschonnek, who had suddenly committed suicide.<sup>†</sup> The Commander of the IV Air Corps (General der Flieger Kurt Pflugbeil) assumed command on 24 August over the First Air Fleet.<sup>9</sup>

The position of Chief of Staff, First Air Fleet, also changed hands repeatedly during the spring of 1943. The arrangement whereby the Chief of Staff, First Air Fleet, simultaneously commanded the 3rd Air Division often resulted in considerable friction. For this reason, Col. Hans-Detlef Herhudt von Rohden (GSC) was appointed on 15 March to the post of

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\*See Chapters 3 and 4.

†See biographical section at the back of this volume.

Chief of Staff, while General Rieckhoff remained in command of the 3rd Air Division.\*

In mid-August emphasis in air operations had to be shifted to the area south of Lake Ilmen, the Sixteenth Army sector, where the Red Army on 18 August had again commenced a heavy attack against the powerfully fortified stronghold of Staraya Russa. This attack also was repelled with effective support from units of the First Air Fleet. Until well into September units were also sent out to attack Soviet supply depots, airfields, and railroads, as well as shipping in the Gulf of Finland and Lake Ladoga. Since the normal combat aircraft available were far too few to accomplish all these missions, First Air Fleet Headquarters instructed all air reconnaissance units to combine their reconnaissance activities with harassing raids upon rail installations, airfields, and Soviet-occupied settlements, a measure which produced highly satisfactory results.

From the beginning of spring the Russians had again and again attacked the lines held by the Sixteenth and Eighteenth Armies and, in some cases, had achieved penetrations, most of which, however, were cleaned out by immediate counterattacks. The front of Army Group North, which was supported by the First Air Fleet, had remained relatively unaffected by the large-scale enemy offensives, which were waged against Army Groups South and Center, yet it had its own local problems. All during August it fended off a number of Soviet attacks, as it worked to build the so-called Panther Position (Pantherstellung), the Narva River to Lake Peipus line.

There had been considerable discussion concerning the possible withdrawal of the entire Army Group, but this was immediately ruled out. Not only did the Eastern Front require that these positions be held, but it was essential to consider the attitude of the Finnish ally, whose assistance in the areas farther to the north was essential. Thus, no substantial withdrawal was made, and at the end of September the Sixteenth and Eighteenth Armies were approximately in their old positions, defending a line running generally from east of Vitebsk to west of Velikiye Luki to Kholm to Staraya Russa to the front held by the forces investing Leningrad. Because of the relative quiet along this front, while severe pressures were being exerted against the other two army groups to the south, 13 German divisions were withdrawn from Army Group North for employment in these more critical areas.<sup>10</sup>

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\*In August Col. Klaus Uebe (GSC) relieved Colonel von Rohden as Chief of Staff.

On 6 October 1943 an exceedingly heavy Soviet attack on both sides of Nevel struck the thus weakened northern front in the most vulnerable sector, the boundary between the Third Panzer Army (Generaloberst Hans Reinhardt), on the north flank of Army Group Center, and the Sixteenth Army, holding the southern flank of Army Group North.\* East of Nevel the Russians broke through the understrength German divisions and proceeded to expand their breakthrough in all directions. An extremely grave danger threatened. What made the threat particularly acute was that the Soviets here were only 72 miles from Daugavpils (Latvia) and that a strategic breakthrough in that direction would have placed the entire front of the army group in serious jeopardy. 11

In the last few days of September, immediately prior to the Soviet offensive, a large-scale police operation had been initiated to clean out the Russian partisans in the boundary area between Army Groups Center and North. The northern group of these police forces had been assigned an air unit which was organized in the field for the purpose. This air force, commanded by Maj. Rudolf Jenett (GSC), was composed of night bomber units containing training aircraft of various types and small Fieseler (Fi) 156 "Storch" planes, and was intended for daylight action against the partisans. However, unusually bad weather, with cloud ceilings from 250 to 3,000 feet, had prevented air operations. Several reconnaissance planes operating at ground altitudes observed the police forces combing through the area in closely integrated lines, but saw no signs of the Russians.

It was into this relatively empty space that the Soviet attack through Nevel was launched. Possibly the Soviet Command was surprised by the speed and scope of its initial successes. Whatever the reasons may have been, the Russians were not adequately prepared for the tactical exploitation of this successful attack and at first restricted themselves to reinforcing the extended flanks of their deep penetration. 12

No reserves were available to the German Command, so that the only force which could be initially committed to hold the Soviet breakthrough force consisted of the police troops (mentioned previously) who were engaged in antipartisan operations, elements of security forces, and a few similar units which were scraped together wherever they could be found.

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\*General der Artillerie Christian Hansen had assumed command over the Sixteenth Army on 12 October 1943.



In this situation the Luftwaffe was once again the last hope, and was called upon to halt and break up the attacking Soviet forces and thereby to prevent a strategic breakthrough. Most of the air units committed for this task were from the Sixth Air Fleet, operating in Combat Zone Center. At the time, the First Air Fleet, which was responsible for air support in Combat Zone North, had very inconsiderable air units under its command, and these were employed almost exclusively in night harassing raids.<sup>13</sup>

With very effective air support the Third Panzer Army (Army Group Center) and the Sixteenth Army succeeded in halting and sealing off the Soviet breakthrough, but they were unable to clean out the Nevel penetration area because of a lack of reserves. A dangerous Soviet wedge thus remained in the thinly manned German defensive line.

Up to the end of 1943 the First Air Fleet took every opportunity permitted by the existing weather conditions to employ its weak remaining units in continuous air support missions for the defending ground troops. Concurrently, units were dispatched against partisan groups, particularly in the areas around Pskov and Luga. Reconnaissance units continued their harassing raids against occupied settlements and rail targets, particularly along the Ostashkov-Toropets-Velikiye Luki route and against the Ostashkov, Vishera, and Toropets rail depots, until the end of the year.

General der Infanterie Kurt von Tippelskirch (Ret.) describes the development of events along this front, a front whose boundaries had not changed appreciably from 1941 to 1943:

. . . In January 1943 the Eighteenth Army had been compelled to abandon the close investment of the southeastern front at Leningrad as it lost Petrokrepost [Schluesselburg]. In February 1943 the Sixteenth Army had voluntarily evacuated the salient around Demyansk and stood in strong positions forward of Staraya Russa.

Yet the front which appeared so firm in Army Group North had its various weak points. The German forces had never sufficed to eliminate the disturbing Soviet bridgehead at Lomonosov [Oranienbaum], which was supported by the fortresses of Kronstadt and by the Russian naval units which had been transformed into floating batteries. After the loss of Petrokrepost, a Russian salient existed east of Tosno and Lyuban, which caused a constant threat to the eastern flank of the German

front before Leningrad. This corresponded to a German salient north of Chudovo, which could not be withdrawn, although it required four divisions to hold this alone. After the fluctuating battles of the past years, the Russians were able to maintain an 18-mile-wide bridgehead on the Volkhov. In the Lomonosov bridgehead, their salient southeast of Leningrad, and their Volkhov River bridgehead they held three favorable areas for staging an offensive against the Eighteenth Army.

The Sixteenth Army had four seasoned divisions in position south of Lake Ilmen on both sides of Staraya Russa, which had repeatedly come under Soviet breakthrough attacks since the evacuation of Demyansk. In contrast, the gigantic trackless and swampy forest areas extending from north of Kholm to Velikiye Luki, in which there were no railroads, had not been the scene of any serious combat action with the exception of the fighting for Kholm in the winter of 1941-42. For this reason it was held by only weak forces.

The relative quiet on the front of Army Group North and the severe enemy pressure in the other two army group sectors had resulted in the withdrawal of 13 divisions from the quiet northern area. When the [Soviet] First Baltic Front at the end of December launched its breakthrough offensive against the Third Panzer Army at Vitebsk, the Sixteenth Army was compelled to release two divisions from its front to support the Third Panzer Army, thus further weakening Army Group North, which no longer had any panzer or armored infantry [Panzer-Grenadier] divisions and had not had any for the past two years. 14

In concluding this section on the activities in Combat Zone North it should be pointed out that during 1943 the First Air Fleet, with its 3rd Air and 2nd and 6th Flak Divisions, committed the bulk of its air, flak, and signal forces in direct-support operations on the various battlefields. Here the air signal units proved to be fully satisfactory as the command instrument of the Luftwaffe; flak batteries in this northern sector, as elsewhere, became the backbone of the ground defenses, thus eclipsing their air defense role, while air units in this sector of the front, as was true in other parts of the Eastern Theater of Operations, became the only immediately available and effective force which could be employed to

bring about a favorable change in the course of the ground battle. Missions against supply installations, road and rail supply traffic, and airfields deep in the Soviet rear could be carried out only if the targets involved had a specific operational bearing upon action to repel Soviet offensives and were flown then only if sufficient aircraft were available for the purpose.

The few really strategic attacks flown against Soviet armament factories achieved local successes, but, since they were isolated actions, they actually produced no strategic results. Furthermore, the inadequacy of available forces made it impossible to carry out the attacks in sufficient force and with the required frequency to cause really destructive effects.

That the German ground forces were able to hold their lines in the northern part of the Eastern Front was due largely, and often in a decisive measure, to the support given by the Luftwaffe through the First Air Fleet, the conduct of whose flyers was exemplary.<sup>15</sup> However, this meant that in Combat Zone North, just as in all other parts of the Eastern Front, the Luftwaffe was unable throughout 1943 to perform its real mission, that of conducting aerial warfare and was, instead, restricted as in the previous year to effective support operations for the fighting ground forces.

#### The Luftwaffe in the Far North: Norwegian and Barents Seas and the Murmansk Front

##### Finnish Front

The Finnish Front was the northern cornerstone of the German European defense system, the extreme northern flank position of the Eastern Theater of Operations, which at the same time protected the rear of the Norwegian Front. The total frontage of approximately 840 miles was about two-thirds as long as the entire Eastern Front (Leningrad to the Crimea), and large sectors of it were defended by systems of strongpoints.

In the southeastern sectors of this zone the terrain was heavily wooded and quite swampy, while in the northeast it was devoid of trees

and in many places consisted of rocky tundra.\* Weather conditions varied greatly. On 1 November 1943, for example, temperatures ranged from 0° to 46° Fahrenheit. In the northern areas there were the characteristically long arctic nights in the summer. Mud seasons were inconsiderable.

In the field of military economy the nickel works of Kolosjoko near Petsamo were important, and accounted for 32 percent of the European nickel production.†

The population of Finland totalled 3,800,000 persons, but military operations on a large scale were impossible because of a great lack of communications. With only a single railroad extending from north to south as far as Rovaniemi, and an eastward branch line running to Kandalaksha still under construction, plus a single good north-south road from Helsinki to Petsamo, the area was completely lacking in routes capable of carrying enough traffic to support an offensive. In contrast, the Russians had the highly satisfactory Murmansk railroad route. Operations were therefore conducted primarily in the form of patrol and raiding party activities, with flank battles and some more active fighting for particularly important roads.

Because of its broad extent, the front in this area nevertheless tied down strong German forces. The Twentieth Mountain Army had a strength of 176,800 men, all especially selected for their ability to withstand the harsh rigors of the local natural conditions. Its divisions were at full strength, fully equipped, trained under peacetime conditions, and ably led.<sup>16</sup>

Conditions for air operations were generally unfavorable, and the terrain offered few possibilities for the construction of airfields.<sup>17</sup>

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\*Editor's Note: Tundra areas are covered with primitive vegetation, lichens on the drier sites, mosses and sedge on the poorer areas, while birches and willows grow in the more favorable places. The soils there are mostly bogs of partially decomposing vegetable matter. What is most adverse here are the enormous swarms of flies and mosquitoes, making the area intolerable for most domesticated animals. Germans, like the Finns and Lapps, used reindeer for transport purposes. See George A. Hoffman, A Geography of Europe Including Asiatic U. S. S. R., New York: The Ronald Press Co., 1961, pp. 66-71.

†This was just becoming economically important to Finland when in 1940 it was seized by the Soviet Union.

After the defensive battles in this area in the spring of 1942, the war on the Karelian Front dragged slowly onward. It was characterized by positional warfare, carried out on a small scale. In an estimate of the situation by Generaloberst Alfred Jodl, Chief of the Wehrmacht Operations Staff, which was received at Finnish General Headquarters on 2 January 1943:

. . . the Wehrmacht High Command considered it possible that the Russians toward the end of winter might seek a decision in an attack against the front held by the Twentieth Mountain Army, probably in the XIX Mountain Corps sector (Murmansk sector) and possibly in combination with an amphibious operation by the Western Allies on the Arctic coast. . . .

Information had been received again and again in Finland concerning an impending large-scale Soviet offensive against the Finno-German front. The Commanding General, Twentieth Mountain Army,\* believed these reports and ordered the highest state of alert for his army and issued instructions that close attention was to be given to the presumed Soviet preparations for attack, which was expected to come early in February against the front in the Far North. 18

Nothing happened, however. On the contrary, the impression grew in the Wehrmacht Command that the Soviet Command was withdrawing forces along the German front in the Far North. All reports that large-scale Russian attacks would soon be launched in this area or that a landing by the Western Allies was impending proved to be false. Probably these reports were intentionally spread by the Western Allies in order to further undermine the confidence of the Finns in their German ally. This confidence was, of course, already badly shaken by the Soviet successes south of Leningrad and by the Stalingrad tragedy. Probably the reports were intended to soften up the Finns politically to prepare them for peace overtures. 19

The reconnaissance responsibilities of the Fifth Air Fleet included routine long-range reconnaissance over the water, including Soviet ports, and tactical reconnaissance over the Murmansk front areas. The results obtained indicated no sign of any Soviet plans for a major offensive or of the withdrawal of enemy troops from the area. It would also have been

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\*Generaloberst Eduard Dietl.

almost impossible to detect withdrawal movements owing to the almost continuous darkness during the winter months and the general weather conditions, with fog and snowstorms, which made constant surveillance of the area by means of aerial photography practically impossible. Added to these difficulties was the well-known ability of the Russians to take full advantage of current weather conditions to cover their movements.

Even after the spring thaw the situation along the line held by the Twentieth Mountain Army and the Finns remained quiet. Only partisan activities increased, and these groups of partisans even occasionally caused serious interference with traffic on the Eismeerstrasse (arctic sea road).<sup>20\*</sup> For this reason, units of Air Command North (East) were also employed periodically against partisans, especially against partisan camps in the Ukhta or Uhtua region.

Soviet agents had also become increasingly active. For this purpose the Russians attempted to induce German prisoners of war to work for them, and tried to employ any such persons who seemed to be suitable and willing. During the summer of 1943 it frequently happened that German soldiers reported to the nearest German military authorities stating that they had just recently been dropped in the vicinity of the arctic coast by the Russians. Such drops were made at night by Soviet harassing aircraft or other suitable type planes operating from nearby enemy airfields. One such incident was reported by Generalmajor Ernst-August Roth,<sup>†</sup> Commander of Air Command Lofoten Islands:

A Luftwaffe noncommissioned officer had been shot down over the Soviet lines. After a few days he had been removed to Murmansk, where he was initially imprisoned and interrogated. After questioning him on all manner of military matters the Russians offered to employ him in intelligence work in German-occupied territories after a lengthy period of training in Murmansk. He was promised better living quarters and rations and more liberty, insofar as he would be allowed to see Murmansk, if he so desired. This would naturally have to take place with an appropriate escort and in civilian clothing, which would be provided. After a few days to consider, the noncommissioned officer accepted the offer, hoping that he would thus find a possibility to

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\*Running from Rovaniemi northward to Ivalo, thence northeast to Petsamo and northwestward to Lakselv.

†From time to time also Chief, Air Command North.

escape. He was sent to a special school (I assume that this was the same school in which Norwegian agents received training). Here he received training in radio transmission, including encoding and the operation of special transmitters, in matters such as behavior in "enemy" territory and behavior towards German military personnel. One day, or rather one evening, he was taken to an airfield, where he was blindfolded and placed in a plane, outfitted with a parachute, radio transmitter, and code material. He was put in the bomb bay, with the static line of his parachute attached to the plane. After a flight of about 30 minutes' duration he was dropped close to the main road along the arctic coastline. His instructions had been to report on the volume and type of traffic observed moving in both directions along the route and on the forces stationed at the Kirkenes air base. Immediately after reaching the arctic sea road, however, he "thumbed" a ride to the nearest military installation, where he surrendered, together with his transmitter and code material. The man (a sergeant) made a completely trustworthy impression, and was described by his unit as "above suspicion." He had been absent from his base for about three weeks. 21

Neither the Finno-German nor the Soviet side did much of anything to disturb the calm in the Murmansk railroad area. Conditions in the area were those of positional warfare, and both sides busied themselves in improving their fortifications, shelters, and the like, and in developing the roads for supply traffic. It really seems inexplicable that the Finno-German Command did nothing to plan and execute a new offensive, such as, for example, the seizure of Murmansk or the severing of the Murmansk rail line. The importance of the northern Anglo-American logistical route was obvious. Equally obvious was the withdrawal of Soviet forces, which greatly enhanced the strength ratio in favor of the Finns and the Germans, and which had a direct impact upon the hard-pressed German front between Leningrad and the Black Sea. The seizure of Murmansk, which would have considerably reduced Anglo-American Lend-Lease deliveries, would necessarily have lessened the effects of Soviet attacks and thereby relieved the strain upon the German defenses. This was most important, and it is therefore necessary to ask what the German-Russian strength ratio was at this time.

It is impossible in retrospect to overlook the fact that a noticeable disparity existed in the autumn of 1943 with respect to the overall distribution of forces along the entire front in the Eastern Theater of Operations from the Black Sea to the arctic coast west of Murmansk. Whereas conditions of perpetual crisis for the Wehrmacht had developed in Russia proper (between the Black Sea and the Gulf of Finland) because neither German command measures nor the assignment of new forces could offset the great superiority of the Red Army all along the line, an exactly opposite ratio of forces existed along the Finno-German front. The Soviet withdrawal of forces from this area, which had begun in the spring of 1943 and continued throughout the summer, had resulted in a considerable weakening of the Russian position in the north in comparison with the situation which existed in the summer of 1942. In an evaluation made by the Finnish General Headquarters on 15 September 1943, the overall strength of the Soviet forces opposing the Finno-German front was estimated at only 270,000 men, of which 180,000 were opposite the Finnish sector. Finland at the time had 350,000 men in the field, and the German troops within the command area of the Twentieth Mountain Army totalled about 200,000. In the autumn of 1943 the ratio of strength in the entire area was thus two to one against the Russians (550,000 Finns and Germans against 270,000 Russians). Such a favorable ratio had never existed before at any part of the German front in the East, and this large German superiority was not only a superiority in numbers, but also from a standpoint of quality.

The Finnish and German troops on the line between the Gulf of Finland and the arctic coast were rested and in the best condition. Physically and psychologically they were perfectly fit; further, the Finnish comrades in the field quite generally rejected the disquieting maneuvers of the political opposition in the Finnish Parliament.<sup>22</sup> Of the Twentieth Mountain Army it can be said without exaggeration that it was the strongest and best army available to Germany in 1943. The Army in Lapland had been brought up to full strength, and the troops had accustomed themselves to the special conditions of the area and lacked nothing in the way of weapons and other equipment. Simple calculation proves that a joint Finno-German offensive at that time would have held out the best prospects for a quick and decisive success. The 550,000 Finnish and German troops

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\*Editor's Note: Earl F. Ziemke cites the arguments given here for an offensive in the summer of 1943, but points out that, "In reality, there was no way an offensive out of Finland could have permanently influenced the course of events. The Murmansk railroad could possibly have been cut, but by then it was no longer vital to the Russian war effort; Soviet production had increased and supplies from the West were moving through the Persian Gulf." See The German Northern Theater of Operations 1940-1945, DA Pam. 20-271, Washington: Department of the Army, OCMH, 1959, p. 249.



would undoubtedly have been able to deal quickly and thoroughly with the 270,000 Red Army troops opposing them.<sup>23</sup> What were the reasons for the inexplicable failure to launch such an offensive?

In a conference held on 4 March 1943, in which the possibility of a Finno-German offensive in 1943 was discussed, Field Marshal Carl Gustaf Freiherr Mannerheim, the Finnish Commander in Chief, brought the talks to an end with a flat statement to the German Generals present, "I shall not attack again. I have already lost too many men."<sup>24</sup> Impressed by the German retrograde movements in the East and by the successes of the Western Allies in the Mediterranean Theater, Mannerheim had lost faith in the possibility of a German victory. Furthermore, Finnish opposition circles were pressing with increasing urgency for negotiations with the Soviet Union before it was too late, which meant immediately. These circles believed that they could still conclude a relatively favorable armistice and even a peace treaty.

Since the disaster of Stalingrad the Finnish efforts to get out of the war had increased at a great pace. After Britain's declaration of war on Finland on 5 December 1941 Finnish politicians had turned toward Washington. They wanted no war with the great powers of the West, and by 1943 they hoped that President Roosevelt would be able to throw the weight of his influence into the scales in Moscow to the advantage of the Finnish nation, which had enjoyed such widespread sympathy in the United States, especially during the tragic winter war of 1939-40.<sup>25</sup> To the responsible governmental and military leaders in Finland it was perfectly clear at the time that a resumption of the offensive would lead to an immediate declaration of war against Finland by the United States, which was clearly contrary to the wishes and intentions of the great political majority in Finland. Thus, the Finnish General Headquarters exercised extreme caution in order to avoid creating any conditions which might lead to the burdening of the national parliament with responsibility for a state of war with America. This naturally ruled out any plans for a new Finnish offensive.

While in Finland political considerations increasingly overshadowed military decisions, the High Command of the Wehrmacht failed to launch an offensive with German forces alone, a military action it could have taken by stripping other sectors of the front in order to build up a powerful concentration under the XIX Mountain Corps.<sup>26</sup> The XIXth could then have advanced along the coast and, with periodically increased air and naval support, seized Murmansk. After the war General der Infanterie Waldemar Erfurth (Ret.), who had held the post of German General attached to the Finnish General Headquarters, commented upon the possibility of a purely German offensive in the Far North in 1943:

A resumption of the offensive by German troops in the XIX Mountain Corps sector, which for some time was desired by the High Command of the Wehrmacht, was emphatically rejected by Dietl,\* and in my opinion rightly rejected, because it would not have been possible to supply a sizeable German force in the tundra region.

. . . I do not believe that the . . . operation with a strong force (without Finns) along the arctic coast would have been successful because of maneuvering and logistical difficulties. The Murmansk rail route could only have been opened from the south (Soroka, Doukhi).<sup>27</sup>

Generalleutnant Andreas Nielsen, who served as Chief of Staff, Fifth Air Fleet, believed that the German operation would have succeeded:

With a proper disposition of forces and timely preparation, a German offensive, even without Finnish participation, would have been possible and most probably would have succeeded. It is obvious that such an operation would have been much easier with Finnish support and, in view of the existing numerical and general military superiority, would certainly have been successful. Following the withdrawals of Soviet troops, however, there would have been no necessity to assume any less favorable strength ratio than 1:1. With the seasoned, rested, and well-equipped German troops available, and given such a strength ratio, success surely could have been considered secure, particularly if the attack had been launched with a very clearly defined point of main effort.

In an offensive with German troops alone, certain reinforcements in special weapons and units admittedly would have been essential. This applied particularly to the Luftwaffe, which was considerably outnumbered by the Soviet air forces in the area, in contrast to the opening phases of the campaign and earlier in 1943. These reinforcements would have been needed only temporarily, but it would have been absolutely essential to move in for

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\*Commanding Twentieth Mountain Army. See biographical section.

a time at least another bomb group, two dive-bomber groups, and a fighter wing. In view of the decisive importance which the collapse of the Soviet arctic front would have had for the movement of supplies from the Western Powers to Russia, and its impact upon the overall situation in the Eastern Theater of Operations, including the political influence upon the future attitude of Finland, the assignment of reinforcements would certainly have been worth while. 28

But, as Nielsen points out, neither the Wehrmacht High Command nor the locally responsible Twentieth Mountain Army took any such courageous action. At Fifth Air Fleet Headquarters, which as far back as the end of 1941 had submitted a memorandum recommending an offensive solution for the situation along the Barents Sea front, the impression existed that the decisive importance of this northern flank of the front, with its outlet to the oceans, was not fully realized or appreciated by the Army and Wehrmacht High Commands. After much time had been lost through the very late realization that the Russians had weakened their defenses, and after endless conferences with the Finns concerning the continuation of operations, the remaining time was wasted instead of being utilized for timely planning and preparation of an operation such as was heretofore described. As events unfolded in the East, the chances of success became less and less and the year passed without the German Command seizing this singular opportunity for a large-scale and perhaps decisive success. Thus, as far as the arctic sea front is concerned, the year 1943 must be considered one of the lost opportunities of the war. 29

This opinion is shared by the author, who believes that, in view of the existing strength ratio, an offensive with German forces alone would have met with success. The German Twentieth Mountain Army possessed the finest prerequisites for success with respect to its strength, its equipment, and the physical and psychological condition of its troops, and its supply situation was secure.\* All that was lacking was the single most important requirement, the will for courageous action and decision. To

\*According to Generalleutnant Nielsen, adequate supplies for an entire year were available in the command area of the Norwegian-Barents Sea front. See also General der Infanterie Kurt von Tippelskirch, Geschichte des Zweiten Weltkriegs (History of the Second World War), Bonn: Athenaeum Verlag, 1951, p. 445; "Back of the Murmansk sector were supplies enough to last for nine months."

have taken such a decision certainly would have involved a risk, but the decisively significant impact which the possible success would have had should have been a compelling reason to have accepted the risk. As it was, the positional warfare continued.

There was, to be sure, the danger that Finland would at some future time succumb to suggestions by neutral nations, to American political pressures, and to its own desire to save what could be saved, and would thus separate from its German ally. In the late summer of 1943 the High Command of the Wehrmacht and the Twentieth Mountain Army Headquarters exchanged ideas on the possible consequences for the Twentieth Mountain Army of a Finnish defection. 30 The Wehrmacht High Command then instructed the Twentieth Mountain Army to prepare for a withdrawal of its forces into a wide arc (with a radius of 240 miles) around North Cape against the eventuality of Finland's capitulation. 31 All planning, preparation, and the possible execution of the retrograde movement were to be carried out under the code name Operation BIRKE (Birch).

In September 1943, Generaloberst Dietl and his chief of staff, Generalleutnant Ferdinand Jodl, explored for the first time the possibility of carrying out a movement of this kind, in which tens of thousands of persons would have to travel with bag and baggage northward over a distance of hundreds of miles. The troops could undertake such a risky enterprise only if they received a logistical base consisting of all types of supplies sufficient for several months, including everything needed for subsistence in the barren tundra regions, materials for the construction of field fortifications, shelters, medical installations, and the necessary sanitary and medical equipment, and if the supporting air forces found adequate ground service installations readily available. The roads in this area were totally inadequate for troop movements on such a scale. Hitherto, apart from the Eismeerstrasse (arctic sea road) and the roads in the vicinity of the coast in Norwegian territory, the road network had been required to carry only the small volume of traffic necessary for the sparse Lapland population, which moved about by carts or reindeer sleds, or possibly for sportsman tourists.

The important thing therefore--this was more or less a precautionary measure--was to move in supplies through the main ports along the Norwegian fjord coast and to construct the necessary roads for the operation and improve those already in existence. These activities commenced in the winter of 1943-44, but were limited in scope by the bitter, arctic winter and by the limited available labor. The necessary directives were issued by the Twentieth Mountain Army and by the

Fifth Air Fleet from Oslo. The execution of this plan in Norwegian territory was the responsibility of the German Army of Norway (General-oberst Nikolaus von Falkenhorst) and the Chief Supply and Administrative Officer for Norway. In Finnish territory the work was supervised by Dietl's mountain army. The projected march routes and supply arteries were as follows: the road following the Tornio and Muoniojoki valleys along the Finno-Swedish border (which was merely a wagon trail from Muonio to the three-nation boundary corner) and the road from Ivalo to Lakselv, which required considerable improvement. The third major route was Reichsstrasse (State Highway) No. 50, extending 600 miles from Narvik to Kirkenes, \* a road which was cut by the Lyngen Fjord. † Wherever possible it followed the coastline of the fjords, but at many points it had to cross the fjells, the treeless, high plateaus on the tops of the mountains separating the individual fjords. In most places it was a single track road with innumerable curves, a road having the characteristics of an alpine road, with grades which could barely be negotiated by horse-drawn military vehicles, especially during icy and snowy conditions. Wherever the road crossed the fjells it was covered by wooden structures for protection against snow, or followed raised embankments which were secured against drift snow by an intricate system of snow fences. Reichsstrasse No. 50, which was constructed by German engineer troops and units of Organisation Todt, or OT, †† was the shore lifeline connecting the Narvik area with the front in the extreme north. The time was later to come when the fate of the bulk of an army, and of the land-bound elements of the German Navy and Luftwaffe which were incorporated into units of that army, was to rely upon the soundness of this artery. Any serious interruption of this road concurrent with a naval blockade could have spelled doom for tens of thousands of these troops.

The hope may still have been entertained that the necessity for this army movement to the north, and for the hazardous battle by the Twentieth Mountain Army in the most exposed and least habitable part of Europe, might never materialize. Nevertheless, developments on the Eastern Front on the other side of the Baltic Sea made it imperative to

\*See Map No. 15.

†Editor's Note: Situated about 80 miles northeast of Narvik. The Lyngen Fjord cuts into the northern coastline of Norway between Tromsø and Nordreisa.

††A para-military labor organization, which served as an auxiliary to the German Wehrmacht and which derived its name from the former Reichsminister for Arms and Munitions, Dr. Fritz Todt, who was killed in the year 1942.

act in accordance with the Wehrmacht High Command's directive. 32\* The most important task therefore was to make preparations for the retreat of the Army in Lapland to the tundra region, which appeared to be more and more necessary. It was, in fact, high time to make such preparations. What had remained undone because of the arctic winter conditions now had to be accomplished in addition to the urgent new requirements: serviceable roads, including temporary bridges to replace the inadequate ferry facilities, had to be built for the movement of large bodies of troops, phase line positions had to be set up in which the retiring troops could temporarily halt, and permanent fortifications had to be established from which they were to fight their battles in defense of the most northerly part of Scandinavia and the valuable nickel-bearing area of Petsamo. Arrangements had to be carried out in a similar manner at corps level within the communication zone of the Twentieth Mountain Army. The entire operation had to be carefully thought out and executed in every detail. Success hinged decisively upon the carrying capacities of the main and secondary roads, and upon smoothly functioning logistical services. In these virtually uninhabited regions large bodies of troops must subsist exclusively on supplies stored in advance.

The great unpredictable factor still remained the enemy. What would the Russians do if Finland defected? Would they restrict their activities to annihilating blows aimed against the three corps sectors of the German mountain army in order to liquidate the German forces in Lapland, or would they use railroads and their motorized forces for a drive across the former Finnish lines directly through the heartland of Finland to strike at the flank, rear, and very center of the Twentieth Mountain Army? This heart, or nerve center, was in the area around Rovaniemi, and, in the truest sense of the word, the entire XVII Mountain Corps had no choice in a northward withdrawal but to move through Rovaniemi. 33

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\*Editor's Note: Germany also pressured Sweden to allow a withdrawal across Sweden to Norway, and, for a time, it appeared that this would be permitted. But, as it became more and more obvious that the Soviet Union would win the war rather than Germany (by mid-1943), the Swedes broke off their trade agreement with the Reich and began to favor the Allied cause.

Luftwaffe Anti-Convoy Operations in the Far North, 1943

Owing to the fact that Dvina Bay, and thus the port of Arkhangelsk, was ice-bound in the winter of 1942-43, \* the eastward-bound Anglo-American convoys (PQ)† again directed their course toward Murmansk. Because of the continually unfavorable weather and the brief periods of daylight in these arctic regions, Air Command North (East)†† had to leave the operations against convoy PQ 20 in early January 1943 to the German naval forces in the area.

Since they had incurred such heavy losses in convoy shipping, the Western Allies adopted the system of dispatching their cargo vessels singly, without escorts, during long periods of foggy weather, a fact which greatly complicated German reconnaissance. For this reason, Air Command North (East) organized what was called armed reconnaissance, flown by pairs of aircraft which were capable of long-distance flights and were armed for immediate action against any single ships found traveling in the North Cape-Bear Island-Spitzbergen areas.

Another factor which greatly complicated German anti-convoy operations was the fact that Anglo-American convoys and single ships changed their course west and east of the Bear Island narrows toward the north. Initially, they had traveled south of Bear Island, or about midway between that island and Spitzbergen, but later they followed a more northerly course, which sometimes took them very close to Spitzbergen. This considerably lengthened the distances which German air forces had to cover on their approach and return flights, a fact which made a heavy impact upon their fuel consumption.

Air Command Lofoten Islands (from Bardufoss) successfully attacked two eastward bound convoys, PQ 21 and PQ 22, while they were entering the Kola Bay area between 11 and 15 January and during the night of 25 January 1943. Air Command North (East) then took over

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\*Editor's Note: The Gulf of Arkhangelsk usually freezes over at the end of October and remains frozen for 130 to 140 days annually, while the port of Arkhangelsk is normally closed about 190 days each year.

†Convoys returning from northern Russia were given code designations beginning with QP.

††Under the command of Generalmajor Alexander Holle until June of 1943, then temporarily under Generalmajor Ernst-August Roth, and from September 1943 under Col. Dr. Ernst Kuehl (Res.).

further operations against the remnants of these convoys in the coastal areas of the Kola Peninsula. A period of snow flurries and darkness, however, enabled these vessels to evade the Luftwaffe's surveillance and attacks.<sup>34</sup>

Early in March, air units sank two merchant ships out of a westward bound convoy from Murmansk, while numerous ships which had remained behind in port were severely damaged by Luftwaffe attacks.\* Both in tactical and in the strategic sense, anti-convoy actions in the Norwegian and Barents Seas were a combined Navy and Luftwaffe undertaking. The naval operations were conducted by Naval Command Norwegian Sea (Admiral Nordmeer)<sup>†</sup> from its headquarters in Narvik, while the air operations were carried out by the air commands at Trondheim, Bardufoss, and Kirkenes in conformity with directives from the Fifth Air Fleet in Oslo or Kemi.

One of the major conditions for these operations was the closest exchange of information between the Navy and the Luftwaffe. For this reason the naval command had a radio receiver constantly tuned to intercept Luftwaffe messages, while the air commands made use of naval radio stations. Although the general route for convoys was from Iceland via Bear Island to the Kola Peninsula, scarcely a single convoy followed precisely the same course as the preceding one. Furthermore, the detection of convoys and the task of maintaining contact once they were sighted was complicated by factors such as tactical maneuvers, including zig-zagging along the main course, varying the cruising speeds, changing course to avoid assumed or actually encountered German submarine blockades, or detouring north of Jan Mayen and east of Bear Island, and by weather conditions, which changed so frequently in those high latitudes where summers were so brief. Besides this it must be borne in mind that the area to be kept under surveillance corresponded in size approximately to that of continental Europe (exclusive of Spain and Italy) as far to the east as the boundaries of Poland and Yugoslavia.

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\*According to Generalmajor Ernst-August Roth, "On 5 March 1943 the Luftwaffe sank a 6,000-ton ship by using three 500-pound bombs and one 10,000-ton vessel was set afire."

<sup>†</sup>Editor's Note: The post of Commander of Naval Command Norwegian Sea (or Polar Sea as it was sometimes called) was held from mid-1941 until August 1942 by Admiral Hubert Schmundt, and thereafter until March 1944 by Konteradmiral Otto Klueber. This staff operated under the directions of the Naval Group Command North (Marine Gruppenkommando Nord), which was commanded until 1 March 1943 by General-admiral Rolf Carls, and from 2 March 1943 until 30 May 1944 by General-admiral Otto Schniewind.



In most instances the fact that an eastward-bound convoy was converging upon Iceland would be betrayed by the lively operations of a British radio station which was ordinarily silent. A few days later the German air weather units, operating from Stavanger in the direction of the Faroe Islands, usually sighted the enemy. These planes would first sight either widely spaced and eastward traveling naval escort units spread out toward the Norwegian coast, or they would sight the convoy itself, traveling on a corresponding course in the vicinity of Iceland.

These first reports would alert the Luftwaffe and naval commands. From then on the most important thing would be to establish and maintain constant contact with the convoy. In this effort the Luftwaffe and the German Navy attempted to outdo each other. Drawing upon past experiences, the air commands plotted the conjectured course of the ship formation, making their estimations on a basis of a cruising speed ranging from 8 to 12 knots per hour. A number of Fw-200 "Condor" aircraft\* were then dispatched to the calculated area, and made broad reconnaissance sweeps, operating on a frontage which was largely determined by local weather conditions. In most cases these planes would detect the convoy, and one or more of them would then report its location, speed, course, and composition, and details on the escort units and weather. It might appear at first glance that the entire process of locating, identifying, reporting, and maintaining contact with enemy ship formations was a relatively simple matter. However, these operations included innumerable details and adverse technical factors, accompanied by disappointments and frustrations, all of which had to be taken into account at once in order to avoid endangering the success of the attack missions. Just the problem of regular and timely relief of the aircraft maintaining contact with the convoys was in itself an immense task. The distances involved were usually about 600 miles, and there was a constant shortage of personnel and materiel required for the purpose. But, despite these great difficulties, air and ground teams of the reconnaissance units mastered the problems with almost sportlike enthusiasm. Air

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\*Editor's Note: The Focke-Wulf 200 "Condor" was a four-engine transport of the German Lufthansa airline, which was modified as a military aircraft and widely used in the Far North as a long-distance reconnaissance plane. Carrying a crew of eight, it cruised at about 218 miles per hour and had a top speed of more than 260 miles per hour. Between 1940 and 1944 only 262 of these aircraft were produced. See Karlheinz Kens u. Heinz J. Nowarra, Die Deutschen Flugzeuge 1933-1945 (The German Airplanes 1933-1945), Muenchen: J. F. Lehmann Verlag, 1961. Cited hereafter as Kens and Nowarra. See also figure 39.

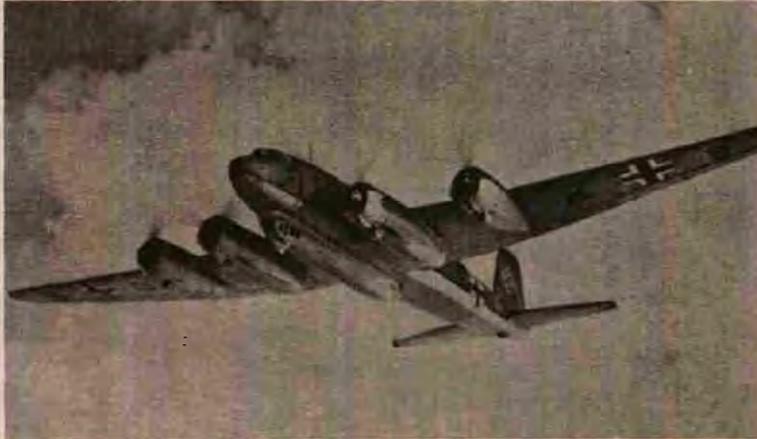


Figure 39  
Focke-Wulf (FW) 200 "Condor," called Charlie by  
British and American airmen, gives positions  
of distant Allied convoys in the arctic area



Figure 40  
Ju-88's ready to attack an Anglo-American  
convoy bound for northern Russian ports



Figure 41  
Allied convoy en route to Russia. A near miss by a stick  
of bombs dropped from a German Ju-88, 1943  
(Courtesy of the Imperial War Museum, London)

reconnaissance and submarine units supplemented each other almost to perfection in the difficult task of locating and keeping under surveillance Allied convoys, and it was rare indeed when contact, once established, was lost for more than six or seven hours.

The reports received from the contact aircraft provided the data for the most appropriate use of the available attack forces. The Navy usually posted its submarines in successive lines across the convoy's expected route, while the air units had to wait until the convoy was within their striking range, which was approximately 480 miles. The air forces available for the attack included He-111, and later Ju-88 torpedo and Ju-88 bomber, units.\* There were just enough airfields available from which these units could operate.

The ideal form of air attack against a convoy was a combined bomber and aerial torpedo attack, in which the torpedo units attacked one minute after the bomber strike. In practice, however, this form of attack was subject to almost insurmountable difficulties, including the great distances separating the several airfields and the varying weather conditions in the individual areas, the time taken by the several units to get airborne when only a single runway was in operation or available, the time required for assembly in the air, the different cruising speeds of the various types of aircraft, and the slight navigational deviations of unit leaders heading for targets 480 miles away. There were other complicating factors as well, so that the ideal tactics for a strike could rarely be employed. When such conditions were achieved, however, the successes were remarkable.

The form of attack least subject to weather conditions was the aerial torpedo strike, for which reason these units were employed most frequently. However, the effectiveness of aerial torpedoes was limited by the release altitudes employed, the strength of side winds, and by heavy seas. The cloud ceiling was rarely high enough in the target area in these latitudes for horizontal bombing or dive-bombing attacks. Although air torpedo attacks always varied in execution, the following example of such an attack comes fairly close to approximately the usual conditions:

Strength of attacking unit: 25 aircraft. Time required  
for loading and readying the aircraft for take-off in summer:  
2 to 3 hours, individual aircraft taking off at 30-second

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\*See figures 40 and 41.

intervals. Unit assembled in flight in the vicinity of a predetermined prominent shore landmark and began approach flight to target. The air command on the ground reported the anticipated time of arrival over target area to the appropriate naval command for the information of submarines in the area. Contact planes in target area were also notified so that they could commence transmitting position signals approximately 20 minutes before the attack unit was due to arrive. Air command instructed contact aircraft to take up positions as far ahead of the convoy as possible pointing in the direction the convoy was traveling. As soon as the attack force was sighted, the contact plane turned about and headed for the point of the convoy. The leader of the air torpedo units followed, and ordered his pilots and crews to take up combat positions. For the bombing run the aircraft formed into an arc or pincers, with the open end toward the target. Each plane attacked the nearest ship, releasing its aerial torpedoes from an altitude of 100 to 130 feet, and at a range of about 6,600 feet. When out of gun range of the escort ships defending the convoy, the unit reassembled and proceeded on its return flight. The usual time required for the approach to target, the attack, and the return flight was eight hours.<sup>35</sup>

Although the basic features of these tactics were always pretty much the same, just the defensive measures of the enemy were sufficient to prevent them from becoming stereotyped in execution. The increased number of aircraft carriers assigned to escort convoys was the principal factor which finally made it necessary to resort to "armed reconnaissance" tactics, since contact planes in such circumstances could only remain close to the convoy if adequately protected by clouds. Even with "armed reconnaissance" attacks, efforts were made to retain the tried and true pincers formation in the bombing run. The losses of Luftwaffe attack aircraft were within tolerable limits, but losses in reconnaissance and contact aircraft were at times excessively heavy.<sup>36</sup>

Air attacks against convoys and single ships received effective support in the form of continuous operations by the few remaining bomber, dive-bomber, and fighter squadrons still under Air Command North (East) against the ports which were not icebound along the Murmansk coast and against targets in the coastal areas around the Rybachiy Peninsula, particularly Murmansk, Motovskiy Bay, and Port Vladimir, but also against ships in smaller ports such as Polarnoye (a Soviet submarine base), and a port for motor torpedo boats in Pumankiy Bay. Good, and sometimes

very good, results were secured in all of these attacks, considering the amount of damage done to ships, piers, dock installations, electric power stations, and supply and trans-shipping depots. In the summer and well into autumn of 1943 these operations were extended to include attacks along the ports of the White Sea, especially Arkhangelsk, and highly effective attacks against coastal shipping in the entire area.

Meanwhile, the German Navy carried out as many operations as possible, although hampered by a shortage of surface vessels and bad weather conditions which made identification of targets and accurate firing difficult if not impossible. Surface units of the Navy were directed by the Naval High Command to operate against Anglo-American convoys and to cooperate closely with the air forces. The Fifth Air Fleet and Naval Group Command North (Marine Gruppenkommando Nord)\* were thus closely linked in all of these undertakings. According to the diary of Naval Command Norwegian Sea (Admiral Nordmeer), "Success in operations against hostile convoys by our task force was predicated upon cooperation with the air forces, which, under the circumstances of modern naval warfare, must first create the essential conditions for naval operations." 374

Sir Winston Churchill recognized the threat to Allied shipping in these northern waters and was gravely concerned about it:

. . . Between January and March [1943], in the remaining months of almost perpetual darkness, two more convoys, of forty-two ships and six ships sailing independently, set out on this hazardous voyage. Forty arrived. During the same period thirty-six ships were safely brought back from Russian ports and five were lost. The return of daylight made it easier for the enemy to attack the convoys. What was left of the German Fleet, including the Tirpitz, was now concentrated in Norwegian waters, and presented a

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\*See footnote, p. 195.

†Editor's Note: These naval operations suffered mainly because of inadequate available forces, but achieved very good results when this factor is taken into consideration. The only large vessels in the entire northern area were the battleships Tirpitz and Scharnhorst (35,000 and 26,000 ton classes respectively) and the heavy cruiser Admiral Hipper (over 10,000 tons). Hitler opposed the concept of large surface fleet operations with capital ships, which he believed to be obsolete. Because of his attitude, and because of the great inferiority of Germany's surface fleet, the Naval High Command exercised great care not to lose any of its large ships unnecessarily.

formidable and continuing threat along a large part of the route. Furthermore, the Atlantic, as always, remained the decisive theater in the war at sea, and in March 1943 the battle with the U-boats was moving to a violent crisis. The strain on our destroyers was more than we could bear. The March convoy had to be postponed, and in April the Admiralty proposed, and I agreed, that supplies to Russia by this route should be suspended till the autumn darkness. 38\*

The Russians were greatly upset over the momentous curtailment of urgently needed Anglo-American Lend-Lease goods, and, in a sharp exchange of notes with Britain's Prime Minister Churchill, they demanded an immediate resumption of convoy movements to the U. S. S. R. regardless of the losses which would thereby be incurred by the Western Allies. This exchange of notes clearly and unmistakably reveals the significance of the northern supply route:

It was natural that the Soviet Government should look reproachfully at the suspension of the convoys for which their armies hungered. On the evening of September 21, M. Molotov sent for our Ambassador in Moscow and asked for the sailings to be resumed. He pointed out that the Italian Fleet had been eliminated and that the U-boats had abandoned the North Atlantic for the southern route. The Persian railway could not carry enough. For three months the Soviet Union had been undertaking a wide and most strenuous offensive, yet in 1943 they had received less than a third of the previous year's supplies. The Soviet Government therefore "insisted" upon the urgent resumption of the convoys, and expected His Majesty's Government to take all necessary measures within the next few days. 39

On 1 October 1943 Churchill announced to Stalin that a series of four convoys would be sent to northern Russia, one in November, one in December, and the other two during January and February 1944. Each convoy was to consist of about 35 British and American ships. 40 The first convoy was scheduled to leave the United Kingdom about 12 November and to arrive in northern Russia ten days later, with the others following at intervals of about 48 days. The Allies also intended to pick up as

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\*See figures 41, 42, and 43.

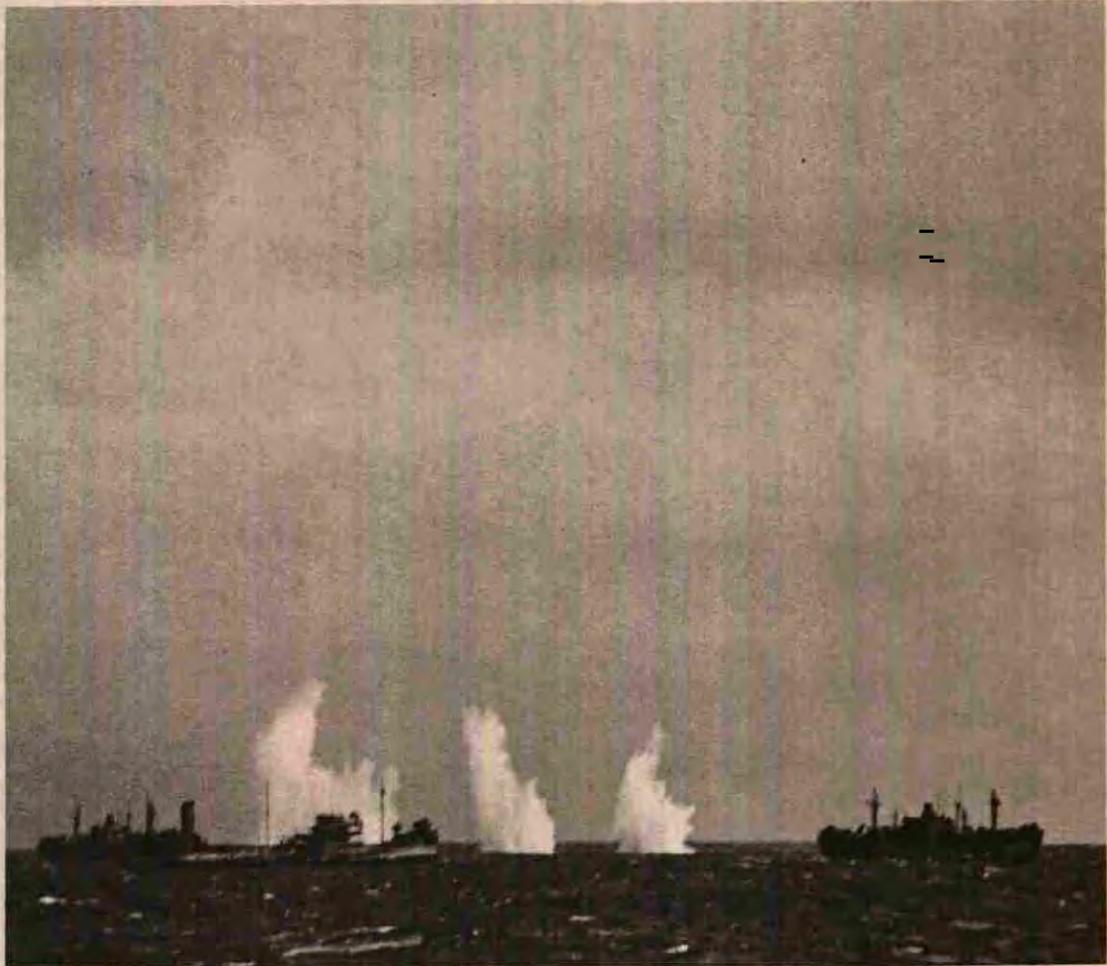


Figure 42  
A British convoy being attacked by the  
Luftwaffe in arctic waters  
(Courtesy of the Imperial War Museum, London)





Figure 43

Cdr. A. G. West, R.N. (4th from left) with his officers on the bridge watching German aircraft diving out of the sun to attack his convoy  
(Courtesy of the Imperial War Museum, London)

many Anglo-American vessels as possible from northern Russian ports about the end of October and to bring them back with the returning convoys. <sup>41</sup>

One could not disregard the fact that the northern route was the shortest way for the movement of materiel from the Western Allies to the Soviet Union. Persian supply routes were open to be sure, but they could not compensate for the entire amount of shipping which had been going through the northern Russian ports. <sup>42</sup> Because of this fact, and because of the urgency of Soviet demands, the convoys were resumed in late autumn 1943. The first formation left in mid-November and the second in December, a total contingent of 72 ships, all of which arrived safely in the Soviet Union. All of the homeward bound (QP) convoys were brought safely through the northern waters during this period. <sup>43\*</sup>

The Luftwaffe's toll of Allied shipping by the end of the year had nevertheless reached a significant level. A total of 420,000 gross register tons of shipping (92 merchant vessels) were sunk, as well as 1 heavy cruiser, 5 submarines, 30 coastal vessels, and 11 escort craft. The German Air Force damaged 125 ships, totalling 710,000 gross register tons of merchant shipping, 3 destroyers, 3 submarines, 1 aircraft carrier, 1 tanker, and 1 outpost patrol boat. <sup>44/</sup>

Enemy air activities had increased considerably since 1942. In efforts to halt the constant German air attacks against the Murmansk rail line (which was such a vital transportation link during the winter months), and to neutralize the German air forces while convoys were approaching the Soviet ports, the Russians as early as the beginning of winter 1942-43 had greatly reinforced their bomber and fighter forces stationed in the vicinity of the Murmansk railroad route and in the Kola Peninsula. They doubled, and sometimes tripled, the strength of these flying forces, and went from the defensive over to the offensive.

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\*The convoys were favored by the seasonal bad weather and long nights, which seriously reduced or altogether prevented anti-convoy action by the Luftwaffe.

Editor's Note: The Vorposten boats, or outpost patrol boats, were armed trawlers which had the duty of escorting coastal convoys and acting as outposts against motor torpedo boats, small naval units, and submarines. They also reported any aircraft sighted. This was hazardous duty, and especially so for German ships of this sort, which were almost invariably operating in a situation of naval inferiority.

Soviet attacks were directed primarily against the German airfields at Kirkenes, Petsamo, and Banak, and also against those found in the areas around Alakurti and Kemijärvi. Some of these attacks caused considerable damage, especially at Kirkenes. It is inexplicable why the Russians during the period of their increased air activity did not also attack the highly important nickel works and the electric power plants upon which these works depended. The Commanding General of the Fifth Air Fleet (Generaloberst Hans-Juergen Stumpff) wondered why the Russians had never attacked the nickel works at Kolosioki, which were:

. . . of decisive importance for the German conduct of warfare and which were then being expanded and becoming of increasing importance because of the construction of an ore treating plant for the production of pure nickel on the spot. The more than 300-foot-high chimney of the plant would have shown the way to the target for any attacking air unit.

Another equally endangered target was the Jaeneskowski electric power station in the Nautsi area, which was part of the nickel producing complex and connected with the nickel works by a makeshift cable above the ground about 48 miles in length. The destruction of the reservoir dam would have paralyzed the nickel works and in addition would have flooded the Nautsi air base and sections of the Eismeerstrasse [arctic sea road], 45

Owing to the increased Soviet air activities the flak forces in the northern Norwegian and Finnish areas had also been reinforced, although only on a small scale because of the general shortage of forces.\* The main concentrations of flak artillery were at the nickel works in the Petsamo region, at important supply ports, and at the airfields. Apart from the actual number of planes shot down, the particular value of flak artillery in this area of operations was its repelling effect. Wherever local conditions permitted, the batteries were emplaced so that they could also participate in coastal defense actions.

German shipping in these arctic regions proceeded along the coast-line either singly or in convoys of up to eight or ten ships. When the Russians began systematic attacks (mostly by IL-2 "Stormovik" aircraft) with bombs, aerial torpedoes and mines, the Fifth Air Fleet established

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\*See Chart No. 6.

a number of new airfields from which fighters could operate to protect this important logistical lifeline. Increased enemy air operations, which in the Hammerfest-Kirkenes area were expected to commence with the beginning of longer days, had already taken the form of stepped-up systematic reconnaissance against all seaborne traffic, including also bombing and aerial torpedo attacks against convoys. Hitherto, only pairs of enemy aircraft had attacked, but by the summer of 1943 (for the first time) entire Soviet air units launched attacks. <sup>46</sup>

Offensive operations by Soviet fighter-bombers and light bombers, usually the Potez type, \* had a noticeable effect from 1943 on. These operations were similar to the German fighter-bomber attacks against single ships traveling close to the shore, and were usually preceded by reconnaissance flights. Earlier, German convoys had been protected only by antisubmarine seaplane patrols, but by mid-1943 direct fighter protection became the more important requirement. This necessitated the construction of fighter airfields in the immediate vicinity of the northern Norwegian coast. † Therefore, one such airfield was built at Alta, one at the northern exit of the Porsanger Fjord, and one at Swartnes, on the eastern tip of the Vardø Peninsula, opposite Vardø Island. By constructing these three airfields, the Wehrmacht made it possible to lessen the general congestion at the few available airfields in the vicinity of the coast.

The new German defensive dispositions proved to be fully satisfactory. On 26 August units of the 5th Fighter Wing shot down 25 Soviet aircraft in the Vardø-Kirkenes area and 10 at Petsamo. On 13 October aircraft escorting a German convoy shot down 25 or 26 out of a force of 65 to 70 attacking Soviet planes, <sup>47</sup> and on 3 November units again

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\*Editor's Note: Although the author is not specific, he is probably referring here to the French-made Potez 630 or 631 twin-engine fighter and fighter-bomber. See William Green, War Planes of the Second World War: Fighters, Vol. I, Garden City, N. Y.: Hanover House, 1960, pp. 62-64.

†The volume of German convoy shipping is revealed in a summary in the War Diary of Naval Command Norwegian Sea (Admiral Nordmeer): "Escorts were provided for 6, 332, 964 gross register tons of shipping in convoys in the coastal waters between Narvik and Petsamo." Records of the Naval Project, EUCOM Historical Division, Karlsruhe.

employed in escort missions for convoys dispersed an attacking Soviet formation, shooting down 15 Soviet aircraft.\*

Concerning the matter of German convoy escort operations between North Cape and Kirkenes or Linehamari, Generalleutnant Ernst-August Roth noted that the greater part of all supplies from Germany for the Twentieth Mountain Army (at least as far as bulk commodities were concerned) was shipped in by sea through the ports of Kirkenes and Linehamari (Petsamo area). The vulnerable sections of this supply route in 1943 were the areas between North Cape and Vardø Island, and the entrance of Linehamari, which were within view of Soviet coastal batteries situated along the southwestern edge of the Rybachiy Peninsula.

In the spring of 1943 the Russian operations against German convoys--there were usually eight to ten ships escorted by outpost patrol boats--assumed such proportions that not a single convoy escaped attack by submarine or air units. This was a most serious situation so far as the maintenance of the striking power of the forces within the Army's zone of operations was concerned.

Enemy submarines usually attacked between Honningsvåg (the northern exit from Porsanger Fjord) and Berlevåg, later almost exclusively between Berlevåg and Makkaur, on the northern coast of the Varanger Peninsula. Air attacks, which were increasing steadily, took place between Harmningsberg and Vardø. It was no wonder that the German Navy pressed with ever greater urgency for air protection for the convoys.

The main forces available to Air Command North (East) at Kirkenes were the 30th Bomber Wing at Banak, the 5th Fighter Wing at Petsamo, and a twin-engine fighter group at Kirkenes. In addition, there was the 56th Air Signal Regiment with its excellent facilities. Although only an indirect instrument of defense, the air signal regiment later proved to be the most effective.

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\*"Of the 20 bombers, twin-engine fighters, and fighter-bombers available, 10 were committed in antisubmarine patrols and 10 in convoy escort missions. Twenty-five hostile aircraft were shot down in aerial combat." See Appendix 58, original German draft of this study, Karlsruhe Document Collection. This action took place on 13 October 1943.

†See footnote p. 207.

Until about March of 1943 it sufficed for the Luftwaffe to drop bombs of up to 110 pounds each at irregular intervals around the convoy to simulate depth charges while the ships were passing through areas in which submarine attacks were likely.\* This kept the submarine in the vicinity from getting into an attack position. From April on, the danger of submarine attacks in the Berlevåg area increased steadily and threatened to become a critical menace.

Almost every morning and evening the only Wuerzburg radar instrument still available (situated at Vardø) tracked a Soviet aircraft approaching from the north. Invariably the plane disappeared from the radar screen for about five to ten minutes in the region of Kongs Fjord. After he had convinced himself that there were no fixed points visible on the radar screen along the route over which the Soviet reconnaissance plane was tracked, the chief of the air command assumed that it had either landed or flown so low in the vicinity of Kongs Fjord that it could not be picked up on the radar screen. He drew a further conclusion that the Russians had a secret base for submarines somewhere along the completely isolated coastline, and thus ordered a complete photo reconnaissance over the coastal sector from Pers Fjord to west of Berlevåg.

The aerial photos revealed an almost ideal hiding place for a submarine in a tiny fjord at the entrance to Kongs Fjord. The air command thereupon informed the Navy people at Tromsø of these suspicions and recommended a combined Army-Navy surprise attack operation (without air support) to eliminate the assumed Soviet submarine base. The action which followed was a complete success. It not only confirmed the air commander's suspicions about a Soviet base at the Kongs Fjord,† but also led to the discovery of a reporting agency in the pay of the Soviet Union. This organization consisted of more than 40 Norwegian men and women who had been trained at Murmansk and then landed and supplied by a Soviet submarine at the Varanger coast. It could be assumed with certainty that this organization was responsible for the escape of a Soviet submarine which was anchored in the Kongs Fjord by giving it timely warning of the approach of German naval craft participating in the clean-up operation.

German forces not only captured a number of radio stations, but also the extremely complicated Soviet code which was then in use, making it possible for some time to mislead the Russian submarine headquarters

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\*See figure 41.

†The site of the submarine lair was precisely where the Luftwaffe Command had pointed it out on aerial photos.

base by the transmission of false reports. Submarine attacks thereupon ceased temporarily but were later resumed, although not with the former degree of precision.

An increasing and far more serious threat was the growing menace of air attacks in the Vardø area. Because of the great distances from Petsamo and Kirkenes\* and the fact that German fighters could stay in the air for only 60 to 70 minutes because of fuel capacities, there was little chance to intercept Soviet air units in time and this opportunity was limited to just a few seconds. Nevertheless, the German air defense organization functioned so well (because of the excellent cooperation by all concerned) that not a single German ship was sunk or damaged in this area between 5 June and 20 October 1943. In contrast, more than 700† Soviet airplanes were shot down in the Fifth Air Fleet area during this time, against relatively light German aircraft losses. The teamwork required in such operations generally proceeded in accordance with the following pattern, although, of course, no two interceptor operations were precisely the same because of the obvious reaction of the enemy command after each defeat.

Eastward moving German convoys would be reported to the air command as soon as they left the shelter of the steep cliffs near Honningsvåg. The Luftwaffe would then furnish seaplanes and Ju-88 bombers for anti-submarine escorts. After the ships passed Berlevåg they would be given a close escort, sometimes including destroyers, while the alerted 5th Fighter Wing transferred its squadrons from Petsamo to Kirkenes. When the convoy was about even with Hamningsberg, the fighter pilots got aboard their aircraft and remained on ready-alert (monitoring stations had by this time found out that the Russians were making preparations at their airfields for attack). ††

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\*These distances could be as great as 150 miles or more over the sea or rugged, mountainous terrain.

†Editor's Note: It is not certain how the author arrived at this figure. Available Fifth Air Fleet figures show 471 aircraft shot down during this period.

††The monitoring of radio traffic between Soviet aircraft crews while still on the ground was carried out by three Wehrmacht radio operators with a perfect knowledge of Russian, who immediately transmitted their observations to the 5th Fighter Wing and the local air commander. In the beginning of German anti-submarine and air defense actions in the Far North this monitoring service was the key to success.

German forces were as well informed about the take-offs of Soviet aircraft as though they were actually visible to the Wehrmacht. The important thing to do then was to track these enemy aircraft with the Wuerzburg radar instrument (located at Vardø) from the Kola Bay area. Thanks to the intensive training given radar personnel and their tireless efforts, everything went off very well. German fighters were thus able to reach the convoy in time to intercept and decimate the Russian force before it could attack. The Russians were courageous and determined opponents in their efforts to execute their mission, and escort fighters attempted, although unsuccessfully, to protect them. In some instances air battles were fought at altitudes of less than 300 feet, immediately above solid cloud banks, and it was by no means rare for the battle to end in the clouds. In such cases the fighters had to be guided back to their bases by the Wuerzburg radar installation. Often they arrived in Kirkenes with their last gallon of fuel.

Red forces usually attacked with bombs, occasionally also with parachute torpedoes which were set to circle in the water. The Russians were, however, quick to realize that their radio traffic was the Wehrmacht's best ally, and the German forces soon had to devise other means of making timely detections of their presence. The Wuerzburg radar device was the answer to this problem. It was portable and was originally used in the foremost lines of the XIX Mountain Corps around Murmansk. Later it was moved to the neck of the Rybachiy Peninsula, after the Russians discovered that it was this instrument which detected their aircraft assembling for actions at sea. When the Russians found out that the radar in its new location detected them leaving Kola Bay at very low altitudes, their only chance was to approach in a wide detour over the sea far to the north of Rybachiy Peninsula in an effort to achieve surprise in their attacks. Coming from that direction, however, they were detected by the radio station at Vardø.

Meanwhile, thanks to the well coordinated efforts of the Army, Navy, and Luftwaffe, the Swartnes airfield was prepared in a surprisingly short time for fighter operations. The almost sportsmanlike enthusiasm over the seemingly impossible achievements of the fighters was what spurred all of these forces on, and accounted for this excellent performance. Everyone knew what was at stake. The new field made it possible to maintain at least one fighter squadron over each convoy from Berlevåg to the destination, and thereby protect it against surprise attacks.<sup>48</sup>

While part of each German convoy remained in Kirkenes, some of the ships left port by themselves after a short stay. These ships again assembled in a fjord near Linehamari in order to proceed (under escort)



in convoy to the port of Linehamari. The most dangerous part of this route was the entrance to the narrow fjord, which, as was mentioned previously, was within easy range of the Soviet coastal batteries on the Rybachiy Peninsula. In order to blind these batteries, aircraft laid a smoke screen along the entire route, which was several nautical miles in length, a procedure which was frequently practiced in combined operations with naval units in peacetime. The smoke screen was approximately 150 feet high and 60 feet across and was made even more effective by screening smoke released by escorting naval vessels. Protected by this smoke screen, the German convoy proceeded on an irregular course, covered against Soviet air reconnaissance by German fighter units. During these operations the Soviet artillery batteries on the Rybachiy Peninsula continued to fire upon the entrance area of the fjord, but this was only harassing fire rather than observed fire. Because of this, with some luck, and because the Russian batteries did not have an inexhaustible supply of ammunition, there were good chances of making a safe entrance. Only on very rare occasions were ships damaged by this enemy fire, and then they usually suffered only slight damage from shell fragments.

Air cover was of the essence in helping to get friendly convoys through to their destinations, just as airpower was essential in the combating of enemy convoys. This fact was well appreciated by the Allies, who began to include carriers as a regular part of Allied shipping formations. Yet, despite this opposition, excellent teamwork between the Fifth Air Fleet and the German naval units operating in the arctic waters often enabled the Wehrmacht to hamper or delay the movement of Allied supplies, and at times to scatter or sink elements of Anglo-American convoys. Besides the operations carried out against enemy convoy formations and individual ships--these operations were carried out in cooperation with surface units of Naval Group Command North--the following missions of the Fifth Air Fleet deserve special mention: continuous operations against the Murmansk railroad line, especially the Salla section, by units stationed at Alakurti; long-range reconnaissance missions over the White Sea and Arkhangelsk to ascertain whether and what elements of the Anglo-American convoys reached ports in the Murmansk-Arkhangelsk area; and continuous patrols flown by Fw-200 "Condor" units (transferred from Oslo to Nautsi for the purpose) to protect German convoys against enemy submarine attacks. These patrols went out even during the long arctic nights.

Although the Russians attempted to disperse their aircraft widely at their airfields, Fifth Air Fleet units succeeded time and again in attacking these bases with good results. Apart from the valuable aircraft and installations which were destroyed on the ground at Soviet

airfields, German units in the Far North in 1943 shot down approximately 1,400 Russian aircraft in aerial combat.

Because of the uninterrupted quiet all along the Murmansk line, air units operated on only a small scale in support of the ground forces, carrying out artillery fire direction, combat reconnaissance, and photo reconnaissance missions, actions against occasional targets, such as the coastal batteries on the Rybachiy Peninsula, Soviet troop concentrations and shelters, and supply routes located near the front. German air units also dropped large numbers of propaganda leaflets over enemy positions and installations.

Prior to the onset of the long arctic nights, elements of the 5th Fighter Wing were transferred to the southernmost sector of the Twentieth Mountain Army for action against Soviet ski brigades, which more or less continuously infiltrated the front in the corps boundary areas. The Red opponent was a hardy and resilient foe, inured to the rigors of the climate and stubborn in defense. Generalleutnant Andreas Nielsen, Chief of Staff of the Fifth Air Fleet, describes the Red Army as a body of well-trained troops, who were fighting, so to speak, at the very gates of their garrisons. They were frugal, excellent at the art of camouflage, and incredibly patient, but displayed little imagination in the conduct of operations.

It was more difficult to evaluate the Soviet Navy since it was so seldom seen, and when it was seen on rare occasions, it was in the coastal waters in support of the Red Army. It suffered heavily under German bombing attacks at Murmansk and Polarnoeye.

Generalleutnant Nielsen characterized the Soviet air forces as lacking in dash, a force of poor aviators in general, poorly equipped in technical respects, especially navigation instruments, and with a command that lacked imagination and flexibility. He pointed out that the Russians did a poor job of aiming during bombing runs, and were not to be taken seriously as an aerial opponent in the Far North.<sup>49</sup>

#### Service Forces of the Luftwaffe

Generally speaking, the Luftwaffe forces which were committed in the Far North received adequate supplies, although fuel shortages did make it necessary to curtail operations by air units. However, these shortages were not due to any lack of foresight in stockpiling supplies, or to the inordinately long and difficult supply routes, but to the inadequacy of German production, particularly with respect to fuel. A contributing

cause was the transportation bottleneck, the shortage of tankers. Generaloberst Stumpff, Commander of the Fifth Air Fleet, was well aware of this problem:

As was the case on the Norwegian front, grave difficulties were also encountered on the Finnish front in the area of logistics. Quite apart from the wearisome sea route to Kirkenes, where only small unloading and storage facilities were available, the only route for the movement of supplies in Lapland from the Rovaniemi rail junction to Kirkenes, a distance of almost 480 miles, was the arctic sea road. Furthermore, in winter this road was too narrow for two-way traffic. The recommendation to construct a narrow-gauge railroad along the arctic sea road was rejected on the basis of reconnaissance because of the acute lack of materials and time.

A more active air opponent could have caused gravely threatening interruptions in traffic on the only two supply routes in existence. It was only at a late stage that the Russians attempted to interrupt traffic on the sea route to Kirkenes. 50

Before the winter of 1942-43 a start had been made in expanding the Luftwaffe ground service organization. A special effort was made in the area from Kemi to Petsamo. Work on this project, which included not only the improvement of existing facilities but the construction of new bases, was not interrupted by Soviet action to any appreciable extent. The Finns were most helpful by recommending the construction of natural runways with a mixture of sand, gravel, and clay, rather than concrete. These could withstand considerable heaving, thawing, and freezing.

The unexpected commencement of winter, with temperatures ranging as low as -58° Fahrenheit, caused considerable difficulties, and this situation was relieved only after the procurement of makeshift aids, such as engine hoods and heating wagons. 51

A particularly important branch of the ground service organization in the Far North was the Weather Reporting Service, especially for operations against convoys. It could be assumed as a general rule that out of every nine bad weather spells reaching Europe, seven of them went across the Norwegian area. This always resulted in frequent weather changes, which often came unexpectedly because of the incompleteness of weather data from western areas. Furthermore, only a small number of tactical

airfields were available in the Far North, and at all of them the terrain conditions complicated landings. These conditions were rendered still worse by bad weather. Taking these factors into consideration, one can understand the difficult decisions air commands had to make with respect to the possibilities, timing, and execution of missions.<sup>52</sup>

In connection with the weather service, and with operations against hostile convoys and those in defense of friendly convoys, the various islands in northern waters, from Greenland and Iceland to Jan Mayen, Spitzbergen, Bear Island, and Novaya Zemlya, gained significant importance. The collection of meteorological data was a mission of the special weather reconnaissance aircraft of the weather service squadrons, a very costly undertaking. Some data was, of course, obtained by intercepting enemy weather reports.

Efforts to establish meteorological stations on Spitzbergen and Bear Island succeeded in the early stages, although grave difficulties were encountered.\* The meteorological teams at these stations were highly successful at times, but these outposts finally had to be abandoned or were captured by the enemy.† An attempt to establish a weather station on Novaya Zemlya had to be abandoned in the spring of 1943 because the Russians were already there.<sup>53</sup>

Another valuable service in counter-convoy operations was the air-sea rescue service, an organization which was carefully trained to help reduce personnel losses in these arctic areas by picking up men who were shot down at sea. On 1 July 1943 an excellent air-sea rescue organization was established in the command area of the Fifth Air Fleet. The 5th Air-Sea Rescue Service Command (North) was responsible for rescue missions in the ice and snow as well as at sea, and was tactically assigned to the Fifth Air Fleet. For administration and supply it was assigned to the Luftwaffe Administrative Area Command Norway (Luftgaukommando Norwegen). The 5th Air-Sea Rescue Service Command (North) controlled the following units:

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\*According to Col. Dr. Ernst Kuehl, the weather station on Bear Island "functioned well in the winter of 1943-44."

†Editor's Note: The Wehrmacht operated a weather reporting station on Spitzbergen. This small outpost was captured in June 1943 by a raiding party of Norwegians and British troops. In early September this was retaken by the German Navy.

VIII Air-Sea Rescue Service Area Command, Stavanger

Air Signals Operations Platoon A  
 5th Air-Sea Rescue Squadron, Stavanger  
 22nd Air-Sea Rescue Service Command, Bergen (with -  
 Air Signals Operations Platoon B)  
 21st Air-Sea Rescue Service Command, Trondheim

IX Air-Sea Rescue Service Area Command, Kirkenes

Air Signals Operations Platoon A  
 12th Air-Sea Rescue Service Command, Tromsø  
 (with Air Signals Operation Platoon B)  
 13th Air-Sea Rescue Service Command, Kirkenes  
 (with Air Signals Operations Platoon A)  
 20th Air-Sea Rescue Service Command, Billefjord  
 (with Air Signals Operations Platoon B)  
 10th Air-Sea Rescue Squadron, Tromsø  
 Air-Sea Rescue Service Command, Finland, at Pori  
 (with Air Signals Operations Platoon B)<sup>54</sup>

Between 21 February and 10 November 1943 the Air-Sea Rescue Service Command dispatched 106 aircraft and 68 ships on 121 sea rescue missions. Only 62 of these were successfully accomplished, which was, however, very good considering the conditions. An entry in the war diary of this service describes an air-sea rescue mission in April of 1943:

On 26 April 1943 an English radio message led to the rescue of a German crew. It was understood from the English message (transmitted in the clear) that the British aircraft had orders to remain in contact with the German pneumatic boat. This measure facilitated the rescue, and both British and Germans desisted from attacking each other during the rescue operation. <sup>55</sup>

In another instance on 29 April 1943 a rescue mission had to be broken off because no fighter escort could be made available. Thus the downed flyers could not always be picked up because the reactions of enemy aircraft could not be trusted in all cases.

On 16 July an air-sea rescue plane had to be recalled from a mission because of the approach of enemy aircraft, and on 16 August an Ar-199 sea rescue plane was shot down by the British while enroute to rescue personnel in a swamp. <sup>56</sup>

Between 1940 and 1943 the forces employed in rescue operations were so increased that there were about 12 Do-24 aircraft (He-59's had been withdrawn from service), 1 Fi-156 "Storch" liaison aircraft at Stavanger, the salvage vessel Karl Meyer of 1,000 tons, 2 whalers, 12 crash boats, about 20 aircraft operations boats, and 25 boats from the Norwegian Lifeboat Society in the contingent.

During the first three years, cooperation with the Norwegian Lifeboat Society was excellent, since help was given without reservation in all cases of distress, including illness on the islands, or in instances in which the patients had to be removed to the hospital. During these years (1940-1943) the air-sea rescue service in Norway rescued about 2,000 Germans and Norwegians, and about 200 enemy personnel, a performance which reflects credit upon this service. In these icy waters the air-sea rescue units more than proved their worth.

From the autumn of 1943 on, the Fifth Air Fleet also commenced making preparations for the evacuation and destruction of Luftwaffe installations for the planned withdrawal operation, Operation BIRKE. Responsibility for these preparations, which in 1943 remained restricted to investigations and conferences, was assigned to Luftwaffe headquarters in Finland (Fifth Air Fleet).

In logistical planning, however, the Fifth Air Fleet provided against a possible later evacuation by refraining from building up large supply reserves in the central Finnish area. Larger stocks, on the other hand, were accumulated at the more northerly air bases.

A signal communications network was operated and developed by the Luftwaffe Command in Finland. In 1943, multiple lines were available throughout the entire area of operations and extended into the Zone of the Interior. These facilities were always adequate and fully operational. Communications between Kirkenes and Bardufoss were rarely interrupted for more than 24 hours, although the overhead cable crossed a particularly difficult region. In the winter, during heavy snowfalls and frosty weather, disturbances in the communications lines were naturally more frequent, and the maintenance of these lines then placed an especially heavy burden upon signal troops.

In 1943 one aircraft spotting company was committed in the XIX Mountain Corps sector, and one was later placed in the XXXVI Mountain sector. Kemi and Kirkenes were simultaneously aircraft spotting and reporting and air traffic control centers. During the year fighter control posts were also established at all airfields, which permitted a centralized



Figure 44  
Field Marshal Carl Gustaf Freiherr Mannerheim  
of Finland greeting Generaloberst Hans-  
Juergen Stumpff, Commander in  
Chief, German Fifth Air Fleet

registration of all enemy air penetrations and of operations to intercept hostile aircraft. Operations of fighter forces could then be controlled from each of these outposts.

Every airfield of any size was equipped with a radio and a DF station. The airfields at Kemi and Nautsi, where the air fleet command posts were located, had ultra-short wave radio landing beacons. The airfield at Banak had an ultra-short wave radio beam for aircraft approaching from the north through the 60-mile-long fjord. The entrance to the fjord itself was marked by a small radio beacon. Most airfields, of course, had a small radio beacon in the vicinity.

The radio sending stations at Bodø, Tromsø, and Vadsø (near Kirkenes) were used as navigational aids. In addition, the Fifth Air Fleet established a heavy type radio marker beacon about 30 miles to the south of Kirkenes. This station was used simultaneously for the relay of communications to Fifth Air Fleet Headquarters in Oslo. Signal communications in the Far North functioned on the whole very well.

#### Command Changes in Luftwaffe Forces in the Far North

Early in November a change took place in the command of Luftwaffe forces in the arctic area. On 5 November 1943 General der Flieger Josef Kammhuber\* assumed command over the Fifth Air Fleet, the incumbent commander, Generaloberst Stumpff, being put in command of the Air Defense Command (Luftflotte Reich) at home.<sup>57†</sup> Under the Fifth Air Fleet, the Chief of Luftwaffe District Command Finland was placed in charge of all air forces committed in the Finnish area.<sup>††</sup>

With the exception of the exchange of liaison officers, practically no contact existed between the German Luftwaffe and the Finnish Air Force. In the few cases where it was necessary, however, cooperation was always smooth and relationships were excellent. Thus, the two forces remained cordial and comradely despite the great distances between their stations. No details were known on the specific strength and the entire operations

\*Later Inspector of the new German Luftwaffe.

†On 5 February 1944 Luftwaffenbefehlshaber Mitte (Air Force Commander Center) was redesignated Luftflotte Reich (Air Fleet Reich, or Home Air Defense Command). See figure 44.

††General Harmjansk, who was preceded by General Schulz, assisted by Chief of Staff, Colonel von Cramon (GSC).



of the Finnish air forces, but it was known that Finnish flyers were able and very courageous, evoking great respect from German airmen. 58

In the opinion of the author the relationships were not close enough, considering that a war was being waged on a common front and that all details of operations had to be discussed in order to effect a proper interplay of forces. It remains to be said that the Finnish air forces received constant support through the delivery of aircraft, spare parts, and equipment of all kinds. While on a visit to Germany, the Commander in Chief of the Finnish Air Force, General Lundquist, was assured on 17 January 1943 by Reichsmarschall Goering that the request placed for radar equipment by General Talvela\* would be met. Besides this, the Commander in Chief of the Luftwaffe offered the Finns a number of Ju-88 aircraft. 59

#### Summary of Far Northern Operations

In reviewing the overall course of military operations in the Far North, it becomes obvious again and again that a joint armed forces command in this remote area would certainly have proved to be particularly advantageous. In the changing course of operations, with spells of quiet on the land fronts coinciding with spells of urgent necessity for action against the Anglo-American logistical movements, which were so vital to the Russians, it would have been possible to achieve a much more smoothly functioning and more rational application of all available combat forces of the three Wehrmacht branches. The result would have been a far greater measure of success.

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\*Generalmajor Talvela was the Finnish general assigned to the German Headquarters in the Far North.

## Chapter 7

CRITIQUE OF LUFTWAFFE OPERATIONS IN THE  
EASTERN THEATER IN 1943Attempts To Conduct Strategic Air Warfare in the  
Eastern Theater in 1943

In the German manual on aerial warfare Luftkriegführung (Aerial Warfare Leadership), LDv 16, operations against the enemy's sources of power were considered to be of decisive importance:

By combat action against the enemy's sources of military power and by interrupting the flow of power from those sources to the front, it [the air force] endeavors to paralyze the enemy's military forces.

Warfare in enemy territory is not directed exclusively against the operational forces and their bases. It is also directed against the logistical services and the production centers of the hostile air force, and thus becomes a battle for the sources of military power. 1

The manual thus gives the impression that a war can be decided only by air operations which would destroy the enemy's sources of power and thereby bring the flow of power to the front to a halt.\* However, to bring about the decision of a war in this manner, an air force would have to possess power in numbers and quality fully commensurate with the scope and diversity of all its missions. Over and above what has been said, an air force might be the only means by which the depletion of friendly ground forces could be prevented and a final decision forced in a war in which the fronts have become static. The main condition for success in such a case is a complete shift of emphasis to aerial warfare at the cost of all other methods of conducting the war. A complete change of this sort in the

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\*Editor's Note: As Stefan Possony points out in his book Strategic Air Power, The Pattern of Dynamic Security, World War II was decided by triphibious power rather than by airpower alone, yet airpower enabled the Allies to fight and win some of the most decisive battles in history. Without it the war could not have been won. See pp. 1-14.

mode of conducting a war requires time, and appropriate preparations must be made beforehand as a precautionary measure.<sup>2</sup>

The most important measure which the Supreme Command would have had to take in preparing against the eventuality of such a transition in the type of warfare was that of awarding the Luftwaffe the highest priority in all allocations of personnel and materiel at a very early juncture. This was necessary in order to insure that the German Air Force could attain the required high standards in both amount and quality of personnel and materiel. The Luftwaffe should have had priority over the Army, and especially over the Navy, and this should have extended to all fields of activity, such as the allocation of raw materials, overall production of the German military industry, manufacturing installations, and labor. In the failure to recognize airpower as a factor which would not only decide campaigns, but even an entire war--or at least become such a factor during a protracted war--lay the first serious error and one of the fateful mistakes of the German Supreme Command and its planning.

The concept of blitz warfare had raised the compelling demand to commit the entire Luftwaffe in action on the battlefields of the Army. The successes achieved through blitz warfare tactics had accustomed the Army to the powerful and frequently even decisive effects of air support in all military operations, and, in the long years of combat in the Eastern Theater, continuous air support for the Army in attack and defense operations soon became a permanent requirement. The Army ground forces made a particularly strong and perpetual demand for air support after the winter operations of 1942-43 because it had suffered such heavy losses of heavy infantry weapons, artillery, tanks, and antitank guns, and the Luftwaffe appeared to be the only available source which could compensate for these deficiencies. The Army's ability to resist was also weakened by this time because of the steadily decreasing flow of replacements.

When the constantly recurring crises in operations on the ground developed into a perpetual crisis in 1943, operations in direct support of the Army became the exclusive pattern for air operations. According to Hitler's Directive No. 21 (Operation BARBAROSSA) of 18 December 1940, strategic warfare was to have been precluded only temporarily.\* In the

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\*"In order to be able to concentrate all forces against the enemy air force and for the unqualified support of the Army, the armament industry is not to be attacked during the main phase of operations. Not until the close of mobile operations will such attacks be considered, and then primarily against the Ural areas." See Fuehrer Directive No. 21, Operation BARBAROSSA.

critical situation of the German armies in the East in 1942-43, however, the very concept of strategic warfare, in the sense of operations against strategic targets to further the overall conduct of the war, was almost completely lost.

This constant commitment of all air forces to support the Army (usually in direct, and only rarely in indirect support missions) had the result that the Luftwaffe was worn down and bled white while participating in ground operations on the Eastern Front and was compelled to neglect its mission of operating against the enemy's sources of power. It has been repeatedly mentioned that the occasional attacks directed against strategic targets in 1942-43 were due solely to the initiative of the individual air fleets, the only exception being the order from the Commander in Chief of the Luftwaffe to attack Moscow.<sup>3</sup>

Up to the summer of 1943 nothing was done by Reichsmarschall Goering to implement the necessary preparations and planning for strategic air warfare in the Eastern Theater of Operations. It was particularly commendable on the part of the Sixth Air Fleet (formerly Air Command East) that it again and again took up and recommended the idea of operating with specially trained long-range strategic air units against key Soviet industries.<sup>4</sup> From the summer of 1942 on, the Sixth Air Fleet repeatedly sent urgent studies and letters, supported by authentic data, in an effort to convince the Commander in Chief of the Luftwaffe how significant air operations against the Soviet military economy would be for the endangered German fronts. It was summer, however (18 June 1943 before Operation ZITADELLE), before the Commander in Chief of the Luftwaffe finally responded to a renewed letter by the Sixth Air Fleet referring to the successful attacks made against the Gorkiy tank factory.<sup>5</sup> This letter was accompanied by the highly urgent request to "badly damage and, if possible, paralyze the most important branches of the Soviet military industry, which in some fields are highly developed."<sup>6</sup> The Reichsmarschall acknowledged this requirement, commenting that he shared these opinions concerning the significance of attacks against the Russian armament industry.<sup>7</sup>

In like manner there were signs, although they appeared very late, that the Army at last recognized the importance of air attacks against the enemy's sources of power. The Army General Staff noted that one reason for the successes of the Red Army was the increased fire power and mobility made possible by equipping its units with large numbers of automatic weapons, artillery pieces, tanks, and motor vehicles. This was a direct result of the great capacity of the armament industry. German Army leaders therefore concluded that a systematic and intensive campaign

against the Soviet armament industry could produce a marked reduction in the materiel pressures by the Soviet armies in the coming battles. 8

In the above-mentioned letter to the Sixth Air Fleet, Goering also acknowledged the wisdom of specifically organizing an air corps command staff or designating an existing one to control the long-range bombing forces and to conduct strategic air warfare. 9 Initially (in the summer of 1943), no clear concepts existed concerning what the organization of a strategic bomber force might be or whether the Strategic Air Command should be placed directly under the Commander in Chief of the Luftwaffe, under one of the air fleets, or even under a special Commander in Chief of the Luftwaffe in the East. Neither Goering nor his chief of staff could bring themselves to make the decision to bring about a clear-cut division between tactical and strategic air forces, and, with the possible exception of the VIII Air Corps, all corps and divisions which had been in existence since early 1943 were composite units containing fighter, bomber, twin-engine fighter, and, at times, dive-bomber and ground-attack forces. 10\*

Since 1942, however, all of these types of forces had for the greater part been committed exclusively in army support missions. As was mentioned before, the author believes that there was then an absolute necessity for a reorganization of the Luftwaffe entailing: (1) a clear-cut division between strategic and tactical support units, (2) direct control of the strategic forces by the Commander in Chief of the Luftwaffe or possibly by a Commander in Chief, Strategic Air Forces, and (3) a consolidation of the tactical air support units in tactical air corps or air divisions controlled by field commands of the Luftwaffe. †

The tactical support air units would have composed the greater part of all Luftwaffe forces, and could have been varied in size and composition as the situation required. They could have been shifted from command to command to meet tactical requirements. Strategic units, on the other hand, would have been rigidly organized and consolidated under an air corps or under a number of air divisions, at all times under the control of the Commander in Chief of the Luftwaffe or under a Commander

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\*The VIII Air Corps was formed and organized in accordance with the tactical principles and requirements of the "Legion Condor" in the Spanish Civil War, and developed through an agency of the Special Purposes Air Command (Polish campaign) as a tactical support air corps. In the course of the year 1943, however, the VIII Air Corps was also gradually transformed into a composite air corps.

†See Chart No. 5.

in Chief of Strategic Air Forces, and committed only for missions of a strategic nature. As an exception, they could have been committed as additional air support for the Army or Navy in campaigns or battles which would exert a decisive effect upon the outcome of an entire campaign or the war.<sup>11</sup> Such employment, however, would have been possible only by order of the Supreme Commander of the Wehrmacht.

Immediately after assuming office, Jeschonnek's successor, General der Flieger Guenther Korten, took up the idea of a clear-cut division of air forces. Korten and his newly appointed Chief of the Luftwaffe Operations Staff, Generalleutnant Karl Koller, realized the need to be able to commit strategic air forces in the form of purely bomber corps both in the East and in the defensive operations against the expected invasion in the West, and that this use of airpower would provide more effective support for the Army than attacks against enemy ground forces on the field of battle. General Korten also believed that the Army could and would have to carry the temporary extra burden which would result if the ground-attack units were simultaneously equipped with Fw-190 aircraft and appropriately consolidated in specifically tactical air support corps.<sup>12</sup>

If these concepts had been implemented sooner, preceded by the necessary preparations in the fields of armament and supplies, and if the attack missions against the Soviet sources of power had not been postponed, the Luftwaffe at the beginning of the Russian campaign would have been able, by vertical development, to strike telling blows upon the Soviet armament industry. This was largely within the range of German bombers at the time, and attacks upon these centers would, at the same time, have afforded the Army adequate air support in its operational areas and upon the battlefield. The failure to take these measures constituted a grave error of omission on the part of the highest levels of the High Command of the Luftwaffe.\*

Although Jeschonnek in 1943 was forced by circumstances in the military situation to recognize and acknowledge the need for strategic

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\*It is beyond the scope of this study to examine the problem of whether the conduct of strategic air warfare was within the capability of the German armament industry. From personal experience gained in an earlier assignment in the Reichs Air Ministry (Organization Division of the Luftwaffe General Staff), the author firmly believes that this question could have been answered in the affirmative.

airpower and the parallel necessity for a reorganization of the Luftwaffe, he made very little headway in his efforts to carry out the necessary planning. Possibly he lacked the real will to devote himself wholeheartedly to the cause, particularly since Hitler, with his concepts of restricted areas of operation, always insisted upon the exclusive use of airpower in every sector for the support of the offensive and defensive operations of the Army on the battlefield.

General Korten, who was more gifted in diplomacy than Jeschonnek, succeeded much sooner in gaining acceptance for his views concerning the use of airpower. In the late summer of 1943 the High Command of the Luftwaffe began to realize that a policy restricted to air support of the Army--four-fifths of the entire bomber force in the Eastern Theater of Operations were committed in these operations--could not decide the outcome of the war against the Soviet Union. The Luftwaffe High Command would have preferred a return to the concept of strategic air warfare, in which the bomber forces could have been withdrawn from tactical support missions in order to bomb Soviet industrial targets, thereby preventing the steady and continuous growth of Soviet air and ground strength. Apart from an interval in June 1943, when a lull in the ground fighting made it possible for a short while to bomb Soviet industrial targets, it was only after the German reverses in August at Kursk that a firm decision was finally taken to build up the bomber forces and to employ them as an instrument of strategic air warfare.

Korten was convinced of the importance of strategic bombing, and was on the side of the so-called Defensive Clique which had been gradually gaining ground in the inner military circles since the previous year. It was therefore only natural for him to endeavor to reverse Jeschonnek's policy of giving top priority to the fighting front on the ground and of continuing the offensive under any circumstances.

He intended to reduce air support operations for the Army to a minimum, to improve the general situation by placing Germany on a footing which would make a solid defense possible, and to make the utmost use of his offensive forces in strategic bombing missions. This reversal of policy required changes in the organization of the Luftwaffe General Staff as well as in the composition of command staffs in the field.

The withdrawal of bomber units from tactical support missions in the East was begun, so that retraining and reequipping could take place. A special pathfinder unit was established, the 2nd Group of the 4th Bomber Wing ("General Wever"). Headquarters, IV Air Corps was assigned the responsibility for executing these measures and, early in December,

ceased to function as a ground-attack command staff. Commencement of the new strategic operations was planned for February of 1944.

A comprehensive program for operations against the Soviet industries and materiel reserves was worked out in collaboration with the Office of the Minister for Armament and Ammunition and with the Counter-intelligence Office. By means of a careful selection of key targets it was considered possible to eliminate as much as 50 to 80 percent of the Soviet Union's manufacturing capacity. According to German estimates at the time, this would have meant a difference of 3,500 tanks and 3,000 aircraft in the monthly shipments to the front.<sup>13</sup>

From the standpoint of personnel and training, the Luftwaffe would have been quite capable of activating the necessary units for both major missions at the beginning of the war. Initially, the bombers which were available in 1941 would have sufficed, insofar as their ranges and armament factories still were on the near side of the Ural Mountains, and since the Soviet air defenses were clearly inadequate in quality and in strength.

Furthermore, a staff in command of a large strategic bomber force would undoubtedly have pressed for the further development and improvement of its aircraft in consonance with its growing mission. It would have pressed primarily for longer operating ranges, improved payload capabilities, better weapons, and replacements.

In contrast with the Soviet air forces, the Luftwaffe possessed the requisite quality in personnel to conduct strategic air warfare. But, the operations against traffic centers, key industries, and railroad marshaling areas were halted in the initial stages because the overall mission specified that all available forces were to be committed in support of the Army's effort to reach the desired eastern demarkation line between Lake Onega and the Volga River.<sup>14</sup> Hitler, the Supreme Commander of the Wehrmacht, was to blame for this faulty assignment. Although he considered himself to be a military commander and gave orders as though he were one, he failed to grasp the meaning of global strategy in a three-dimensional war and was unable to understand the objective, and, above all, the effects of strategic warfare within the framework of such a war.

It took until 9 November 1943 before the Commander in Chief of the Luftwaffe acknowledged the necessity for a change in policy. In a study entitled "Kurzen Studie: Kampf gegen die russische Ruestungs-industrie" ("A Short Study: The Battle Against the Russian Armament Industry") he declared: (1) that the Luftwaffe could make a greater contribution to victory in the Eastern Theater of Operations if it would do



everything possible to attack the "roots of Soviet offensive power, the Soviet armament industry," instead of serving as artillery by dropping bombs in advance of the infantry; (2) that the destruction of as much as possible of the Soviet armament capacity would have a far greater impact upon the fighting front in the East and even upon the course of the entire war than continuous operations in direct support of the ground forces; and (3) that the Luftwaffe therefore should be relieved, at least temporarily, of its direct support mission in the Eastern Theater and of any other missions in that area as well.

Reviewing the tide of events since the opening of the campaign in the East, Goering admitted that the Luftwaffe had been used in 1941 primarily in support of the Army, that after the beginning of the summer offensive of 1942 it had become almost an adjunct of the Army, and that this situation had continued into 1943. He also acknowledged that he had neglected to attack and destroy the enemy's sources of strength, which would have halted the flow of power to the Soviet forces in the field, and that he had allowed the most favorable time for strategic operations to pass by, since which time difficulties had mounted considerably. 15

On 26 November 1943 the Reichsmarschall issued an order in which he stated his intention to consolidate the bulk of the bomber forces stationed in the Eastern Theater under the IV Air Corps\* in Combat Zone Center, and to reinforce them by special units with precision-bombing facilities. The heavy bomber forces which were intended to be consolidated under the terms of this were:

3rd Bomber Wing headquarters with the 1st and 2nd Groups  
 4th Bomber Wing Headquarters with the 2nd and 3rd Groups  
 55th Bomber Wing Headquarters with the 1st and 3rd Groups  
 3rd Group, 100th Bomber Wing

In December 1943 all of these forces (under the command of Rehabilitation Headquarters East)<sup>4</sup> were withdrawn from their regular combat

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\*Since 4 September 1943 the IV Air Corps had been commanded by Generalleutnant Rudolf Meister, and was operating in the Fourth Air Fleet area in support of the First Panzer Army and the Eighth Army, both in a defensive situation.

<sup>4</sup>Wiederauffrischungsstab Ost (Rehabilitation Staff East). This became the code designation for the IV Air Corps. Originally the designation Fliegerschul-Division 6 (Flying School Division 6) had been suggested by the Sixth Air Fleet.

missions and transferred to the Brest-Litovsk-Deblin Irena-Baranovichi-Bialystok area, where they were to be prepared and trained for their new mission.

Generalleutnant Meister was ordered on 10 December to Goering's headquarters for orientation on his future mission. Thus, at long last, a start was made to bring about strategic air warfare in the East with the clearly defined objective of paralyzing the Soviet armament industry.

At the turn of the year 1943-44 the German air forces left in the field in the Eastern Theater of Operations were therefore seriously weakened at a time when the steadily increasing power of the Red Army placed before them a far more difficult task than ever before. The great question remained whether the strategic objective could still be fulfilled or whether it was already too late.

#### German Air Operations in the East, 1943

##### The Mission

The beginning of 1943 brought the turn of the tide in military operations in the East, and after the winter operations of that year the initiative had passed clearly to the Soviet Union in the entire theater. It is true that the German armies, thanks to a clever conduct of operations and great tenacity and courage on the part of the soldiers in the area, had, by heavy fighting in extremely difficult situations, managed to maintain an integrated front. They had halted the Soviet forces which had broken through their lines and had even succeeded in cleaning out some of the enemy penetrations. In the process, however, they suffered very heavy casualties and lost enormous quantities of materiel, particularly heavy items, such as artillery, tanks, and antitank weapons. Personnel and materiel reserves, which might have alleviated the situation, were completely or almost completely lacking.

In support operations for the Army, the Luftwaffe also suffered almost irreplaceable losses in men and materiel, and it must be pointed out that losses through attrition and enemy ground fire were infinitely heavier than the total losses incurred through Soviet air attacks or anti-aircraft fire. In critical situations, the Luftwaffe was usually the only medium available to the German Supreme Command and other high level commands to compensate for the Army's heavy weapons losses and its lack of reserves. Air forces were highly flexible and could be quickly moved from one place to another.

While airpower had frequently been employed in 1942 to provide indirect support for the Army in missions within the operational zones of armies and army groups, during the entire year of 1943, a year of perpetual crisis throughout the Eastern Theater of Operations, airpower was constantly employed in every combat sector, and almost exclusively in direct support of ground operations.<sup>16\*</sup> Perpetual crises in these operations restricted the Luftwaffe's activities to missions over the far-flung battlefields in the East. The whole course of military events was determined by such factors as the great expanses of Russia, across which ran a front of 1,800 miles, by the lateral logistical life lines which were just as long, and by the numerical strength ratio, which continued to mount on the Soviet side while it declined on the German. This unavoidably laid the foundation for the deterioration and ultimate defeat of the German Air Force.

Geographical factors and comparative strengths of Soviet and German Armies also had a determining effect upon Luftwaffe operations, and, in the final essence, it was these factors that caused the heavy personnel and materiel attrition in the Luftwaffe and thus depleted its striking power. The only possible course open to the German Supreme Command to counter these factors was a radical withdrawal to a strongly developed line of positions, constructed in good time and in favorable terrain. This withdrawal would have resulted simultaneously in a shortening of the front and the rear supply lines. This would thereby have reduced the area to be held, making it possible to release greater numbers of troops from the front lines. In addition, the defensive capability of the line would have been markedly improved by the presence of prepared positions.

If this course had been adopted, the Luftwaffe would not have been worn down in the continuous crises which developed in those massive areas. On the contrary, it could have been employed in more concentrated form in the smaller operational area. If appropriately organized, it might even have been possible to release units for the real mission of airpower, namely the establishment of air superiority and the destruction of, or at least the reduction in the capability of, hostile sources of military power. †

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\*In 1943 combat operations of the flying forces were determined "at least to the extent of 80 percent by tactical cooperation with the Army." See "Ueberblick ueber die deutsche Luftkriegfuehrung" ("Overview Concerning the German Conduct of Aerial Warfare"), a study prepared by the 8th (Military Science) Branch of the Luftwaffe General Staff, Karlsruhe Document Collection.

†See pp. 224-226.

Furthermore, the missions assigned to a Luftwaffe thus appropriately organized would have made it essential to have established a systematic program for aircraft production and for the logical development of new types of aircraft. The kind of mission, the operations involved, organization, and production would have influenced the entire conduct of operations by the Luftwaffe.

The first and foremost requirement was for fighters, which were needed first of all to repel hostile air forces while on the defensive and to secure air superiority over the front areas or at least in the decisively important sectors. Ground-attack and fighter-bomber forces\* should have been increased and consolidated in tactical support divisions with the mission of supporting the Army.

Work should have been intensified to develop existing four-engine models, and the existing multi-engine bombers should have been consolidated in strategic bomber units and employed in accordance with a pre-planned pattern against the enemy's military economy. We thus hear once again the same old song and find the same old errors of omission. 17

From all experience gained in the past years, the Supreme Command and the Commander in Chief of the Luftwaffe had by mid-1943 derived no lessons whatever. It was only from the summer of 1943 on that the realization began to form, and then only very slowly, that a new type of aerial warfare was essential. † Why was it that a regeneration of the Luftwaffe, both with respect to its internal structure and its physical properties, did not materialize sooner? Why was such a regeneration impossible even if the Commander in Chief of the Luftwaffe had been willing?

Hitler, as the Supreme Commander, determined both the scope and the form of the conduct of the war. Bound by his own ideas of obstinate resistance, of unconditionally holding ground, he could not bring himself to the decision to sacrifice ground and space. In the Eastern Theater he stubbornly forbade any timely retrograde movement which was devised to economize forces, and, with his deep and increasing distrust of his field marshals and generals, he interfered more and more frequently in every detail, even in the tactical control of individual units

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\*Including all sub-types, such as antitank aircraft.

†See figure 45.



Figure 45  
Reichsmarschall Hermann Goering, Commander in Chief  
of the Luftwaffe, at the planning table with General-  
oberst Jeschonnek, Luftwaffe Chief of Staff

in all branches of the Wehrmacht.\* He created the concept of strongholds (Festen Plaetze) and fortresses (Festungen) for points and areas which were nothing of the sort, but which nevertheless had to be defended to the last man and the last round of ammunition. 18/ In Generalleutnant Kurt Dittmar's words:

Every town in the Western Ukraine and in Western Ruthenia was declared a "stronghold" when the Russians approached. The only strong thing about these points, which had no permanent defense installations of any kind, was the obstinate decision not to evacuate them under any circumstances, even at the right moment, but to hold them until the Red floods engulfed them. In this way every sizeable town in the western Soviet Union and in what had been Poland became the grave of a German unit from regimental to divisional size. Isolated from the rest of the German line, each such town resisted under the most unfavorable conditions conceivable and was overcome by the superior Soviet forces with relative ease. Hitler committed the mortal sin in strategy of failing to consider the defeat of the opposing forces as the primary objective in military operations, instead of the retention of space. 19//

Strategic greatness consists of a harmonious blending of certain characteristics which, taken separately, are diametrically opposed to each other: the power of vivid imagination must go hand in hand with sober realism; dash must be matched with circumspection; and persistence must be tempered with versatility in the forming of decisions.

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\*Editor's Note: Hitler was long suspicious of the old professional officer corps, which he generally (and sometimes rightly) associated with the aristocracy. This brooding fear may have stemmed in part from a belief that this group secretly wished to restore the monarchy. This became evident from his initial comments after the 20 July 1944 bomb plot.

//Goerlitz notes that the weaker the German forces became the more rigid and fanatical was the Fuehrer's conduct of operations, "as though his command alone could have made the impossible possible." Goerlitz, Vol. II, p. 223.

//Editor's Note: Hitler's preoccupation with spacial theories such as MacKinder's "Heartland" concept and the geopolitical work of the Haushofers may have influenced his thinking in strategic matters.

A process of balancing will always be necessary in the mind of the responsible person, and only the "refined measure of judgment" (in the words of Clausewitz) can point the sure way along the infinitely narrow dividing line between "too much" or "too little" of one or the other of these characteristics.

Measured by these classical standards, Hitler can be considered anything but a real military leader. He undoubtedly possessed a surplus of one or the other of the necessary qualifications, but what he did possess was discounted by the absence of the counterbalancing character which was essential at the time. Because of his fantasies, his imagination was completely unchecked by sober reasoning, his actions were dictated by wishful thinking, and steadfast persistence became in him simply obstinacy.

One of the most tragic features in the German conduct of operations in the Eastern Theater is the manner in which that conduct, in a steadily increasing measure, was guided by principles which were diametrically opposed to everything that had formerly been considered as sacrosanct law, and which had brought victory after victory to the German colors, while on the Soviet side, exactly the opposite principles gained steadily in predominance. It was along this route that Hitler led the German Army from defeat to defeat, most of which could have been averted.

Through the one-sided system of command in the conduct of operations, a bizarre front had evolved in the East, a front interrupted by dents and bulges, with some areas actually behind the Soviet lines and enveloped by the Red Army. The threats of the Soviet enemy became ever greater while the increasingly weakened German Army found great difficulty in holding the line. 20

The Luftwaffe was required to give continuous close support in all of the critical areas along the entire front in order for the Army to maintain its positions, but, because of its numerical weakness, it could not possibly accomplish this gigantic mission. To anyone with a reasonable mind the entire problem was a matter of simple arithmetic. First of all, it was not only on the ground that the Soviet Union was gaining in superiority. Germany could commit only 2,500 aircraft in the Eastern Theater at this time, while the Russians could send out double that number. Moreover, the quality of Soviet aircraft was steadily improving. During this phase of the war the Luftwaffe had reached its peak strength, and had a grand total of about 6,000 combat aircraft. The fact that not even half of them could be spared to support this decisively important campaign is adequate proof of the importance to the Soviet Union of operations in the Mediterranean Theater and the Anglo-American heavy bombing attacks.

What was felt most severely on the German side was the lack of fighters. Outnumbered in this type of aircraft in the Eastern Theater anyway, the German Command had to reduce the numbers still further in order to reinforce the defenses in the West, where nearly two-thirds of the total German fighter strength was committed late in 1943.

The rapid sequence of the integrated Soviet offensives allowed the German side no respite in which to make the most effective use of air-power. Thus, air units frequently had to be shifted on short notice from one battlefield to another in order to help relieve some newly developed crisis. From whatever sector they were withdrawn, German forces immediately and keenly felt their absence, and when the air units arrived in their new operational areas they again found themselves crushingly outnumbered by the Soviet air forces which were there.<sup>21</sup>

Even the improvised measures which were so frequently requested and ordered, such as the use of training aircraft and obsolete models as harassing units--these were later given the euphemious designation of night ground-attack aircraft--against Soviet forces, could do little to alleviate the situation in the East, far less to bring about a favorable reversal.

Practically the entire Luftwaffe, including all types of aircraft, whether they were suitable for ground-attack missions or not, was engulfed by the Moloch of the East.

In the autumn of 1943, when General Korten, supported by General-oberst Zeitzler, Chief of the Army General Staff, finally succeeded in convincing Hitler of the need for strategic airpower against the Soviet military economy and Soviet communications networks, and when, at the end of the year, preparations for such operations commenced, the other eminently important factor in the conduct of military operations, time, became a cause for the utmost anxiety on the part of those concerned with the preparations.

What was then required was not only the good will of those concerned to carry out their new mission, but also to give the appropriate units and individual aircrews training in navigation and bombing. Another necessity was the development of the ground services organization. Of course, a further requirement was the continuous development and improvement of the various types of aircraft.

The objective stipulated in the study by Reichsmarschall Goering entitled "Kampf gegen die russische Ruestungsindustrie" ("Battle Against



the Russian Armament Industry") was to achieve strength, planned operations, a knowledge of the individual targets, a description of the targets, and to systematize bombing.<sup>22</sup> The most essential requirement for the planned air operations was the stabilization of the front on the ground to allay the danger of German forces being pushed farther to the west. The base areas envisioned for the operations were Bobruysk, Orsha, and Baranovich (all in Combat Zone Center), because there was a possibility in that area of maintaining operational runways even during the mud season.

Gravely concerned about the development of the general situation in the East in late 1943, the Sixth Air Fleet on 28 November addressed itself to the Commander in Chief of the Luftwaffe and to Army Group Center as follows:

In view of the strained situation, the Sixth Air Fleet finds it necessary to emphasize the importance of the airfields at Bobruysk and Orsha for the Luftwaffe. . . .

It is therefore requested that the decisive importance of the airfields at Bobruysk and Orsha be considered with respect to carrying out air operations in the event that a relocation of the front lines should be under consideration.<sup>23</sup>

Communications sent by the Sixth Air Fleet to Goering and other available data shows clearly that the Commander in Chief of the Luftwaffe was aware of the significance of the Soviet's military power base and the massive movement of supplies and replacements to the front.<sup>24</sup> It would thus have been the logical thing at an early stage of affairs (as far back as late 1941 and early 1942) for him to have made urgent appeals to the Wehrmacht High Command and, especially, to Hitler, the Supreme Commander, in order to secure approval for the conduct of strategic warfare in the East. The Reichsmarschall should have pointed out the effects which strategic air warfare would have had in reducing the Soviet striking power at the front, and have made every effort to convince the Army High Command of the necessity of withdrawing some of the tactical air support on the battlefield. That he failed to express these views with the necessary emphasis, or that he failed to gain an early acceptance of them, was an error on the part of Goering which was to have fateful consequences.

Even if the Commander in Chief of the Luftwaffe had failed to win approval for the conduct of strategic warfare, it would still have been his duty to have planned and prepared for strategic operations even without the approval of higher commands. The Luftwaffe should have been kept

ready at all times for commitment in strategic missions. Primary requirements in such preparation were the timely development of suitable and well-equipped operational bases and the development and procurement of appropriate aircraft. Failure to carry out this planning and preparatory work was another grave error made by Goering, and resulted primarily in a serious loss of time when the order to conduct strategic air operations was finally given in 1943.\*

What must be recognized as commendable, however, was the willingness and the efforts of all concerned, the Commander in Chief of the Luftwaffe, the Sixth Air Fleet, the IV Air Corps, and the administrative area command, to do everything possible to prepare the IV Strategic Air Corps once the decision was taken to begin operations.

The basic cause of all of the serious errors and all failures to reorganize the Luftwaffe and to effect its timely reorientation was to be found at the highest level of command, in the person of Hitler, who was woefully ignorant on the subject, and who distrusted all of those around him who attempted to offer well-meant advice. He had a closed mind in certain areas, and lacked the ability to think ahead on military subjects, to place himself in the position of his opponents, or, in general, to see maps and actual facts in their proper correlation.† Hitler was nevertheless vividly interested in many individual military problems and could judge them properly, even envisioning large-scale projects, but it takes much more to make a military leader than the intuitive thought of a fortunate moment. What is needed besides pronounced ability and a well-balanced character is the long and careful training given in the Command and General Staff School and in General Staff experience, neither of which he had had.<sup>25</sup>

#### High Command Organization

It is necessary to again describe briefly the experience which had been gained and the requirements which had become necessary in 1941

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\*Editor's Note: See Richard Suchenwirth, Historical Turning Points in the German Air Force War Effort, USAF Historical Studies No. 189, Maxwell AFB, Alabama: USAF Historical Division, RSI, June 1959, pp. 76-90.

†Hitler was ignorant of the capabilities of aerial warfare and its possible impact upon the conduct of war in the various theaters of operations, which led him to freeze aircraft production at the very time when aircraft production should have been given top priority in the overall armament program. See von Manstein, Lost Victories, p. 305.

and 1942. There was a need for a really effective joint armed forces high command and real joint command organizations in the various theaters of operations and operational sectors. Despite this obvious need, the command crisis continued to smoulder under the surface, and found expression not only in small circles of desperate conspirators, who were determined to go to any extreme, but also among men like von Manstein, Milch, and Zeitzler who endeavored again and again to persuade Hitler to change the top level military command. The main objectives of these men were to persuade Hitler to (1) return the High Command of the Wehrmacht to the hands of an experienced soldier; (2) appoint a joint command for the Eastern Theater of Operations (as he had done in other theaters, in the West, Southeast, and Southwest); (3) reorganize the Wehrmacht High Command as a genuine joint general staff; (4) dismiss Generaloberst Wilhelm Keitel;\* and (5) decide in favor of an elastic defense in the Eastern Theater, which would permit a great economy of forces.<sup>26</sup>

There was, of course, an obvious need for a clear division of the Luftwaffe into tactical units for close support of the ground forces, and into strategic forces for use in missions designed to serve the overall conduct of the war. The solution found in 1943 to activate a strategic air corps (the IV Air Corps) was not sufficiently clear. In the first place, the strategic force should have been placed directly under the Commander in Chief of the Luftwaffe, instead of the Sixth Air Fleet, which already had orders to support the Army. Thus there was always a danger that in critical situations the strategic air units would again become exhausted in close support operations for the ground forces, or, at least, that the Sixth Air Fleet would find itself obliged to neglect one of its missions in favor of the other.

Secondly, all other air forces should have been clearly organized in tactical units (divisions and corps) and in fighter divisions, and assigned the unequivocal mission of supporting the Army on the field of battle and of securing air superiority. As it was, the actual reorganization of the Luftwaffe could scarcely even be described as a halfway measure.

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\*Editor's Note: Keitel was disliked by top field commanders mainly because he failed to represent them with sufficient emphasis in his meetings with Hitler. Actually, Hitler selected Keitel, in part, because he felt that he could rely upon him to assist him in keeping the old officer corps in check, which meant abject subordination.

Operations of the Air Forces

In 1943 the truth of the principle became clearer than ever before that the smaller the size of the air forces, the greater is the necessity to concentrate them even more closely in the actual areas of main effort in order to achieve real success. This concentration of airpower should have been employed with the utmost strictness, in spite of all of the local requests for air support in sectors outside the area of main effort, even in cases in which the requests were fully justifiable.

In 1943 the focal area in the Don River bend called for the first time for a power concentration of this type in the southern sector of the Fourth Air Fleet's operational zone and, at times, in the area of Air Command Don. One sector after the other had to release aircraft in order to facilitate the required concentration and to meet the Soviet counteroffensive. The effects upon the dispositions of the Luftwaffe in Russia are evident from the following tables showing numerical strengths in numbers of aircraft:

General Area of Operation	1942 Mid-October	1942 Early December	1943 Mid-January
Leningrad	485	270	195
Moscow	425	480	380
Don River	545	700	900
Caucasus and Crimea	495	330	240 <sup>27</sup>

Although all of the efforts to save the Sixth Army failed, in spite of the costly air operations which were undertaken for the purpose, the continuous and concentrated support by the Luftwaffe was nevertheless a major contribution to the overall defensive success in halting attacking Soviet masses and in bolstering the German ground defenses. Here, the tactics of power concentration were applied correctly and successfully.

The next area of main effort for airpower was in connection with Operation ZITADELLE and the ensuing battle for the Orel River.<sup>28</sup> Again forces were moved in from other areas. Hitler was also willing to commit all of his available forces without reservation in these operations. At a conference held at the Jaegerhof, near Rastenburg, East Prussia, Hitler on 1 July 1943 addressed the Commanders in Chief of the Army and the Luftwaffe, and the army and corps commanders of both services, concerning Operation ZITADELLE, informing them that he was now

determined to carry out the operation, that experience had shown him that nothing could harm an army more than idleness, and that his advisors had informed him that there were indications that the Russians would soon launch an attack of their own. He then pointed out that in such a situation it would be better first to repel the Soviet attack and then to launch a counterattack, since no one could give an absolute guarantee that the Russians would act as predicted, and since in a short time the season of the year would pass in which a large-scale German attack could be launched.<sup>29</sup>

There was, of course, a clear danger that if the German attack was begun the Russians might attack the line in the northern sector of the Orel salient while German forces were deeply committed in their southwesterly drive at Orel. This would put the Red Army in the rear of the German attack force. In case such a situation should develop, Hitler intended to move in the last available German aircraft to stem the tide.<sup>30</sup>

When the large-scale Soviet attack from the northeast did materialize, there were scarcely any forces available to move in against it, since the bulk of all available airpower was already committed in the Orel-Kursk-Belgorod area. It might have been possible to have moved in air units from Combat Zone Far North, since in other sectors of the Eastern Theater the only available air forces were reconnaissance and harassing units, and it was absolutely essential to leave them where they were because of the vital nature of their missions. In the Western Theater of Operations, the Mediterranean Theater, and the Zone of the Interior, the air forces on hand were urgently required because of the critical situations in those areas.<sup>31</sup> A new crisis in the southern part of the Eastern Front complicated the situation still more, and the Supreme Command was compelled to draw additional units from the VIII Air Corps. As usual these were the only reserves that could be quickly moved in to halt the new and extremely dangerous Soviet offensive at the Mius River.\* It is therefore useless to inquire whether it would have been at all possible, because of logistical problems, to have moved more air units in and to have concentrated them in the area around Orel and north of Kharkov for participation in Operation ZITADELLE.† The

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\*During Operation ZITADELLE the VIII Air Corps had already been compelled to release units to the 1st Air Division (Sixth Air Fleet).

†As noted previously, it would not have been possible to have based additional air forces on the airfields in the Orel-Bryansk area and to have supplied them with fuel and ammunition due to shortages of these items and serious transportation difficulties. See p. 75.

very last German aircraft could simply not have been moved in because they were needed just as badly at other critical places.

Particularly critical situations developed later at Krivoy Rog, Kiev-Shitomir, east of Orsha, and at Nevel. These crises developed almost simultaneously, so that the High Command of the Luftwaffe was no longer able to develop a clearly defined concentration of power at any single point in the East. The Luftwaffe, the "fire brigade" of the Eastern Theater of Operations, was simply no longer in a position to commit strong forces simultaneously in each of the many threatened areas.\*

Individual air fleets nevertheless persevered in their efforts to employ their available forces in accordance with the principles of power concentration. They also tried to support each other whenever necessary, as was the case when the Sixth Air Fleet supported the weaker First Air Fleet in the Nevel area in October 1943. Despite these efforts, the Luftwaffe made no significant changes in its chain of command or in the tactics which it employed in 1943.

#### Individual Arms of the Luftwaffe

Initially there was some confusion with respect to the designation and mission of tactical support units. The term "tactical support forces" included dive-bomber, twin-engine fighter, ground-attack, fighter-bomber, and antitank air units. Equally as varied were the types of aircraft which were used in tactical support operations. These included primarily the old and tested Ju-87 "Stuka," followed by the Me-109, Me-110, Me-210, Me-410, Hs-129, Fw-190, and even the Hs-123 aircraft, which had been long ready for the museum.

Up to the summer of 1943 the theoretical and practical development of the tactical support arm, and its expansion, had been hampered by the lack of a special section to represent it on the staff of the Commander in Chief of the Luftwaffe. Dive-bombers were handled by the Bomber Inspectorate and later by the Chief of Bomber Forces, ground-attack units by the Fighter Inspectorate and later by the Chief of Fighter Forces. Officers in charge of the two inspectorates treated dive-bombers and ground-attack units as appendages of the arms they represented, and either had no time for them or lacked interest in what might be called their stepchildren.

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\*The author believes that stronger air forces could have been based and supplied in the area, provided that such arrangements were made well in advance, including the stockpiling of necessary supplies.

Soon after assuming responsibility as the new Chief of the Luftwaffe General Staff, General Korten appointed a general as chief of a new section. Originally designated Chief of Close Support Aircraft (General der Nahkampf-Flieger), this office was later called Chief of Tactical Support Forces.\* Ground-attack and dive-bomber forces were grouped together and described uniformly as tactical support or ground-attack forces. This was a milestone on the road to a clear division in the Luftwaffe between tactical and strategic forces.

Dating back to the time of the dive-bomber, † most of the ground-attack or tactical support units were equipped with Ju-87 aircraft, and attacked their targets, including tanks, with bombs while in a steep dive. †† This form of attack was sufficiently effective during the early stages of the campaign when Soviet tanks were not heavily armored and most of the enemy aircraft were obsolete types. Col. Hans-Ulrich Rudel and a few other specialists in this type of operation became especially adept in the art of destroying tanks.\*\* In 1943, however, the Red Army began to employ increasingly large numbers of tanks, protected by much heavier armor plate, and generally refrained from launching attacks unless there was exceedingly strong tank support to spearhead the way.<sup>32</sup> Antitank action now became the most important mission of the Luftwaffe, and all the more so because the ground forces suffered from an extraordinarily serious shortage of armor-piercing weapons, so that the irresistible tanks brought on a virtual "tank panic." Antitank aircraft then became the fastest and

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\*The officer appointed was Col. Dr. Ernst Kupfer, the well-qualified commander of the 2nd Dive-Bomber Wing. His successor in November 1943 was the equally experienced Generalmajor Hubertus Hitschold.

†Editor's Note: For an interesting appraisal of dive-bombing in the German Air Force see Richard Suchenwirth, Historical Turning Points in the German Air Force War Effort, USAF Historical Studies No. 189, Maxwell AFB, Alabama: USAF Historical Division, RSI, June 1959, pp. 28-31, 36-40.

††Editor's Note: Capt. David R. Mets, USAF, has written a very interesting article on the development of dive-bombing, which includes the equally interesting commentary of Maj. Gen. Orvil A. Anderson, USAF, concerning the efficacy of this type of weapon delivery. "Dive Bombing Between the Wars," The Airpower Historian, Vol. XII, No. 3, Maxwell AFB, Alabama: The Air Force Historical Foundation, July 1965.

\*\*Hans-Ulrich Rudel was Germany's most highly decorated flyer, credited with 2,530 combat missions, the destruction of 519 tanks, and the 23,500-ton Russian battleship Marat.

most flexible available antitank weapon which, with favorable weather conditions, could be quickly sent into action upon very short notice.

Since bombing attacks were no longer sufficiently effective, the demand arose for what were called flying antitank guns, aircraft armed with tank-destroying weapons. At Rechlin, near Berlin, and later at Bryansk, an experimental antitank air detachment carried out tests with experimental aircraft types which had been used with good results in various sectors of the front.<sup>33</sup> The Ju-87 "Stuka," which was employed for this purpose, was even too slow for the conditions in the Eastern Theater, and, because of this lack of speed and the increasingly effective Soviet anti-aircraft defenses, it became increasingly costly to carry out operations with this model. Colonel Kupfer, the new Chief of Tactical Air Support Forces, therefore insisted that his units be reequipped with Fw-190 aircraft. In September 1943 this conversion began at an accelerated pace, with the Ju-87's which were thereby released being immediately used to equip night bombing units.\*

Another experimental unit had been equipped with Hs-129 planes since the end of 1942, and had been committed primarily in the Fourth Air Fleet area. As the 4th Group (composed of four squadrons) of the 9th Ground-Attack Wing, this unit remained for a time the only actual ground-attack group in existence. The small production of Hs-129 planes,<sup>†</sup> the high vulnerability of their engines to gunfire, and their propensity to catch on fire were serious handicaps, but they were also subject to troubles from sand and dust which necessitated the use of turf-covered airfields. For these reasons Hs-129 aircraft were not used to establish additional ground-attack units or to reequip existing Ju-87 units.

Toward the end of 1943 the 1st, 2nd, 3rd, and 77th Ground-Attack (dive-bomber) Wings each received an additional tenth (antitank) squadron, composed of 12 Ju-87 aircraft armed with one or two 37-mm. cannons and 4 Ju-88 bombers. The cannons were mounted in such a way that they could be easily removed to convert the plane into a bomber in case there were no tank targets in the area.

Conversion of ground-attack units from Ju-87's to Fw-190's progressed very slowly since the mounting volume of Anglo-American massed

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\*The former night harassing units.

†Only seven Hs-129's were made in 1941, 221 in 1942, 411 in 1943, and 202 in 1944.



bomber attacks over the Reich forced the Luftwaffe to retain the Fw-190's as fighters in the home defense system (Reichsverteidigung). The operational status of ground-attack units equipped either with Ju-87 or Fw-190 aircraft remained remarkably high, usually between 70 and 80 percent, which was largely due to the fact that these types were easier to service than other aircraft models.

Concerning the weapons of these units it remains to be said that the development of a small-caliber shaped-charge bomb and effective rocket projectiles should have been accelerated. The development of the rocket projectiles was adversely affected by experiences with the poor quality Soviet rockets and the usually ineffective use made of them by the Russians. 34\*

The night fighter forces included harassing bomber units, later described as night ground-attack aircraft. The effectiveness of these units was first demonstrated by the Russians through the nightly operations of their U-2 units (generally called sewing machines because of the sound of their engines). In the autumn of 1942, as a result of experiences with these Soviet units, the Luftwaffe organized its own harassing squadrons, which were initially equipped with Ar-66, Go-145, Fw-58, and Fi-156 aircraft. Later they received He-45 and -46, and Hs-126 planes as well. During 1943 the German Air Command expanded these units into organizations of group size and, at the end of the year, redesignated them as night ground-attack groups. In this period of expansion, some of these squadrons were converted into Ju-87 units.

Apart from the actual material damage done by these organizations, the real value of their operations was their continually disturbing effect upon enemy troops, who were worn out from combat activities of the day and could not relax and rest properly because they knew that the enemy was still above them. 35 Actually, the casualties inflicted during harassing night raids were surprisingly small.

During 1943 additional fighter units, even in the Eastern Theater, were equipped with Fw-190 aircraft in place of the Me-109's. However,

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\*The Russians used RS-82 rocket projectiles as early as 1941, but with little success. On the German side such projectiles were first used at the turn of the year 1942-43 by the 54th Fighter Wing against ships on Lake Ladoga. No details are available, however, to indicate the extent of success in these attacks.

the conversion to FW-190's could only be carried out slowly because of the need for them in Germany and the West.\* Numerically, the German fighter forces in the entire Eastern Theater were always outnumbered by their Soviet opponents, although unit operability was maintained at the relatively high level of 50 to 70 percent of the actual unit strengths.

Although the individual German airman and German aircraft types were superior to the flyers and planes of the Soviet Union, a fact which was clearly demonstrated by the confirmed number of Soviet aircraft destroyed, German fighter forces in the East gradually lost control of the air because of the steadily increasing numerical superiority of the Soviet air forces. For this reason alone they were no longer able to provide an adequately strong defense throughout the theater. Even the remarkable local successes which were achieved could not conceal this fact, and at the end of the year each of the large command areas in the East, Fourth Air Fleet sector (South), Sixth Air Fleet sector (Center), and First Air Fleet sector (North), had but a single fighter wing composed of two or three groups. On 31 December 1943 the actual total daylight fighter strength along the entire front, from the Black Sea to the arctic coast, was 385 aircraft, 306 of which were operational. 36

What was perhaps a greater source of danger was the fact that, owing to the numerical inferiority of German fighter forces, the mutual confidence which had existed between the Army and the Luftwaffe steadily deteriorated. Ground forces, especially at the lower command levels, were unable and unwilling to understand that it was no longer possible to keep the skies free of hostile aircraft as had been the case in 1941-42. On the other hand, it was absolutely essential to frequently strip large sectors of the front of air support in order to be able to employ airpower in concentration at those places where it was most urgently needed. For security reasons it was never possible to disclose to each and every command information showing the numerical weakness of the air forces.

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\*Editor's Note: The Fw-190 was probably Germany's most successful fighter of World War II. It was highly maneuverable, well armed, and capable of speeds in excess of 400 miles per hour. The prototype was flown in mid-1939, and the first combat version went into action on the channel coast in the summer of 1941 with Fighter Wing 26 "Schlageter." Far more versatile and robust than the Me-109, it was primarily an interceptor, but was successfully modified as a fighter-bomber, fighter-dive-bomber, and even as an antitank aircraft. For details concerning the various versions of this plane see Kens and Nowarra, pp. 204-217, and Green, War Planes of the Second World War: Fighters, Vol. I, pp. 93-114.

During the combat crises which became the rule of the day in 1943 German bomber forces were used primarily in direct and indirect support of the ground forces over the battlefield. Operations of this sort did not correspond at all with the capabilities of the available bomber aircraft, the He-111's and Ju-88's. These units were employed in this way only because the available number of suitable tactical support aircraft was too small to fulfill all of the Army's support demands. It was very late indeed before it became clear to the Luftwaffe and to the Army that bombers were vitally necessary for operations against the enemy's sources of power and transportation routes to the front. Large numbers of bombers were then (autumn of 1943) withdrawn from action for rehabilitation and training for strategic operations.\*

Although the standard He-111 and Ju-88 aircraft had been constantly improved and modified, the minor changes made did not bring about any really decisive improvement in performance capabilities. Actually, instead of improving matters, the presence of numerous variations of these types of aircraft served only to complicate and overtax the entire supply and maintenance services throughout the Luftwaffe. An appreciable improvement in the effectiveness of bombing operations could only have been brought about by the timely conversion to four-engine bombers. Much had been expected of the He-177 "Greif,"<sup>†</sup> a model which was being developed by the Heinkel Works as early as 1938. That year the Reichs Air Ministry, obsessed with Generalmajor Ernst Udet's "Stuka" idea, insisted that even this long-range bomber had to be developed for dive-bombing performances.

The prototype made its first flight at Rechlin on 19 November 1939, and a contract was soon let for the construction of 120 aircraft in 1940. A few He-177's, equipped with various types of experimental wings, were turned out in 1940, but in June the original contract was terminated (despite

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\*See p. 226.

<sup>†</sup>Editor's Note: The He-177 version most commonly used was the A-3. This had two large power plants, one mounted on each wing. Each of these power plants consisted of two liquid-cooled engines (DB 606-A and DB 606-B) placed side by side under a single housing, developing a total horsepower of 2,700. This arrangement was an effort to avoid the lengthy and costly development of a 2,000-horsepower-class radial engine. However, there were later experimental models with four radial engines. This aircraft had a cruising speed of 257 miles per hour and a range of 2,300 miles. See Kens and Nowarra, pp. 292-299.

the wishes of the Luftwaffe General Staff) and only three planes per month were turned out. Toward the end of that year production was again commenced, but in 1941 production was stopped altogether because of structural weaknesses in the wings and the problem of engines overheating.

In 1942 the He-177 again went into serial production, and by the end of the year the Chief of Luftwaffe Supply and Administration had taken over 35 of these planes. These were first committed in the field during the fateful Stalingrad airlift operation.

The 50th Bomber Group had approximately 40 to 50 of these aircraft, which were being tested under winter conditions and were to be given a combat trial in the following spring. Of the entire group, 7 aircraft were sent to Zaporozhye under Maj. Kurt Scheede (GSC). The others had not been ready for operations or had been forced to land after taking off because of damage of one kind or another. One or two planes dropped out at Stalino because of damages, and Major Scheede proceeded on his way with the remainder of the aircraft into the Stalingrad pocket. This was the last anyone heard from the Major. The group was then taken over by Maj. Heinrich Schlosser, an experienced instructor in instrument flying, who for a short time served under the author's command while carrying out supply missions.

The 50th Bomber Group reported on 30 January 1943 that the entire group had successfully accomplished only 22 air logistical sorties to Stalingrad and only 13 combat sorties in the previous 10 days, and this with an actual strength of about 45 aircraft. The He-177 could carry a normal bomb load of six 1,100-pound bombs, but on supply missions it carried only two 1,100-pound and four to six 550-pound air-drop containers. The bomb racks under its wings were spaced so closely together that, although two 1,100-pound bombs could be attached under each wing, the 1,100-pound air-drop containers were too large to fit the racks.<sup>37</sup> The first operations of the He-177 in the Eastern Theater thus turned out to be complete failures, and the frequent fires resulting from the overheating of its two twin-engine power units and heavy repair requirements caused it to be withdrawn from combat employment.

Knowing that a number of modifications were being planned for this aircraft, Luftwaffe combat units continued to hope that new variations would soon appear which would be markedly improved over the previous models.<sup>38</sup> Luftwaffe leaders planned to incorporate the expected new

versions in the IV Strategic Air Corps, but none of them appeared in the East by the end of 1943.\*

Railroad interdiction operations increased during 1943, and, taking advantage of favorable weather, interdiction squadrons penetrated to the extreme limit of their ranges into Soviet operational and supply areas. These units were especially successful in attacks upon locomotives, but these were merely local achievements, having little effect upon the overall war effort. Sometimes they inflicted heavy losses upon Russian units and hampered their movements considerably, but the scope of such operations was too small to effect any lasting disruption of Soviet road or rail networks, even in specific areas.

The number of reconnaissance units which were available in the East in 1943 were usually adequate. Unit strengths were generally successfully maintained by the replacement of aircraft, although the types most commonly used for combat and other tactical reconnaissance (Hs-126 and Fw-189) were obsolete. Reconnaissance units submitted frequent urgent requests to have their aircraft replaced by later models. The only two types which had proven to be completely satisfactory were the Me-109 (for tactical reconnaissance) and the Do-217 (for night reconnaissance). The Ju-88, which was used in daylight strategic reconnaissance missions, needed immediate improvements or, if this could not be done, should have been replaced by better aircraft models. Twenty unit leaders were lost during 1943, largely because of the continued use of obsolete aircraft models. It was therefore essential to have reequipped these reconnaissance units so that they could have continued to perform their missions in a satisfactory manner. 39

#### Organization of the Air Forces

In every type of air unit the speed with which its operational status declined often resulted in squadrons and groups having a surplus of

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\*Editor's Note: The problem of engine fires in the He-177 was not mastered until 1943, and the production of the aircraft was stopped altogether in 1944. Only about 200 out of the 1,094 produced by April of 1945 were ever delivered to combat units, and, at the end of the war, the British took over about 800 of them, unused and undamaged on Norwegian airfields. See Kens and Nowarra, p. 293, and Green, Famous Bombers of the Second World War, Vol. II, pp. 93-107.

technical and general ground service personnel for the actual number of aircraft in operation. This state of affairs should not have been allowed to continue in 1943.\* Another serious weakness in air units was due to the heavy losses of unit leaders, particularly group commanders and squadron leaders and their adjutants. In many cases very young officers, who were unquestionably courageous and willing, but who had no command experience or any experience in the training of their officers, had to be assigned to positions in which they were logically bound to be failures for the foregoing reasons. Courage was not the only quality required in a unit commander, and something needed to be done to remedy the situation. The author still contends, as he did then, that the matter could have been corrected or vastly improved only by a reorganization of the Luftwaffe from wing level downward. This situation was recognized in 1942, when the author submitted the following recommendations: (1) Discontinue the group as a unit and dissolve the group staffs; (2) reorganize the wing to contain the following units:

- 1 headquarters squadron with 12 aircraft (command and reconnaissance "swarms")†
- 4 to 5 squadrons of 21 aircraft each
- 1 air base operations company
- 1 air signal platoon (radio locator)
- 1 replacement squadron of 21 aircraft

The author believes that this reorganization would have resulted in several advantages for the Luftwaffe. There would have been a decidedly better utilization of all types of ground service personnel. Maintenance work for the units of a wing, based on one or two airfields, could have been handled by the ground personnel normally assigned to a group, since experience had shown that on the average only about 50 percent of the aircraft of a unit were operational at a given time, and, during intensive combat, only about 33 percent. The operations of the maintenance and supply services would thereby have been consolidated and intensified. ††

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\*Squadrons with a strength of 2 to 4 aircraft and groups with only 10 to 12 operational aircraft were by no means rare in the East during major battles.

†Editor's Note: A tactical formation or flight consisting of 5 or 6 aircraft.

††Very often a group commander had to pass on an operational order to a squadron leader who, besides his own plane, had only 1 or 2 operational aircraft, but still had a full complement of squadron ground personnel.

Command control and command channels would have been simpler and more direct if the intermediate command level (the group) had been eliminated, which would have done away with the intermediate transmission of orders and reporting to higher headquarters. This would have simplified the entire signal communications system, thereby also reducing the amount of communications equipment and the number of vehicles required.

Command assignments, particularly with respect to squadron leaders, would have been more permanent, because there would no longer have been any need to transfer squadron leaders so frequently to replace the large numbers of group commanders and their adjutants who were lost. The influence of wing commanders, who were invariably carefully selected and experienced senior officers, on the education of the unit officer corps would have been more immediate and effective under the reorganized plan. The handling of all matters connected with troop welfare, promotions, decorations, transfers, and similar things, would have been considerably simplified and accelerated.\*

It would have been possible to have consolidated all surplus technical and general ground service personnel in newly established ground service units to be placed at the disposal of the air fleets. Such units could have been transferred to the rear to prepare for the leapfrog withdrawal of air forces during retrograde movements, or they could have been temporarily assigned to reinforce units which were committed in areas of main effort. In either case, such use of surplus ground service personnel would have been advantageous for the Luftwaffe. Last, but not least, the aforementioned modifications would have prevented the disintegration of the wings by the too frequent commitment of its groups in a number of areas, as had gradually become the rule.

Generaloberst Jeschonnek, the Chief of the Luftwaffe General Staff, rejected the author's recommendations on the ground that Goering, being so infatuated with figures, would never have allowed the change.

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\*Editor's Note: The wing (Geschwader), much like the Army regiment, was the unit in which an officer was usually rated and advanced. The Geschwader bore the traditions from the past and generally maintained fairly good unit integrity. This permitted wing commanders to make a closer evaluation of their officers, especially with respect to their leadership abilities and personal traits of character, which, in the Wehrmacht, were always considered to be as important as professional knowledge and ability.

This reason cannot be accepted, since the German public and hostile intelligence services could scarcely have deduced any alterations in German air strength--this has always been expressed in numbers of wings by numerical designations--through an internal reorganization of the wings. The only important thing was to choose a proper time and form in which to submit the recommendation. Goering could have been allowed to persist in his craze for numbers, but the actual number of available units would have been more firmly integrated and could have been employed in a simpler and more effective way. If the recommended reorganization had been adopted, only one real change would have been essential (mainly for tactical reasons). In each bomber wing the fifth squadron would have been a railroad interdiction squadron, and in each ground-attack wing the fifth squadron would have been an antitank squadron. 40\*

#### Flak Artillery Forces

Flak forces were a most important element in the East, as can be seen by the following table showing the percentage of available flak units committed in the various theaters of operations.

<u>Area of Commitment</u>	<u>Autumn 1941</u>	<u>10 January 1942</u>	<u>Autumn 1943</u>
Zone of the Interior Western Theater of Operations	56	57	52
Southern Theater of Operations	12	16	16
Northern Theater of Operations (includ- ing Finland)	-	-	10
Eastern Theater of Operations	-	-	4
	27	19	18 <sup>41</sup>

\*If personnel and materiel had become available to activate additional antitank squadrons, these could have been consolidated to form an antitank air wing controlled directly by the Commander in Chief of the Luftwaffe for commitment in real areas of main effort.



The flak artillery command headquarters which were committed in the Eastern Theater in 1943 were:

Under the Fourth Air Fleet (Combat Zone South)

- I Flak Corps, initially under General der Flieger Otto Dessloch, from June 1943 under Generalleutnant Richard Reimann
- 9th Flak Division, under Generalmajor Wolfgang Pickert in the Kuban River area, and in the Crimea with the Seventeenth Army
- 10th Flak Division, initially under General Johann Seiffert, from August 1943 under Generalmajor Franz Engel in the Voronezh area and later Kursk
- 15th Flak Division, commanded by Generalmajor Eduard Muhr, in the Caucasus, and later with the new Sixth Army at the Mius and lower Dnepr Rivers
- 17th Flak Division, commanded by Generalmajor Karl Veith, in the communications zone of Army Group South

Under the Sixth Air Fleet (Combat Zone Center)

- 10th Flak Brigade, under Generalmajor Paul Pavel, then Generalmajor Schuchard, and later under Col. Adolf Wolf
- 12th Flak Division, under Generalmajor Ernst Buffa in the Orel area, later in Bobruysk supporting Second and Ninth Armies
- 18th Flak Division, under Generalmajor Richard Reimann until mid-March 1943, then under Generalmajor Heinrich, Prinz zu Reuss in the Smolensk area and later at Orsha in support of the Fourth Army\*

Under the First Air Fleet (Combat Zone North)

- 2nd Flak Division, under Generalmajor Heine von Rantzau until September 1943, then under Generalmajor Alfons Luczny in the northern sector of Leningrad area, Novgorod, with command post at Petshanka near Siverskaya
- 6th Flak Division, under Generalmajor Werner Anton, in the Sixteenth Army sector<sup>42</sup>

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\*The brigade and two divisions were consolidated under the re-established II Flak Corps, under Generalleutnant Job Odebrecht, on 3 November 1943.

From the above disposition of forces it is obvious that in 1943, consonant with the main effort in ground operations, the bulk of all flak units in the East were assigned throughout the year to the Fourth Air Fleet area, in Combat Zone South. 43

From the autumn of 1943 on, when Soviet forces launched their offensive in the center--the attack was made against the two flanks of Army Group Center--the Sixth Air Fleet, which was responsible for air support in these areas, received additional flak reinforcements besides those which were already under its command.

During this year, the main emphasis of the flak artillery mission in the Eastern Theater constantly fluctuated between air defense and ground operations. In 1941 and 1942, when there was little Soviet air activity, German flak units were often employed with outstanding success in direct-fire ground support, mainly against tanks. In fact, the results achieved against armored units by the flak artillery equalled, and in many cases exceeded, its achievements in air defense missions. 44\*

Owing to the steadily increasing Soviet armored strength, and the corresponding decline in the number of armor-piercing weapons available to the German ground forces, the Army demanded more and more flak artillery to make up for the shortage and to stave off powerful enemy attacks. But, this employment of antiaircraft artillery was really the policy of "the poor man," since flak batteries were taken away from their natural mission (air defense) at the very time when increasing protection against Soviet air attacks was needed by the ground forces because of the resurgence of enemy airpower. Moreover, increased protection became necessary for many vital installations not theretofore endangered which were exposed to aerial attack, especially airfields and supply depots, supply routes, bridges, and rail junctions.

Until the winter of 1942-43 Soviet air activities had still been relatively light. Thus, astonishing as it seems, the Russian air units did nothing to interfere with traffic on the Don River at Rostov and on the only available main highway from Bataysk to Rostov during January

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\*According to General Pickert, the 9th Flak Division had destroyed 600 aircraft and 826 tanks by 1 January 1943. In the Kuban bridgehead and in the Crimea this division reported 165 aircraft shot down and 189 tanks destroyed between 8 April and 10 May 1943. See Appendices 54 and 55 of the original German manuscript of this study. Karlsruhe Document Collection.

1943 when the German First Panzer Army and the Fourth Army were threading their way to the west from the Caucasus and the Kalmyk plains. This was a serious omission on the part of the Soviet Command.

From the summer of 1943 on, however, the air situation changed radically. Soviet air units then began for the first time with sizeable units to attack airfields, important rail junctions in the German rear areas, and concentration areas. Flak forces in the front then tried to fulfill both their air defense mission and the direct-fire ground support mission. The main enemy was the Soviet air forces, especially the ever-dangerous ground attack units. This mission was all the more important because Soviet air units had become ever bolder in their support of the Red Army as a result of the continual decline in German fighter strength. With the decline in fighter strength the need for protection by flak units was greatly increased.

Light and medium flak units were committed near the front, from the foremost lines back as far as artillery firing areas, while heavy flak batteries, also mobile, were placed in artillery firing areas and farther to the rear. The heavy batteries actually had a triple mission: (1) air defense, (2) supporting and augmenting regular artillery and providing air defense for it, and (3) direct-fire ground support against tanks which might break through the forward defenses. This illustrates the German efforts to compensate for their numerical weaknesses in antiaircraft artillery in the vast Soviet regions by achieving enough flexibility to make it possible to develop main areas of fire in critical defense sectors.

Maneuverability was not absolutely essential for the performance of the second mission, which included protecting targets in the rear areas against air attack. Here it was sufficient to move flak batteries in by means of flak transport batteries.<sup>45\*</sup> However, it was impossible to activate enough of these transport batteries, and because of insufficient advance knowledge about the development of situations, or in case of sudden enemy breakthroughs, the time was frequently too short to include the antiaircraft pieces in the hasty withdrawals. It was then necessary to demolish the guns and all fire control instruments and devices to prevent their capture intact. Because of inadequate available transportation space, much valuable materiel had been lost during retrograde movements, most of which had to be carried out under heavy Soviet pressure.

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\*These were units in which prime movers were consolidated specifically for the movement of artillery pieces.

The inadequate output of motor vehicles by German industry compelled a separation of the flak forces into motorized and truck-drawn units in order to insure at least some degree of mobility, thereby also enhancing the chances for a quick concentration of forces in the front areas. As a rule, motorized units were committed in the front areas and truck-drawn units in the rear areas for the protection of static targets.

One basic requirement for motorized flak units was all-terrain mobility. For the light and medium guns, self-propelled mounts with protective armor similar to armored personnel carriers had proven to be the most practical, for which reason they were in great demand. For the heavy (8.8-cm.) guns, the prime movers designed for them continued to be satisfactory.

Lack of forces was the one factor which made it difficult to develop power concentrations in the air, and the necessity for a wide distribution of German air units, brought about by the increasing frequency and size of Soviet attacks against installations in rear areas, resulted in an even wider distribution of available flak batteries. In the past the rule had been to have at least one heavy flak battalion assigned for the protection of important static targets. In 1943 the number of installations requiring protection made this impossible. Thus, truck-drawn batteries in the East were reinforced with additional guns and organized into what were called twin or oversize batteries.

Flak units lacked adequate signal facilities, which, in the course of time, had made it necessary to situate all command posts interested in the air defense of airfields in close proximity. Often it was even necessary to combine a command post.

The 20-mm. flak gun was too light and lacked penetrating power. The 37-mm. gun was good and should have been set up on multiple (three or four gun) mounts. Efforts should also have been made to develop a somewhat heavier gun, with a caliber of 40 to 50 mm., especially since tests carried out with 50-mm. guns had produced such excellent results. The 8.8-cm. and the 12.8-cm. guns, which were sometimes used in defense of static installations, also proved to be satisfactory in every respect in 1943. Because of the frequent appearance of armored Soviet ground-attack aircraft it was found to be advisable to issue ammunition in mixed lots, containing both armor-piercing (shaped-charge) and regular high-explosive flak ammunition in a ratio of 1:3 or 1:4.

Heavy (motorized) flak batteries should have been issued special radio instruments so that they could have maintained contact between the

battery firing positions and the artillery observers in order to keep them ready for firing at all times. An urgent need for all batteries was the issue of close-defense weapons, such as the Panzerfaust antitank rockets.\*

One source of concern which remained in 1943 was the great number of motor vehicle types in use. The Wehrmacht had failed before the war to standardize its motor vehicles into a few proven types and to stockpile large amounts of spare parts for these vehicles. At the same time it took over dozens of foreign vehicle models in as many European countries, some of which were no longer being produced, and for which spare parts could scarcely be found.† German commanders attempted to remedy this situation by exchanging vehicles within their commands, aiming to reduce the vehicle types to not more than three, so as to simplify the procurement and allocation of spare parts. Usually such efforts were for naught, since nothing had been done to prevent this situation in peacetime and the problem was too widespread as the war progressed.

Flak trains should also have been created in order to permit a speedier shift of main emphasis in air defense. The individual air fleets did what they could to provide for this missing element by improvising flak trains with the means at their disposal. These were committed not only in the defense of static targets, but also frequently with great success in action against large partisan groups. In this connection it should be mentioned that it became absolutely essential to give flak units special training in close combat and ground defense in order to avoid heavy losses.<sup>46</sup>

On the whole the flak forces were quite successful in 1943 in both air defense and ground combat missions on the Eastern Front. In anti-tank action they constituted the backbone of German defenses. However, it must be said that the flak forces were numerically too weak to accomplish all of the missions they were called upon to perform, most of which were urgent necessities.

#### Air Signal Forces

The unsung and almost unnoticed arm of the Luftwaffe was the Air Signal Corps, which in 1943, as it had been previously, was the vital

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\*An antitank rocket launcher similar in operation and use to the U. S. "Bazooka."

†In July of 1943 the I Flak Corps reported that its units had 260 German and 120 foreign vehicle models, all in use. In some cases there were only a few vehicles of a given model in the entire corps. The procurement and repair situation was called a "nightmare."

available command instrument of the German Air Force. It gave the fullest satisfaction in the East, and it is not an exaggeration to say that, without these organic signal units a flexible control of offensive and defensive units of the Luftwaffe would have been impossible. The systematic work done (usually in advance) by air signal units did much to insure the success of Luftwaffe operations. It was due solely to the work of these organizations that power concentrations could be developed quickly and shifted from one area to another.

In some cases technical equipment was inadequate, which was a result of insufficient production, but the Air Signal Corps nevertheless mastered every situation. Its command organization and leadership were exemplary, even in the most difficult crises. Much of this achievement was due to the spirit of self-sacrifice and the untiring efforts of the air signal troops.\*

#### The Ground Service Organization

The difficulties encountered in the field of ground service organization and in the closely related field of logistics clearly indicated the need for a timely development of airfields, command posts, maintenance workshops, and storage facilities for all types of supplies behind the front all along the line in the Eastern Theater of Operations. Only when enough of these installations were available in the rear of the combat zone of each air fleet to accommodate extra air and flak artillery units was it possible to continually shuffle units on short notice from one area to another to form power concentrations in areas of main effort. Generally speaking, all of the air fleets in the Eastern Theater and the responsible Luftwaffe administrative area commands within the various sectors accomplished this mission. This was done in a particularly exemplary manner in Combat Zone Center by the Sixth Air Fleet and the Air Administrative Area Command Moscow (later Air Administrative Area Command XXVII), under Generalleutnant Veit Fischer.

All useful Luftwaffe installations had to be destroyed upon withdrawal. This was not always properly accomplished, since it called for systematic advance preparations and for careful consideration concerning the precise time to order the demolition. This required a careful appraisal of the current situation and a close relationship with the local Army commands. Details for evacuation and demolition were set forth in what

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\*See figure 46.



Figure 46  
Luftwaffe Air Signal Corps personnel at work in Russia,  
showing the hundreds of lines running to a main terminal  
from a Luftwaffe operations staff headquarters

were called evacuation and demolition schedules embodied within appropriate orders. These were executed upon receipt of a prearranged code word from air fleet headquarters. Apart from a few miscarriages, this mission was carried out in an exemplary manner.

Broadly speaking, it was still possible in 1943 to replace the sometimes exceedingly heavy losses in weapons. Occasional shortages of long duration were due to local circumstances or to transportation difficulties. In most cases the replacement of lost aircraft was carried out while the unit was being rehabilitated. A group which had lost too much of its effective strength was required to turn over its remaining aircraft to units still in the field. The personnel of the weakened units were then moved to the rear, where they were rested and supplied with aircraft of the same model or of a newer type. Generally, such rehabilitation was accomplished in a smooth functioning manner and in a relatively short time.

Difficulties were encountered in 1943 in the supply of aviation fuel. As early as 28 June 1938 the Commander in Chief of the Luftwaffe raised his demand for the stockpiling of aviation fuel from 1,500,000 tons per year to 3,000,000 tons.<sup>47</sup> This goal was not achieved, and at the outbreak of World War II the Luftwaffe had fuel reserves of only 200,000 tons, although by that time the Chief of Luftwaffe Supply and Administration had stipulated a need for 600,000 tons as a minimum.

The German output in natural and synthetic fuels was inadequate, and foreign supplies were vitally needed for the war effort. One of the main sources was Rumania. The quantity of mineral oil produced in Germany was insignificant, and the few small fields which were in operation, especially in Lower Saxony, played no major role in the overall fuel program. The problem of fuel supply thus remained one of Germany's most serious problems. It was only with the utmost difficulty that the Chief of Luftwaffe Supply and Administration had succeeded in having a small factory established for the production of tetraethyl lead in order to insure the production of high-quality aviation fuel.<sup>48</sup>

In 1941 the Luftwaffe had been compelled to take more than one quarter of its current fuel requirements from reserve stocks.<sup>49</sup> This was an ominous beginning. By autumn of 1943, 214,000 tons were being produced monthly, and the hope was to achieve a monthly output of 226,000 tons by the end of 1944.<sup>50</sup> The output of synthetic fluid fuels, which had been 4,000,000 tons per annum in 1941, was increased to 6,000,000 tons in 1943.<sup>51</sup>



The High Command of the Wehrmacht also ordered the build-up of its own aviation fuel reserve, from which supplies were to be released only upon requests submitted to it by the High Command of the Luftwaffe. As a result of the increased production of aviation fuel the stocks held by the Wehrmacht High Command and the High Command of the Luftwaffe increased steadily. 52

In 1943 the manufacturing plants in Germany were generally still undamaged by air attacks. Even the increased enemy air operations against the Rumanian oil region, which in 1943 for the first time also came under attack by air forces of the Western Allies operating from their newly acquired air bases in Southern Italy, had little effect upon production. At least it can be said that the effects thereof were not decisive in 1943. Thus in an attack flown by the USAAF on 1 August 1943, the attackers achieved a moderate success but suffered heavy losses. \*

In spite of all this, fuel stocks in the Eastern Theater in 1943 were by no means adequate for the uninterrupted and even increased activity of the Luftwaffe in the continual crises which erupted all along the line. What made things more difficult was the necessity of simultaneously building up fuel stocks at all airfields because the constant shift of emphasis in aerial operations required every airfield to be able at any time to receive, maintain, and supply larger numbers of aircraft than were normally stationed on them.

Transportation was another serious difficulty, due to the inadequate capacity of the already overtaxed railroads, the lack of fuel tank cars,

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\*Editor's Note: The USAAF sent out 177 aircraft in the Ploesti raid of 1 August 1943 (flown by the 44th, 93rd, 98th, 376th, and 389th Bomb Groups), losing 54 aircraft and 532 crew members. "An estimated 42 percent of Ploesti's total refining capacity was destroyed. Possibly 40 percent of the cracking capacity was knocked out for a period of from four to six months, and the production of lubricating oils was considerably reduced." W. F. Craven and J. L. Cate, eds., The Army Air Forces in World War II, Vol. II, Europe: Torch to Pointblank (August 1942 to December 1943), Chicago: University of Chicago Press, 1949, pp. 477-483. German sources indicate, as do Craven and Cate, that these results were considerably offset by the surprisingly rapid repair of the bomb damage and by placing reserve and other unused plants in operation.

and the interruption of railroad traffic by the partisans. 53\* Serious fuel shortages had developed as early as the battle for Stalingrad and the retrograde movements from the Don to the area west of the Dnepr River. These difficulties had been mastered only by resorting to the most uneconomical sort of transportation, air. The Ju-52 transports, which were used for the purpose, had a fuel consumption quite disproportionate to their fuel-carrying capacity. Even during preparations for Operation ZITADELLE the difficulties encountered in procuring and moving forward the necessary aviation fuel were surmounted only with the utmost effort. 54 These fuel shortages necessarily led to the introduction of severe economic measures and compelled all Luftwaffe command staffs in the East to observe carefully planned fuel economy practices.

#### Personnel Matters

Most air replacement personnel were volunteers. No shortages occurred in any of the flying units in 1943, with the exception of occasional personnel shortages in strategic reconnaissance and bomber units. 55 Luftwaffe personnel replacements always arrived on time and in adequate numbers, and their training was uniformly good. Newly arrived replacement crews were first placed in the IV (Replacement) Group of each wing, where they received an orientation and familiarization with actual combat conditions. These replacement units were usually stationed in the rear areas, and were generally first employed in anti-partisan operations.

The need to rotate worn-out flak artillery units with batteries that had been hitherto deployed in quiet areas in the West was largely overlooked. Flak artillerymen thus shared the fate of the ground forces, which were literally used up in the fighting.

In view of the increasing partisan and other sabotage activities, there should have been many more regional defense units containing older age group men who could be used for guard duty. This was especially true since there were so many rear installations, which had to be widely separated because of the increasing Soviet air attacks.

Another personnel matter which should be discussed is the problem of establishing and employing Luftwaffe field divisions. From 1942 on, they had been activated in an ever increasing number, a measure which had become necessary because of the exceedingly heavy losses suffered

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\*At the end of 1940 only 5,200 fuel tank cars were available, despite the request of the Luftwaffe staff for 9,000 such cars.

by German ground forces in the Eastern Theater. Most of the Luftwaffe field divisions were therefore used in the East, particularly in the Nevel-Vitebsk areas, north and northwest of Smolensk. These divisions were generally organized in the field and were well equipped, but they received very brief training, so that they were, in this respect, not what they should have been. Apart from officer personnel from the flak forces, and a few other exceptions, the majority of the officers in these divisions were inexperienced and had no tactical combat training because of the exigencies of time.

The military training of the divisional commanders varied greatly. Most of them had had no experience in ground combat, and what little they had had was usually from World War I. Only a small number had ever had general staff corps training.\* For these reasons, and especially because they were in some cases employed in the most crucial sectors, such as at Manych, the Don River bend area, the Donets River line, and in the Nevel area, some of these divisions suffered exceptionally heavy losses. Because of the general aggressiveness and good morale of these units, however, most of them developed into very useful defense divisions after a short period on the line.

Without question it would have been far wiser from the outset to have turned over all personnel to be used in this way to the Army. There they could have received appropriate training and have been used to bring the depleted Army divisions in the East up to strength. With these replacements from the Luftwaffe, most of whom had enthusiastically volunteered for service in ground units, the weakened divisions could undoubtedly have been turned into divisions of full combat value. Inter-service jealousies between the Commander in Chief of the Luftwaffe and the Army High Command prevented proper utilization of these men, and the heavy losses suffered by Luftwaffe field divisions because of their lack of experience and training were therefore a direct result of Goering's stubborn and selfish attitude.† The Commander in Chief of the Luftwaffe

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\*The author was among those officers who volunteered to serve in Luftwaffe field divisions, and is thus acquainted with the organization, training, and employment of these units.

†Editor's Note: Certain other high ranking Luftwaffe officers were at first also reluctant to release any men to the Army. Army commanders were, from the outset, displeased with the idea of mere tactical control over Luftwaffe field units. See various documents dealing with the matter of Luftwaffe field units. A/VI/4, Karlsruhe Document Collection.

wanted to keep control over as many of his units as possible, giving the Army only tactical control over Luftwaffe field divisions. This was similar to Goering's refusal to grant the Navy any control over air units, claiming "Everything that flies belongs to me."<sup>56</sup>

This senseless command system was finally changed in September 1943, when Luftwaffe field divisions were transferred to the Army and placed solely under Army control.<sup>57</sup> The entire episode of the Luftwaffe field divisions is a typical case of faulty organization, and the person who was unquestionably responsible for the high cost in lives was Reichsmarschall Goering.

#### Cooperation Between the Luftwaffe and the Army and Navy

The primary mission of the Luftwaffe in 1943 was to provide direct support in offensive and defensive operations for the ground forces. This called for extremely close cooperation between all air and ground force commands. To insure success, this relationship should not have been restricted merely to combat operations, but should also have included service operations, such as logistical functions, air-ground service work, and transportation. To secure this close cooperation, the Luftwaffe attached liaison teams to Army staffs from divisional level upward and assigned air direction teams for fighter, dive-bomber, and ground-attack operations, usually committing them in the foremost combat areas. Numerous air signal teams were also assigned to ground force units.

The closer the contact was established and maintained between the participating Army and Luftwaffe staffs, the better was the spirit of mutual confidence between the commanders of those units, and the greater was the measure of successful achievements in the course of the joint operations. The best way to secure such intimate and confident cooperation was through frequent personal discussions between the several air and ground commanders.

During operations in 1943 by units stationed at Kharkov, direct radio voice communications were to have been reestablished with the Army units, particularly panzer divisions. To test readability and work out the best system for the transmission of reports and information, a combat maneuver was conducted in collaboration with a panzer division, during which a tank battalion drove forward into the open terrain in mock attack upon a number of captured Soviet tanks placed in suitable positions for the exercise. Simultaneously, a number of German ground-attack aircraft flew over the maneuver area in support of attacking tanks. A modulated

frequency radio transmitter (voice) was mounted in the commander's tank and was tuned in to the operating frequency of the air wing concerned.

The tank battalion commander was thus able to communicate directly with the aircraft and guide them to important ground targets. Pilots, in turn, were able to report immediately to the tank commander any special circumstances which they observed from the air. This two-way radio arrangement worked very well, and on occasions produced excellent results. 58

The will of the ground forces to resist was often noticeably affected whenever this close cooperation was lacking, especially so in situations in which the ground forces had lost confidence in the will or the ability of the Luftwaffe to support them. One point must be emphasized in this regard, that it frequently became necessary to strip entire front sectors of air support in order to create the required airpower concentration in sectors of main effort. This gave the Soviet air forces freedom of action in the stripped areas, so that they naturally took advantage of the situation, occasionally inflicting heavy losses upon German ground forces.

In cases of this sort the average German soldier invariably asked the question, "Where is the Luftwaffe?" The soldier was simply unable to understand why German aircraft were not always available or in the air above him. Too often he forgot that he should and could have used his own weapons against hostile aircraft, as did the Russian soldiers, who fired at incoming German planes with everything available. The intermediate and higher Army command levels could have done a great deal more in enlightening the troops. To begin with, it was necessary for field officers themselves to understand the necessity for forming airpower concentrations and to appreciate the fact that the Luftwaffe was simply unable to provide a protective canopy over the Army at all times and in all places. Officers in leading positions also needed a thorough grounding in the use of air forces, their limitations, and their capabilities, and they should then have explained the situation to their troops and educated them to defend themselves.

All too frequently the soldier has been taught to hide instead of making good use of his available weapons. He must be taught what effect

infantry small arms fire can have upon aircraft and at what ranges it is most effective.\*

During air logistical operations it was found necessary and useful to utilize personnel with supply services experience to form special logistical operations staffs. These staffs were formed in the field from Army and Luftwaffe personnel under the command of Army and Luftwaffe officers of high rank, who were given special powers and command authority for the purpose of the mission.

The impact of airpower upon naval warfare is of decisive importance. It is not restricted merely to such activities as reconnaissance, escort, and combat missions in cooperation with the Navy and in protection of supply movements. It also includes combat action against enemy forces in hostile sea routes and against ports which are not the objectives of any joint air-naval operations.

It is true that the battle for naval supremacy in a given area has become contingent upon air supremacy in that area. Air supremacy over a given area results in naval supremacy in that area. The converse of this is not necessarily the case.<sup>59</sup> Thus, constant close cooperation between the Navy and the air forces is essential for the successful accomplishment of these missions. In the Eastern Theater of Operations this was essential in the Black Sea, the Baltic Sea, and in the arctic waters.

In the Black Sea areas land-based planes and seaplanes kept the Soviet naval bases and the Soviet Black Sea Fleet under constant surveillance. This alone enabled the weak German naval security units to operate in the area. In the Baltic, Luftwaffe operations were restricted to reconnaissance over the Gulf of Finland, since the forces available to the First Air Fleet were too weak to eliminate Allied forces at sea or Soviet naval forces by offensive operations. In northern waters the cooperation between Luftwaffe and Navy forces was generally good, and, at intermediate and lower command levels, even very good, a fact which was reflected in the successful achievements in operations against single vessels and formations of Allied ships, and in providing cover for friendly convoys.<sup>60</sup> Much of this success was due to the good will which existed among the top Navy and Luftwaffe commanders in the Far North.

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\*Editor's Note: Soviet troops immediately fell on their backs and fired with submachine guns, mortars, rifles, and pistols. Some of these same characteristics have been observed on the part of the Chinese Communist troops in Korea and Viet-Cong units in Vietnam.

Operations of submarines and air forces were superbly integrated, a fact which was confirmed in a letter of 30 June 1943 from Admiral Otto Schniewind of the Naval Group Command North and the Fleet Command to the Fifth Air Fleet. <sup>61</sup>

#### The Performance of the German Soldier and Airman in the East

In closing this critique of German air operations in the Eastern Theater in 1943, it is a duty and a gratification to say that the incomparable performances of the individual German soldier in combat in the East are above criticism. This applies to all ranks, from the lowest private to general officers, on the land, in the air, and on the seas. The German soldier did not make his greatest mark at the beginning of the campaign when he was marching from victory to victory, covering immense distances daily, and winning giant battles of encirclement in which enormous numbers of prisoners and vast quantities of materiel were captured, although the casualty figures show that these gains were not purchased cheaply. It was later in the campaign, when there was no longer any hope for victory, that the German soldier surpassed himself. Physically and mentally exhausted, he then clung with desperate tenacity to every inch of hostile terrain in order to keep back the Red floods from his homeland.

During the more or less orderly withdrawals, with flanks threatened and hostile forces often already in the rear areas, German troops again and again made a defiant stand to halt the advance of the overwhelmingly superior Soviet armies. In this great struggle the German troops not only had to face a numerically superior enemy, who was tough, courageous, crafty, and cruel, and whose material superiority steadily increased, but also an area with difficult terrain, mostly unsuited for large-scale movements, and in a climate which seemed at times almost too severe for human existence. This was the situation in which the German troops found themselves, probably one of the most difficult that troops have ever had to face, and most of them stood the test with honor.

#### Closing Remarks

At the end of 1943 German forces in the Eastern Theater of Operations were involved in gravely crucial defensive battles all along the front. Bleeding from numerous wounds and badly weakened through personnel and materiel losses, the German Army of the East had withdrawn as best it could from one position to another under great pressure by vastly superior Soviet forces. The focal points of action in the bitter fighting around the end of the year were Nikopol, Krivoy Rog, Kremenchug, the area west of Kiev, Gomel, the sector east of Orsha, and the areas of Nevel and Leningrad.

In every area the threat of new Soviet offensives loomed ominously, and the weak air forces available were daily committed to action in support of the hard-pressed German armies as well as in constant battles against an overwhelmingly superior air enemy. Although it had been clearly obvious, and had been admitted by everyone concerned, that all major and tactical achievements in the past years of warfare, in both attack and defense, had been largely due to the superiority and to the effective operations of the Luftwaffe, the German Supreme Command had not taken this fact into account in the overall armament program. Without air support there was no possibility of bringing to a successful conclusion any large-scale offensive or defensive operation on land or at sea.

Furthermore, it was quite obvious, without considering land and naval warfare, that the only way to bring about conditions for final victory in a modern war was to secure air superiority through the action of a superior air force and through the operations of this air force in destroying the enemy's sources of power. Total warfare had only really become possible because of the rise of airpower.

The only logical conclusion, and one which the Supreme Command should definitely have drawn, was that the strength or weakness of the Luftwaffe would influence the outcome of the war more than any other factor or factors, in fact, that it was the major determining issue between victory and defeat. With a proper understanding of this lesson, Hitler and the High Command of the Wehrmacht should have awarded the Luftwaffe first priority in funds, raw materials, manpower, and all fields of armament and manufacturing. The nations at war with Germany at the time had drawn this logical conclusion at an early stage and had adapted their armament planning to it; whereas German air armament, so far as the requirements evolving from the obvious lessons of the war were concerned, had remained in practically the same stage of development which it had been in before the war. Apart from numerous minor improvements, many of which were nothing at all but improvisations, the striking power of the Luftwaffe had not increased decisively from a standpoint of numerical strength or technical performance.

The normal attrition of war had worn down the substance of the Luftwaffe incessantly, and the process had been speeded up by the wasteful commitment of its forces in numerous senseless missions. The output of the German industry was insufficient to fulfill the requirements of the time or to increase the strength of its fighting forces. The fault for these conditions was to be sought in the illogical pattern of overall planning in which the German Air Force was not accorded that position in the overall national potential which it should have had, considering its significance as a factor



capable of influencing, and even deciding, the outcome of the war. The German Supreme Command was at fault in its estimate and evaluation of the three weighty factors in war: time, needed to meet the requirements of research and development and for production; space, which had assumed global dimensions; and strength, as expressed in numbers and equipment.

Thus, while the heavy burden of responsibility rests upon the supreme military, economic, and political leadership--primarily upon Hitler--it is also shared by the Fuehrer's closest political, economic, and military leaders and advisors, therefore also by the Commander in Chief of the Luftwaffe.

Numerically far too weak to carry out its mission, the Luftwaffe had thus become clearly inferior in strength to its Soviet opponents, who were growing steadily stronger, in the continuously severe and crucial defensive battles of 1943. The German Luftwaffe's numerous local successes were due to the high quality of its personnel and their commanders, and in no way obscures the aforementioned fact. With the small number of units available to it, the Luftwaffe was no longer able to meet all of the demands made upon it in the gigantic spaces of the East in 1943. It was thus inevitable that it gradually become weaker and weaker on the way to its unavoidable and final downfall.

#### The Conclusion of the War in the East, 1944-1945\*

From 1943 on, German forces in the East were fighting for their lives in a series of desperate withdrawal battles and defensive battles, on

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\*Note by the Chief, USAF Historical Division: This closing section is contributed by the editor, Mr. Harry R. Fletcher. General Plocher's studies of GAF operations in the Eastern Theater of Operations were originally intended to cover the years 1944 and 1945, but his recall in March of 1957 to duty in the new Bundeswehr prevented the realization of the complete project. Consequently, only the years 1941, 1942, and 1943 are covered in the Plocher series. Unfortunately, the German Air Force Monograph Project had to be brought to an end before a new author could be found to write the story for 1944 and 1945. Mr. Fletcher's contribution, together with other studies in the GAF Monograph Project which deal with the Eastern Front, helps to fill this gap.

land, on sea, and in the air. The same situation prevailed, although with perhaps a lesser spirit of urgency, in the Western and Southern Theaters of Operation. Crucial failures in industrial, logistical, and military planning began to exert a serious effect upon Germany's prosecution of the war, and it was too late to rectify them. In every field of activity the ingenuity and inventiveness of the German nation was taxed to the utmost, but the numerous improvisations of all kinds which were tried could never offset the initial failures to plan and prepare for contingencies. This problem was also increasingly complicated by Allied strategic bombing, which for frequency and intensity had already reached levels hitherto unknown in warfare. Because of these attacks, the High Command of the Luftwaffe was compelled to concentrate large numbers of fighters and interceptors, invariably those of the latest type, in home defense areas.

Although seldom seen in its true perspective, but of immense importance, was the Mediterranean Theater of Operations and its impact upon the Wehrmacht, especially the Luftwaffe. Commitments in this area deprived the Eastern Theater of large numbers of aircraft and highly trained personnel which were critically needed in the unequal contest in Russia. Losses of both men and planes in the Mediterranean were heavy in 1942 and 1943, and since the Allies on all fronts gave the German Command no respite, there was no possibility of altering the deteriorating situation. Air superiority had clearly passed to the Allies on all fronts.

Hampering the Wehrmacht's efforts still further was the fact that its strongest asset, its capable and well-trained officer corps, had become increasingly frustrated and helpless in the face of Hitler's continual direct interference in combat operations. Thus, as the war reached its most crucial stages, the Fuehrer became ever more unwilling to accept advice, or to face the grim realities of the current situations, and withdrew more and more into a world of fantasy. Making this bad situation worse, Goering, who had repeatedly failed to make good on his exaggerated promises, had lost the confidence of his leader, and the Luftwaffe suffered accordingly.

Measures taken by top-level Luftwaffe leaders, who were loath to delegate authority, made it impossible for their subordinates, even those in high command positions, to work with initiative and a spirit of independence. For example, in July of 1944, Generaloberst Hans-Juergen Stumpff, Commander of Air Fleet Reich, complained to the Chief of the General Staff of the Luftwaffe that he could not issue any orders on his own, and pointed out that he was not even permitted to move a single piece of flak artillery without orders from above. 62

Also of decisive importance for the conduct of Germany's air war was the handling of personnel matters in high-level command agencies. The principle prevailing in the closing years of the war, whereby bravery in action was a sufficient recommendation for a key position regardless of the man's intellectual or command capabilities or his comprehension of complex problems in the conduct of aerial warfare, was neither appropriate nor successful. Perhaps such a crippling state of affairs in command and leadership might have been bearable early in the war, but by 1944 it was intolerable.

In the winter of 1943-44 the Red Army opened attacks all along the front, with especially powerful thrusts in the boundary area between Army Groups Center (Busch) and South (v. Manstein), but with by far the greatest weight falling upon the front of Army Group South. Simultaneous drives by the Second Ukrainian Army Group (Marshal Ivan Koniev), supported by the Third Ukrainian Army Group (Marshal Rodion Y. Malinovsky), forced back the front of the Eighth Army of Army Group Center and the First Panzer Army of Army Group "A" (v. Kleist), while the First Baltic Army Group (Marshal Ivan Bagramyan) struck the left wing of Army Group Center and the right (southern) wing of Army Group North (Model)\* between Vitebsk and Velikiye Luki. In these encounters the Luftwaffe's failure to develop a really adequate "tank-buster" aircraft began to be manifest. Various types of fighter and dive-bomber aircraft were modified for this role, but this effort was too weak and impractical to be of much help.

By early 1944 the Luftwaffe still had plenty of fight and was occasionally capable of sending out 1,000 sorties a day on the Eastern Front. It was then in a situation of almost ridiculous air inferiority and might have been utterly destroyed in the East, except for the fact that the Russians did not normally employ their air forces independently, but continued to use them almost entirely in an offensive role in support of the Army.

In 1941 the Luftwaffe had sent about 3,000 first-line combat aircraft into action against Russia, but by 1944 it was unable to muster more than 2,000 planes at best, and even this figure was highly deceptive, since, after late 1942, many of the aircraft listed as combat types in the Eastern Theater were biplanes of the 1930's and other obsolete models. The striking force of the Luftwaffe was therefore not even two-thirds of what it had been in 1941 but was less than one-half. This fact was clear to

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\*General der Panzertruppe Walter Model assumed command of Army Group North on 9 January 1944.

most combat air commanders, who carefully shepherded their forces for fear of losing their few operational aircraft. Large numbers of German bombers were committed as air transports for weeks at a time in efforts to supply encircled Army units. The result was a heavy loss of combat aircraft and highly trained aircrews, many of which could not be replaced. As the war progressed, bomber forces, like fighter units, became more and more linked with the operations of the ground forces.

Dive-bomber units probably fared the best, since they were able throughout the war to remain primarily in the mission for which they were designed, although as the Luftwaffe lost its air superiority, and especially after the dive-bomber arm was strengthened by the addition of obsolete biplane types, fighter cover was necessary for the accomplishment of their assignments. <sup>63</sup>

By 15 January 1944 Soviet forces had broken through the German lines north of the Dvina River, forcing back the Third Panzer Army into the area west of Nevel, and had penetrated deep into the Pripyat Marshes, reaching the old Polish boundary west of Sarny. The center of Army Group South recoiled under heavy attacks and withdrew far to the southwest of Kazatin and Zhitomir. Units of Army Group "A" along the Dnepr River were forced to make a hasty retreat to Kirov and Krivoy Rog, leaving the Sixth Army holding a salient that projected to the east from Krivoy Rog to the area east of Nikopol and along the lower Dnepr to Kherson. During these drives the Red Army captured large quantities of German heavy equipment and materiel, mostly from the Army. The Luftwaffe did an admirable job in destroying its facilities as it withdrew, and succeeded in taking out all of its essential equipment so that it could continue operations despite adversities. The improvisations and ingenuity exercised by German Air Force commanders in the field were quite commendable. <sup>64</sup>

In mid-January Russian forces moving southward from Fastov met Soviet units moving westward from the vicinity of Kremenchug, enveloping seven divisions of the German Eighth Army west of Cherkassy. Here, the VIII Air Corps distinguished itself by delivering approximately 250 tons of food and supplies daily to the surrounded group until it was able to make its breakout on 15 February. Of the 50,000 men in the pocket, 32,000 managed to reach the safety of their own lines to the west. <sup>65</sup>

In the North, despite meager air support, German losses were not as heavy as elsewhere on the Eastern Front up to 1944, which permitted Army Group North to carry out more methodical defensive measures. In February, powerful Soviet forces drove back the Sixteenth and Eighteenth Armies of Army Group North, thereby completing the liberation of

Leningrad. But by hanging on to certain key positions the Wehrmacht was able to establish a new line extending from the area west of Nevel to the vicinity of OPOCHKA and Pekov to Lake Peipus and Narva, where German forces staved off early Soviet attempts to drive into Latvia and Estonia.<sup>66</sup>

From March to June of 1944 the front changed very little from the Gulf of Finland southward to the Pripyat Marshes, in part because of the mud season, but chiefly because the Soviet Command had shifted its offensive to the fronts of Army Groups South and "A." In March both of these groups reeled back from the Pripyat to the Crimea under the heavy blows of superior Russian forces,\* retreating first to the Bug River and then, by April, behind the Dniester River in a line running from just east of Odessa to north of Tiraspol to the Prut River north of Iasi, Rumania, and thence roughly northward, passing to the west of Cernauti, Tarnopol, Dubno, and Lutsk, to the Kovel area.<sup>67</sup> On 24 March, five Soviet armored corps, followed by massed infantry forces, of Marshal Georgi Zhukov's First Ukrainian Army Group, crossed the Dniester River due south of Tarnopol and linked up with the divisions of Marshal Ivan Koniev, which had crossed the Dniester earlier several miles to the east. The German First Panzer Army (General der Panzertruppe Hans Hube) was thereby encircled in a large arc north of the Dniester near Kamenets-Podolski.

Here again Hitler ordered a static defense, but Hube opted to conduct a withdrawal of the entire pocket toward the West.† After concentrating his forces, shortening his lines, and disposing of unnecessary heavy equipment, Hube began his operation. Soviet forces surrounding the pocket had overextended their supply lines, which First Panzer Army units were able to sever, and, before the Russians realized what was happening, the First Panzer Army had moved almost to the German lines.

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\*The Soviet Command normally planned upon a six to one numerical advantage in launching an offensive, and considered a four to one advantage to be the bare minimum necessary for success. See Raymond L. Garthoff, Soviet Military Doctrine, Glencoe, Illinois: The Free Press, 1953, pp. 127-129.

†The Soviet Commander had given General Hube an ultimatum to surrender at once or all who surrendered later would be shot. This helped Hube in his resolve to withdraw his forces. This operation is mentioned here because it is a unique tactical movement of an entire encircled force, holding its perimeters, toward friendly lines, which is quite different from a breakout operation. In this case it succeeded remarkably well.

Soviet forces then attacked, as expected, the northern and eastern perimeters of the pocket, but all of these efforts were warded off.

Although the nearest German airfield was 125 miles away, the Luftwaffe carried out daily air logistical missions for the panzer army. During these operations Luftwaffe units delivered both food and supplies to Hube's forces, changing airfields daily in accordance with the fluid situation, and finally being forced to air-drop supplies because of an absence of landing fields. While these deliveries never amounted to more than a part of the required tonnage for the maintenance of the encircled force, they were welcomed, since thawing snows had ruled out any early relief operations or supply by ground routes. By 5 April the First Panzer Army had not only moved far enough west to meet the current German front, but, in the meantime, had even managed to envelop some small Russian units, destroying 357 tanks and 280 pieces of artillery in the operation. The German losses were surprisingly light. 68

In the Crimea a catastrophe comparable in size to the loss of the Sixth Army at Stalingrad was narrowly averted by quick and resourceful action on the part of the German Seventeenth Army and its allied units. These forces had been isolated from the rest of the German front since 1 November 1943 and had frequently been in danger of annihilation. Left to defend themselves against powerful enemy thrusts from the north across the isthmus of Perekop, from the east and northeast across the Kerch Peninsula and the Sivash Sea, it had surmounted its problems better than had been expected. However, irresistible pressures from the north and east in early April of 1944 forced it to retreat toward Sevastopol. Between 17 April and 12 May the Seventeenth Army evacuated its forces by air and water from the Crimea to the western shores of the Black Sea, an operation which was carried out under incredible difficulties, and resulted in heavy German losses.\*

The Luftwaffe rendered invaluable service in these evacuation operations, although forced to work in a situation of great air inferiority. The few available German fighters were scarcely able to provide more than local cover. 69

From late June until mid-August the German line in the south held fast along the lower Dniester River to the area west of Cernauti, but

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\*The reader's attention is directed to the numerous documents located in the Karlsruhe Document Collection concerning the preparations for and the actual withdrawal operations in the Crimea.

north of this Koniev's First Ukrainian Army Group, driving toward Brody and Lvov, threw back German forces nearly to the Carpathian Mountains. On 27 July Lvov fell to the Red Army and by the first week in August, Russian troops had reached the San and upper Vistula Rivers.\*

By attack and infiltration Soviet forces gradually cleaned out the Pripyat Marsh area, taking Brest-Litovsk on 28 July and Siedlce and the Vistula River south of Warsaw by 7 August. North of the marsh area the Russians made their greatest gains, pushing the Wehrmacht back across the Beresina River, and driving as far as Wilna, Lithuania, and the middle Niemen River by 10 July.<sup>70</sup>

On 12 July the First Baltic Army Group of Marshal Ivan Bagramyan, the Second Baltic Army Group of Marshal Andrei I. Yeremenko, and the Third Baltic Army Group of Marshal I. I. Maslennikov opened an offensive all along the line from the Gulf of Finland to the area west of Nevel. The left wing of Bagramyan's army group seized the upper course of the Dvina River and drove in a northwesterly arc deep into the interior of eastern Lithuania, while the right wing advanced westward out of Nevel toward the middle course of the Dvina. At the same time, forces of Yeremenko and Maslennikov pushed back the German front from the area east of OPOCHKA to the Narva area, making larger gains in the south against the German Sixteenth Army, which was immediately forced to withdraw to avoid envelopment.<sup>71</sup> Heavy fighting characterized all of the actions in the Baltic region, the control of which was essential to the defense of the Reich. The populace in this area, which had just achieved independence from Russia in 1918, and had had extremely unpleasant experiences at the hands of the Soviet Union in 1940-41, had no especial love for the Germans, but hated and feared the Russians much more.† Defeat to them meant absorption by the Soviet Union.<sup>72</sup>

Dispersal of its forces was the cardinal weakness of the Luftwaffe in these operations. No longer did German air units go ahead of the advancing ground forces. Instead, they were rapidly shifted from side to side wherever a crisis developed, often arriving too late to alleviate

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\*The Soviet June offensive began on the 22nd, and included 100 fresh divisions and 2,000 of the latest type aircraft. About 300,000 Germans were killed during these operations. See G/VI/b, Karlsruhe Document Collection.

†Many Latvian and Estonian men served in combat units established by the Reich as foreign SS units. These units fought well until the end of the war, but the SS designation was to hamper the subsequent employment and emigration of personnel from such organizations when they became displaced persons.

the danger. This continual transferring of air units was a result of numerical weakness in German air strength and the Luftwaffe's consequent inability to accomplish its missions all along an extended front. The Wehrmacht's strength and overall fighting power declined rapidly after 1943, but the strongest air forces remained in the West. Ground forces strength, despite continued deterioration, remained greater in the East until the end.

While German forces were engaged in crucial struggles, the Wehrmacht was severely shaken by an attempted assassination of Hitler on 20 July 1944. Actively involved were a number of the most respected names in the German Army, as well as several prominent civilians. The failure of the plot resulted in the execution of dozens of high-ranking officers, the retirement of others, and the resignations of still others. This retaliatory action by Hitler removed hundreds of capable officers from command positions. Among those who died as a result of the bomb explosion was Generaloberst Guenther Korten, Chief of Staff of the Luftwaffe.<sup>73</sup>

At the end of the first week in August, Bialystok, a point which had long been important as a center of German air activity, had fallen. The forces of Marshal Chernyakovsky's Third White Russian Army Group seized Kaunas, Lithuania, while Bagramyan's troops, driving northwest out of the area northeast of Wilna, penetrated into southern Latvia and almost reached the Gulf of Riga before German and allied forces brought them to a halt at Jelgava. Soviet forces also drove back the front from the Dvina to Pskov, clearing most of eastern Latvia. The Eighteenth Army, however, held its front in Estonia quite well throughout July and early August.

In the Far North the situation began to deteriorate on 9 June when the Red Army opened a massive barrage against the weak Finnish forces along the Karelian Front, and on the following day, with strong armored and infantry forces which outnumbered the Finns about 9 to 1, broke through the front and quickly penetrated deep into the Karelian interior. Finnish troops had proven to be superior to the Germans in forest fighting, and had long been critical of them in their battles against massed armor and infantry in the great open spaces of Russia. This time, the Germans had the dubious pleasure of noting that the Finns did not do as well as the Wehrmacht in this first taste of Soviet power in the open. The unique experiences of operations in the Far North, and the earlier, localized, fighting of the Winter War of 1939-40, had led the Finns to seriously underestimate the Soviet enemy.<sup>74</sup>



The Finnish Karelian Army was virtually uncovered as the Soviet Command launched about 1,000 air sorties daily against it. Luftwaffe reserves which were hastened to the area had little effect, since the German Air Force had an effective combat strength in the Far North of only about 100 aircraft.<sup>75</sup> Weakness was again the reason for a pathetic response.

August of 1944 was a black month for the Wehrmacht in the southern part of the Eastern Theater. The Russian Second and Third Ukrainian Army Groups, mounting immense power, had succeeded in throwing German forces back as far as Focsani and Galati in Rumania, spreading panic and disorder throughout the country. The Soviet attack upon the Dniester River line had completely demoralized the Rumanian Army Group, which then quickly dissolved. On the 23rd, King Michael, who had sought to reestablish himself with the Allies in order to save his throne, summoned Field Marshal Ion Antonescu, the foremost Rumanian leader, to his presence. Upon Russian insistence, he then arrested Antonescu and turned him over to Soviet authorities.\* At the same time, Michael declared an end of hostilities. Angered by the defection of his ally, Hitler on 25 August ordered the aerial bombardment of Bucharest, which resulted in an immediate Rumanian declaration of war against Germany. Only a few Rumanians then remained in service with the Germans, while many went over to the Red Army.

By the end of the month, although the Soviet Command suffered one of its most serious reverses along the Vistula on the Warsaw front,<sup>†</sup> Red forces had captured Ploesti and the greater part of the surrounding Rumanian oil region and driven deep into Bulgaria. The ring formed by the Carpathian and Transylvanian Mountains might have afforded an excellent defensive ring for German units, had the Russians not quickly gained access to many passes and to the heights of the Transylvanian Alps, thereby opening the way into Rumania and the Hungarian plain.<sup>76††</sup>

On 2 September the Finnish government, which had faced an almost unbroken series of reverses on the fighting front, offered to declare a cease-fire and to request the withdrawal of German forces from its territory. Two days later the armistice went into effect, although the Red

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\*Shot by the Soviet authorities in May 1946.

†This defensive achievement was made almost without air support.

††Once beyond the Transylvanian Alps the way into the Reich was open via the Danube valley.

Army continued to fire upon Finnish positions for an additional 24 hours. On 10 September the Finnish delegation in Moscow signed the armistice, which guaranteed the Soviet Union all that it had seized in 1939-40, as well as certain other strategic concessions and reparation payments. The German Twentieth Mountain Army then took action to defend itself and to withdraw into Norway.

By mid-September the Red Army had made small, but important, gains all along the front from the Gulf of Finland to the Carpathians, especially along the Sixteenth and Eighteenth Army fronts in Combat Zone North. There it concentrated its forces for a further offensive which carried it through Tallinn (Reval), Estonia, and to the Baltic islands of Hiiumaa and Saaremaa. Units of the Leningrad Army Group and the Third Baltic Army Group then turned southwestward, driving German and allied forces out of Estonia and deep into Latvia, while Yeremenko's forces advanced from the east, seizing Riga and the surrounding area. Bagramyan's forces then continued in their westerly course from the vicinity of Siaulia, breaking through the front of Army Group North and driving to the Baltic Sea north of Memel. This isolated the remaining forces of Army Group North\* in the Latvian province of Kurland, where it successfully held out until the end of the war, although it was no longer able to exercise any effect upon the conflict.

Meanwhile, Germany's air forces, especially those in the East, grew weaker and more obsolete. This was doubly serious because Soviet industry had made gigantic strides in the production of newer and better models, such as the improved "Stormovik" fighter-bombers, the Yaks, and the Lagg fighters, and because the Soviet Command had accumulated a large number of the latest type Allied fighters and medium bombers. The Luftwaffe used every possible expedient to make more efficient use of its dwindling air units in helping to "check the dike" at various points. In so doing, however, it lost its independence and sense of mission. Only briefly did German air units regain the initiative in the air, once in early March of 1943 in the retaking of Kharkov, and the other time in July during the fighting in the Kursk area. Thereafter they were utterly entrapped in a circle of events from which there was no escape.

South of Memel, Soviet forces drove across the German border into East Prussia, and by 19 January 1945 had reached Tilsit. Here, as in other parts of Germany's eastern provinces, the fighting was especially

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\*After 25 July under Field Marshal Walter Model, redesignated 25 January 1945 as Army Group Kurland.

sharp and bitter, involving house to house combat, and frequent "last ditch" stands by small detachments. Floods of refugees were churned to a mass on the roads by Soviet armored columns, while thousands of others were summarily rounded up and liquidated. Whatever the Germans had done to civilians in the East was being repaid a thousandfold. In the areas south of the Baltic everyone capable of bearing arms or doing anything for the German war effort was summoned to the front, their determination fanned by warnings from Goebbels' Propaganda Ministry that Germany's eastern areas would be given to Russia and Poland in the event of an Allied victory.\* To the south of East Prussia, Red Army forces crossed the Narev River and by 12 January 1945 had reached Warsaw, breaking up the German central front, while other units drove as far as Budapest and Lake Balaton in Hungary. 77

As the month of January drew to a close, Russian units had already reached the Silesian industrial area, had driven almost to the upper reaches of the Oder River, had taken Tannenberg and Allenstein in East Prussia, and were preparing for the investment of Koenigsberg. On 15 February, Breslau was surrounded and an 11-week battle ensued, with fighting from house to house and from cellar to cellar until the city finally fell. Determined efforts by the Luftwaffe enabled the defenders to hold out as long as they did. Resolute stands were also made by the Wehrmacht all along the Baltic and in southern Pomerania, where Red forces were held up for some time. On 30 March Danzig fell, permitting the final conquest of the Pomeranian coastal area.

During the month of February 1945 the Luftwaffe lent all the support at its disposal to the ground forces in an effort to stop the Russians at the lower Oder River, especially at the important crossing points of Stettin, Kuestrin, Frankfurt on the Oder, and just south of Guben. With the beginning of the general withdrawal on all fronts the Luftwaffe was also called upon to air supply countless units which had become enveloped while fulfilling Hitler's orders "not to retreat a step." A number of cities were declared "fortresses" and defended for considerable periods of time. Many of these, like Posen, Budapest, Schneidemuehl, Elbing, and Breslau, were supplied as well as possible by air until their capitulations. Often only 2 to 6 aircraft were available to carry out these transport missions.

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\*By early 1945 the acquisition of Allied documents confirmed the statements of the Reichs Propaganda Ministry that a permanent division of Germany was envisioned by the Allies, which included population transfers. A statement to this effect had also been made on 14 December 1944 by Winston Churchill in the House of Commons.

The attrition rate was heavy and few aircraft returned to base undamaged. Fighter cover could scarcely be provided in many instances, and when fighters were on hand they were heavily outnumbered by Russian aircraft. In the closing months of the war the Soviet air forces carried out as many as 10,000 sorties daily against the pathetically weak German units.

Some flyers, especially experienced aviators like Col. Hans-Ulrich Rudel, intent on doing everything possible to stop the irresistible Red Armies, flew combat missions until the very end of the war. Rudel accounted for more than 500 Soviet tanks, while Erich Hartmann scored 352 aerial victories against Soviet forces. Spectacular and excellent as their efforts were, they were but a small aspect of the total war and had virtually no effect upon the overall campaign.

The Russians capitalized upon German weaknesses and errors, many of the latter being the results of weakness. In almost four years of war the Red Army had learned a great deal about military operations from the Germans, and by 1945 its air units made a serious impact upon both German ground and air units. The German Command found itself caught in a vicious circle, in which each attempt to solve a problem meant neglect of another problem of almost equal urgency. Although it was treasonous in the Third Reich to say so, many of the more sage minds realized long before the war's end that the cause was lost. Armament Minister Dr. Albert Speer openly acknowledged that Germany's strength had reached its end when its synthetic gasoline plants were destroyed by Allied air forces. Yet, even after American and Soviet troops had met at the Elbe River, elements of the Wehrmacht were still fighting. As Professor Gerhard Ritter of Freiburg once noted, "The German Army continued to march as long as the music played."<sup>78</sup>

In the last months of the war lieutenants usually commanded companies, and often battalions, while under-age, over-age, limited-service, Hitler Youth, and Volkssturm personnel were thrown into the breach in an effort to hold off the inevitable end. Whole divisions and armies were ground down and redesignated, while entire air fleets were created from the residue of wings, groups, and even squadrons. Some units existed only on paper or in the clouded mind of the Fuehrer, who had retired with his closest admirers to the security of his bunker in Berlin.

The Commander in Chief of the Luftwaffe, whose stock with the Fuehrer had sunk to a cipher, made the grave mistake in April of 1945 of suggesting that he (Goering) assume the leadership of the Reich from his headquarters in Bavaria. Blind with rage, Hitler retaliated at once. On the 23rd, Goering was stripped of all of his offices and placed under

arrest by the SS. The Reichsmarschall was able, however, to summon an Air Signal Troop unit, which rescued him from the SS guards and escorted him to freedom.\* Robert Ritter von Greim, who was promoted to Field Marshal 25 April 1945, then assumed command of the Luftwaffe. This had no effect upon the outcome of the war, since von Greim could do nothing to improve the already disastrous situation. Moreover, he had been wounded while being flown to the Fuehrer's bunker in Berlin.

The Western Allies based the conduct of their air warfare upon entirely different principles from those of the Luftwaffe, while the Soviet Air Force, like that of Germany, was closely linked to air support operations. In the West, the Allies had been forced from the beginning of the war into the defensive, and had then carefully examined the Luftwaffe's use of airpower in 1939 and 1940 and concluded, quite correctly, that a strong air force would be the key to victory in World War II. The Soviet Union, which had lost most of its air force in the German attacks of 1941, came to similar conclusions, even though it laid no stress upon development of a strategic air force. Thus, in the West and the East the Allies concentrated upon building and establishing strong and modern air arms, which they were able to do because of their vast economic and industrial potentials and the almost total absence of enemy interference. Hitler, on the other hand, a man who was inordinately "Army minded," failed to attach the proper significance to the employment of airpower, and neglected to inaugurate far-reaching policies with respect to the conduct of aerial warfare. The High Command likewise failed to establish the required air armament program at a sufficiently early date, and to provide for a powerful air defense system.

Probably what was demonstrated more than anything else in the war is that it is impossible in the long run for a small European nation, even with captured resources at its disposal, to presume to offer continuous effective resistance to the combined strength of two continents. Two huge countries, with their industrial areas intact, and with a virtually untouched aircraft and armament industry, could arm themselves at top speed. Germany, which had neglected the very things which might have helped to offset these advantages, was therefore unable to match the strength disparity which was bound to set it.

Many Germans, taking note of the scientific developments in their country, hoped that these would turn the tables in their favor. The remarkable increase in fighter production, despite heavy Allied bombings, the

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\*Goering surrendered soon after to American forces.

continuation and vast improvement in the air armament program, and the development of the Vergeltungs (V or retaliation) weapons, tended to strengthen these hopes, which were in any case more akin to wishful thinking than to reality. Actually, these tremendous efforts late in the war only pointed up more emphatically the extent to which Germany had neglected long-range planning in its air armament program and in the conduct of aerial warfare. Moreover, the use made of jet aircraft and V-weapons indicated that the German High Command continued to think in tactical rather than in strategic terms.

In the closing months of World War II there was no way by which the Luftwaffe could alter the overall situation. It had lost its air superiority in 1943, and since then had found itself increasingly on the defensive. Its few attempts to carry out strategic operations during the war had been spasmodic and ineffective, and from the second year of the war in the East, German air units had become simply "fire brigades" for the ground forces. They were thus bound to a mission comparable to that of the Red Air Force, which had surpassed the Luftwaffe in strength and was rapidly gaining in efficiency of operation. Eventually, the Luftwaffe could not even carry out its support missions satisfactorily, and tied to the Army, it was unable to become a really determining force. Its fortunes then fell with those of the ground forces, whose complete defeat decided the fate of the Wehrmacht in the East.

## FOOTNOTES

## Chapter 1

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## APPENDIX I

## BIOGRAPHICAL SECTION

Generalleutnant Karl Angerstein

Born in 1890; entered Inf. Regt. No. 87, September 1911; transferred, 2 June 1914, to Flying Corps; served in fighter, bomber units during World War I; served in Air Police units in Prussia, Saxony, 1919-1933; 1934, headed Air Office, Air Administrative Area V in Munich as Major of Police. Transferred, 1935, to Luftwaffe; associated with bomber, dive-bomber forces; awarded Knight's Cross, 1940; 15 June 1943, took command of 1st Air Corps. Later, Luftwaffe Liaison Officer with the Army and Judge on National Military Court. Survived the war.

Marshal of the Soviet Union Ivan K. Bagramyan

Born in Armenia in 1897; volunteered for war service, 1917, and fought on Turkish front; 1918-1920, fought in Red Army in Civil War; General by 1940; 1941, Deputy Chief, Southwestern Front in Battle of Kiev; served later under Timoshenko and Budenny; 1944, Commander, First Baltic Front (Army Group) in Orel, White Russian, East Prussian campaigns. After World War II repressed resistance and opposition groups in Baltic States. Member Latvian Communist Party, 1954; Marshal of Soviet Union, 1955, and Hero, USSR; dubbed by colleagues a strict, rude, unpopular commander.

Field Marshal Ernst Busch

World War I officer; served in 1920's and 30's in Reichswehr. Commanded Sixteenth Army in the West, October 1939-end of March 1941, moving with Sixteenth Army to the East at the end of May. October 1943, relinquished command of Sixteenth Army, assumed command of Army Group Center. Took command of German Forces in the North (Western Front), 15 April 1944. Long suffering from a heart ailment, died in British custody in 1945.

Generaladmiral Rolf Carls

Served with distinction in German Imperial Navy during World War I. By 1936 was Admiral of the Fleet, serving in 1936 and 1937 in Spanish waters. On 1 November 1938 took command of Naval Station Baltic. Assumed command, 21 September 1940, of Naval Command North, which he held until 1 March 1943. Generaladmiral, 19 July 1940. Killed in April 1945 in an Allied air attack on Germany.



General der Flieger Paul Deichmann

Infantry officer and aerial observer, World War I; later Reichswehr officer. Transferred, 1934, to Reichs Air Ministry as technical advisor. Chief of Staff, II Air Corps in the West and in Russia, World War II. August 1942-June 1943, Chief of Staff, Wehrmacht Command South under Field Marshal Kesselring. Subsequently held other important Luftwaffe posts, including command of IV Air Administrative Command (Austria). Recipient of the Knight's Cross. Lent invaluable assistance to USAF Historical Division's GAF Monograph Project in Karlsruhe and to the Fuehrungsakademie of the Bundeswehr. In 1964, he became the first foreigner to receive the Air University Award.

Generaloberst Otto Dessoch

A senior officer, born in Posen, 1889; entered military service, 1910. Commissioned before World War I, and served as pilot and observer throughout the war. Served in the Reichswehr between wars, taking flying training in Russia in 1926 when flying was forbidden in Germany. Generalmajor, 1939, and Commander, Air Division 6. In invasion of Russia commanded I Flak Corps in the East; later served as Commander of Fourth and Sixth Air Fleets. Promoted to Generaloberst, 1 March 1944. Won the Knight's Cross. Survived the war.

Generaloberst Eduard Dietl

In the Bavarian Army in World War I, remaining in service in the new Reichswehr after 1918. Active in the formation of the German Mountain Troop organization. In 1941, after a successful campaign around Narvik, took command of XIX Mountain Corps in northern Norway and Finland. January 1942, assumed command of German Army Command Lapland; June 1942, of the Twentieth Mountain Army. Killed in an air accident, 25 June 1944.

General der Infanterie Waldemar Erfurth

One of the senior German Army officers. Born in 1879; entered Prussian Army in 1897; appointed in 1911 to the Great General Staff, in which he served during World War I. Served in the Reichswehr after the war, became a General by 1927, and retired in 1931 as Generalleutnant of Infantry. Recalled, 1935, and assigned to the Army General Staff; 12 June 1941-11 September 1944, served as German General attached to the Finnish Supreme Command. An officer with great tact and diplomacy, he ended his career as General for Special Assignments with the German High Command.

Generaloberst Nikolaus von Falkenhorst

World War I veteran. Commanded XXI Army Group in Norwegian Campaign, 1940. In April 1941 assumed command of Army Command Norway in Norway and Finland. January 1942, Commander of all Wehrmacht Forces in Norway, a post he held until December 1944. Sentenced to death by a joint British-Norwegian court after World War II, his sentence was commuted to life, then to ten years, and on 23 July 1953 was remitted.

Generalmajor Sigismund Freiherr von Falkenstein

Born in 1903, he enlisted 1 October 1922 in Cavalry Regiment 11 in Erfurt; commissioned in 1925. Took flying, communications training, 1930-33. Transferred, 1933, to Inspectorate of Flying Schools of the Luftwaffe. After additional training, became, 1 October 1936, Chief of a Group of the 3rd Branch, Luftwaffe General Staff. In 1938 commanded the 8th Group, 355th Bomber Wing, and in 1939, the 1st Group, 27th Bomber Wing. On 25 February became Chief of Staff, X Air Corps, and on 6 January 1944, of Air Fleet Reich. He ended his service career as Commander, 3rd Air Division.

General der Infanterie Friedrich Fangohr

A Prussian, born in 1893, he entered the Service in 1916 and served throughout World War I. Served in the Reichswehr, becoming a Captain by 1933. On 10 September 1939 became Operations Officer, 13th Division, and by 1 June 1942 had become Chief of Staff, Fourth Panzer Army. On 15 June 1944 he was transferred to the Fuehrer Reserve. Later served with Army Group North Ukraine, and as Commanding General, 122nd Infantry Division. In 1945 was Commandant of the OKW Liaison Staff at Eisenhower's Headquarters. A strong personality, "with a perceptive view," who was "unshaken in crises."

General der Flieger Martin Fiebig

Trained in the Soviet Union in the late 1920's when flying was proscribed in Germany. A specialist in close support operations. Commanded Air Division 1, and the VIII Air Corps, succeeding von Richthofen. He then bore the heavy responsibility of trying to support Army Group Don and supply the Sixth Army at Stalingrad. December 1942, awarded Oak Leaf to his Knight's Cross. Later led II Air Corps, and ended his wartime service as Commander in Chief of Luftwaffe Command Northeast.

General der Flieger Veit Fischer

Born in Landshut, Bavaria, in 1890, he began his career in 1909 and served in World War I. Between wars he served in the Reichswehr, and took part in flying activities during the time when these were banned by the Versailles Treaty. By 1936 he was a Colonel in the new Luftwaffe, and by 1939, Generalmajor. Talented staff and administrative officer, was in 1941 Chief of Staff for Special Assignments, Air Administrative Area Command 2, and in 1942 Commander of Air Administrative Command, Moscow. Assumed command, 1943, of Field Air Administrative Area Headquarters XXVIII, and at the end of the war was in the Sixth Air Fleet Reserve. He survived the war.

Generalmajor Robert Fuchs

Born in 1895 in Berlin-Reinickendorf; entered Uhlán Regt. No. 1, 6 August 1914, as a war volunteer; commissioned, 7 August 1915. Commanded machine-gun company in the war and remained in the Reichswehr after 1918. In 1926 began flying training and course work for engineering degree. Transferred, 1933, as engineer to the Luftwaffe Technical Office, Testing Branch, Reichs Air Ministry. Commander of the 3rd Group, 153rd Bomber Wing in 1936, he served with the K/88 Group of "Legion Condor" in Spain until 15 August 1937; assumed command of Fighter Wing 26, 29 September 1939 and transferred to the Third Air Fleet Command in 1940. Later was Commander, Fighter Regt. 33, Commanding General of the 22nd Luftwaffe Field Division, and finally Commander of the 1st Air Division.

General der Artillerie Maximilian Fretter-Pico

Born in Karlsruhe in 1892; entered the military service in 1910 and was commissioned 27 January 1912. He served in General Staff and command positions during World War I. Between wars served in the Reichswehr Ministry and in artillery commands. In 1939 served as Chief of Staff, XXIV Corps; April 1941, took command of the 97th Infantry Division. In 1942 he commanded the XXX Corps; General der Artillerie, 1 June 1942. Assumed command of the Sixth Army, 18 August 1944. Mackensen called him "a very good commanding general, swift in decision, clear and sure in his orders, an optimist." Suffered hearing trouble late in the war, was cured and returned to duty as an outstanding commander. Recipient of the Knight's Cross with Oak Leaf and German Cross in Gold.

Reichsmarschall Hermann Wilhelm Goering

Credited with 20 aerial victories in World War I; last Commander of the famous Fighter Wing "Freiherr von Richthofen" No. 1. After the war promoted aviation ventures in Germany and Sweden, avidly supporting the Nazi Party. Wounded and fled to Sweden after Hitler's abortive 1923 "Putsch" in Munich; returned to the Reich and soon became a leading political figure. Commander in Chief of the Luftwaffe; promoted, 1938, to Field Marshal. July 1940, became the only Reichsmarschall in Germany. Removed from his post, 23 April 1945, and only escaped his Fuehrer's wrath by the intervention of his own troops. Tried and sentenced at Nuremberg; took his own life 15 October 1946.

Field Marshal Robert Ritter von Greim

World War I flyer who won 28 aerial victories and received a hereditary title from the King of Bavaria. Helped organize Chiang Kai-shek's Chinese Air Force in the 1920's, and organized the German Commercial Pilots' School in Wuerzburg. Reentered the Service, 1934, as a Major in command of Fighter Wing "Richthofen." In 1939, commanded Air Division 5; 1940-43, commanded the V Air Corps. July 1943, Commander of Luftwaffe Command East (later redesignated Sixth Air Fleet). Field Marshal, 25 April 1945; given Goering's post as Commander in Chief of the (then almost nonexistent) Luftwaffe. Knight's Cross winner. Took his own life in 1945 shortly after his capture by American forces.

Generaloberst Josef Harpe

Harpe had World War I and Reichswehr service, later specializing in armored warfare. In 1935, commanded 3rd Panzer Regiment; by 1 September 1939 was on the staff of the 1st Panzer Brigade, which he commanded later that year. Assumed command, October 1940, of 12th Panzer Division; January 1942, of XXXXI Panzer Corps. Became Commander, 4 November 1943, of the Ninth Army; May 1944, of the Fourth Panzer Army; and August 1944, of Army Group North Ukraine. September 1944, took command of Army Group "A," until transferred 17 January 1945 to the Fuehrer Reserve. Model described him as "an outstanding, well-proven commanding general, . . . equal to any situation."

Obergruppenfuehrer und Generaloberst der Waffen SS Paul Hausser

A veteran of World War I, he remained in the Army during the 1920's, and by 1927 had risen to Colonel in the 10th Saxon Infantry Regiment. In the early 1930's left the Reichswehr and joined the SS.

By 1936, as a Brigadefuehrer, commanded the SS Verfuegungsdivision (later called "Das Reich"). During 1943 commanded the II SS Panzer Corps in the battle for Kharkov and in Combat Zone South. Subsequently commanded the Seventh Army, Army Group Upper Rhine, and Army Group "C." Hausser, the recipient of the Knight's Cross with Oak Leaf and Swords, was an outstanding exception to the rule that SS officers were better politicians than soldiers.

Generaloberst Alexander Holle

Enlisted, November 1915, in Infantry Regiment No. 13, and served in World War I. Later served in the 100,000-Man Army in the 16th Infantry Regiment. Attended the War Academy, 1931. April 1934, assigned to the Luftwaffe; by March 1938 had command of the 1st Group, 3rd Dive-Bomber Wing "Immelmann." January 1940, Chief of Staff, IV Air Corps. Served thereafter as Commander, 26th Bomber Wing; Chief of Staff, Air Commander North (East); Chief of the Luftwaffe Staff in Greece; Commander, X Air Corps, Fourth Air Fleet, and Luftwaffe Command West. From December 1944 until the war's end, Holle commanded the German Luftwaffe (IV Air Corps) in Denmark.

Generaloberst Karl Hollidt

Born, 1891, in Speyer, he entered the Service in 1909 and served during World War I and between wars as an infantry officer. By 1938 he was a Generalmajor. September 1939, commanded the 52nd Infantry Division, and later was Chief of Staff, V Corps; Commander in Chief, East, Ninth Army; and Commander of the 50th Division. In 1942, commanded the XVII Corps and Army Force Hollidt. March 1943, took command of the Sixth Army, then went to the Fuehrer Reserve until 1945, when he was recalled for service with Reichsleiter Bormann as Representative of the Gauleiter of Rhineland-Westphalia. Manstein called him a "solid personality, in whom one could place confidence."

Generaloberst Hermann Hoth

A World War I veteran who participated in the Polish and Western campaigns early in World War II, and on 22 June 1941 commanded the Third Panzer Army in Russia. October 1941, assumed command of Seventeenth Army; June 1942, took charge of the Fourth Panzer Army (Eastern Front). November 1943, Commander of German Forces Erzgebirge (Ore Mountains) in Bohemia. Tried in Nuremberg and sentenced to 15 years' imprisonment at Landsberg.

Generaloberst Erwin Jaenecke

A World War I veteran who served after 1918 in the Reichswehr. By 1939 a Generalmajor. Then served in various staff positions until 1 February 1942, when he took command of the 389th Infantry Division. In November he assumed command of the IV Corps; 1 April 1943, of the LXXXVI Corps; and 3 June, of the Seventh Army, which he commanded until sent to the Fuehrer Reserve, 1 May 1944. A letter to Hitler, describing Germany's adverse position, led to his discharge from the Army in January 1945. General Schoerner noted in 1944, "For a long time now he [Jaenecke] has not had the necessary faith that he could successfully accomplish his difficult tasks."

Generaloberst Hans Jeschonnek

Served in World War I; between wars, served in the Reichswehr and promoted aviation groups. September 1933, transferred to the Luftwaffe as a Captain. By February 1939 had become Chief of the Luftwaffe General Staff. Although a protégé of General Wever, Jeschonnek remained basically an opponent of strategic airpower. Differed at times with Goering, and sometimes even with Hitler, whom he considered to be a genius. His appointment as Chief of the Luftwaffe General Staff represents the first clear break with the older traditions of the Reichswehr. The circumstances surrounding his suicide, 19 August 1943, provide an interesting insight into command and policy problems in the Luftwaffe.

Generaloberst Alfred Jodl

Born in 1890 and served in World War I in the artillery. Remained in Bavarian artillery units in the Reichswehr until 1929, when he began to carry out staff assignments. A Generalmajor, 1 April 1939, he became Chief of the Wehrmacht Operations Staff, 19 July 1940, a position he held until the war's end. Generaloberst, 30 January 1944. He was tried in the OKW trials in Nuremberg and hanged, 16 October 1946.

General der Flieger Josef Kammhuber

Born in 1896 in Upper Bavaria, he began his military career in 1914 and served in World War I. Following the war, served until 1929 as an infantry officer, then transferring to the flying service. May to September 1930, took special training in Russia when flying was outlawed in Germany by the Versailles Treaty. In 1931 again took flying training

in Russia, and in 1933 transferred to the Luftwaffe. Rising rapidly, he was Chief of Staff, 2nd Air Wing by 1939; in 1940, Commander of the 51st Bomber Wing, and in July, of the 1st Bomber Wing. July 1940, took command of the 1st Night Fighter Division; 15 September 1943, of all night fighters; and January 1944, of the Fifth Air Fleet. At the war's end commanded all jet units. Recipient of the Knight's Cross. General der Flieger, 30 January 1943. Served after World War II as the first Commander (Inspector) of the West German Air Force, retiring in 1962.

Field Marshal Wilhelm Keitel

Service prior to and during World War I; remained in service in the new Reichswehr. By September 1939, had risen to the post of Chief of the High Command of the Wehrmacht, an office he held until the end of World War II. Hitler found him useful chiefly because he could rely upon him to be a "Yes man," and one who might help to keep the old Reichswehr officers in line; held in low esteem by many of the professional officer corps. Tried and convicted in the OKW trials at Nuremberg, and executed on 16 October 1946.

Generaloberst Alfred Keller

Won the highest decorations during World War I as Commander of Bomber Wing I, and was an "old eagle," having flown before 1914. Advanced civil aviation enterprises in the 1920's; in 1934 returned to the Army as a Major. March 1935, transferred to the Luftwaffe; March 1939, took command of the IV Air Corps; and from 22 June 1941 to 28 July 1943 commanded the First Air Fleet in Russia. Thereafter until the war's end, served as Corps Leader of the National Socialist Flying Corps (NSFK). Survived the war.

General der Panzertruppe Franz Werner Kempf

Born in Koenigsberg in 1886, Kempf began his military career before World War I; served in that war and in the Reichswehr in the 1920's and 1930's. September 1939, commanded Panzer Division Kempf; in November, the 6th Panzer Division; January 1941, the XXXXVIII Corps; and on 20 February 1943, assumed command of Army Force Kempf, which he led until 14 August, when he was retired from active service. Winner of the Knight's Cross with Oak Leaf. Manstein described him as a better corps commander than an army commander.

Field Marshal Ewald von Kleist

Member of a famous Prussian family, 31 of whom had won the coveted Pour le Mérite. Served in World War I; transferred from cavalry forces to armored units after the war. Retired, 28 February 1938. Recalled as Commander of the XXII Army Corps, 1 September 1939. Served in the West and in the Balkans in armored units. Took part in the invasion of Russia at the head of the 1st Panzer Group; November 1942, assumed command of Army Group "A" (East), with which he served until March 1944. Kleist was delivered to Tito's government in 1946 by the Americans, and in 1948 to the Soviet Union, where he is reported to have died in a Russian prison.

Field Marshal Guenther von Kluge

Mountain artillery officer, World War I. Between wars served in the Reichswehr. Commanded the Fourth Army in Poland, in the West, and along the German-Soviet border. December 1941, Commander of Army Group Center, which post he held until his transfer in October 1943 to the Fuehrer Reserve. From July 1944 to August 1944, commanded Army Groups "B" and "D" in the West. An avowed enemy of Hitler, he participated in the 20 July 1944 plot. Summoned to appear in Berlin, obviously for Gestapo interrogation, von Kluge took poison on 19 August 1944.

General der Flieger Karl Koller

Born in 1898 in Bavaria, he entered the Bavarian Army in 1914 and served throughout World War I, part of the time in the flying service. Left the service in 1919 and served in Bavarian State Police (air units). Transferred in 1935 to Luftwaffe; by 1938 was Chief of Operations Branch, Luftwaffe Group 3; and in January 1941 became Chief of Staff, Third Air Fleet. September 1943, became Chief of Luftwaffe Operations Staff. Promoted 1 August 1944 to General der Flieger, he became on 27 November 1944 Chief of the General Staff of the Luftwaffe, which position he held until the war's end. Survived the war.

Marshal of the Soviet Union Ivan Koniev

Born in 1897 in Kirov area of peasant stock, he worked in revolutionary activities from 1914 through World War I, helping to suppress anti-Red peasants in 1918, and was Commissar of Armored Train No. 102 during the Civil War. After attending various military schools and holding important posts, he commanded, December 1941, the Kalinin



Front and helped throw back German forces before Moscow. From the summer of 1942 to the spring of 1943, commanded army forces in Velikiye Luki and Rzhev areas, halted German drives across the Don in 1943, and led counterattacks in 1943 at Kharkov and Belgorod. February 1944, commanded Second Ukrainian Front; participated in the drive to the Oder at Breslau, and to Torgau on the Elbe, where he met U. S. forces. In 1955, commanded armed forces of Warsaw Pact States. A great favorite of Stalin and twice Hero of the Soviet Union.

Generaloberst Guenther Korten

Served in the First World War. By 1939 was one of the leading personalities in the Luftwaffe. September and October 1939, served as Chief of Staff of the Fourth Air Fleet in Poland; early 1940 to July 1940, Chief of the General Staff of the Third Air Fleet (West); April 1941, Chief of the General Staff of the Fourth Air Fleet (Balkans), later in Russia. From July 1942, he held the commands of the I Air Corps, Air Force Command Don, First Air Fleet; August 1943, became Chief of the General Staff, Luftwaffe, a post he held until 22 July 1944. Seriously wounded in Count von Stauffenberg's bomb attempt on Hitler's life, July 1944, and died two days later.

General der Flieger Werner Kreipe

A Hanoverian, born in 1904, who entered the military service in December 1925. One of the youngest of World War II generals. Took part in Hitler's "Putsch" of 1923. Temporarily released from the Army in 1930 for flying training in Bavaria. Transferred in October 1934 to the Luftwaffe as a Captain; began climb through staffs of Reichs Air Ministry and Luftwaffe General Staff. Liaison officer, 1936, to Italian Air Force; 1937, to Belgian Air Force; visited Britain with State Secretary Milch. Commanded 2nd Bomber Wing in France, 1940. November 1941, became Chief of Staff, 1st Air Corps; 24 April 1942, of Air Command Don; July 1943, of Commander of Training. On 1 August 1944 became Chief of Staff of the Luftwaffe; 5 December became Commandant of Air War College, Berlin. After World War II served with Federal Ministry of Traffic, Bonn.

Field Marshal Georg von Kuechler

Served in World War I and in the Reichswehr, and held various administrative posts until World War II. Commanded Third Army in Poland, Eighteenth Army in the West; directed the Eighteenth Army in the invasion of the Soviet Union in 1941. January 1942 until January 1944,

Commander of Army Group North. Sentenced to 20 years' imprisonment at Nuremberg; freed, February 1955.

Colonel Dr. Ernst Kuehl

Born in Breslau in 1888; served in artillery in World War I. Active in flying between wars. Transferred in 1935 as reserve officer to Luftwaffe. Squadron officer and Operations Officer, 55th Bomber Wing in Poland, France, Battle of Britain, 1939-1941; Commander, II Group, 55th Bomber Wing, spring 1941; Commander, 55th Bomber Wing, September 1942; Commander Air Command Norwegian Sea, September 1943; February 1944, took command of 3rd Air Division; June-July 1944, with 4th Air Brigade, experimenting with strategic operations (He-177's); August 1944, Air Commander Trondheim; January 1945, Commander, 5th Air Division (Narvik area). Surrendered to British at war's end.

Colonel (Reserve) Dr. Ernst Kupfer

Born on 2 July 1907, he was one of the younger generation of senior officers of the Luftwaffe in 1942-43. Winner of the Knight's Cross with Oak Leaf. He was killed in action on 6 November 1943 while commanding Fighter-Bomber Forces (East).

General der Gebirgstruppe Hubert Lanz

Born in 1896 in Wuerttemberg, Lanz served in the cavalry during World War I and in the Reichswehr between the wars. At the outbreak of World War II he was Chief of Staff, V Corps. February 1940, became Chief of Staff, XVIII Corps, and in October, Commander, 1st Mountain Division. On 3 February 1943 took command of Army Group Lanz; on 25 June 1943, of Army Group "A" (during commander's leave); and on 25 August, XXII Mountain Corps. Recipient of the Knight's Cross with Oak Leaf. Generaloberst Ruoff describes him as, "Clever, swift, and brave officer."

Generaloberst Georg Lindemann

World War I veteran and of the 100,000-Man Army. After holding numerous important staff and command positions, on 19 January 1942 assumed command of the Eighteenth Army and Army Group North (Eastern Front), which position he held until 3 July 1944. January 1945 until the end of World War II was Commander in Chief of the Wehrmacht in Denmark (renamed 6 May 1945 as Army Force Lindemann).

Generaloberst Eberhard von Mackensen

Born in Bromberg in 1889, son of the famous German Field Marshal August von Mackensen. A veteran of service before and during World War I. In the first year of World War II he became Chief of Staff of the Twelfth Army. On 15 January 1941 assumed command of the III Corps, and on 21 November 1942 took command of the First Panzer Army. Generaloberst, 6 July 1943; November 1943, Commander of the Fourteenth Army in northern Italy until 5 June 1944. Sentenced to death by a British court in 1947, then to life, and on 2 October 1952 was freed.

General der Flieger Alfred Mahnke

With service dating back to 1908, he was one of the "old eagles," having flown prior to 1914. Served in World War I as a flyer, and in the air arm of the Prussian State Police after 1918. Transferred, 1935, to the Luftwaffe in grade of Colonel. Mainly connected with Air Administrative Commands during World War II, he assumed command on 3 November 1942 of the Fourth Air Fleet in Russia, and on 15 February 1943 of Air Division Donets. Later served in the Air Administrative Command South, and with the Luftwaffe Reception Staff North. General der Flieger, 1 September 1943. Survived the war.

Field Marshal Carl Gustav Freiherr Mannerheim

Finnish statesman and military leader. One of the top cavalry officers in the Russian Imperial Army prior to and during World War I, and was a member of the Imperial War Council. December 1917, left the Czar's service and took command of the Finnish Army of Liberation; joined by German units, drove the Russians from Finnish soil. Doctor of Philosophy; made substantial contributions in the field of geography. Commander in Chief of Finnish Armed Forces during Russo-Finnish War of 1939-40 and World War II. Later, President of Finland.

Field Marshal Fritz Erich von Manstein

Served in World War I. Chief of Staff, Army Group South (von Rundstedt), 1939; September 1941, assumed command of the Eleventh Army in the East; November 1942, Commander, Army Group Don, and February 1943, of Army Group South. Rated by many as the best strategist in the German Army during World War II. On 30 March 1944, following a final disagreement with the Fuehrer, Manstein resigned. His Verlorene Siege (Lost Victories) is one of the best military histories of German operations in World War II.

General der Panzertruppe Hasso von Manteuffel

One of the most highly decorated German ground force officers in World War II. Born in 1897 in Brandenburg. Served in World War I and the Reichswehr. After 1941 he was, generally, on the Eastern Front. Earned an enviable reputation as commander of panzer and panzer grenadier units. Took command on 13 July 1942 of the 7th Panzer Grenadier Brigade, and on 20 August of the 7th Panzer Division. Also commanded Panzer Grenadier Division "Gross Deutschland," 20 January to 4 September 1944, when he took command of the Fifth Panzer Army. March 1945, became Commander, Third Panzer Army. Winner of the Knight's Cross with Oak Leaf, Swords, and Diamonds. Generaloberst Reinhardt called him, "A most outstanding command personality in every respect, and a brave soldier." Survived the war.

General der Flieger Rudolf Meister

Aerial observer during World War I; served in Field Flying Detachment 420 of the Free Corps (Freikorps) after the war. Trained in the Soviet Union in military aviation, 1928-1930. Served with various schools and in the General Staff of the Luftwaffe. December 1939, Chief of the General Staff, I Air Corps; October 1940, Chief of Staff of the VIII Air Corps; September 1943, Commander, IV Air Corps. Became Commander of Luftwaffe Forces in Denmark, October 1944, and finished his service as Chief of the Luftwaffe Personnel Office.

Field Marshal Erhard Milch

Served during World War I as a member of Fighter Group 6. After the war, left the service and entered private aviation business. February 1933, appointed State Secretary of Aviation with rank of Colonel in the Luftwaffe. Field Marshal, July 1940. A competent technical officer with great talent in this field, and a person of boundless energy. Until his dismissal by Hitler over the use of jet aircraft, was the number two man in the German Air Force. Survived the war and lives in retirement.

Field Marshal Walter Model

Served in World War I and in the Reichswehr. September 1939, Chief of Staff, IV Corps; October 1939, Chief of Staff of the Sixteenth Army; November 1939, commanded the 3rd Panzer Division; October 1941, commanded XXXXI Corps; January 1942, the Ninth Army (with the Second Panzer Army as well as of July 1942); January 1944, commanded Army Group North in Russia; March 1944, Army Group North Ukraine;

and June 1944, Army Group Center. Holder of Knight's Cross with Oak Leaf, Swords, and Diamonds. An ardent Nazi. August 1944 until end of the war, Commander, Army Groups "B" and "D" in the West.

Generalleutnant Andreas Nielsen

A veteran of World War I and Reichswehr service; participated in the Hitler "Putsch" in Munich, November 1923; 1928, went to Russia for flight training; 1939, to Spain as a bomber group commander in "Legion Condor." October 1940, became Chief of Staff, Fifth Air Fleet (Norway and Finland); December 1943, German Luftwaffe Commander Denmark. May 1944, Chief of Staff, Air Fleet Reich; assisted in demobilization of Luftwaffe in northern Germany, 1945. After two years of British imprisonment, was released and became one of the principal contributors to the USAF Historical Division's GAF Monograph Project. Died in April 1957.

General der Flakartillerie Paul Pavel

Flak officer with broad experience in the South, Southeast, and the East. Commanded the 2nd Battalion, 3rd Flak Regiment, at Weimar in 1938, and went into the war with that unit. Later commanded Flak regiments and brigades, including in 1943 command of X Flak Brigade of the 12th Flak Division. January 1944 to May 1945, commanded 19th Flak Division.

General der Flieger Kurt Plflugbeil

World War I flyer; in the Reichswehr in 1920. March 1928, went to Russia to receive bombing training. Early 1930's, served in Germany and Italy; 1935, officially transferred to the Luftwaffe. August 1939, Commander of the VIII Air Corps; January to August 1940, directed the Air Administrative Command which served Luftwaffe units in France and Belgium. Thereafter, until September 1943, commanded the IV Air Corps, much of which time he served in the East. Completed his service as Commander, First Air Fleet. Died May 1955.

Generalleutnant Wolfgang Pickert

Served on both Eastern and Western Fronts during World War I; with the Reichswehr after 1918. Held various command and staff positions during 1920's and early 30's. Joined the Flak Artillery arm of the Luftwaffe, 1935, and by 1937 was Inspector of Flak Forces of the Reichs Air Ministry. From 1939 to April 1940, commanded Rhine-Ruhr Air

Defense District. In French Campaign was Chief of Staff, I Flak Corps. Served as Chief of Staff, Air Fleet Reich, until May 1942, when he took command of the 9th Flak Division (Stalingrad, Kuban Bridgehead, Crimea). Commander, III Flak Corps (Normandy, Ardennes, Rhine), 1944; Commanding General of Flak Forces, Luftwaffe High Command, March 1945; and in April was present at capitulation negotiations of Army Group Italy. Winner of Knight's Cross, Pickert contributed after the war to the USAF Historical Division's GAF Monograph Project.

Generalleutnant Hermann Plocher

See "About the Author" in the front section of this study.

General of the Red Army Markian M. Popov

Veteran of Red Army service during the Civil War, and in the Russo-Finnish War of 1939-40. Commanded rifle division at the outbreak of war with Germany, 1941. Commander of the Bryansk Front after the summer of 1943 in collaboration with Sokolovski's Western Front, leading to the capture of Orel and Bryansk. In 1944-45 fought in White Russian and East Prussian operations. Later served with Ministry of Defense in Moscow. Member of the Supreme Soviet, 1954.

Generaloberst Erhard Raus

Born in 1889; entered the Army in 1905; served during World War I and later in the 100,000-Man Army. In 1939, Chief of Staff and Deputy Commander, XVII Corps; July 1940, Commander of Infantry Regiment 243; May 1941, Commander, 6th Rifle Brigade; November 1941, Commander, 6th Panzer Division; February to July 1943 in Fuehrer Reserve. In July 1943 took command of the II Corps; 5 November, of the XXXXVII Panzer Corps; 10 December 1943, Commander of Fourth Panzer Army; April 1944, Commander, First Panzer Army (East); and from August 1944 until the war's end commanded the Third Panzer Army (East). Survived the war.

General der Flakartillerie Richard Reimann

Served during the First World War. September 1939, Commander of Flak Regiment 8; commanding officer of the Luftwaffe Flak School, 1940; Commander of the I Flak Corps, 1941; Commander of the 18th Flak Division (Motorized), 1942; early 1943, Inspector of Flak Artillery Forces in the Eastern Theater of Operations. In 1943, again took command of the

I Flak Corps. One of the most talented antiaircraft officers in the Wehrmacht, and winner of the Knight's Cross.

Generaloberst Hans Reinhardt

Service during World War I and the Reichswehr. By October 1941 he had become Commander of the Third Panzer Army, which he led until August 1944. Served until 1 January 1945 as Commander of Army Group Center. January 1945, assumed command of Army Group North, a post he held just two days. Sentenced in 1948 at Nuremberg to 15 years' imprisonment; July 1952, pardoned and released.

Generalmajor Franz Reuss

Born, 1904, in Augsburg. Began his service in the 1920's with the Bavarian State Police; transferred, 1935, to the Army, serving in the cavalry. Attended the War Academy in Berlin, 1936-38; transferred, autumn 1938, to the Luftwaffe; took flying training. In 1939, commanded squadron in Fighter Wing 51; January 1940, assumed command of the 2nd Group, 76th Bomber Wing; wounded in France; August 1940 to February 1941, audited courses at Air War College, Berlin; June 1941, became Operations Officer, IV Air Corps; December 1942, Chief of Staff of the II Luftwaffe Field Corps (East). After September 1943, commanded 4th Air Division until capitulation. Generalmajor, 1 June 1944.

Field Marshal Dr. Ing. Wolfram Freiherr von Richthofen

Cousin of the famous Baron Manfred Richthofen, Wolfram also served in Fighter Wing No. 1 during World War I and scored 8 aerial victories. Served in the Reichswehr; during 1920's earned his doctorate in engineering at Hanover. In Spain with "Legion Condor," which he commanded, 1938-39. Served in Polish and Western Campaigns. June 1941, Commander, VIII Air Corps in the East; July 1942, assumed command of Fourth Air Fleet. In 1943 took command of the Second Air Fleet. Promoted to Field Marshal, February 1943. Once an enemy of dive bombing, but later became a staunch advocate of such operations, which he carried out so effectively in southern Russia. Died of a lingering illness in Austria, July 1945.

Generalleutnant Herbert J. Rieckhoff

World War I veteran, born just before the turn of the century. Active in police air units in the 1920's and early 1930's. Transferred to the Luftwaffe, and by 1939 was Lt. Colonel and Operations Officer of the

Second Air Fleet, Braunschweig; 1940, Commander, 30th Bomber Wing; later, Commander of 2nd Bomber Wing. In 1941 became Chief of Staff, First Air Fleet (Koenigsberg), and served with unit in the East, acting also as air commander. In 1943 became Commander, 3rd Air Division (East) and later student at Air War Academy; Deputy Commander, Air War Academy, Berlin-Gatow, 1944; ended his service as Air Commander, Air Administrative Area V.

Generalmajor Hans-Detlef Herhndt von Rohden

Began his service before World War I, and was trained after the war in General Staff work. In 1935, transferred to the Luftwaffe, serving with the Reichs Air Ministry; 1939, commanded bomber group in Schwerin; later Chief of Staff, IX Air Corps in West. For three months in 1941 was Chief of Staff, First Air Fleet (East); 1942, Chief of the General Staff, Fourth Air Fleet. He served in 1943 as instructor in the Air War Academy, and in 1944-45 as Chief of the 8th (Military Science) Branch of the General Staff of the Luftwaffe. Known afterward for some of his historical contributions to the history of airpower, much of his work was unfinished. Died, 17 December 1952, in the Taunus Mountains.

Generalleutnant Ernst-August Roth

Born in Potsdam in 1898 and served in World War I in the German Imperial Navy, part of the time as a flyer. Remained in the Navy after the war, visiting a number of countries, and was on duty at the Disarmament Conference at Geneva, 1924 to 1927; 1927-28 served aboard the battleship Schlesien; later served with Reichs Air Ministry until his transfer to the Luftwaffe, 1935; September 1939, commanded Coastal Flying Group 106 Norderney; 1940, served in Norwegian Campaign as Air Transport Chief and Commander, Bomber Wing 40; Commander, 40th Bomber Wing in Russia, 1941. Between 1941 and 1944 served as Air Commander Sicily, Air Commander Lofoten Islands, and Air Commander Kirkenes; 1944-45 was Commanding General of the Luftwaffe in Norway. Generalleutnant, January 1945.

Colonel Hans-Ulrich Rudel

A Silesian Pastor's son who began his service in 1936. Commissioned in 1938, he was assigned to a dive-bomber group; strategic reconnaissance pilot in Polish Campaign; also served in the West. On 22 June 1941, again a dive-bomber pilot, he won Germany's highest decorations. Colonel, 1 January 1945. He flew 2,530 combat missions



over the most critical areas of the front, destroyed 519 tanks (enough for an armored corps), numerous fortifications, the 23,500-ton Soviet battleship Marat, and many smaller vessels. In the East, 1941-45, he was wounded five times, losing a leg the last time, but returned to action. Already the recipient of the Knight's Cross with Oak Leaf, Swords, and Diamonds, Hitler devised for him the unique award of the Golden Oak Leaf. Rudel survived the war and went to Argentina, where he works for an aircraft firm.

Generaloberst Richard Ruoff

A Wuerttemberger, born in 1883, his service was continuous from 1903 to 1943. At the outbreak of war in September 1939, commanded the V Corps. On 12 January 1941 assumed command of the Fourth Panzer Army; May 1942, of the Seventeenth Army, which he commanded until transferred for health reasons to the Fuehrer Reserve, 25 June 1943. Generaloberst, 1 April 1942. Held the Knight's Cross.

Admiral Hubert Schmudt

Began his service in the German Imperial Navy, 1908, and served continuously until 1945. August 1939, Chief of Staff, Naval Group Command East and, concurrently, Commander, Naval Forces in Bay of Danzig. April 1940, Commander, Naval Reconnaissance Forces; August 1940, Commander of Cruisers; November 1941, Commander, Naval Command Norwegian Sea in operations against Anglo-American convoys bound for Murmansk and Arkhangelsk and Allied raiding parties striking at German positions in Norway. September 1942, Chief of Naval Ordnance Office; March 1943, Commander, Naval Command Baltic; and June 1944, Special Purposes Officer for the Navy. Won Knight's Cross, 1940.

Generaladmiral Otto Schniewind

Entered German Imperial Navy, 1907; served in both world wars and between wars. October 1938 to June 1941, Chief of Staff of Naval Operations; October 1938 to June 1939, also held post of Chief, Naval Command Office; June 1941 to July 1944, Fleet Admiral, and March 1943 to May 1944, also Commander, Naval Group Command North; August 1944, sent to Fuehrer Reserve, from which he was recalled to active duty in April 1945. Recipient of Knight's Cross. Tried at Nuremberg and freed, October 1948.

Generalleutnant Adalbert Schulz

World War I veteran who remained in the Reichswehr during the 1920's and early 30's. Held various command and staff positions in the Wehrmacht, mainly in armored units. Demonstrated outstanding leadership ability in action, for which he was decorated with the Knight's Cross and the Oak Leaf to that award. Killed in action in 1943 while in command of the 7th Panzer Division.

General der Flieger Hans Seidemann

Barely missed World War I service, having entered the Cadet School before the end of the war. Later served in infantry units in Potsdam and Munich. Transferred to the Luftwaffe, 1935; served in the General Staff. From 1 December 1938 to 30 June 1939 was Chief of Staff of "Legion Condor" in Spain; 1939, Chief of Staff, VIII Air Corps; August 1940, Chief of Staff, Second Air Fleet; 1943-44, Air Commander Africa and Commander, Luftwaffe Forces Tunis; 1945, commanded the VIII Air Corps. Knight's Cross winner. Promoted to General der Flieger in March 1945.

Generalleutnant Rainer Staehl

One of the most remarkable ground combat leaders of the war. Born in 1892, he served in World War I, the latter part as commander of a machine-gun company in the Royal Prussian Light Infantry Regiment No. 27, a volunteer unit that helped the Finns achieve their independence from Russia. Enlisted in Finnish Army and by 1933 was Chief of Finnish Defense Forces. Returned to Germany in 1934 as Flak officer in the Luftwaffe; became specialist in "breakout" operations in the East; distinguished himself many times, including at Wilna, Warsaw, and Bucharest; also trouble-shooter in Rome and Sicily during the war. Broadly educated, especially gifted in Scandinavian languages, but was never used in that area during World War II. Won Knight's Cross with Oak Leaf and Swords. Captured by the Russians in 1945, and reported by them to have died just prior to his scheduled release in 1956.

Generalleutnant (Reserve) Hyazinth Count Strachwitz von Gross-Zauche und Camminetz

A Silesian, born in 1893, with service in World War I and the Reichswehr. Fought in Polish and French Campaigns. Received Knight's Cross in Russia, 1941; 1942, received Oak Leaf to this award. January

1943, assumed command of Panzer Regiment "Gross Deutschland." General Hube said of him in 1942, "A spirited person with exceptional leadership ability for a reserve officer." June 1943, General Balck described him as, "A self-confident person, with exemplary character as an officer, industrious, with much initiative, generous, outstandingly brave, and with a clear view for operational possibilities." Late 1944, suffered pulmonary embolism, was in critical condition, but recovered and returned to action. January 1945, commanded panzer forces, Army Group Center. Survived the war.

Generaloberst Hans-Juergen Stumpff

Military service prior to and during World War I, and a General Staff officer in the Reichswehr. Transferred, 1933, to the Luftwaffe as Chief of the Personnel Office, Reichs Air Ministry. June 1937 to January 1939, Chief of the General Staff of the Luftwaffe. During the first part of 1940, commanded the First Air Fleet. May 1940, Commander, Fifth Air Fleet (Norway and Finland) until November 1943. Later commanded defense units of the Reich until the capitulation.

General der Flieger Bernhard Waber

Born in Austria in 1884, served in World War I, and integrated into the German Luftwaffe, 1938. August 1939 to October 1941, Commander of Air Administrative Area VIII (Polish area); March 1942, promoted to General der Flieger; commanded Air Administrative Command Kiev, 1942-43; 1944, German Luftwaffe Northern Balkans. Court-martialled for having permitted illegal black market and other activities to go on within his command, as well as for personally engaging in large-scale looting and other similar activities, for which he was sentenced and executed by firing squad, 6 February 1945.

General der Artillerie Walter Warlimont

Served in the German Army in World War I and in the Reichswehr. In 1929 was Liaison Officer on duty with the U. S. Army in the United States; 1936, went to Spain at outbreak of Civil War to head up Hitler's assistance program to Franco, which he handled with great skill and dispatch; 1937, held command positions; November 1938, appointed Chief, National Defense Branch, High Command of the Wehrmacht and Deputy Commissioner for the Chief of the Wehrmacht Operations Office; January 1939, became Deputy Chief of the Wehrmacht Operations Staff under Jodl, a position he held until released for health reasons, 6 September 1944.

Said to have been the mind behind the Wehrmacht Operations Staff and the vehicle through whom Jodl reached the ear of Hitler. Sentenced to life imprisonment in the OKW trials at Nuremberg. This was later commuted to 18 years, and remitted in the 1950's.

Marshal of the Soviet Union Andrei I. Yeremenko

Born in 1893 in the Ukraine. Fought in World War I, defecting to revolutionaries later in the war; continued in Red Army Service through the Civil War. In 1941 commanded an army on the Western Front under Zhukov; autumn 1942, Commander in Chief, Stalingrad Front; 1943 (after fall of Stalingrad), commanded the Smolensk Front, and later in year Second Baltic Front; 1944, commanded forces in the Black Sea area; 1945, Commander, Fourth Ukrainian Front, ending war in Czechoslovakia. One of the senior commanders of the Red Army and Minister of Defense, U. S. S. R. in the 1950's. Member of Supreme Soviet, 1946, 1950, 1954.

Generaloberst Kurt Zeitzler

An infantryman, born in 1895, with service from 1914 to 1945. September 1939 was Chief of Staff, XXII Corps and also the First Panzer Army; April 1942, Chief of Staff, Army Group West; September 1942 became Chief of Staff of the German Army, in which capacity he served until his transfer to the Fuehrer Reserve, August 1944. Kleist characterizes him as a "strong personality, with a will of iron and incredible industry." Often out of accord with Hitler, he was discharged from service, 31 January 1945.

General der Panzertruppe Hans v. Zorn

A veteran of World War I service in the Bavarian Army, he served in the Reichswehr between wars. By 1928 he was on the staff of the 7th Bavarian Infantry Division. Rising in staff and command positions, he climaxed his career as Commanding General, XXXXVI Panzer Corps (Eastern Front), in the course of which duty he was killed in action, 2 August 1943. Knight's Cross winner.

## APPENDIX II

## LIST OF GAF MONOGRAPH PROJECT STUDIES

## I. Published

<u>Study No.</u>	<u>Title</u>
153	The German Air Force versus Russia, 1941
154	The German Air Force versus Russia, 1942
155	The German Air Force versus Russia, 1943
163	German Air Force Operations in Support of the Army
167	German Air Force Airlift Operations
173	The German Air Force General Staff
175	The Russian Air Force in the Eyes of German Commanders
176	Russian Reactions to German Air Power
177	Airpower and Russian Partisan Warfare
189	Historical Turning Points in the German Air Force War Effort

## II. To Be Published (in approximately the following order)

174	Command and Leadership in the German Air Force (Goering, Milch, Jeschonnek, Udet, Weber)
161	The German Air Force versus the Allies in the Mediterranean
158	The German Air Force versus the Allies in the West (I)

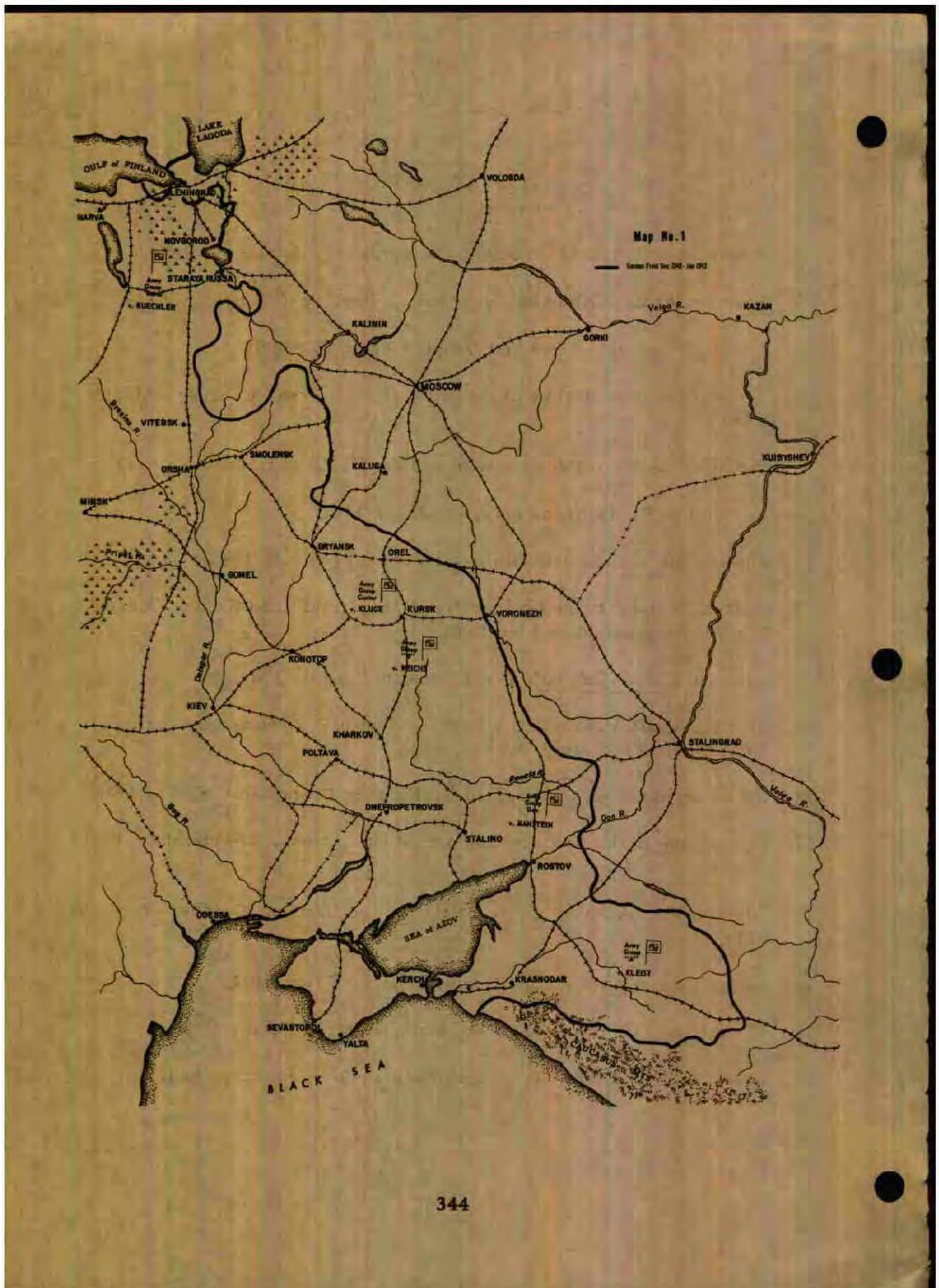
<u>Study No.</u>	<u>Title</u>
159	The German Air Force versus the Allies in the West (2)
178	Problems of Fighting a Three-Front Air War
164	German Air Force Air Defense Operations
185	Effects of Allied Air Attacks on German Air Force Bases and Installations
III. Not To Be Published but Will Be Made Available to Researchers in the Historical Division Archives	
150	The German Air Force in the Spanish War
151	The German Air Force in Poland
152	The German Air Force in France and the Low Countries
156	The Battle of Britain
157	Operation Sea Lion
162	The Battle of Crete
165	German Air Force Air Interdiction Operations
166	German Air Force Counter Air Operations
168	German Air Force Air-Sea Rescue Operations
169	Training in the German Air Force
170	Procurement in the German Air Force
171	Intelligence in the German Air Force
172	German Air Force Medicine

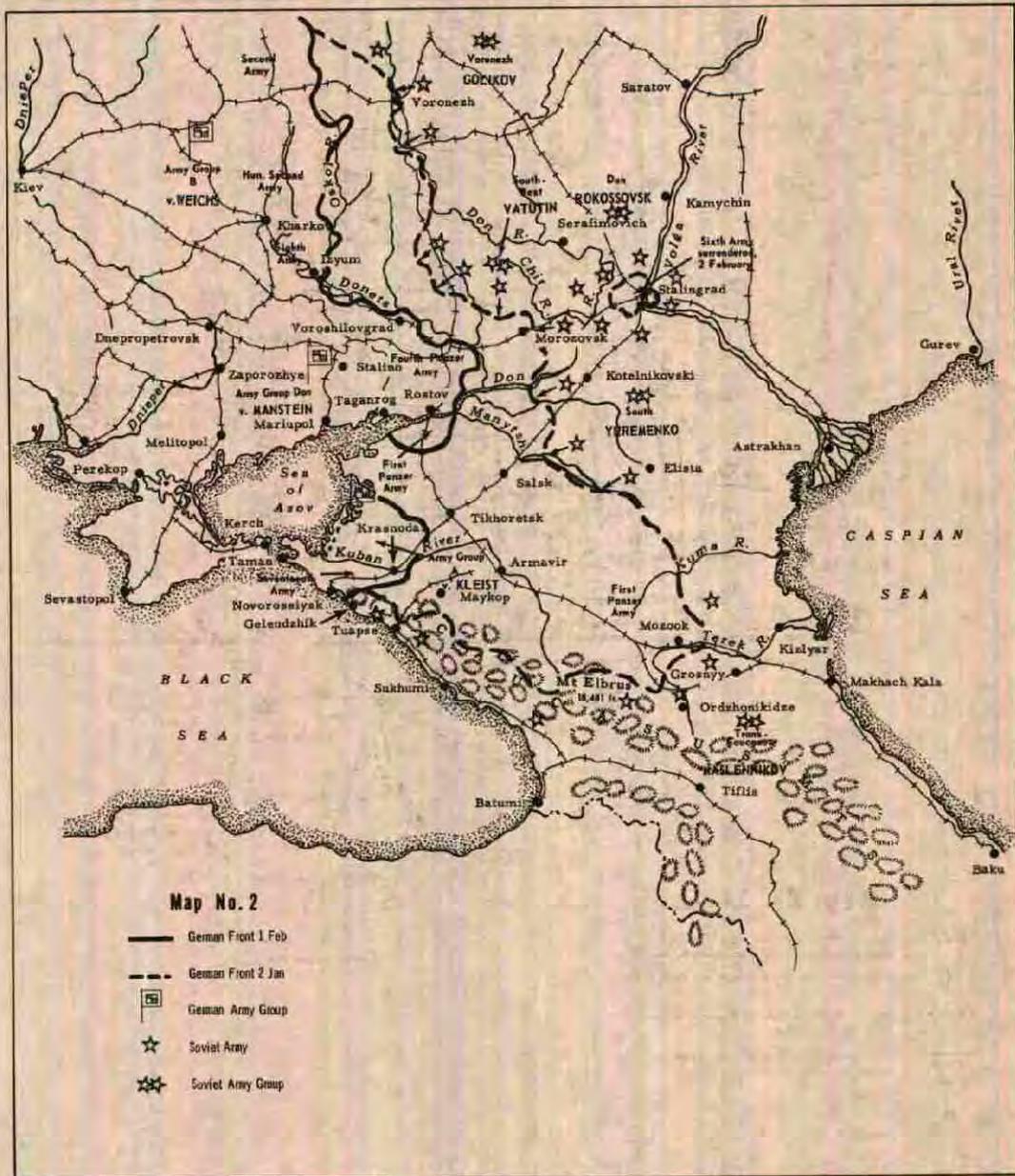
<u>Study No.</u>	<u>Title</u>
179	Problems of Waging a Day and Night Defensive Air War
180	The Problem of the Long-Range Night Intruder Bomber
181	The Problem of Air Superiority in the Battle with Allied Strategic Air Forces
182	Fighter-Bomber Operations in Situations of Air Inferiority
183	Analysis of Specialized Anglo-American Techniques
184	Effects of Allied Air Attacks on German Divisional and Army Organizations on the Battle Fronts
186	The German Air Force System of Target Analysis
187	The German Air Force System of Weapons Selection
188	German Civil Air Defense
190	The Organization of the German Air Force High Command and Higher Echelon Headquarters Within the German Air Force
194	Development of German Antiaircraft Weapons and Equipment up to 1945
Extra Study	The Radio Intercept Service of the German Air Force

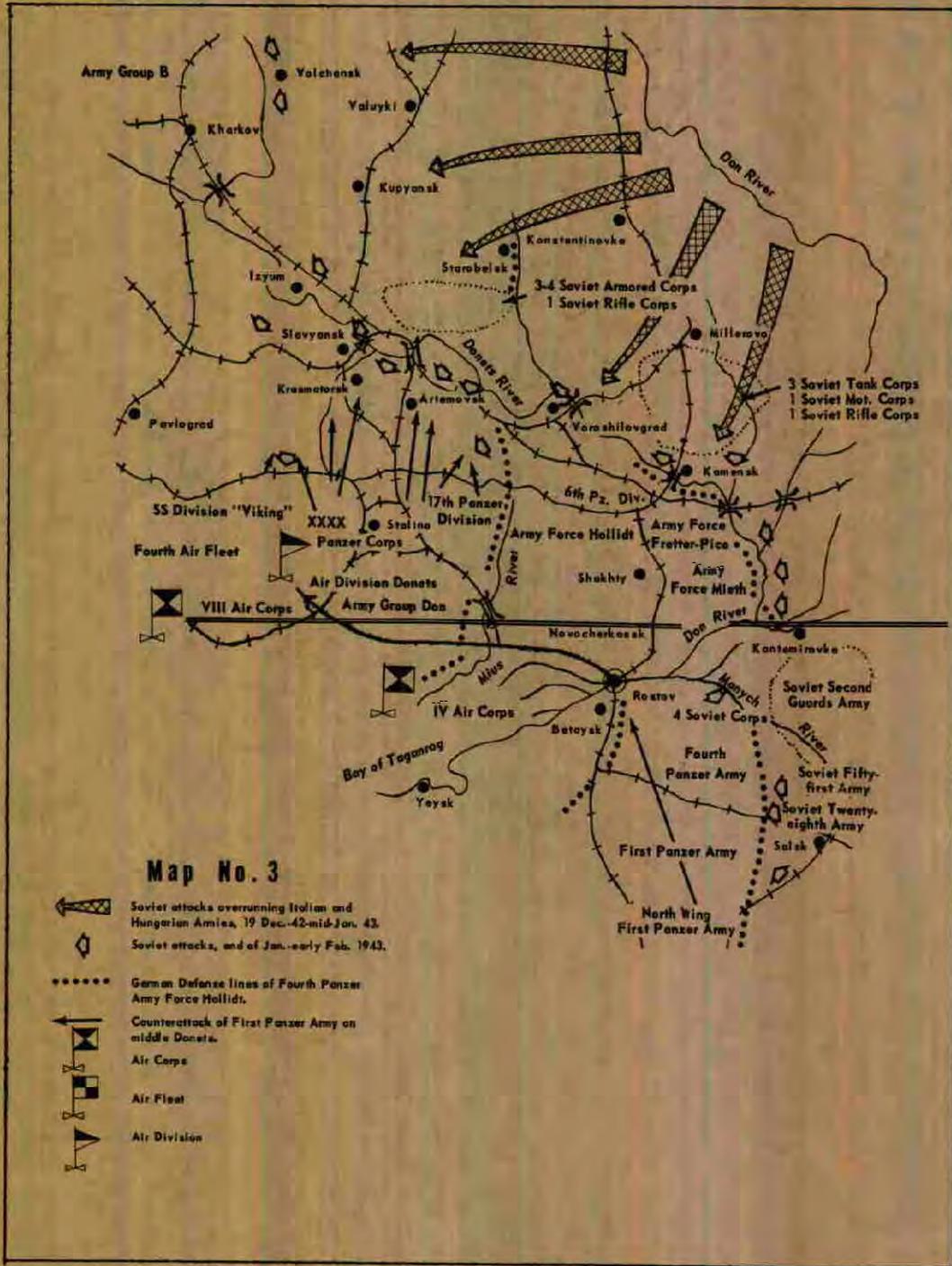
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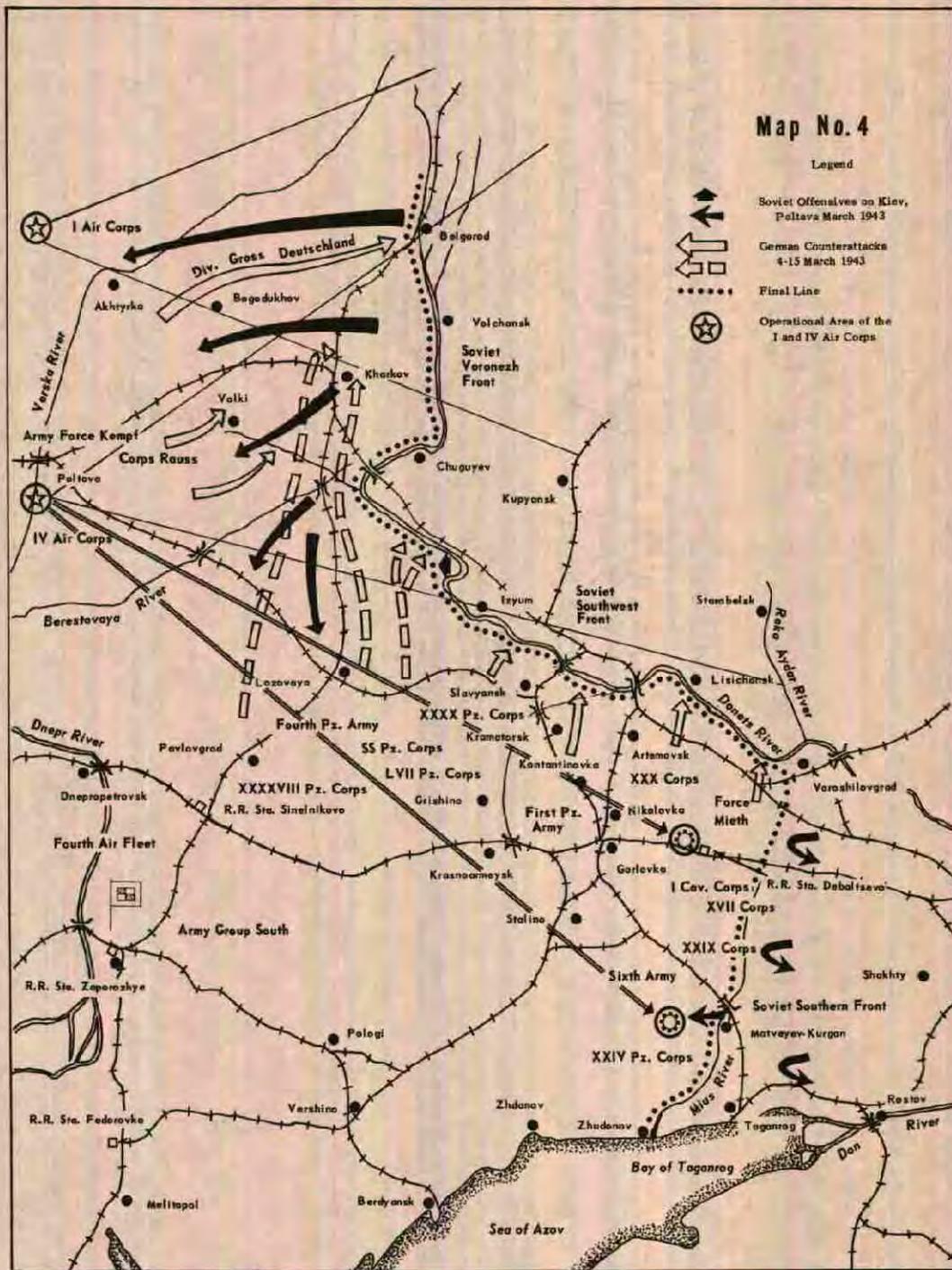
1. Situation on the Russian Front, December 1942-January 1943.
2. Russian Winter Offensive Situation, 2 January-1 February 1943.
3. Crisis Between the Don and Dnepr Rivers, Early 1943.
4. German Counterattacks in the Mius-Donets Area, February-March 1943.
5. Situation Between the Caucasus and the Don River, January 1943.
6. The Kuban Bridgehead, May-8 October 1943.
7. Operations in the Soviet Union, 2 February-4 July 1943.
8. Luftwaffe Operations Against Soviet Industrial and Military Concentration Targets, May-June 1943.
9. Operation ZITADELLE, Final Situation, 5 July 1943.
10. The Luftwaffe Prevents the Envelopment of Two German Armies Near Orel, 19-21 July 1943.
11. Situation in Combat Zone Center, Eastern Front, July-End of 1943.
12. Operations in the Eastern Theater of Operations, 2 September-30 November 1943.
13. Air and Flak Activity in the Battle for the Crimea, October-December 1943.
14. Operations, Combat Zone North, Eastern Front, 1943.
15. Operations, Combat Zone Far North, Eastern Front, 1943.
16. Soviet Winter Offensive, 1 December 1943-14 January 1944.

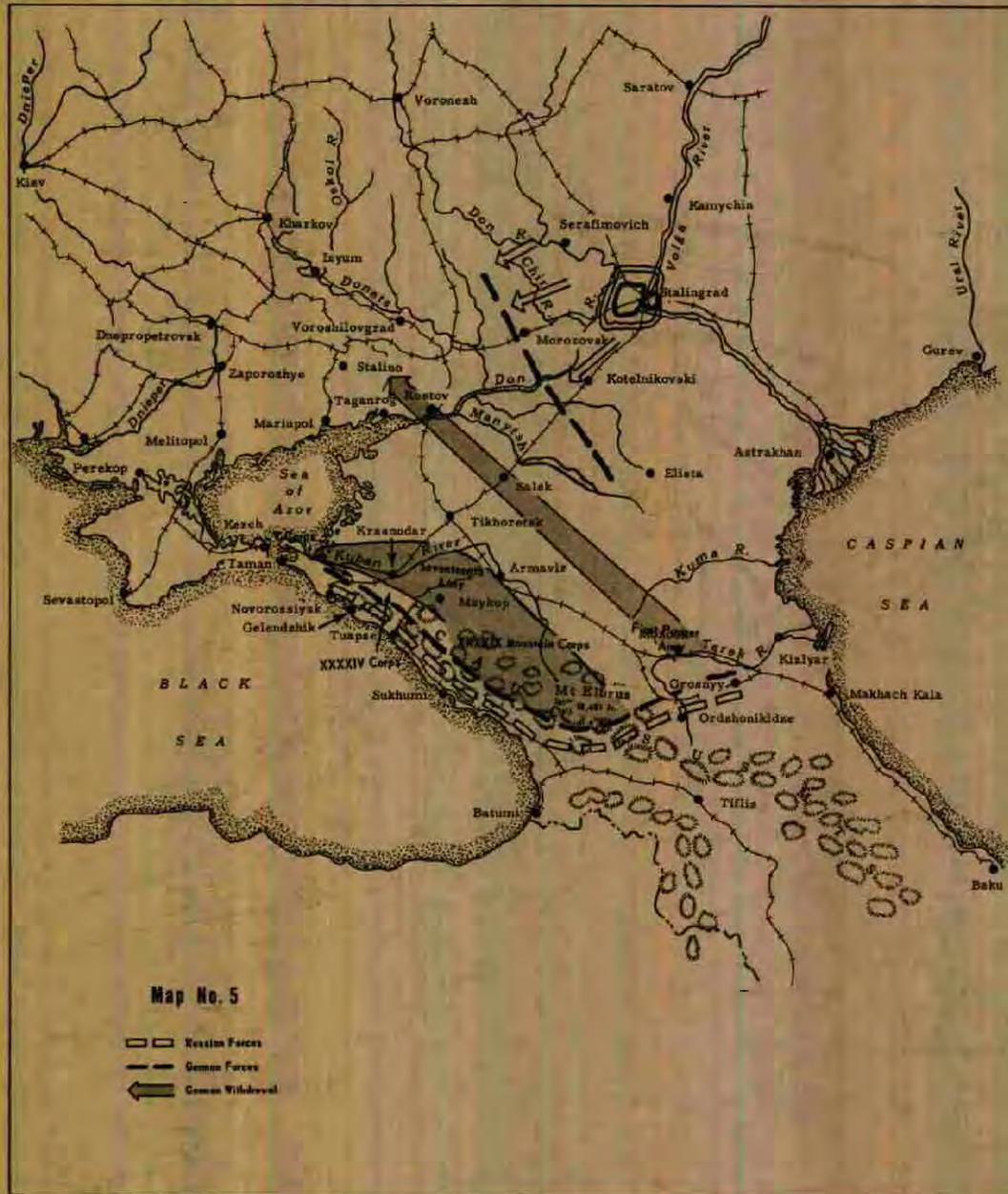




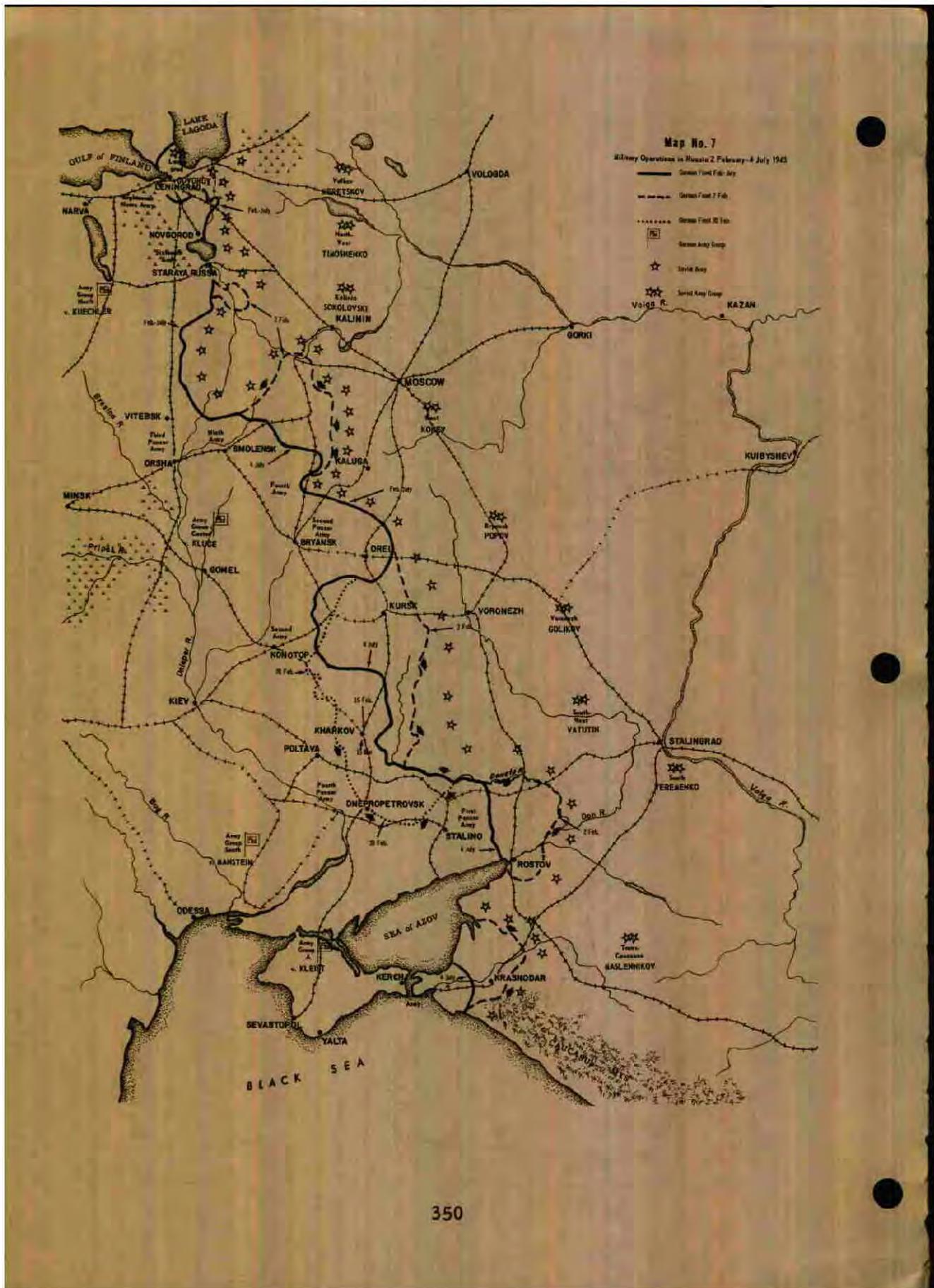


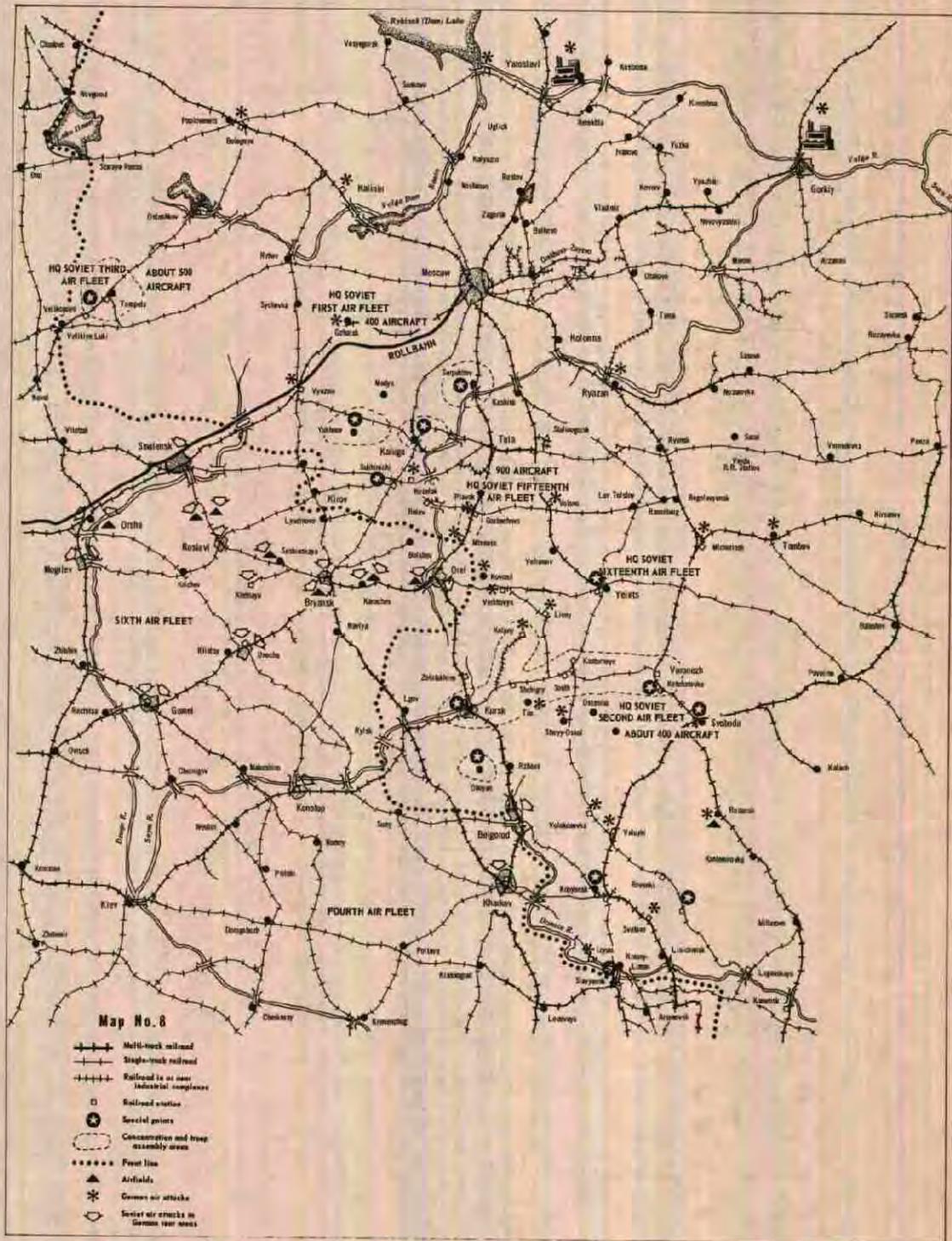




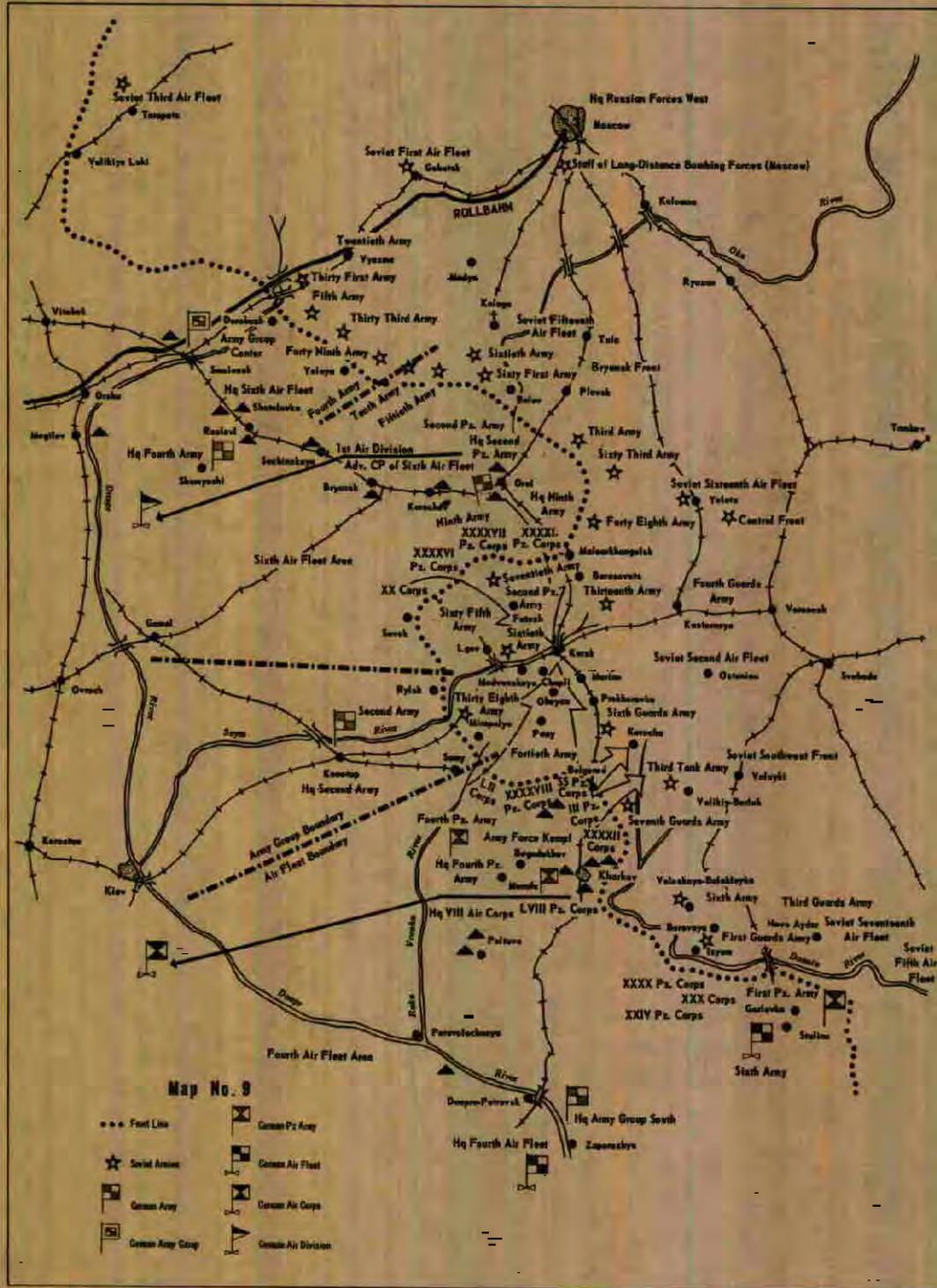


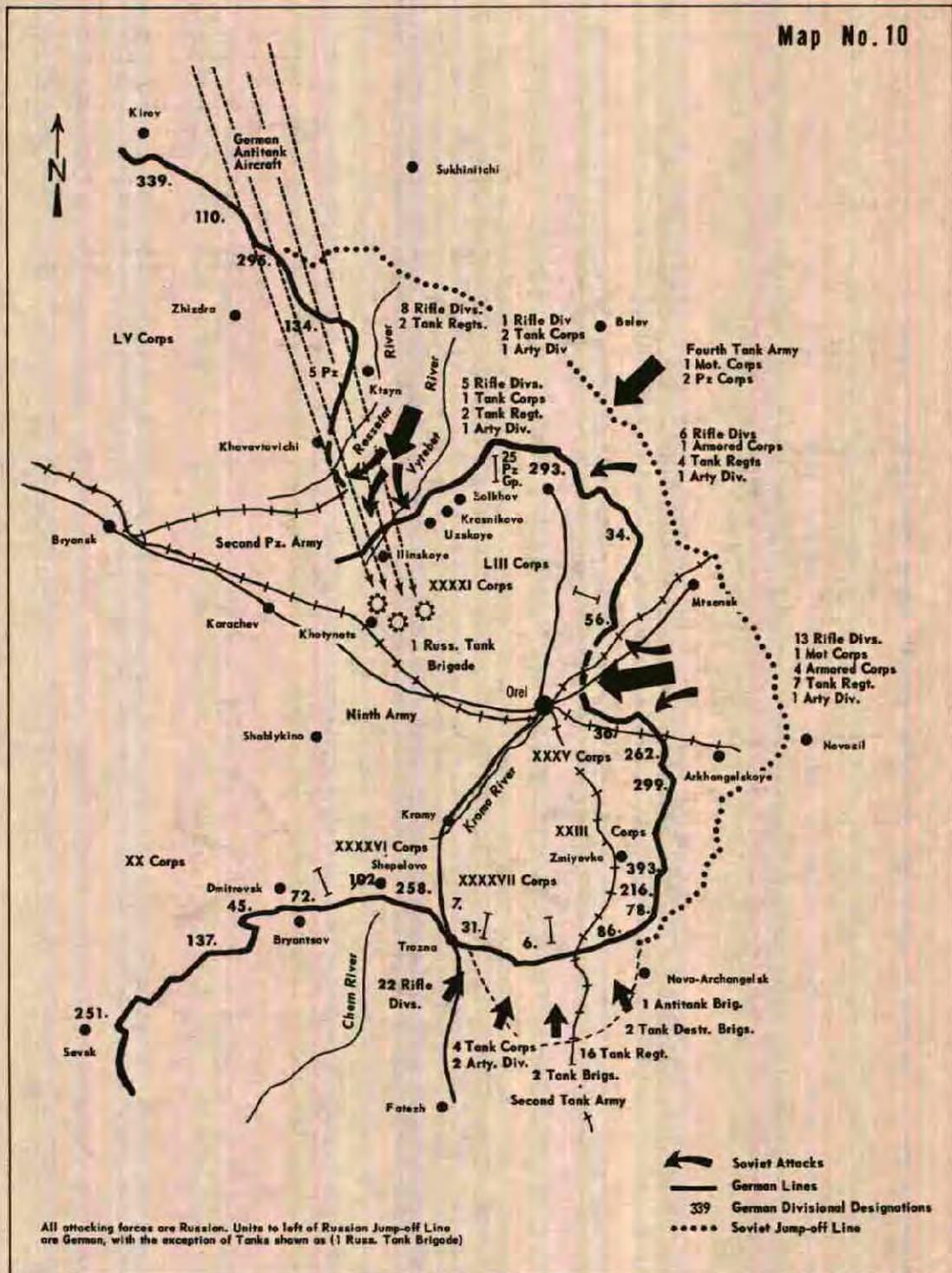








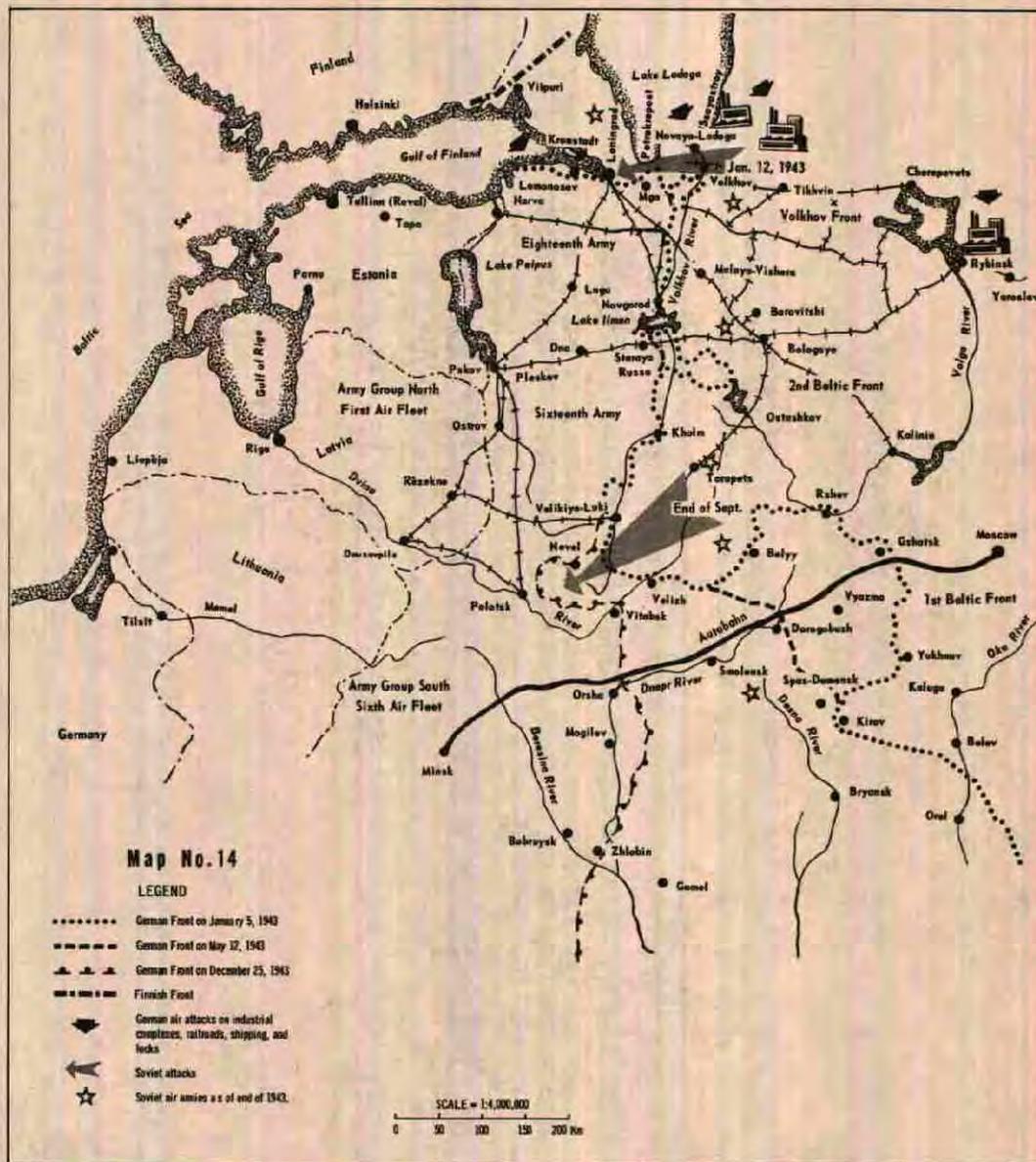




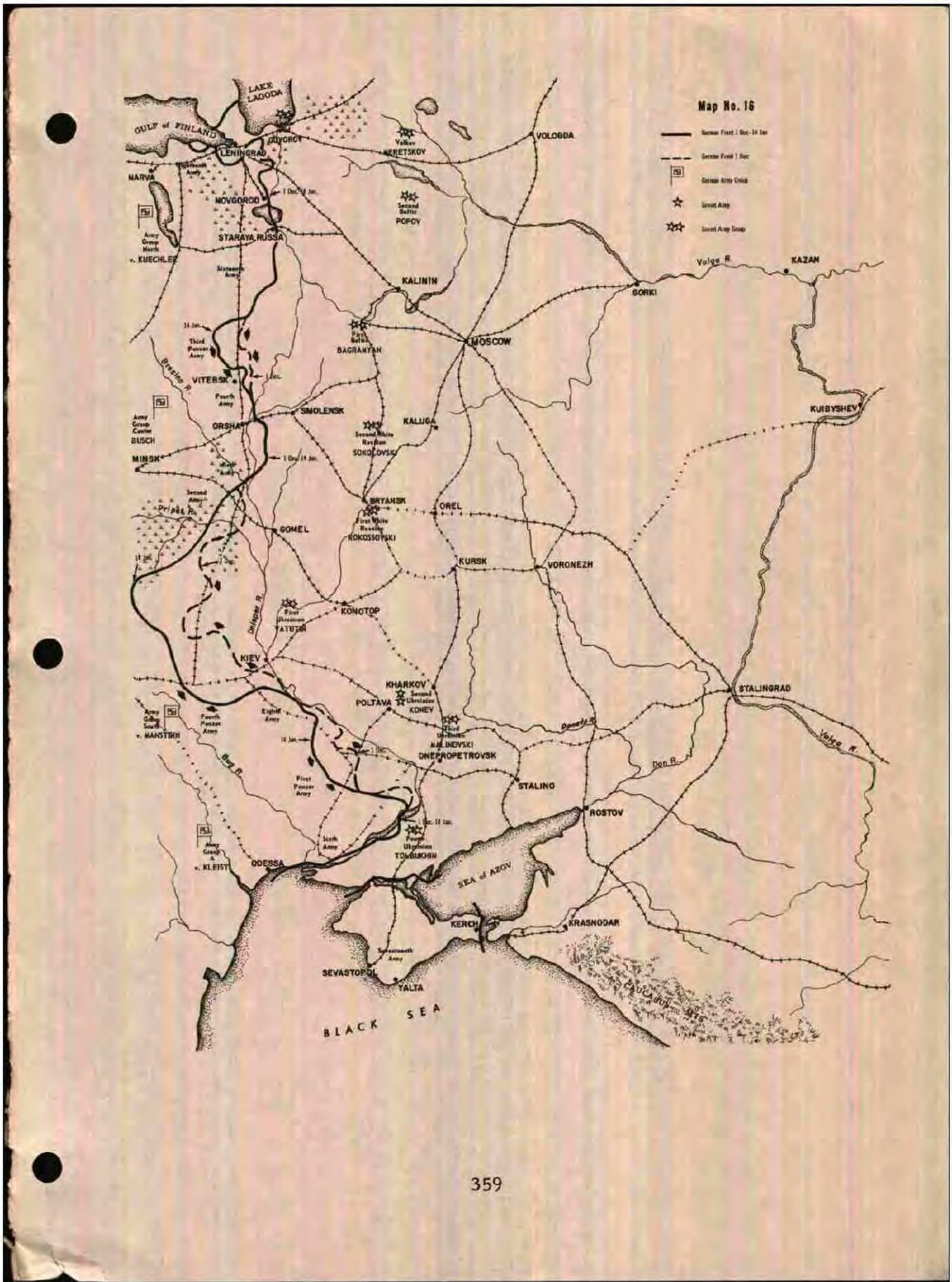








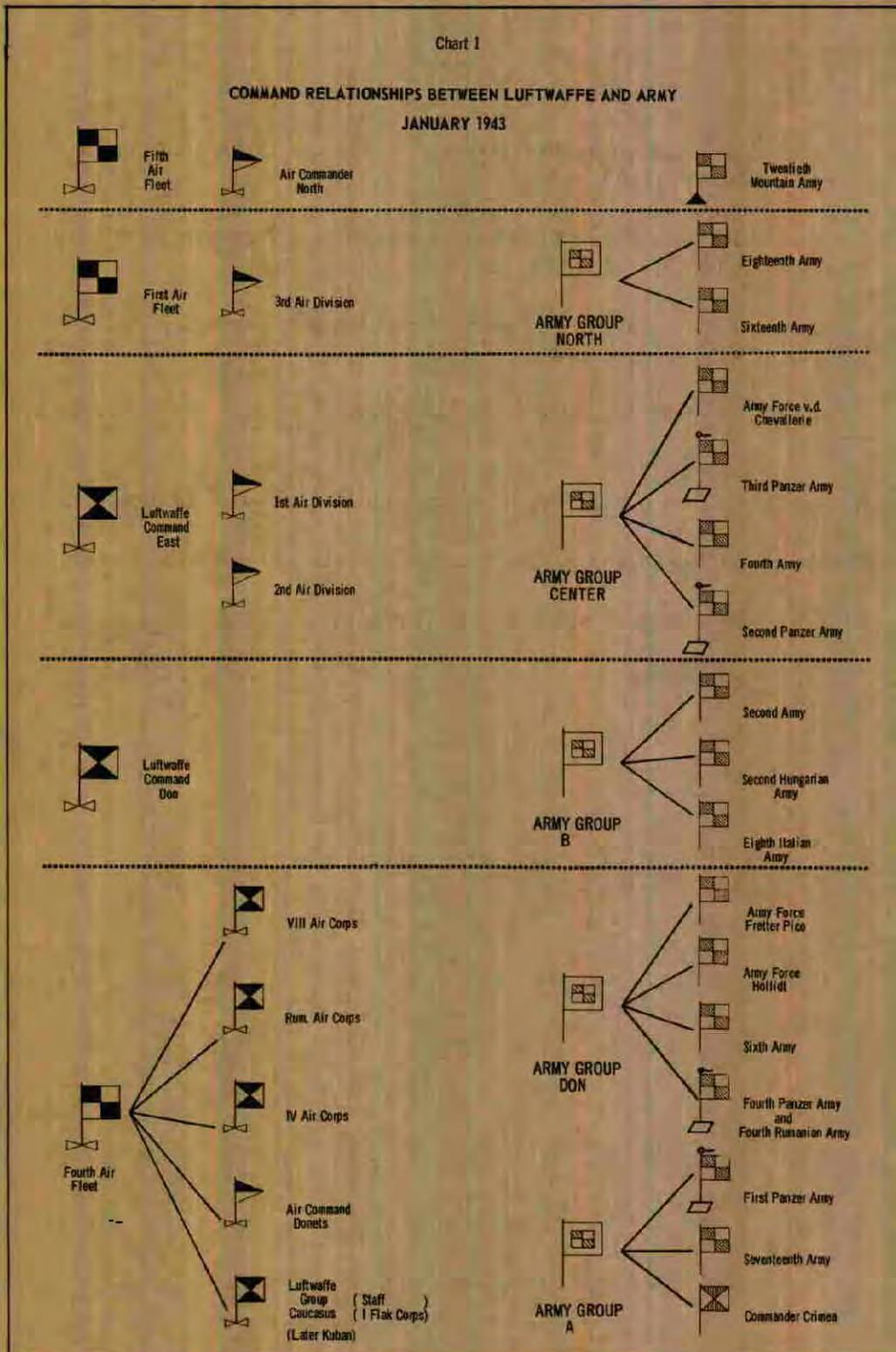


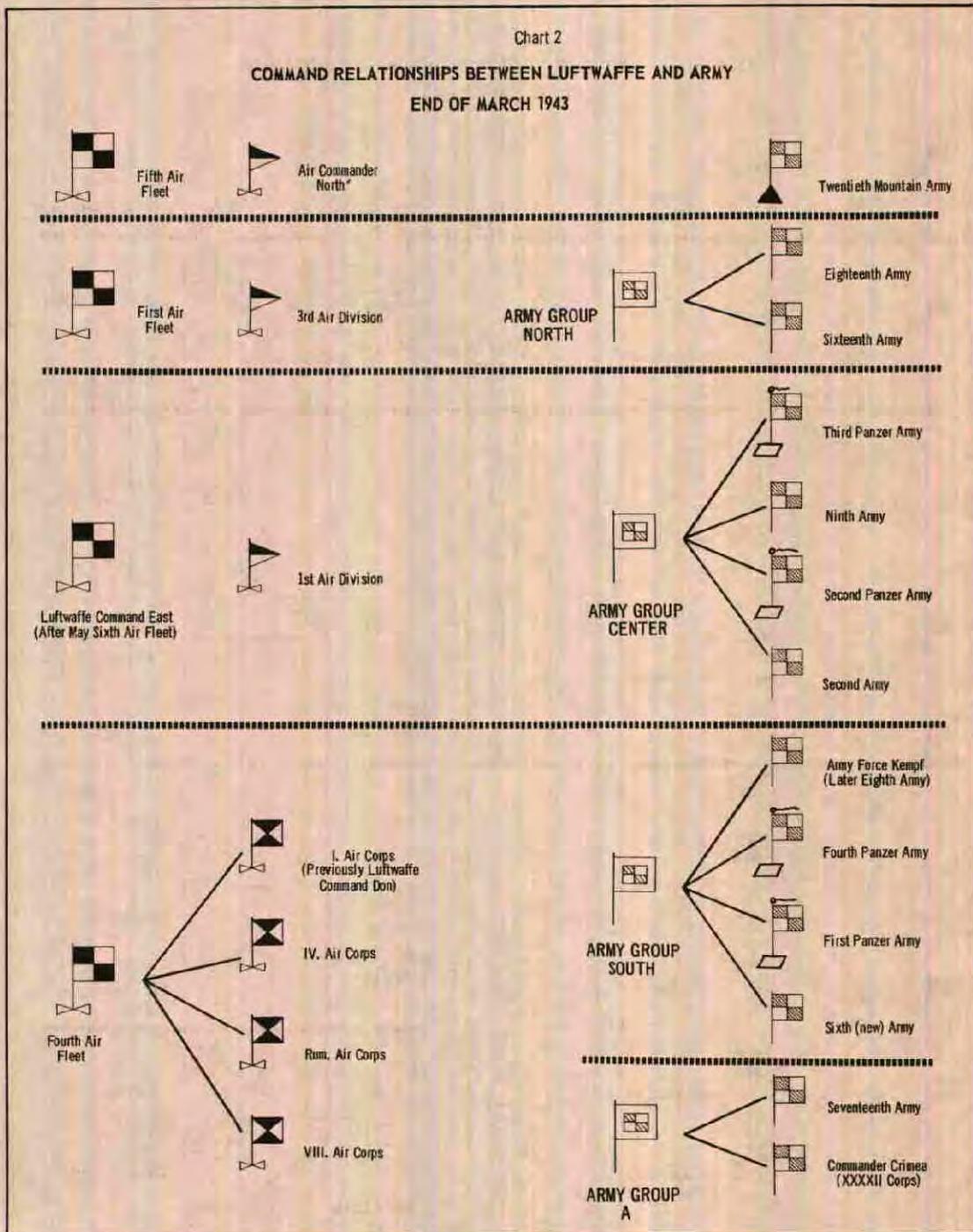


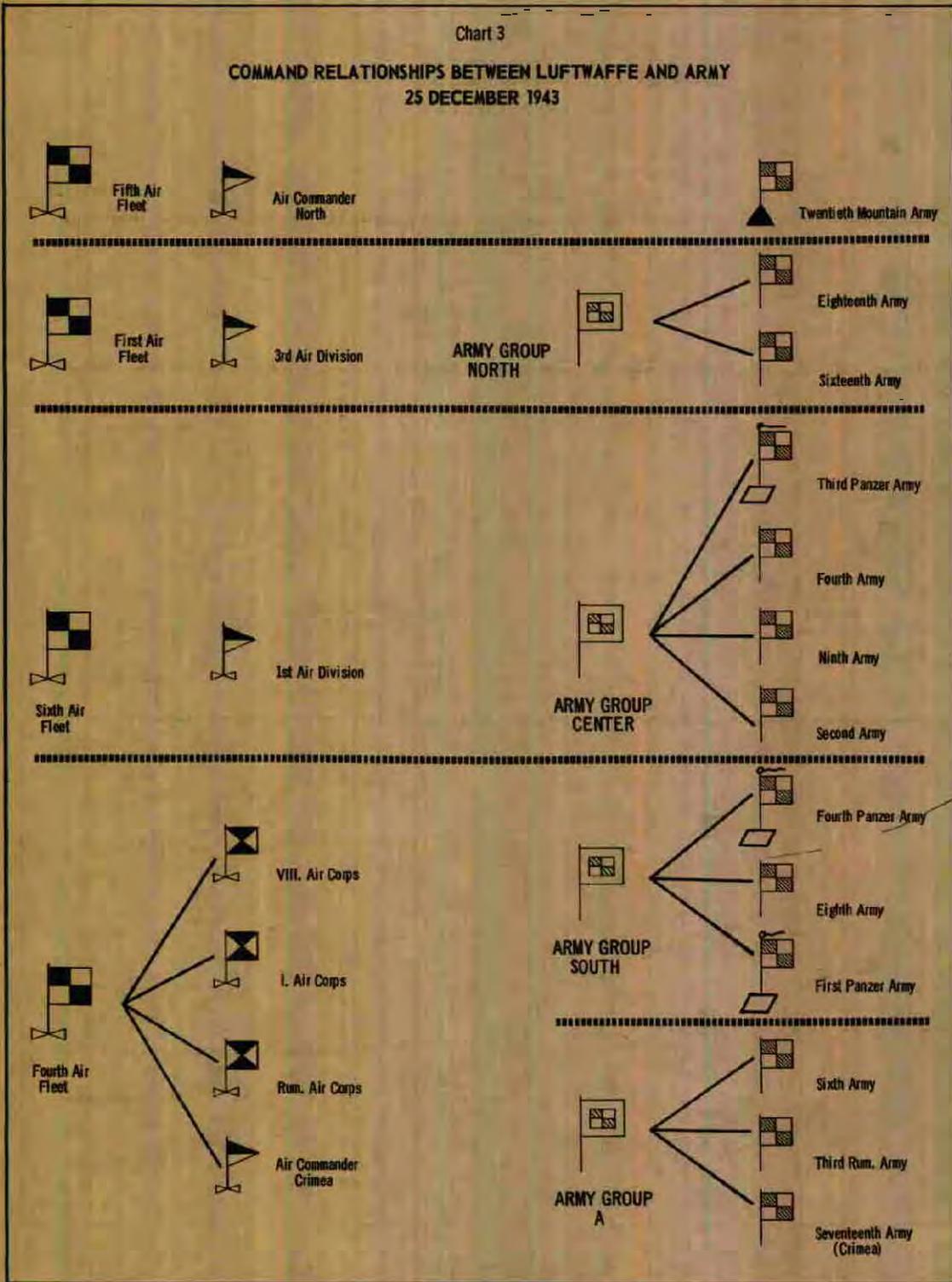


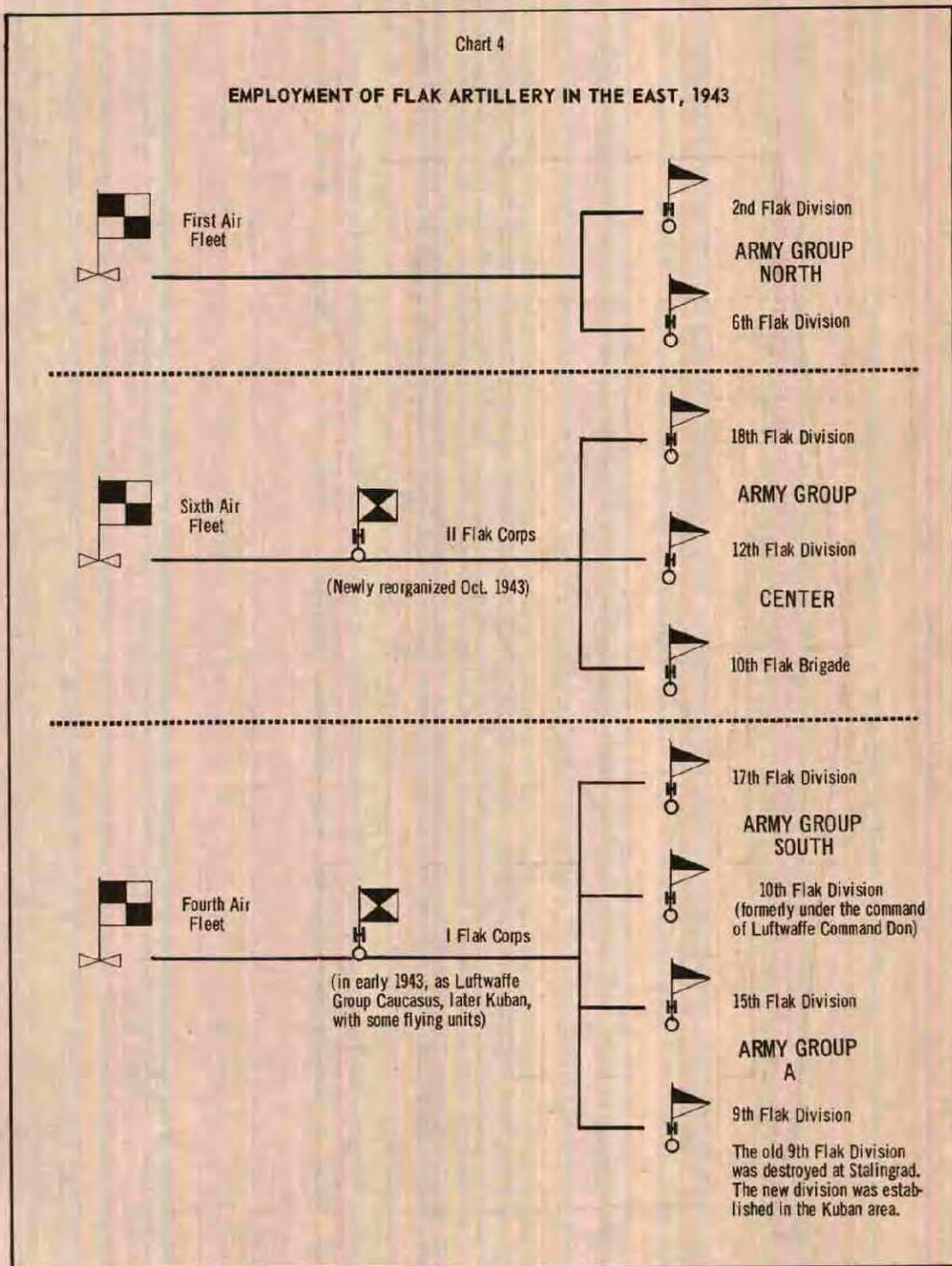
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2. Command Relationships Between Luftwaffe and German Armies in Russia, End of March 1943.
3. Command Relationships Between Luftwaffe and German Armies in Russia, 25 December 1943.
4. Employment of Flak Artillery in the Eastern Theater of Operations, 1943.
5. Recommendation for a New Organization of Luftwaffe Commands.
6. Comparative Strengths of German Air Fleets in the East, 1943.
7. Flying Forces of the Soviet Union, Summer 1943.

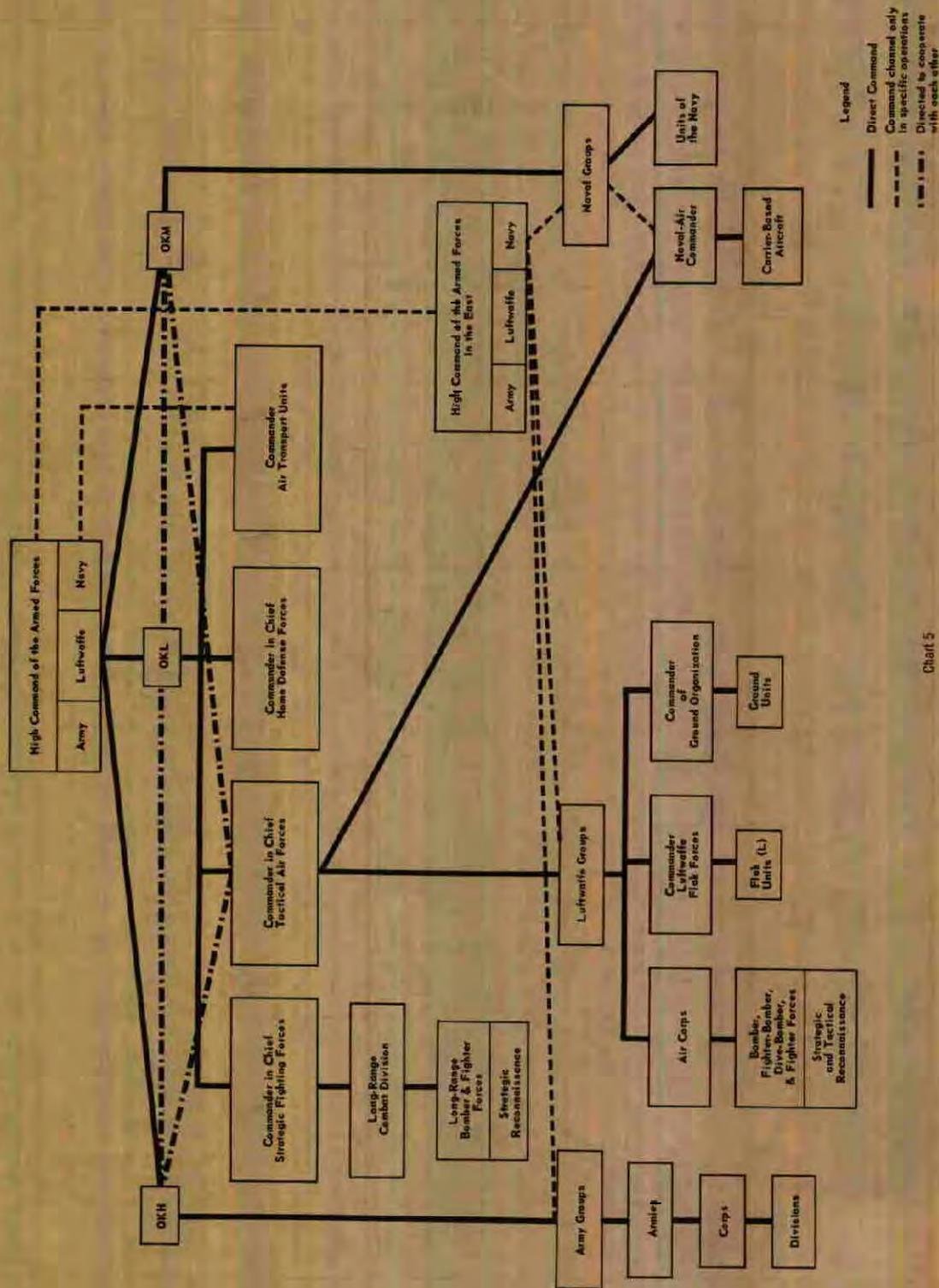








Recommendation for a New Organization of Luftwaffe Commands, 1943



Flying Forces of the Soviet Union, Summer 1943

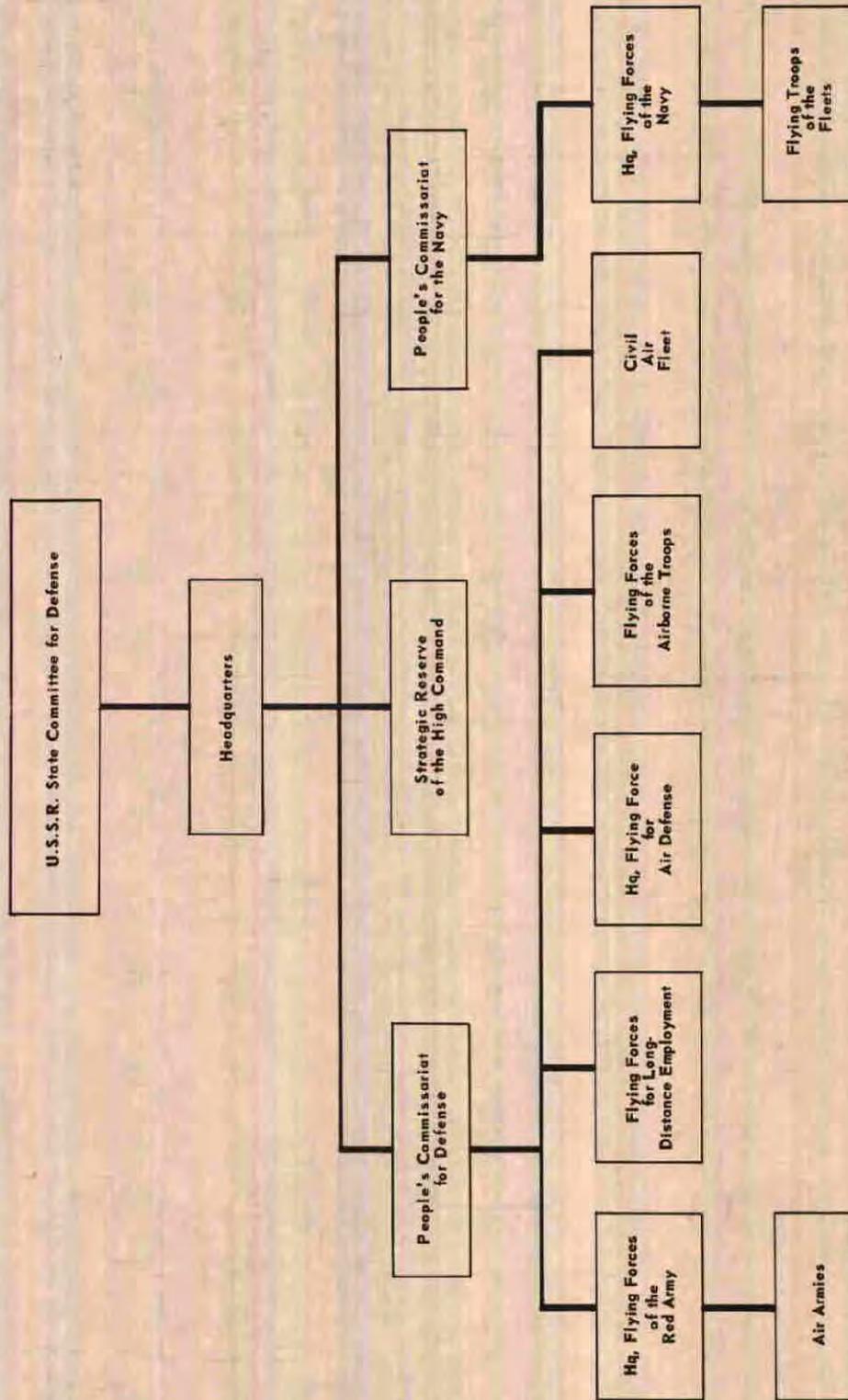


Chart 6

TOP - LEVEL ORGANIZATION OF THE RUSSIAN AIR FORCE, SUMMER 1943

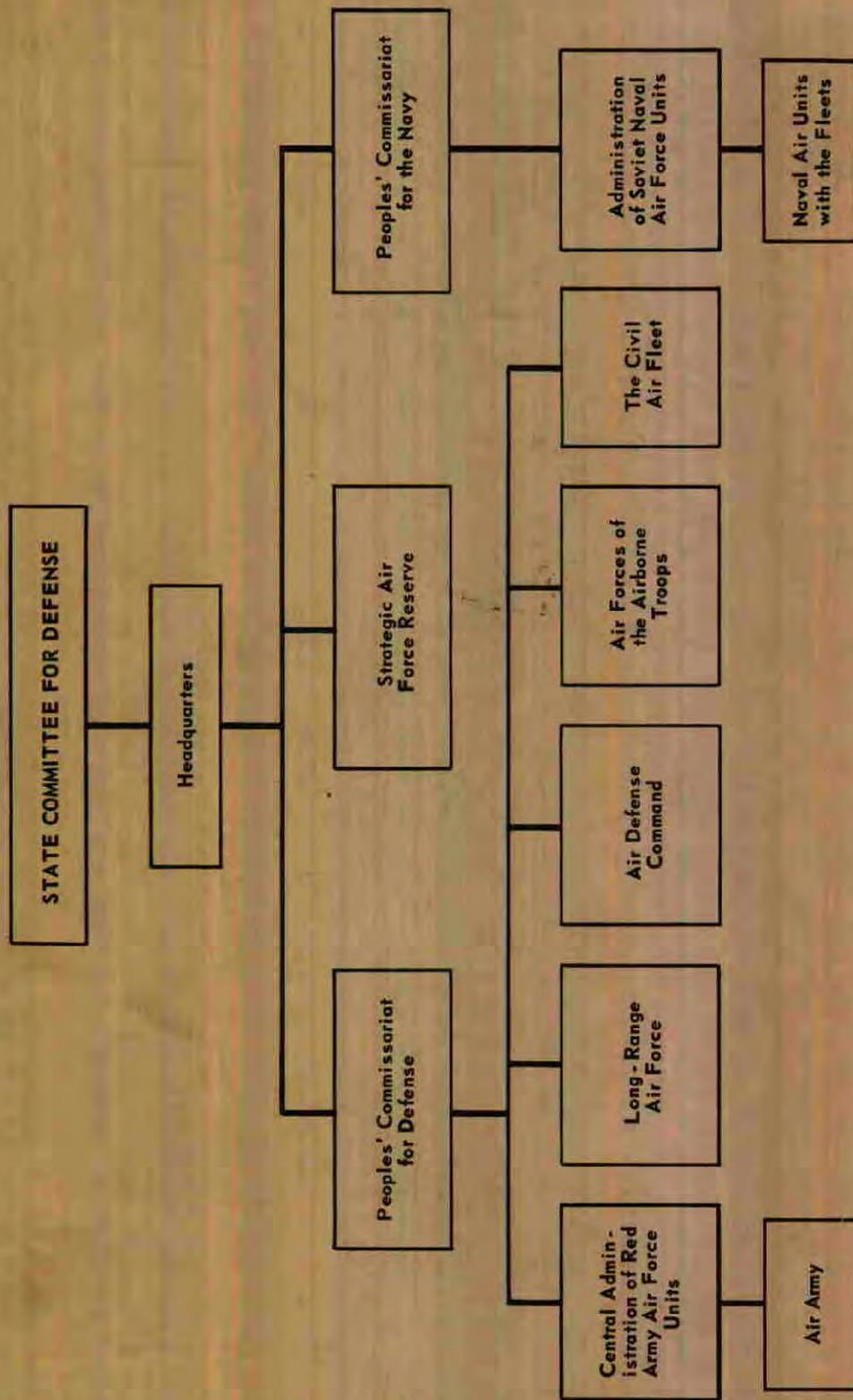


Chart 7