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# THE WAR AGAINST THE LUFTWAFFE

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APRIL 1943 - JUNE 1944

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# The WAR AGAINST THE LUFTWAFFE

AAF COUNTER-AIR OPERATIONS

April 1943 - June 1944

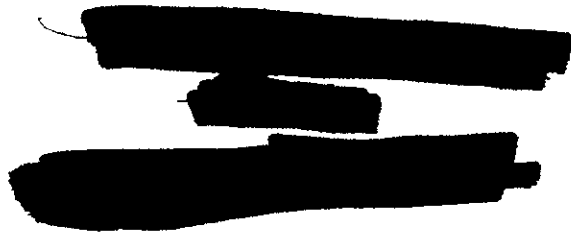
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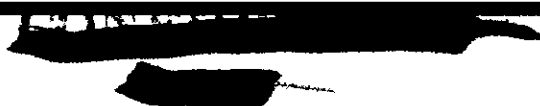




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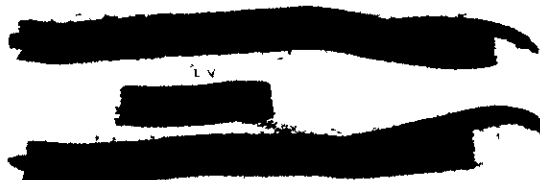




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The War Against the Luftwaffe  
AAF Counter-air Operations--April 1943 to June 1944





Chapter I

PLANNING THE AIR OFFENSIVE

In 1940 the Luftwaffe appeared to dominate the European Continent. After the successful exercises in Spain (1936-39) and Poland (1939), the German Air Force covered the invasion of Norway, crushed French aerial resistance in the brief weeks of the Battle of France, and as the summer drew near, was poised triumphantly on the brink of the Channel before opening the Battle of Britain.

During these months of victory, when the prestige of German arms had reached the highest point, the GAF was a most formidable weapon. Although more often used by the Wehrmacht in tactical rather than strategic operations, its bomber command possessed a powerful striking force that easily reduced Warsaw and Rotterdam, and almost threatened London with the same fate.<sup>1</sup> Many of the German planes represented advanced developments. The Stuka dive bomber seemed to have provided infantry with a new weapon far more effective for certain purposes than artillery. The basic German fighter, the light fast Messerschmitt 109, seemed more than the equal of any plane that could be brought against it until the Battle of Britain revealed it to be weak in armor and fire power.<sup>2</sup>

Nevertheless, in 1940 the GAF received its first severe defeat at the hands of the RAF. Antiaircraft fire-control devices such as radar proved fatal to the close formations of German bombers, while the fighters were unable to stand up against the heavy armament of the British Spitfires.



[REDACTED]

Following the defeat of the GAF over Britain, a change was noticeable in its composition. There was a growing emphasis on fighters which, eventually, was carried to the virtual extinction of the bomber command. The initial cause of this change is not yet clear. One source attributes it to the losses of German planes in the Battle of Britain plus the need of creating a defensive force of fighters to protect German industry against the night raids of the RAF.<sup>3</sup> On the other hand, Hermann Goering himself has stated that it was not the losses over London that caused the increase in German fighter production, but the preparations for the campaign against the U.S.S.R. Owing to the lack of concentrated bomber targets there, Goering stated, the demands on bombers were small while there was a greatly increased need of fighters.<sup>4</sup>

Whatever the underlying causes, the summer of 1940 saw two important developments in the German fighter command: (1) the appearance of a "souped-up" version of the Me-109, and (2) the design of a new and important fighter. The new models of the Me-109 were faster, armored, and much better provided with fire power. The Me-109F had a cannon (L.G 151/20) firing through the propeller hub, in addition to the machine guns.<sup>5</sup> The G model which became operational late in 1942 kept the cannon and raised the two machine guns to approximately .50 caliber with 900 rounds each. The plane was powered with a DB-605 engine of 1700 horsepower and was believed to have a service ceiling of nearly 40,000 feet and a speed of more than 400 miles per hour.<sup>6</sup>

The new fighter was the Focke-Wulf 190 (Fw-190). After coming off the drawing boards in mid-1940, it presented a serious production problem. To produce the plane for wartime consumption, there seemed to be three

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alternatives. It could be built in new plants especially constructed for the purpose, but this would involve at least a year's delay and would result in heavy costs and manpower shortages.<sup>7</sup> A second alternative considered was to convert existing factories to the production of the new fighter. This plan had the advantage of being somewhat easier to set up than the other alternative, but it had the decided disadvantage of slowing down the output of already established types; the readjusting of machines and tools plus the retraining of personnel were regarded as almost insurmountable obstacles.<sup>8</sup> The third alternative, and the one eventually adopted, was to convert certain He-109 plants to the manufacture of the Fw-190. Since many of the tools would do for the new plane, and the workmen would be accustomed to building a similar type, this idea was apparently considered the simplest and most practicable of the three.<sup>9</sup>

At the beginning of 1941, the He-109 was produced in five German, and one Austrian plant as follows: (1) Fiesler (Kassel), (2) Arado (Warnemunde), (3) Ago (Oschersleben), (4) Messerschmitt (Regensburg), (5) Erla (Leipzig), and (6) Messerschmitt (Wiener Neustadt).<sup>10</sup> The first four were producing 40 to 50 fighters per month and the last two between 60 and 75. It was finally decided to convert the first three to the production of Fw-190's because it would involve less loss of output, the plants concerned were closer than the others to the parent Focke-Wulf plant at Bremen, and it was believed that this arrangement would be the most efficient for the subcontractors.<sup>11</sup> Production of the series was initiated early in 1941 at Bremen, and by the fall of that year the Arado plant at Warnemunde was ready to build Fw-190's. Six months later, the Fiesler plant at Kassel was converted, and by the fall of 1942 the Ago plant was making the new

[REDACTED]

plane. It was estimated by November that He-109 production had dropped to 260 per month while the output of the FW fighter had risen to 220 monthly, thus bringing the total construction of single-engine fighters to 480 per month.<sup>12</sup> The first appearance of the new Focke-Wulf 190 late in 1941 created something of a sensation. The original version had a maximum speed of 385 m.p.h. at 17,000 feet, and could climb to 18,000 feet in six and one-fourth minutes. It had a ceiling of 36,000 feet, was protected with 197 pounds of armor, and armed with two low-velocity 20-mm. cannon and two machine guns. Later models designed for ground attack carried extra guns, and as much as 792 pounds of armor plate around the pilot and on the bottom of the fuselage.<sup>13</sup> It seemed possible that the Germans had devised a fighter superior to any similar plane that might be brought against it.

It does not appear that the final decision to build up a huge fighter force was reached before the middle of 1942.<sup>14</sup> By that time, however, certain developments greatly emphasized the need for this type of plane. Hitler's Soviet adventure was not proceeding according to schedule and the scope of the campaign was constantly increasing. The largest part of the German fighter command was flying on the Eastern front,<sup>15</sup> and more and more planes were constantly needed. Meanwhile, a new menace had arisen in the West. The R.F., supposedly driven out of the skies during 1940 and 1941, was beginning its effective saturation bombing by night, and Flying Fortresses of the U. S. Eighth Air Force had made their first appearance over German-held territory on 17 August 1942.<sup>16</sup> All this made it clear that in addition to the requirements of the war in the East, it would be necessary to build up a large fighter strength in the West to protect

the German cities and air industries. Since the bulk of German air power was then concentrated on the Eastern front, the increased production of fighter planes was the solution for this problem.<sup>17</sup>

Therefore, by the middle of 1942, elaborate plans were being made for a tremendous increase in German aircraft production. A committee had already been formed under Goering to speed up the industry, and it was hoped that by December 1944 planes would be coming off the assembly lines at a rate of 2,000 per month.<sup>18</sup> This was to be brought about by a reorganization of aircraft production. Previously, the industry consisted of a large number of firms each making its own components and then assembling a small number of aircraft; further expansion along these lines seemed blocked by the labor shortage and the fact that the supply of skilled craftsmen had been considerably diluted by the importation of unskilled foreign workers. Goering's committee decided to reorganize the industry by breaking down working procedures to the simplest stages. Some factories were to switch to the making of components while others were to specialize in the assembly of the finished products. Geographically, production was to be centered in a few great complexes, consisting of an assembly factory surrounded by various component factories within a 50-mile radius feeding their products into the central assembly.<sup>19</sup> That such a scheme was vulnerable to air attack the Germans well realized. At one time, it was hoped to establish a reserve of 100 per cent air duplication, but it is not clear whether or not this was accomplished. However, at the time the production setup was reorganized, the Germans apparently did not believe strategic precision bombing would be effective.<sup>20</sup>

With the designing of a new fighter and the reorganization of production, the first phase in the expansion of the German fighter command was well under way. A second phase was inaugurated in the fall of 1942 when a great expansion in the construction of the Me-109 was begun. Earlier rumors that the FW-190 was going to replace the older fighter plane were killed by the unusually successful performance of the G model which was being produced by the Messerschmitt complex at Wiener Neustadt as early as the summer of 1942. Estimated production at this time was 80 to 90 planes a month.<sup>21</sup>

At the close of the summer, all the plants making the Me-109 suddenly began a tremendous increase of production. The Wiener Neustadt facilities progressively increased their output until they were building 220 fighters a month (June 1943) representing an increase of 150 per cent over 1942 production.<sup>22</sup> Since this complex was 800 air miles from London, the Germans probably felt the chances of being bombed out were relatively remote. At Regensburg, the output of Me-109's had been stabilized for some time at 45 per month; however, by November 1942 it was increased to 75 and in June of the following year it was believed to have reached 200. By this time, both huge complexes were producing 55 per cent of all single-engine planes used by the GAF. During this same period, the third center of Messerschmitt production, the Erla plant at Leipzig, showed an expansion of 50 per cent.<sup>23</sup>

While the output of the Me-109 climbed rapidly, that of the FW-190 showed surprisingly little fluctuation between November 1942 and June 1943. There is evidence, according to an OSS report, that this stabilization may have been caused by the physical relocation of certain factories to safer

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regions in the eastern part of the Reich. It is possible that the heavy RAF raids in 1942 on Bremen, Arnemuende, Rostock, and Hamburg hastened this shift by convincing the German leaders that western factory sites would henceforth be too exposed, since the three production centers of Kassel, Oschersleben, and Bremen formed a rough triangle averaging only 402 great circle miles from London, with Arnemuende somewhat farther to the east.<sup>24</sup> The apparent failure of the Germans to repair the damage caused by the heavy Eighth Air Force raid on Bremen, 17 April 1943, suggests that the assembly of Ju-190's had been transferred, possibly as far back as the middle of 1942, to eastern Germany, the most likely spot being Marienburg. It was also believed that the assembly plant at Arnemuende was moved to Mutow near the Baltic coast.<sup>25</sup>

Meanwhile, the production of aero-engines developed along the same lines as the airframe factories. Wherever possible, a central assembly point was surrounded with its own satellite component plants. Three firms monopolized most of the production of engines: the Junkers Motorenwerke, the Mayerische Motoren Werke (MWM), and the Daimler Benz (DB). The Junkers engine was mainly produced at Jena which was considered the most advanced aero-engine center in Germany and was the first to adopt the conveyor belt system of production.<sup>26</sup> The MWM was developed and manufactured at Munich/Allach, and the DB had its research center at Stuttgart/Unterturkheim and its production center at Marienfelde.<sup>27</sup> Throughout most of the period covered by this study, the aero-engine industry was hampered by a serious shortage of raw materials, especially those used in hardening steel. Moreover, RAF night raids on Cologne, Essen, and Hamburg knocked out certain plants producing crankshaft forgings for the Ju-805

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engine, and as a result there was a shortage of forgings throughout 1943, causing some backlog of engines awaiting these parts.<sup>28</sup>

To summarize, by the middle of 1943 German fighter production and the massing of German planes in the West were beginning to cause the British and Americans serious concern.\* In June, it was estimated that 540 Me-109's and 230 FW-190's would be produced as well as other models which could be employed effectively against our bomber sorties. Furthermore, there had been a steady shift of GAF units from the East to the West, and another fighter wing, the 11th Jagdeschwader, had been formed to check strategic bombers operating from England.<sup>29</sup> According to American estimates, the GAF order of battle early in 1943 showed the following distribution:<sup>30</sup>

<u>Axis air strength</u>	<u>Total combat and miscellaneous aircraft</u>
Western front	1320
Mediterranean (and Italy)	1248
Central Germany	732
Russian front	2460

Not only was this force in the West a major threat to strategic bombardment but if not destroyed it could be greatly augmented by reinforcements from other areas when the threat of an invasion became imminent. At the close of 1942, one source estimated the amount of air power that the GAF could mass against a cross-Channel operation at approximately 3,700 planes.<sup>31</sup> All these factors made it clear during the first months of 1943 that concerted action must be taken by both British and American air forces to drive the Luftwaffe out of the skies in order to come to grips with

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\*According to "The Attack on the GAF" the actual figures for April production of various types of German aircraft were: Me-109, 270; FW-190, 230; Me-110, 55; Me-210, 55; Ju-88, 25; Do-217, 15; total, 650.

[REDACTED]

German industry and pave the way for an invasion of Hitler's Festung Europa.

The RAF had already made a beginning. In addition to strategic bombing, two types of operations known by the code names of RHUBARB and CIRCUS were frequently being mounted with the express purpose of inducing the enemy to commit considerable numbers of his fighters to battle. In RHUBARB operations, heavily armed fighters and fighter-bombers operated within a 150-mile radius of the RAF forward fighter stations against enemy installations near the Channel coast. By striking at ground targets of considerable value to the enemy, such as transportation, port installations, and the like, it was hoped that he would be forced to give battle to protect them.<sup>32</sup> CIRCUS operations were similar but involved the medium bombers of No. 2 Group RAF; later it was hoped to use the Marauders of the 3d Bombardment Wing (Eighth Air Force) when this organization became operational.<sup>33</sup> Targets were carefully selected within an area 150 to 180 miles from forward bases. According to British authorities, the "prime object of the operations is again to destroy [the enemy] fighter by our fighter aircraft rather than to inflict any serious economic damage on his war machine in the industrial sense by destroying any of his main works, which, in point of fact, are not situated in the areas covered by these operations."<sup>34</sup> American fighters and later medium bombers were often ordered to take part in missions against RHUBARB and CIRCUS targets as a means of acquainting new units with combat conditions in the theater, but it is doubtful if these missions seriously threatened the German Air Force. As time went on, the enemy often refused to commit his fighters against coastal missions.

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Attacks by the heavy bombers of the Eighth Air Force were more effective, but throughout the latter part of 1942 when the Eighth had become operational these raids were more important as indications of future activity than as an immediate menace.\* Not only had weather during the autumn and early winter frequently interfered with missions, but the Eighth had been called on to divert much of its promised equipment and crews to the newly formed Twelfth Air Force. Partly because of this, the build-up of planes in the United Kingdom lagged behind commitments, replacement aircraft and crews were lacking, and the personnel that did arrive from the United States often needed considerable training before being used in operations.<sup>35</sup> As a result of all these factors, the accumulation of American air power was painfully slow. As late as April 1943, there were on hand with American units in England only 264 heavy bombers (198 B-17's and 66 B-24's) and 172 P-47's.<sup>36</sup>

In spite of the meager force available, April marked the first major advance in the war against the Luftwaffe: the formulation of the Combined Bomber Offensive Plan (CBO Plan). This document, which provided for the build-up and operation of a large bomber force based in England, was the culmination of much thought on the proper employment of air power. While German air doctrine tended to emphasize tactical operations in close coordination with the ground forces, both the RAF and AAF were anxious to exploit to the fullest extent the possibilities of strategic bombardment. In the United States, General Mitchell's doctrines were still accepted in

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\*Only 27 missions were carried out by the Eighth Air Force in 1942, and none of them exceeded an attacking force of 79 planes.



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the Air Corps and had received further development at the hands of Arnold, Andrews, Baker, Spaatz, and other pioneers in air strategy. When, on 9 July 1941, President Roosevelt asked the Secretary of War to prepare a plan for over-all production requirements needed to defeat our possible enemies, an opportunity was afforded our air strategists to put forward their concepts of modern aerial warfare.

The air document which was generally known by its short title of ACPD/1 was submitted on 12 August,<sup>37</sup> and was broadly conceived. The section covering air production called for 60,000 planes,<sup>38</sup> and envisaged an air war of three phases culminating with a great intensification of air operations to insure air supremacy prior to an invasion of German-held territory. Targets for bombardment were electrical installations such as power lines and hydro-electric stations, as well as transportation systems, oil producing centers, and industrial plants. It was also recognized that before these objectives could be attacked, it might be necessary first to neutralize the Luftwaffe by "employing large numbers of aircraft with high speed, good defensive fire power, and high altitude" and by making deep penetrations into the Reich to attack airfields, aluminum plants, and aircraft factories.<sup>39</sup>

This document is important because it recognized that an indispensable preliminary to an invasion of the Continent was the elimination of German air power. It is also significant because it clearly established that the attack on the GAF was a double operation, an attack not only against the sources of aircraft production but also against units of the Luftwaffe at their bases.<sup>40</sup> It also recommended that plans be undertaken looking toward the formation of heavily armed escort fighters to protect the bombers.

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This document was accepted as a basis for further planning in September, and then followed a broad discussion of over-all strategy between the highest British and American authorities. After the Japanese attack on Pearl Harbor, many details were naturally altered owing to the exigencies of the crisis in which the United States found itself, but the basic ideas embodied in AAFD/1 remained largely unchanged, and were repeated in a later modification of the project known as AAFD/42. This plan was drawn up by General Arnold in response to a request on 24 August 1942 from the President to his military authorities for a statement of the needs of the Army, Navy, and lend-lease "in order to have complete air ascendancy over the enemy."<sup>41</sup> In his reply for the AAF, General Arnold listed a series of air operations beginning with "an air offensive against Europe to deplete the G.F., destroy the sources of German submarine construction, and undermine the German war-making capacity."<sup>42</sup> Air ascendancy was defined as the depletion of the enemy air force to such an extent as to render him incapable of resisting the offensive of our land, sea, and air forces.

.. First priority in the air offensive against Europe was the attack on the Luftwaffe. To eliminate it from combat, AAFD/42 called for a total of 22,374 sorties, dropping 44,748 tons against 11 fighter factories, 15 bomber factories, and 17 aero-engine plants. To attain complete destruction of these plants, attacks were to be repeated where necessary at two-month intervals. Combat attrition was to complete the destruction of the G.F.<sup>43</sup> The timetable set up in the plan allowed six months for operations at full strength to destroy the German air power. Applying this to the actual situation, one-third of the job was to be completed in

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1943, thus requiring four additional months of 1944. If all went well, General Arnold believed that the Luftwaffe could be eliminated as a threat to our forces by May 1944, and that cross-Channel operations could be started soon after.<sup>44</sup> Later developments were to prove the remarkable accuracy of AFD/42's time table.

The final phase of planning the attack on the GAF began on 9 December 1942 when a Committee of Operations Analysts was set up under Management Control to prepare a report analyzing the rate of progressive deterioration that should be anticipated in the German war effort as a result of the operations being planned against its sustaining sources.<sup>45</sup> After some months of intensive study, the committee submitted a report to General Arnold on 8 March 1943 which is remarkably like the final form of the CBO Plan.<sup>46</sup>

This report did not depart from the general principles of an air offensive against the Reich as laid down in AFD/1 and AFD/42, but it succeeded in giving these doctrines their most elaborate application based on what was then available in planes, crews, and time, as well as indicating what build-up of forces would be necessary to carry the offensive to a successful conclusion.

The committee recognized the desirability of carrying out precision attacks against the German fighter assembly plants and engine factories, but felt that the present build-up of heavy bombers with units in the theater\* was insufficient to make the necessary deep penetrations. A minimum force of 300 bombers would be needed, the committee believed, to organize the requisite diversions and penetrate to the heavily

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\* 264 as of April.

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defended targets.\* It was estimated that it would take a total of 800 bombers in the theater to keep 300 constantly in operation, and until this build-up could be achieved, the COA did not recommend mounting a large-scale offensive against aircraft factories, but advised instead that missions be concentrated on repair depots, U-boat bases, and the few factories that were located close to the coast.<sup>48</sup>

It was hoped that by July the bomber strength would be augmented to the point where deep penetrations of 400 miles could be effected, and in this second phase of the offensive, the committee recommended a heavy concentration on GAF fighter factories. At this point, the experts disagreed. In considering the German aircraft industry, the COA had examined the possibility of attacking (1) airframe components, (2) engine components, (3) fighter assembly plants, and (4) engine assembly plants. The principal disagreement was over whether the heaviest attack should be directed against fighter assembly plants, or fighter-engine assembly plants.<sup>49</sup> Those who favored an attack on fighter assemblies pointed out that the GAF had to recreate itself approximately every three months, and that the destruction of seven assembly plants, even if remediable within 30 days, would have only to be repeated twice in order to effect a substantial reduction of GAF strength.<sup>50</sup>

The opponents of this view were disturbed by the high recuperative ability of the fighter assembly plants, and feared that not enough damage could be done to put them out of production for any long period of time. On the other hand, they held that engine assembly plants could be put

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\*Of the 300 bombers, 50 were to form a diversionary force to hold down a part of the German fighter strength, 200 were to constitute the main striking force, and the remaining 50 were to divert the German fighters while the bombers were withdrawing from the target area. GEO Plan, in AFINT files.

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out of action for six months or more. Furthermore, five plants accounted for all the BMW engines used in the FW-190, and another five plants produced the DB motor used in the Me-109, -110, and -210.<sup>51</sup> Consequently, a comparatively small number of targets might, if thoroughly bombed, upset a great part of the German fighter production. The COA did not attempt to solve the dispute, and in later operations the combined bomber forces attacked both fighter assembly and engine assembly plants.\*

The final form of the CBO Plan which was completed about the first of April consisted of a carefully selected list of target systems, coordinated with the expected build-up of bomber strength in the theater, and a timetable. The main purpose of the plan was to carry out the directive of the Combined Chiefs of Staff at the Casablanca meeting "to accomplish the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened."<sup>52</sup> The target systems designated for attack were submarine construction yards and bases, German aircraft industry, ball bearings, oil, synthetic rubber, and military transport vehicles.

The determination of the number of bombers needed to accomplish the CBO Plan was based on a yardstick derived from previous operations

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\*The comment of a captured German field marshal on this point is interesting. "As the brunt of the attacks throughout July, August, September, and October 1943 was borne by the aircraft industry, naturally that suffered most. Fortunately you didn't do one thing: you didn't attack our engine production on a large scale--a much more vulnerable branch--instead you went for the airframe plants." KO 15385 in A-2 Library.

of the Eighth Air Force. Twelve successful missions were mounted in January, February, and March, using approximately 100 bombers on each:<sup>53</sup>

It was found that sufficient bombs fell within a circle of 1000 foot radius centered about the aiming point to cause the desired destruction. For each prospective target the number of 1000 foot radius circles necessary to cover it has been calculated. The yardstick as determined by experience is therefore: the number of 1000 foot radius circles of destruction, each requiring 100 bombers.

To carry out successful missions against the six target systems, using the ratio indicated above, the Combined Bomber Offensive required the following build-up of U.S. heavy and medium bombers in the United Kingdom:<sup>54</sup>

30 June 1943	944 heavy	200 medium
30 Sep 1943	1192 heavy	400 medium
31 Dec 1943	1746 heavy	600 medium
31 Mar 1944	2702 heavy	800 medium

The operational timetable of the offensive was divided into four phases. The first phase ended 1 July 1943 and was based on the assumption that no more than 300 bombers would be continually in operations and that the operational range would be 300 miles. Main emphasis was to be placed on striking U-boat bases. The second phase from July to October was to be principally against fighter aircraft industries. The radius of action was to be extended to 400 miles and the 1,192 bombers in the theater were expected to provide an average striking force of 450 planes. While the Fortresses and Liberators were hitting the main objectives, the mediums were to mount diversionary attacks on German-held airfields within their limited range. In the third phase, October to January 1944, the German fighter force was to be kept depleted, and in addition to the aircraft industry, oil, transportation, and rubber facilities were to be attacked. The average striking force during phase No. 3 was to be about

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550 bombers. In the fourth phase in early 1944, the principal objective would be to sustain the previous effects achieved and pave the way for the invasion of the Continent.<sup>55</sup>

The committee recognized the immediate danger to their plans from the German fighter force in the West, and it was declared to be "an intermediate objective second to none in priority."<sup>56</sup> Furthermore, the Plan emphasized in italics the statement that<sup>57</sup>

If the growth of the German fighter strength is not arrested quickly, it may become literally impossible to carry out the destruction planned and thus to create the conditions necessary for ultimate decisive action by our combined forces on the Continent. Hence the successful prosecution of the air offensive against the principal objectives is dependent upon a prior (or simultaneous) offensive against German fighter strength.

When completed by the COA in Washington the Plan appears to have been coordinated with British and American authorities in the theater, for on 15 April 1943 Air Marshal Sir Charles Portal wrote General Arnold indicating his full approval, and stating that the Commander in Chief of the RAF Bomber Command had seen the plan and was also "convinced of its soundness and importance."<sup>58</sup> Portal urged that "every effort . . . be made to achieve and if possible to exceed the program."<sup>59</sup> Final approval came from the Combined Chiefs of Staff on 19 May 1943.

The GEO Plan, although recognizing the immediate importance of checking the growth of the German Air Force in the West, nevertheless dealt with it as only one of several important objectives. British thought at this time seems to have been more concerned with checking the growth of German fighters by striking at airdromes, repair installations, and Messerschmitt and Focke-Wulf factories, if one may judge by a British plan developed concurrently (not, apparently, as an alternative proposal)

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with the CBO Plan. Entitled, "The Attack on the GAF," this document stated:<sup>60</sup>

The most formidable weapon being used by the enemy today against our bomber offensive is his Fighter Force--his single engined fighters by day and his twin engined fighters by night, and the elimination or serious depletion of this force would be the greatest contribution to the furtherance of the joint heavy bomber offensive of the RAF and the AAF.

This document then called for an attack on the sources of fighter strength--both airfields and factories. It is evident that the authors of the plan assumed that most of the attacks on the fields would be made by medium bombers and fighters, although several such missions had already been mounted by the heavy bombers of the Eighth Air Force. Since some 34 GAF airfields housing about 465 aircraft were within range of REUBEN and CIRCUS operations, the study recommended that they be promptly attacked. The fields at Rennes/St. Jacques, Caen/Carpignat, Lille/Vendeville, Vitry-en-Artois, Courtrai/Nevelghem, Beaumont-le-Roger, Bernay/St. Martin, Evreux, Cherbourg/Maupertus, Merville, Brest/Guipevas, Amsterdam/Schipol, and Woensdrecht were pointed out as being especially important.<sup>61</sup> Most of these fields were later attacked by units of the AAF.

After careful study of the capabilities and limitations of the heavy bomber, 10 towns were listed in the plan as "tactically suitable" for attack by high-level precision daylight bombing by the VIII Bomber Command, to be followed by RAF night attacks. These towns were Bremen (FW-190 assembly), Brunswick (Me-110 assembly and DB-605 engine plant), Kassel (FW-190 assembly), Hamburg (BMW engines), Schweinfurt (ball-bearing works), Hanover (aero-tire works), Stuttgart (important aircraft components), Gotha (Me-110 assembly), Eisenach (aero-engines), and

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Oschersleben (FJ-190 assembly).<sup>62</sup> As in the case of the airfields noted above, these aircraft factories were later attacked heavily by the VIII Bomber Command. Although no direct evidence bears on the point, there is a good deal of indirect proof to show that this British study had something to do with the target selection of the Eighth and later the Ninth Air Forces.

Therefore by the beginning of April 1943, the stage was set for a great air battle. The Germans had committed themselves to a program of fighter construction that definitely threatened the success of the combined strategic bomber offensive and the attack on the Continent. To check this development, the British and American air strategists were planning nothing less than the destruction of the Luftwaffe, and its exclusion from the air over Europe. This was to be accomplished by a double attack: on one hand German aircraft factories were to be destroyed as soon as the build-up of strength permitted deep penetrations, and on the other the Luftwaffe was to be forced to commit itself to battle wherever it could be found, either on the ground or in the air. It was now the task of the AAF and the RAF to prove that Hitler's Festung Europa was, indeed, a fortress without a roof.

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Chapter II

THE FIRST OPERATIONS AGAINST THE LUFTWAFFE

Although the CBO Plan was not formally approved by the Combined Chiefs of Staff until the middle of May 1943, attacks on German aircraft production commenced in April. By this date, there were 197 B-17's and 66 B-24's in the theater with units, and during the first quarter of the new year, they had dispatched 1,031 sorties with claims of 203 enemy aircraft shot down.<sup>1</sup> This strength was regarded as too meager to sustain deep penetrations into the heart of Germany where the bulk of the aircraft industry was located, but installations nearer England could be attacked with small concentrations in comparative safety.

Such a mission was carried out on 5 April. The target was the Erla Aircraft and Aero-Engine Repair Works near Antwerp, only about 190 miles from the nearest English bases. Out of 104 planes airborne, 64 B-17's and 18 B-24's dropped 240.5 tons of 1,000- and 500-lb. GP bombs with fair results. Damage was done to an assembly shop, and some repair installations were set on fire. Four bombers were lost and claims of 23-3-4 were made.<sup>2</sup> In this rather unimpressive manner, the POLLELLI\* offensive against German aircraft production was inaugurated.

The only other similar mission successfully carried out during the month was one of the heaviest yet run off by the Eighth Air Force. On

\*The code name POLLELLI was assigned to the Combined Bomber Offensive when it was adopted. However, in the various theaters where the CBO  
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17 April, 115 bombers were dispatched to strike at the Focke-Wulf fighter assembly plant situated at Neuenland, two and one-half miles from the center of Bremen. This mission was considered especially important, since the FW factory here was the parent producer of the FW-190 single-engine fighter. Its estimated production of 20 planes per month was believed to be 35 per cent of all FW-190's produced.<sup>#</sup> In addition to the FW plant, there was also a Junkers 88 (Ju-88) assembly plant, and a Ju-87 components factory near-by.<sup>3</sup>

The mission was run off under somewhat adverse conditions. The weather was hazy making target identification difficult; the excellent camouflage used by the Germans added to the problems of the bombardiers. Furthermore, the flak was of a concentration heretofore unknown. According to the Tactical Mission Report:<sup>4</sup>

The intensity of the flak was probably the most severe that has ever been experienced by this Wing, and the huge volume of smoke that overhung the target area while our later Groups were approaching acted as a very real deterrent, causing many members of combat crews to feel that it would be an impossibility to fly in the area without suffering damage.

\*(contd) was mounted, POINTBLANK came to mean specifically the attack on the G.F and its supporting production centers. When Col. C. A. Young of the Fifteenth Air Force was asked to define POINTBLANK he replied: "POINTBLANK is a code name to designate the fighter aircraft target system. It includes all fighter aircraft plants and ball bearing factories." (Interview with Col. C. A. Young, AG/S, 1-2, 15th AF, 2 May 1944 in History, 15th AF.) As used in this study POINTBLANK will refer to attacks on the German aircraft industries, and Luftwaffe bases.

<sup>#</sup>The FW assembly at Bremen was moved to Marienburg, but it is not yet clear whether or not this move had taken place at the time of the 17 April raid. Later the British believed that it had already taken place. However, when Goering was interrogated after being taken prisoner, he stated that the April raid had inflicted damage on FW assembly at Bremen. EC-13951 in 1-2 Library.

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Although only one plane appears to have been actually destroyed by flak, 43 others sustained battle damage.

It had been expected that the Luftwaffe would rush to the defense of such an important target, and such proved very much to be the case. Combat crews estimated that some 150 enemy aircraft took the air against the bombers, and attacks began while the formations were passing over the Frisian Islands, becoming more and more intense as the target was approached. To meet these attacks, the three elements of each combat wing were flown in a vertical wedge with a permanent group leading, and another permanent group slightly below and behind to obtain support from the nose guns and ball turrets of the lead group. The 102d Wing managed to maintain a close formation of this type and was able to present such a wall of fire to approaching enemy fighters that most of them were discouraged and failed to press home their strikes.<sup>5</sup> Unfortunately, the 101st Wing failed to fly a tight formation and received the brunt of the attacks. As a result, it sustained a heavy loss of 16 bombers. All types of enemy aircraft were seen, but most of the attacks came from Fw-190's and Me-109's. Twin-engine fighters did not attack directly but paced the formations at a distance waiting to pounce on stragglers.<sup>6</sup>

In spite of this violent opposition, 107 Fortresses, out of the 115 dispatched, managed to bomb the target with 531 x 1,000-lb. GP, and although all the bombs fell to the right of the aiming point, the results were considered satisfactory. Considerable damage to the central and east part of the assembly works was reported with heavy bomb concentrations in this area. Buildings hit included a hangar, the component

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erecting shop, an assembly shop or flight hangar, the firing range, a paint shop or inspection hangar, a boiler house, and a coal dump. Numerous fires were started.<sup>7</sup> Approximately one-half of the factory was destroyed. It was estimated that about 50 enemy aircraft were shot down, with approximately 15 probables and 17 damaged.\* Four squadrons of Spitfires furnished withdrawal support, and a Typhoon squadron made a diversionary sweep.<sup>8</sup>

Following the Bremen mission, attacks against GAF targets were suspended for almost a month. In the meantime there was a considerable increase in B-17's (from 198 to 331 with units),<sup>9</sup> and the P-47 fighter became operational and went on its first bomber-escort mission 5 May 1943. However, the VIII Fighter Command remained relatively weak for some months to come; by July there were only 195 American fighter planes in the theater, and the bulk of the escort work was borne by the RAF.<sup>10</sup>

Operationally, May was a much better month than April. A total of 2,677 tons of bombs was dropped, as compared with 1,130 in the previous month.<sup>11</sup> Most of the targets were submarine bases and building yards and Luftwaffe installations. Some 11 of the objectives were specified in the CBO Plan. A total of 380 enemy aircraft were listed as destroyed of which VIII Bomber Command claims were 372-93-176.<sup>12</sup>

The only direct blow during the month against GAF bases occurred on the 13th. On this date, a force of 169 B-17's were dispatched against

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\*Claims cited can only be regarded as approximations. Not only are the figures suspected of being much too high, but there is also considerable disagreement among various theater sources. Thus in the mission referred to, the VIII Bomber Command claims 03 destroyed, 15 probably destroyed, and 17 damaged. The Tactical Mission Report for this operation cites 47-17-10 as claims.

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the Potez Aircraft Repair Depot at Meaulte and the Fort Rouge and Longuenesse airdromes at St. Omer in the Pas de Calais area. The Potez plant was currently engaged in fuselage manufacture and repair works for the Dornier 245 (Do-245) and evidently was considered an important target for it had been raided three times previously. It was also less than 200 miles distant from British bases. The mission was only partly successful, in spite of the fact that there was excellent fighter support and practically no opposition. The bombing at St. Omer was poor, but at Meaulte there were good concentrations on and around the target, and it was believed that considerable damage had been done to installations. Four bombers were lost and 11 enemy fighters were claimed destroyed.<sup>13</sup>

Once again a long pause followed. Most of the emphasis was now being placed on submarine installations and it was not until 26 June that the Eighth Air Force turned again to strike directly at GAF airdromes. The results were not too successful. Two hundred and forty-six Fortresses were sent out against targets in France, but ran into bad weather and as a result 161 returned without dropping a bomb.<sup>14</sup> A small force of 12 managed to drop 112 x 500-lb. GP bombs on the airdrome at Villacoublay which was a repair, maintenance, and assembly center for Junkers and Caudron aircraft, and a few planes bombed Poissy airfield. As a secondary effort, 39 heavy bombers attempted to bomb the field at Tricqueville. On all these missions, the results were negative.<sup>15</sup> Two days later, a force of 43 planes dropped 688 x 300-lb. GP bombs on the field at Beaumont-le-Roger with a good concentration on the west dispersal area. The next day 74 B-17's made what was then considered a deep penetration to hit the Gnome et Rhone Aero Engine Works at Le Mans with poor

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results.<sup>16</sup> This operation closed what must be considered a rather disappointing month. Although the 532 bombers represented the largest number of American Liberators and Flying Fortresses yet assembled in the United Kingdom, the June operations fell below the level of May. The bomb load was some two hundred tons lower, and the claims were less.<sup>17</sup> Losses were relatively high, being 8.0 per cent of the total bombers over the target, while the capacity of the Luftwaffe to produce seemed unaffected. The estimated production of the Me-109 and the Fw-190 reached a total of 770 for the month, and there was evidence that July's output would be even higher.<sup>18</sup> As long as this production level could be maintained, the loss of 788 planes which the Eighth claimed to have shot down in the second quarter of 1943 would not be seriously felt.<sup>19</sup> No doubt this situation caused the authorities in Washington serious concern, for early in June General Arnold was pressing General Eaker to get more bombers into combat.<sup>20</sup> However, it was not until July and August that the POINTBLANK operations assumed the leading role in the CBO.

July was an important month in the war against the Luftwaffe, although the operations were handicapped by the transfer of three B-24 groups to another theater. This temporary loss will be considered in detail farther on in the chapter. In addition, weather during the first two weeks seriously interfered with the selection of high-priority targets and forced the bombers to concentrate on objectives nearer at hand.<sup>21</sup> Nevertheless, in spite of this weather difficulty, the time was well employed, for the Eighth unleashed a series of vigorous attacks against Luftwaffe bases and repair centers. The official CBO report for

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July characterized these raids on the German fighter force on the ground as "the first serious offensive of this kind to which he had been exposed."<sup>22</sup>

On 4 July the first of these missions against GAF ground installations took place when Le Mans was visited by 103 bombers and the Heinkel III repair and component plant at Nantes was attacked by 61. Four planes were lost over Le Mans and three at Nantes; the total claims for both operations were 53-13-22 enemy fighters.<sup>23</sup> Weather prevented further missions until 10 July when the Eighth struck again at airfields. Plans to attack the important repair center at Villacoublay were forestalled by a heavy overcast, but the 1st Wing bombed Caen and Abbeville airdromes with 31 and 30 planes respectively. The results were classified as good.<sup>24</sup>

Uncertain weather conditions again prevailed over the interior of the Continent during the second week of July; consequently the mission planned for the historic 14th was against more airfields. Early in the morning, 101 bombers of the 1st Wing made the now familiar run to Villacoublay and blasted the target with a heavy load of 500 and 1,000-lb. GP bombs. The results were excellent. The aiming point was completely covered with bursts and the target was demolished. Furthermore, a large number of planes were destroyed in the hangars. Smaller forces raided the Amiens/Clissy and Le Bourget airfields with good results, although at the last place persistent attacks by enemy fighters caused some overrunning of the target. Although fully justified by results, this raid was more costly than the previous ones, and it was evident that German opposition was increasing. Eight bombers failed to return and the air battles were numerous and fierce as the high bomber claims of 65-35-51 indicated.<sup>25</sup>

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A new type of operation was carried out on the 16th when 36 B-26 bombers of the newly organized VIII Air Support Command assisted by 129 P-47's were dispatched in a sweep over occupied territory. This was the first mission staged by the Marauders since their disastrous operation against Ijuiden on 17 May, and marked the beginning of a long series of attacks on GAF airdromes as diversions to the deeper penetrations of the heavy bombers.<sup>26</sup>

With a slight improvement of weather conditions, the VIII Bomber Command planned deeper penetrations of German territory for the 17th and 25th,<sup>27</sup> but conditions were not completely favorable until the 28th, and beginning with that date, three important missions were sent forth deep into Germany.

Mission No. 78, 28 July, was especially directed against FW-190 production at Kassel and Oschersleben. Kassel was a high-priority target area with two important objectives for heavy-bomber attack. Of prime importance was the Fiesler aircraft assembly works at Waldau, about three miles southeast of the center of Kassel. This factory was an important producer of the FW-190 and at the time of the raid, it was believed to be producing 50 aircraft per month, or 22 per cent of the total production of this type. Five miles southwest of the city in the suburb of Alenbauna lay the Henschel Aero Engine Works, an important producer of the DB-601 and -605 engines used in the Me-109, and Me-110 and -210 twin-engine fighters. The output of the Henschel factory was believed to account for 25 per cent of the total production of these important engines. The main target at Oschersleben was the Ago Aircraft Assembly Works situated on the outskirts of the town.

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Its production was approximately equal to Fiesler's.<sup>28</sup> Thus with good luck, the VIII Bomber Command might hope for the partial elimination of 44 per cent of FW-190 production.

Unfortunately, luck did not attend the 78th mission. Although carefully planned, things went wrong from the start. The 4th Wing, which was involved in an elaborate feint toward the Kiel-Hamburg area to cause the enemy controller to divide his fighters, became involved in navigational difficulties and came too close to the Danish peninsula, which "resulted in an attack by enemy fighters during the feint instead of forcing [them] to land and refuel as they have done in the past."<sup>29</sup> The weather deteriorated as the mission proceeded and of the impressive force of 302 bombers dispatched, only 77 were able to bomb the targets<sup>30</sup> assigned, and 17 struck opportunity targets in northwest Germany. The results at Kassel were fair. There was a heavy concentration of hits on workers' living quarters at the Fiesler plant, and another burst in the corner of the Spinnfaser Textile Mill. Flak was intense, and of the seven bombers lost over this target, three were so destroyed.<sup>31</sup> Oschersleben was attacked by 28 B-17's of the 2d Wing, dropping 500-lb. GP and incendiary bombs. Although smoke and clouds obscured the aiming point, many hits landed in the target area and several buildings were destroyed. Flak was much lighter here, but enemy fighter opposition was correspondingly more intense and 15 of the Forts were destroyed. The total loss of 22 bombers made this one of the most costly raids to date.<sup>32</sup> Three bombers were hit and destroyed by air-to-air bombing—a device often tried by the Germans but usually ineffective. This raid was one of the few occasions where it appears to have worked.

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Total claims of 86-33-66, even though unduly high, indicate that the Forts gave a good account of themselves, and the fact that two more heavy missions were immediately prepared indicates that morale had not suffered.<sup>33</sup>

The following day, a force of 95 bombers bombed Kiel, 44 attacked targets of opportunity, and 54 hit Warnemunde as a diversion for the other forces. The target at Warnemunde was the Ernest Heinkel Airframe Factory, and it received a severe bombing. Direct hits were scored on most of the main buildings including workshops, storage buildings, assembly plants, offices, and boiler shops. A final estimate of damage made on 4 August showed that 18 out of the 27 buildings had been hit and 12 could be counted as destroyed or severely damaged.<sup>34</sup> This achievement of the 4th Wing at Warnemunde showed what could be accomplished under favorable conditions with daylight precision bombing.

The last mission of the month was run off on the 30th. A force of 186 aircraft from the 1st and 4th Wings took off for a second mission against the Fiesler plant at Kassel. This raid proved to be more successful than the previous mission of 28 July; 131 bombers reached the objective and the bombing was good. The 1st Wing seriously damaged two buildings and set off a violent explosion causing a column of smoke to rise 4,000 feet in the air. In addition to hitting the Focke-Wulf assembly, bursts landed on the installations of the Spinnfaser Textile Mill, the Feka Factory (special machine tools), the Bahr Ludwig Paper Factory, and the Salzman Factory (linen, sailcloth, and cotton weaving).<sup>35</sup> Estimate of the damage caused by the 4th Wing was difficult because of the intense smoke over the target, but hits were seen on a component

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erecting shop and a machine shop, while a storage building was gutted and the blast effect was noticeable over the entire area. A total of 960 x 500-lb. GP bombs and 608 incendiaries was released over the objectives. Perhaps owing to a deep penetration by P-47's to cover the withdrawal from the area, losses were no more than expected. Twelve bombers went down and claims of 48-13-32 were made.

Although German single-engine fighter production reportedly reached 810 planes per month in July, the beginning of this second phase of the CEO marked the first time a really concentrated effort was made to reduce German aircraft expansion.<sup>36</sup> During the next month, the output of Focke-Wulf and Messerschmitt fighters was to fall to 665, justifying the conclusion that "the major effect of the bombing program has been not so much to force production below previous levels as to halt in its tracks an immense fighter aircraft expansion program."<sup>37</sup> In addition, the Fighter and Bomber Commands listed in their records 575 enemy planes as shot down during the month. Despite a serious shortage of heavy bombers and the crews to man them,\* operations showed a great increase over June. The bomb load of 4,103 tons on enemy targets was delivered in 1,615 sorties at a cost of 113 planes, or a 7.3 per cent loss out of planes reaching the objectives.<sup>38</sup>

The first mission of August against German fighter production was remarkable for two reasons: it was a mission against a new target, and it was not conducted by the Eighth Air Force. The story of operation JUGGLER on 13 August brings the Ninth Air Force into POINTBLANK missions

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\*During July 1943 there were 670 heavy bombers with units in the theater and a total of 631 crews, including casualties. Statistical Control.

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for the first time, and also marks the first attack on the great Messerschmitt complex at Wiener Neustadt just south of Vienna.

The Ninth had been engaged in the North African campaign and had then taken part in the Sicilian invasion. For this campaign, the two B-24 groups which constituted its heavy bombardment force were augmented by the 93d, 44th, and 389th Groups (B-24) from the VIII Bomber Command. These five groups participated in the MUSKY operations until 19 July when they were diverted to prepare for TIDAL WAVE, i.e., the attack on the Ploesti oilfields.<sup>39</sup> This famous mission was carried out on 1 August and immediately afterwards the task force was ordered to prepare for a coordinated attack with the Eighth Air Force on Regensburg and Wiener Neustadt.<sup>40</sup>

This mission, known by the code name of JUGGLER, had been planned for some time. Behind the planning lay the growing concern of British and American authorities at the continued expansion of the Luftwaffe's fighter strength in the West, and a desire to strike at important centers of the air industry such as Regensburg and Wiener Neustadt which were still unacquainted with American precision bombing. Furthermore, both General Arnold and Lt. Gen. Carl Spaatz, commander of the U. S. Army Air Forces in the North African Theater of Operations (NATO), were anxious to bomb German industry from other bases than those in the United Kingdom. Both of them had felt for some time that operations from Mediterranean bases against areas of the Reich out of range of the VIII Bomber Command were desirable and logical.<sup>41</sup> Since most of the attacks on aircraft factories had been directed against Focke-Wulf centers, it was time to turn to the great Messerschmitt complexes which had produced an estimated

570 He-109's in July.<sup>42</sup> As originally planned, JUGGLER was a simultaneous attack on two centers: the Eighth was to assault Regensburg at the same time as the TIDALWAVE task force, or what was left of it, was striking north from the BMTO at Wiener Neustadt. For a while there was some chance that JUGGLER might be given a higher priority than TIDALWAVE,<sup>43</sup> but since both Marshall and Arnold were opposed,<sup>44</sup> it was finally decided to mount the Floesti mission first, and run off the combined attack as soon as repairs had been made and the crews had been rested.

As previously indicated, the Rumanian objectives were attacked on 1 August and thereupon JUGGLER was set for 7 August. However, weather conditions over northwestern Europe interfered with the Eighth's attack on Regensburg, and after several postponements it was decided to give up the idea of a coordinated attack and to allow either force to stage its mission as soon as conditions were favorable.<sup>45</sup> As a result the Eighth carried out its assignment on the 13th, four days before the Eighth was able to move. At 7 o'clock in the morning, 114 B-24's led by Brig. Gen. W. W. Timberlake took off from the Eighth's African bases and started on the long, 1,200-mile trip to Austria.<sup>46</sup> In spite of two extra bomb bay tanks in each Liberator, the formations would not be able to return to their home bases, but were to land at Tunisian fields for preliminary interrogations and refueling.<sup>47</sup>

Although a large number of the bombers aborted--32 returned to their bases before reaching the target and 21 others failed to bomb for mechanical or other reasons--the 61 Liberators that reached Wiener Neustadt gave a good account of themselves.<sup>48</sup> The Wiener Neustadt Airframe Works, the Steyr-Daimler-Puch Factory (engineering), and the

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Menschel & Sohn Plant (heavy engineering) were well covered with bursts. Only one bomber was lost and two enemy planes were shot down. A photo reconnaissance made on 10 August revealed the extent of the injuries done to the installations. At the Wiener Neustadt works two assembly shops out of four were badly damaged, several stores buildings were hit, and one large flight hangar was destroyed. Although it was three days after the attack, about 20 destroyed or damaged aircraft were seen on the ground. At the Mayr-Dairler-uch factory all the large buildings showed hits, the central group of machine shops and the power station being the most severely affected. Many of the buildings showed extensive roof damage. Some of the bombs missed the Menschel plant and fell into near-by fields, but one long stores building received a direct hit, and a workshop was one-third destroyed.<sup>49</sup> Although the original estimate that Me-109 production at Wiener Neustadt had been cut 50 per cent now seems a little high, there is no doubt that considerable damage was inflicted on a complex that had hitherto been immune from attacks.<sup>50</sup> Because of this, and because it was the first strategic mission into the Reich from the Mediterranean, operation JUPITER may be considered a history-making event in the development of the great air offensive against the Luftwaffe.

While the preparations for JUPITER were underway, the Eighth was waiting for clearing weather. On 12 August, conditions had permitted a raid on Ruhr targets, but it was not until the 17th that a really deep penetration was possible. Therefore, the VIII Bomber Command had to content itself with short runs against airfields close to the Channel coast on the 15th and 16th.

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On the first operation, 327 bombers were dispatched to attack the GAF bases at Vlissingen, Foix, Amiens, Merville, Lille, and Vitry, while the B-17 and B-26's of the VIII Air Support Command carried out diversionary feints. Only 2 bombers were lost. The results of the bombing at Vlissingen, Lille, and Foix were only fair, but were more successful elsewhere.<sup>51</sup> At Amiens the entire airfield was blanketed with bursts, and hits were scored on hangars, workshops, barracks, and a runway. The entire northeast dispersal area was well covered with fragmentation bombs. Equally satisfactory bombing took place at Merville and Vitry.<sup>52</sup>

One interesting feature of this mission was an elaborate double feint which was carried out by the 4th Wing. Previously, the formations would make a diversion up the Channel toward the enemy coast and then proceed to the target. Becoming aware of this trick, the enemy had formed the habit of holding back his fighters and only releasing them when the bombers made their second turn toward the coast. Therefore, on this mission, it was determined that the 4th Wing should make two threats toward the enemy coast before beginning the actual penetration of the enemy air. This plan worked successfully. At the second feint, the GAF reacted vigorously and some 70 fighters took to the air. However, they wasted their gasoline rushing out to meet the 4th Wing, and by the time the real penetration was taking place, the German fighters were on the ground refueling. The fighter escort was unusually effective on this operation and won special praise from Brig. Gen. Frederick L. Anderson, Jr., commander of the Eighth's bombers.<sup>53</sup> Another new technique used on this significant mission was the employment of fragmentation and light GP bombs as the best combination for inflicting the maximum destruction on an airdrome. This had been tried by General Spaatz with

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considerable success in the Mediterranean theater, and was found to work equally well in northwest Europe.<sup>54</sup>

The next day the attack on airfields was continued. The 1st Wing went to Le Bourget and bombed with very good results, some 600 bursts postholing the landing field and causing severe damage to repair shops, hangars, administration buildings, and barracks. The results of the 4th Wing's attack on Poix and Abbeville/Drucat airdromes were considered fair. Both targets were attacked by a total of 236 bombers dropping 397.35 tons. Only 4 bombers were lost and claims of 29-3-11 were made.<sup>55</sup> The build-up of fighter strength in the theater to 298 P-47's with 586 crews was beginning to make possible a more effective escort. Commenting on this mission, General Anderson wrote:<sup>56</sup>

It is felt that this operation is an excellent example of fighter-bomber coordination. The 1st Wing penetrated enemy territory through an area which is very heavily defended by fighters and reported only 59 encounters, with the loss of one a/c to enemy fighters. This number of encounters is quite low and it is evident that the fighter escort of P-47's was effective.

By this time, the weather had improved to the extent that a deep penetration could be attempted, and consequently the Eighth planned to carry out the mission against Regensburg which had originally been a part of the JUGGLER plan. Since the distance was great, the 4th Air Division assigned to the Regensburg attack was to continue across the Mediterranean and land at bases in North Africa. At the same time, the 1st Air-Division was to attack the relatively closer target of Schweinfurt, the center of German ball-bearing manufacture. Three combat wings were assigned to the first task force, and two were assigned to the second.<sup>57</sup> To be able to mount major attacks against two important, heavily defended targets in the same day marked a milestone in the

history of the Eighth Air Force. Nothing like this had been done before, and to carry out this double mission strained the Bomber Command to the limit of its resources. Out of the 613 B-17's and the 555 crews in the theater,\* 376 Flying Fortresses took the air on the morning of the 17th.<sup>58</sup> A heavier commitment could have hardly been made.

Realizing that this double attack would probably cause a great air battle, General Anderson and his staff laid their plans carefully. No less than 18 squadrons of Thunderbolts from the VIII Fighter Command and 16 squadrons of RAF Spitfires were to provide penetration support for the formations and withdrawal cover for the 1st Division's bombers. Diversionary attacks were to be made by the medium bombers of the VIII ACC on Bryas/Sud and Poix airfields, and RAF Typhoon bombers were to hit the airfields at Poix, Lille/Vendeville, and Woensdrecht in order to hold down the German fighters in this area.<sup>59</sup>

It had been originally ordered that the divisions should be dispatched 10 minutes apart, but as the time for departure drew near, the unstable weather made this arrangement impossible. It was then decided to let the Schweinfurt task force take the air three and one-half hours later than the formations headed for Regensburg and thus give the fighter escort ample time to land, refuel, and get into the air again for the second force.<sup>60</sup> Unsatisfactory as this arrangement may now seem, it must be remembered that bad weather had dogged the Eighth for some time, and on the 17th conditions along the entire route as well as over the targets were the best that had been forecast for two weeks. Dangerous

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\*It will be remembered that all but 10 of the Eighth's effective B-24's were still in the Mediterranean area following TIDALWAVE and JUGGLER.

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as it was to dispatch the two task forces separately, it would have been more dangerous to send them without escort, and the growing importance of the two targets did not permit an extended delay.<sup>61</sup>

The mission took place against intense opposition. From Antwerp to the Alps the squadrons were under almost constant attack from about 200 German fighters drawn from all parts of the Reich, one group coming into the fray as fast as another was withdrawn. Near Regensburg, twin-engine fighters with desert camouflage were seen, while some fighters were called in from Holland to the Rhineland and every type of fighter the GAF possessed was thrown into the struggle. As the battle progressed and the bomber formations plowed deeper and deeper into Germany, the tension among the German fighter pilots mounted. Allied listeners intercepting German radio signals heard a strange medley of warnings, exclamations, and imprecations. Calls of "close up," "look out," "formation coming up behind," "fighters to starboard" passed rapidly back and forth among the German planes.<sup>62</sup> At 1636 hours, when the Thunderbolts and Spitfires entered the melee to cover the retiring 1st Division, the combat reached its height. Claims of strikes and kills were heard over the German radio, mingled with cries of "parachute," "ha, down you go you dog," and after almost half an hour's combat, a final gasp "Herr Gott Sakramant."<sup>63</sup> By 1700 it was over.

The bombing was successful, but at the heaviest cost the Eighth Air Force had suffered. Out of the 308 bombers which attacked the targets, 60 were shot down--a loss of 19 per cent of the attacking force; 36 had gone down at Schweinfurt and 24 at Regensburg.<sup>64</sup> However, the damage inflicted had been great. At Schweinfurt, the three roller-

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VIII Bomber Command - PROPOSED OVERALL PLAN

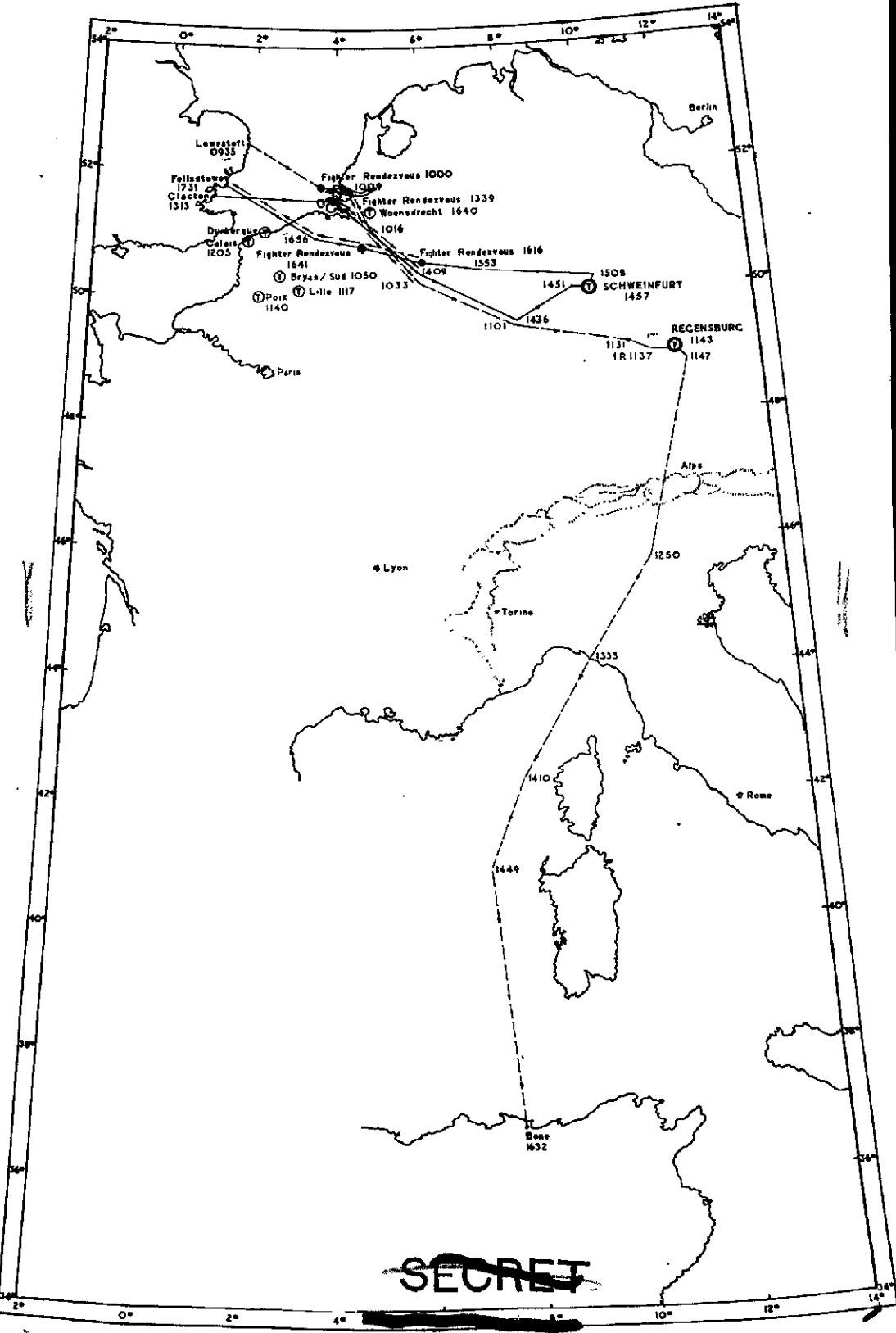
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TRACK CHART

TARGET  
Primary Regensburg, Schweinfurt

Date AML 17, 1943

Route followed by 1st Wing  
Route followed by 4th Wing



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bearing factories were hit several times. In the Kugelfischer Werke, four large machine shops and a storage building were partly destroyed and an office building was gutted. At the Vereinigte Kugellager Fabriken Werke I, one unidentified building was severely damaged, and at Werke II some machine shops were badly injured.<sup>65</sup> At Regensburg, the results were even better. Within the target area 62 installations were damaged and the number seriously damaged or destroyed came to 13 workshops, 5 office buildings, 19 unidentified structures, and 17 others, including a final assembly shop, a gun-testing range, 3 light-metals buildings, a hangar for engine installations, and 10 living quarters. Reconnaissance photos showed 51 single-engine aircraft on the field of which 37 were probably destroyed or damaged.<sup>66</sup> Total claims for destroyed, probably destroyed, and damaged aircraft were set at the very high figures of 290-30-99. Even assuming that these are probably extreme, there can be little doubt that the Luftwaffe paid a steep price for the afternoon's entertainment.<sup>67</sup>

After this great effort, the VIII Bomber Command relaxed while missions were carried out against Luftwaffe airfields and ground installations. A mission against Dutch and Belgian fields on the 19th was badly hampered by weather and amounted to little.<sup>68</sup> On the 24th, Villacoublay was attacked with excellent results, and Bordeaux, Evreux, and Conches were hit less successfully. The attack on Bordeaux was made by the units of the Regensburg task force who were returning from their shuttle trip to North Africa; a cloud over the city prevented accurate use of the bombsights and the results were only fair.<sup>69</sup> Three days later the 1st Division sent 224 aircraft to attack the aeronautical facilities station at Matten, France. Although 37 planes failed to bomb,

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the results were considered excellent. Only four bombers were lost.<sup>70</sup> On the last day of the month, finding primary and secondary targets covered by cloud, a force of 106 bombers assailed the Amiens airdrome as a target of opportunity. The results were excellent. Five dense concentrations covered the target with hits on all the main installations, and some bursts on a railroad marshalling yard near the airfield.<sup>71</sup>

In the war against the Luftwaffe, August must be regarded as one of the more successful months. Although the bomb tonnage was a little lower than July's, this was overshadowed by the fact that the Air Ministry estimates showed a considerable drop in GAF production. Instead of advancing still further toward the 1,000-plane-a-month goal, the output of Messerschmitt and Focke-Wulf fighters fell from a high of 810 to 665 during August. For the first time since the CBO was initiated, Me-109 centers were attacked successfully, and the production of this fighter was cut from 570 to 435 during the month.<sup>72</sup> In spite of heavy casualties on the Regensburg-Schweinfurt operation, total losses for August were slightly less than July, dropping from 7.3 to 7.0 per cent of the planes actually attacking.<sup>73</sup>

The operations against airfields during the last week of August were connected with an elaborate plan known as operation STARKEY. This was a combined operation designed to force the Luftwaffe to commit a large part of its forces to battles of attrition, so that the maximum number of enemy planes could be destroyed in the air and on the ground. The core of the GAF opposition to the daylight raids was the some 680 fighters stationed in northwest Germany and Holland, and approximately 170 fighters based around Lille, Poix, and the Beaumont-le-Roger/Evreux

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nexus farther south.<sup>74</sup> The bombing of these fields in July and August had had a tendency to force the Luftwaffe back from the coast, and the fields at Amiens, Abbeville, and Courtrai may have been evacuated before the commencement of STURM.<sup>75</sup> At any rate, it was hoped that the elaborate maneuvers planned as a part of the operation would force the G.F. "to stick its neck out" and enable the Allies to win the air superiority so important to further land and air movements against the Continent.

The plan was divided into 3 phases: (1) the preliminary phase from 16 to 24 August, (2) the preparatory phase, 25 August to 8 September, and (3) a culminating phase on 8-9 September, when with the cooperation of naval units, an actual invasion of the Continent would be simulated from British ports.<sup>76</sup> It was believed that this ruse would bring on a large-scale air battle. The organization responsible for RAF participation in STURM was No. 11 Group, which was strongly reinforced by squadrons from Nos. 10, 12, and 13 Groups' being absorbed into the No. 11 Group Sector. Also temporary operational control of squadrons from 83 and 84 Groups was given to No. 11; medium bombers (No. 2 Group) and the Coastal Command's antishipping Beaufighters were likewise assigned to the air command for the operation. For D-day, additional reinforcements were to come from Nos. 10 and 12 Groups.<sup>77</sup> The RAF participation was largely limited to the medium bombers of the VIII BC, with whatever assistance the strict priorities of the VIII Bomber Command and the weather would permit it to render.<sup>78</sup> As it later turned out, weather was far more of a problem than priorities or the Luftwaffe.

During the preliminary phase, action centered largely against the

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enemy airfields. A total of 21 attacks was made and 45 enemy aircraft destroyed at a cost of 23. The enemy reaction to the opening phase of STERNEY was cautious, and bad weather slowed down the tempo of attacks. During the big operation against Regensburg and Schweinfurt, the STERNEY task forces ran diversionary raids against Luftwaffe bases, as previously noted, and shot down 15 German planes for a loss of three. All together, 6,000 fighter and bomber sorties were flown during the nine days that this phase lasted.<sup>79</sup>

The preparatory phase which began 25 August was intended to speed up operations with blows against airfields, industrial targets, and military installations in and related to the Pas de Calais area. However, the weather seriously interfered. Of the 42 operations planned, 14 were canceled outright, 11 abandoned, and 3 seriously curtailed, leaving only 15 which were flown as planned.<sup>80</sup> As actually carried out, the preparatory phase was divided into two subperiods: (1) from 25 August to 3 September; and (2) from 4 to 8 September. During the first subperiod, 20 attacks were made on airfields, with the heaviest blows being struck against Beaumont-le-Roger, Tricqueville, Roix, and Liliens. Since photo reconnaissance revealed that the enemy was basing fighters at Cambrai, Beauvais, and Lille/Nord, the last two were attacked.<sup>81</sup> Toward the latter part of this phase the heavy bombers of the VIII Bomber Command contributed to the plan by attacking the fields at Denain and Ardyck on 2 September, and the following day by visiting St. Andre de l'ure, Evreux, Rosilly-sur-Seine, Meulan-les-Vaux, and Dieppe. This last bomber sweep of airfields was a considerable mission involving 295 bombers dropping 2,736 x 500-lb. GJ bombs. Five planes were lost

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no claims were relatively light, being only 20-5-10. The reaction of the RAF continued to be cautious, to say the least.<sup>62</sup>

Beginning with the 4th, the emphasis of the bombers was shifted to marshalling yards which had to be prepared to effect the area of the supposed landings. On this day the RAF showed a slight tendency to react and lost 13 planes as a result. It was believed that the Germans had used long-range bombers for laying mines in the Channel on the night of 3-4 September, and when the Royal Navy conducted a mine sweep, this produced a German air reconnaissance--the first one carried out during SHILLY.<sup>63</sup> With overcast conditions during the bombing of Germany difficult, a part of a formation of Fortresses came to the assistance of the SHILLY operations and bombed the airfields at Dieppe/St. Aubin, Conches, and Orleans/Dricy on 6 September. Because of clouds, the results were unobserved. The next day three operations were run off against the Brussels/Lvere aircraft depot, the Bergen/Ilkmaar airfield, and the aeronautical station at Antwerp.<sup>64</sup>

Meanwhile, during several weeks prior to the final phase of SHILLY, large bodies of troops had been moved into the southeast counties and motor transport vehicles and antiaircraft personnel began to assemble near assault craft designed to simulate the "bridgehead" formations of an invading army. Between Southampton and the Thames estuary large numbers of ships began to appear at various anchorages and ports. As the last phase began, the main problem was to silence the German long-range guns on the French coast which might have thrown the proposed operation into considerable hazard; consequently, RAF and US fighters and medium bombers were to neutralize these gun positions. Although

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the last phase was to start during the night of 7- September, weather forced a postponement until the night of 8-9.<sup>85</sup>

The first attacks of the final phase were made by bombers against seven battery positions while the fighter-bombers attacked beach defenses in the Paruelot area. These attacks were successful and were almost unopposed. At about 0700 hours, the naval assault force, under an umbrella of planes, set out from Dungeness and swept down the Channel toward Le Touquet.<sup>86</sup> About an hour later, the Eighth Air Force unleashed a heavy simultaneous attack against the seven principal airbases in northwest France. Eighty-seven bombers were sent against Leumont-sur-Oise, 63 to Beauvais/Valle, 37 to Lille/Fora, 50 to Lille/Vendeville, 35 to St. Omer, 40 to Abbeville/Arucat, and 50 to Atray-en-Artois, making a total of 377 bombers. Only two were lost and since the Luftwaffe's opposition was light, claims were only 10-2-9.<sup>87</sup> While this was going on, the convoy proceeded down the Channel till 0900 when the Sostons laid a smoke screen and under cover of this, the fleet turned about and landed at Dungeness near 1100. The enemy air reaction to the naval maneuvers was nil.<sup>88</sup>

In summing up the results of this long, carefully planned operation, the official report made it quite clear that all attempts at deception had failed. The enemy was never deceived into thinking that a serious landing was attempted, and consequently made no attempt to use his fighters against our land or sea operations. Once again it was made clear that only deep penetrations to vital industrial targets would bring the Luftwaffe out in force. Although the Germans did reinforce their fighters in the Beauvais and Lille areas, these measures were

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mainly precautionary and did not cause any fundamental change in their disposition of fighters. In the words of the final report:<sup>69</sup>

. . . it is beyond the scope of this Report to consider the reasons why the enemy appreciated that a full scale landing was not intended. It is suggested, however, that this may have been due either to his having had information that the extent of the Army participation in this operation amounted to little more than an Administrative Exercise . . . or else to a firm conviction that there could be no serious threat of invasion from this Country at the present time. The enemy's almost complete lack of overland Reconnaissance, both prior to and during this Operation lends colour to either of these hypotheses.

In the vernacular, STREXY was a flop.

After a pause of a week, the offensive against German airfields was resumed. On the 15th four task forces were dispatched to attack German industrial targets in France and certain airdromes. Ninety-three bombers of the 1st Division struck at the aircraft storage and repair depot at Romilly-sur-Seine with excellent results, and the 2d Division bombed the Chartres airfield as a last-resort target.<sup>90</sup> The following day 295 bombers were dispatched in a sweep of targets from Brittany to the Bay of Biscay. Among the objectives were the Nantes/Chateau Bougon airfield and GAF installations at La Rochelle/Laleu and Cognac/Chateaubernard. Claims were 44-5-13 at a cost of 11 heavy bombers.<sup>91</sup> Again on the 23d the Ports were out, this time against certain Breton airfields. Vannes/Meucon was bombed by 55 planes, Kerlin/Bastard by 53, with good results for both raids, and Rennes/St. Jacques was hit by 19 with only fair results.<sup>92</sup> The last counter-air force operation of the month took place on the 26th when 40 bombers blanketed the Reims/Champagne airfield with IL and IB, causing much damage.<sup>93</sup>

September was a month of greatly increased operations. A total of

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2,085 bomber sorties reached their targets for the relatively low loss of 4.7 per cent of the attacking planes. Bomb tonnage reached a new high of 5,743 tons for the month. On the other hand, claims were considerably lower, 303 destroyed, as compared with 457 for the previous month.<sup>94</sup> This is probably because so many of the missions were against coastal airfields which were relatively undefended. It is also probable that the Luftwaffe was beginning to follow a policy of conservation of fighters, as indicated in the reaction to STALLY, and did not wish to commit its forces to battle unless the stakes were high.

At the same time, a good many of the missions of September were relatively small affairs; yet the build-up of strength in the theater was greater than ever before.\* This problem seems to have troubled General Arnold, for on 25 September he cabled Gen. Ira C. Eaker, commander of the Eighth Air Force, that "we obviously must send the maximum number of airplanes against targets within Germany. I know you will agree that the minimum number must be kept on the ground at our bases or in reserve." He went on to say that he was under constant pressure to explain why we did not use massive flights of planes since we now had enough to put 500 in the air.<sup>95</sup> And the next day, Arnold again cabled him to get the facts about German aircraft production, especially the effects of the August bombings.<sup>96</sup>

General Eaker's reply was reassuring. He believed that the German single-engine plane production had been materially reduced by the Eighth's raids and stated that "an educated guess indicates further

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\*There were 749 heavy bombers with 871 crews, and 422 fighters with 869 crews. Statistical Control.

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reduction in Me-109 production for September.<sup>97</sup> He thought that shifts in location plus the withdrawal of planes from the Eastern front might offset the destruction of the older plants. An increase of strength was probably to be expected in the Mediterranean area, but he believed that the new units would be made up of green crews.<sup>98</sup> A few days later, after a raid of 2 October on Lindenberg with exceptionally light losses, he was able to cable General Arnold that the weak German fighter attacks on our formations were due to a shortage of single-engine fighters caused by our attacks on German fighter factories.<sup>99</sup>

The Lindenberg raid was soon followed on 4 October by an extensive mission involving four task forces made up of 301 bombers. One formation of 38 B-17's attacked the St. Dizier/Robinson airfield as a last-resort target, but little damage was done. Bombers from the 1st Division attacked the Vereinigte Deutsche Metall Werke at Frankfurt. This plant produced more than 50 per cent of the metal propellers used by GAF fighters, reconnaissance planes, and bombers. A photo reconnaissance taken a few hours after the raid showed the plant still burning, and between one-half and one-third destroyed.<sup>100</sup> This mission marked the debut of the B-24H bomber which, according to General Baker, "gave a good account of itself in its first combat."<sup>101</sup> From all the forces attacking, 16 heavy bombers were lost. The preliminary claims were 56-24-22,<sup>102</sup> but these were later re-evaluated and became 87-24-47.<sup>103</sup>

On the 8th the heaviest attack up to that time was carried out against Germany. Four air task forces, involving 399 Fortresses and Liberators went out against various targets. One force of 53 B-17's

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dropped 180 x 500-lb. GP and 720 x 100-lb. IB bombs on the Messer airframe (Fw) plant at Bremen. Unfortunately the bombing was not good on this occasion. The strike photos showed two possible hits with most of the bombs falling outside the target area. Claims for all the task forces reached the very high figure of 167-22-25 for the heavy loss of 30 bombers. However, an RAF raid in the same area that night sustained a loss of three bombers, showing the value of cooperative missions.<sup>104</sup>

The story of the 113th operation on 9 October is tersely and neatly summed up in the Narrative of Operations:<sup>105</sup>

Five air task forces of Fortresses and Liberators made the deepest penetration into Germany since the beginning of operations by VIII Bomber Command to successfully attack important naval and industrial targets in eastern Germany. Bombing results were excellent . . . . 28 heavy bombers failed to return and claims against e/a are 122-29-61.

The 1st Division sent 115 B-17's to bomb the Arado plant at Anklam, a major producer of Fw-190 component parts which were assembled at Tutow. The results were excellent in spite of the loss of 13 of the big planes. Concentrations of HE and IB bombs covered the entire factory and every major unit of the plant sustained damage.

The 3d Division dispatched 100 B-17's against the important Fw-190 assembly plant at Marienburg which was then supposed to have inherited most of the functions previously carried out at Bremen. This raid was one of the most effective of the year. All but four of the dispatched planes attacked the target from the relatively low altitude of 11,000 to 13,500 feet yet only two of the Fortresses were lost. The plant was practically destroyed with hits on all major units except one assembly shop at the north end. As the planes departed, the entire target was a mass of smoke and flame; three hours later the fires were still so

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intense that photo reconnaissance was impossible.<sup>106</sup>

The day following the mission, General Baker cabled General Arnold the following message: "Have just seen first P.W. photos of yesterdays attacks; most encouraging. Fighter factory Marienburg undoubtedly destroyed. It will be a better example of pin point bombing, a better concentration than Regensburg. Looks like a perfect job. Fighter factory at Anklam received excellent concentration and principal buildings burning . . . . Believe you will find October 9th a day to remember in air war. Prime Minister is sending message to crews."<sup>107</sup> Two years later when Hermann Goering was being interrogated as to the effects of our bombing offensive, the August raids on Regensburg and Wiener Neustadt and the October raid on Marienburg still remained in his mind as among our most successful efforts.<sup>108</sup>

Five days later, the Eighth achieved another outstanding mission with its follow-up attack on Schweinfurt. As previously described in this chapter, Schweinfurt had been successfully bombed on 17 August. By this time, it was assumed that repairs were nearly completed and the target ready for a follow-up attack. Furthermore, it had been observed that deep penetrations against vital objectives always produced a violent Luftwaffe reaction and it was hoped that in defense of this important ball-bearing plant, the G.F. would commit large forces to the air battle.

These expectations were fulfilled. As the 291 bombers of the task force\* moved steadily across northern Europe, the German fighters were assembling, waiting for the moment when the escorts would turn back and

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\*This figure does not include a formation of 29 planes which was unable to assembly with the other groups owing to weather, and therefore flew a diversion in the direction of Emden.

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leave the big planes open to attack. As the groups passed over the Aachen-Duren area, the fighter escort left, and the first German attack squadrons dived into the bomber formations.<sup>109</sup> The first wave of bombers was hardest hit. Approximately 300 enemy planes attacked the squadrons using a combination of single-engine fighters coordinated with twin-engine rocket-firing planes that was very effective. Out of this first wave 45 bombers were lost and only 101 were able to reach the target.<sup>110</sup> In spite of this fierce opposition, a combination of improving weather, and a clever feint away from the target that threw off the swarms of German aircraft, enabled the two attacking formations to bomb with considerable success. The main installations were hit, and many fires were burning when the bombers left the area. In the V L F Works I all the main buildings in the southwest end were gutted by fire while seven buildings in V L F Works II were more than half destroyed. At the Deutsche Star Kugelhalter plant which manufactured ball-bearing cages, the storage buildings were completely destroyed and the machine shops were damaged. According to the Narrative of Operations of the Bomber Command, 75 per cent of Schweinfurt's productive capacity was wiped out.<sup>111</sup> The destruction of 60 bombers marked this operation as one of the costliest missions carried out, but this loss was partially offset by the very large preliminary claims of 116-27-89; these were later sustained\* by the final evaluation.<sup>112</sup>

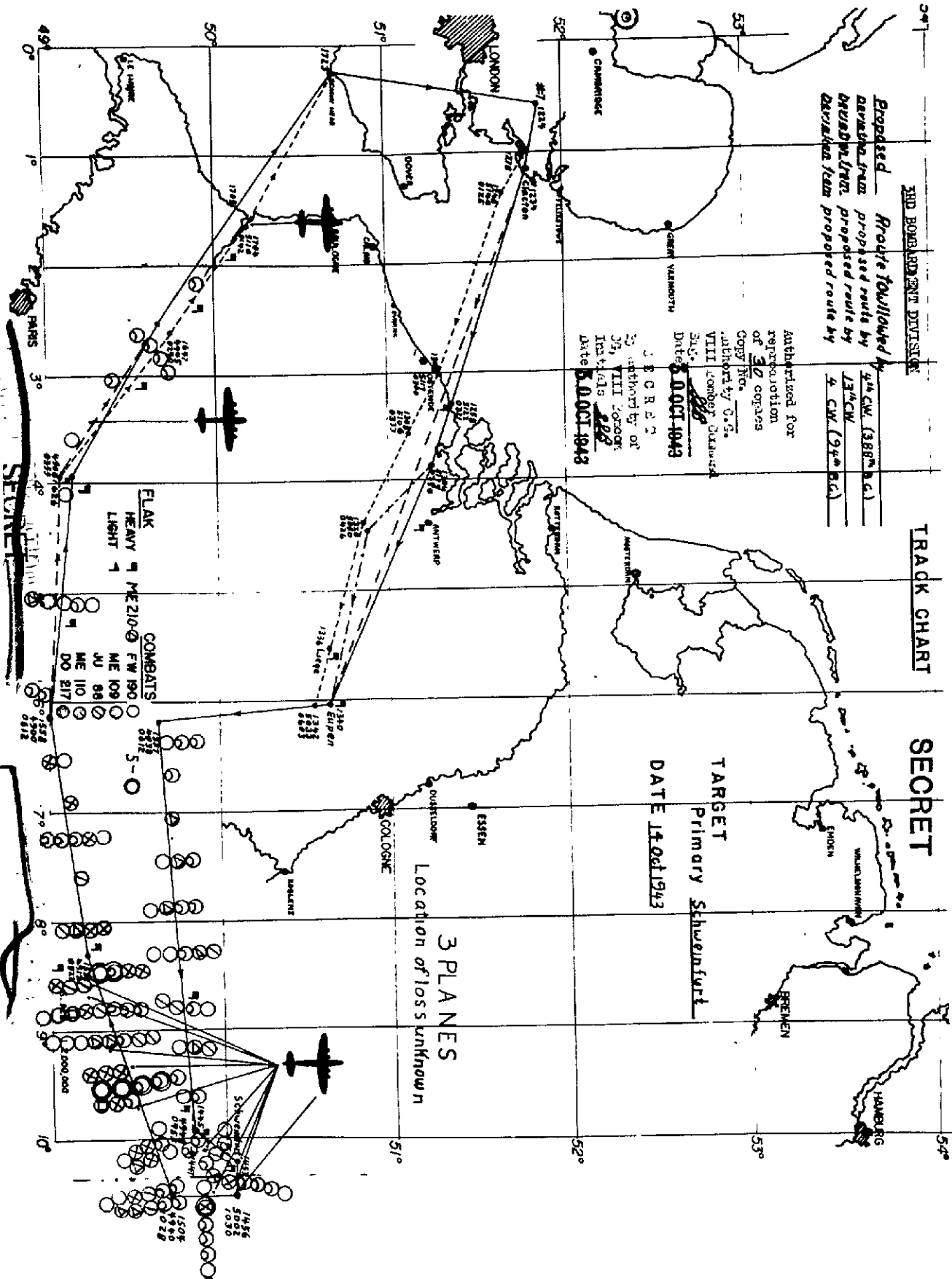
In spite of the heavy losses, it was soon recognized that the Schweinfurt raid of 14 October was an outstanding mission. General Arnold

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\*In spite of this apparent confirmation, it is suggested that the figures are still much too high.

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3RD BOMBARDMENT DIVISION

TRACK CHART

SECRET

Proposed Route followed by  
 B-24's proposed route by  
 B-24's proposed route by  
 B-24's proposed route by

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 VIII Comber Command  
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J E G R 2 3  
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 Date 30 OCT 1943

TARGET  
 Primary Schweinfurt  
 DATE 14 Oct 1943

3 PLANES  
 Location of loss unknown

FLAK  
 HEAVY  
 LIGHT  
 COMBATS  
 FW 190  
 ME 109  
 JU 88  
 ME 110  
 DO 217

SECRET

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cabled that he was particularly gratified that morale and enthusiasm were still high. "Convey this message to your command," he wrote Baker, ". . . the cornered wolf fights hardest and . . . the German Air Force has been driven into its last corner."<sup>113</sup> Secretary of War Stimson sent his "heartiest congratulations and deep admiration . . . to all ranks of the Eighth Air Force,"<sup>114</sup> and General Marshall stated that he was "tremendously impressed with the apparent complete destruction of the Schweinfurt Ball Bearing Plant" which, he believed, would have an effect on the general German position comparable to that of the Floesti mission.<sup>115</sup>

The air battle of Schweinfurt was the last counter-air force operation of a month which, according to Eighth Air Force claims, was the most costly yet endured by the Luftwaffe. In all, 870 enemy aircraft were destroyed (Boeber Command claims alone came to 791-20-71), but American losses were far from light. In fact, the 136 heavy bombers destroyed constituted 9.7 per cent of the attacking forces,\* and made October's air operations the most costly of the European war.<sup>116</sup> The actual monthly loss of bombers was destined to go much higher--in April of 1944 it would reach 420--but at no time would the percentage of loss come to October's figure.<sup>117</sup> From this time on, the build-up of strength would always keep well ahead of attrition.

Was the G.F. defeated? Could it continue to withstand such heavy pressure? General Arnold, at least, was hopeful that the end of serious resistance in the air could not be long deferred. "From my viewpoint," he cabled Baker, "it appears that the past months operations on all

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\*This term does not include forces dispatched, but only those that actually reached the target area.

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fronts may indicate that the German Air Force is on the verge of collapse. Frantic employment of all types of defensive aircraft may mean the Luftwaffe is staving off a crisis.<sup>#118</sup> In reply, General Eaker stated that he saw no definite indications of collapse, but such evidence of strain. Our bombing would cut German single-engine fighter production 35 to 40 per cent by the end of November, and reserves were very low. On the whole, his outlook was optimistic: "It can be stated with certainty that the completion of COMBAT as scheduled will produce the desired result."<sup>#119</sup>

With the close of October, the second stage of the CBO came to an end. As originally scheduled, it called for a theater strength of 1,191 planes providing an average striking force of 450. Main on basis of the attack in this phase was to consist of 1,200 operations against the German aircraft industry within a radius of 200 miles from the coast in the United Kingdom. Actually, as executed, this phase of the 31st series surprised, and at other times fell considerably behind, the schedule. Though in the Malin and Hevensburg missions the 400-mile radius was considerably exceeded, a large number of missions had been close to the Channel coast. German aircraft factories had been hit, but since weather often interfered with deep penetrations, a great many of the operations had to be content with bombing air-ports, airbases in northern France, Belgium, and Holland. Then too, a large number of heavy and medium bombers had been diverted from more vital targets to the unsuccessful STURGEON operation. Perhaps the greatest deviation from the schedule was in the build-up of planes in England: the 779 American bombers present (with units) in the United Kingdom at the end of October

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was a far cry from the 1,102 days upon which the second phase of the program was predicated.<sup>120</sup> As a result, none of the operations came near the 150-day mission which it was hoped would be the average-sized raid in the July-October period. In pointing out where the JS fell short of what its creators expected, it is only fair to state that any obstacles encountered could not possibly have been foreseen when the air offensive against Germany was being planned. That some of these problems were, and how they were met will be the burden of the following chapter.

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## Chapter III

## MAINTAINING THE PRESSURE AGAINST THE GAF

For convenience, the last chapter dealt almost entirely with the early operations of the ~~FOURTH~~ program, and it was therefore necessary to omit an account of some of the problems which the Eighth Air Force faced in trying to hold to the established plan of operations. It is now time to consider them. Briefly, there were three major factors that affected the progress of the attack on the Luftwaffe during 1943. They were: (1) the diversion of men and equipment from the Eighth to other air organizations, (2) the slow build-up of American air power in the theater, and (3) the high cost of the air offensive.

From the very beginning, the Eighth was called upon to contribute to the build-up of new air forces while it was still trying to get its own organization set up and commence its operations. Shortly after the Eighth arrived in England, the North African invasion was decided on, and much of the planes and materiel which were beginning to arrive in the British Isles had to be transferred to the Twelfth Air Force.\* The extent to which this transfer held back the Eighth's operations was doubtless great, and the effects were felt for many months to come. As late as June 1943 there were only 582 heavy bombers on hand with units in the VIII Bomber Command.<sup>1</sup>

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\*For a discussion of the build-up of the Twelfth, see ~~REF-5~~, 29-30.

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In spite of the fact that to carry out the GSO required 944 bombers in the theater by mid-1943, the Eighth was at this time called on to make another diversion and was ordered to send three B-24 groups to reinforce the Ninth Air Force for TIDAL WAVE and JUGGLER. As a result, between 26 June and 2 July, the 44th, 93d, and 389th Groups were dispatched; the first two were old, experienced units, while the 389th was new and untried. General Baker and General Devers, LTO commander, were not happy over this latest diversion and the latter urged that the groups be used only for the Floesti mission and then returned immediately, since their loss reduced the bomber strength by one-fifth.<sup>2</sup> However, the uses for heavy bombers were legion, and it proved difficult to get them back.

After participating in the LUSKY operations from 2 to 17 July, the groups were then assigned to TIDAL WAVE, presumably to be followed by JUGGLER.<sup>3</sup> At this point, Baker and Devers, assisted by Air Marshal Sir Charles Portal, attempted to have JUGGLER given top priority over the Floesti mission. They felt that the GAF fighter factories were of "paramount and highest priority" and that such targets should have precedence over all others. At the same time, they strongly urged that the B-24's be returned as soon as possible.<sup>4</sup>

Both Generals Marshall and Arnold did not want to see TIDAL WAVE hampered in any way, but the views of the American and British air authorities were passed on to General Eisenhower on 19 July and his opinion was requested as well as the views of Tedder and Spaatz.<sup>5</sup> On the following day, Eisenhower replied with a compromise suggestion. Like Marshall and Arnold, he did not want to abandon TIDAL WAVE, especially after all the preparations involved. Since he believed greater losses

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might be expected from the Rumanian raid, he suggested that JUGGLER might come first since it would be the easier. While he appreciated General Baker's desire to get his groups back, he felt some things were more important, such as follow-up raids on Floesti.<sup>6</sup> The question was finally brought before the Combined Chiefs of Staff and on the 23d they cabled their decision to Eisenhower: TIDALWAVE was to have first priority, but the attack on the fighter factories was to take place as soon as arrangements could be made with the Eighth Air Force.<sup>7</sup>

This issue was now settled, but while the three groups were in North Africa preparing for the attacks on Floesti and Wiener Neustadt, a new demand was made on the Eighth's bombers. The Sicilian campaign was in full swing, and there was a great need for all available air power. Consequently, General Eisenhower requested four heavy bombardment groups from the Eighth Air Force. General Marshall forwarded this request on to General Devers who objected strongly. The coming period was highly important, as it was the phase of the CBO in which the GAF production was marked for destruction, and Devers felt that the Eighth had at last reached a size where effective coordination with the RAF would be possible.<sup>8</sup> In addition, he cited the successful raids on submarine installations and warned that the bombers could not operate outside their own theater at the maximum efficiency. For these reasons, he urged Marshall not to divert the Eighth from its official task.<sup>9</sup> Evidently this appeal had some effect, for the Chief of Staff suggested to both Devers and Eisenhower that perhaps medium bombers could be substituted for the heavy groups.<sup>10</sup> To this suggestion, Devers voiced similar objections and added that the mediums had special commitments to STANLEY

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which made it desirable to keep them in the theater.<sup>11</sup> The argument was again terminated by the Combined Chiefs of Staff in a decision that was favorable to the air strategists and the CBO, and General Eisenhower's request was disapproved.<sup>12</sup>

So far the Eighth, with the backing of General Devers, had been able to hold its remaining forces together for the FOUNTAIN offensive. However, owing to the heavy losses at Floesti, General Arnold agreed that some additional B-24's would have to be furnished General Brereton for JUGGLER<sup>13</sup> and on 5 August Devers cabled Washington that he was sending six and possibly seven B-24's and crews to the Ninth.<sup>14</sup>

With the successful conclusion of JUGGLER, another struggle began over the much-sought-after B-24 groups. Once more Eisenhower asked for them and Devers opposed, cabling Generals Arnold and Marshall that if the groups were returned by 20 August they could accomplish the destruction of four to eight aircraft factories or aircraft engine plants in August or September. "Any delay now," he stated, "will jeopardize the success of the entire bomber offensive."<sup>15</sup> Also, more B-24's were arriving in England from the United States and the presence of the experienced groups in the theater was essential because of the training and morale factors involved.<sup>16</sup> After several exchanges of cables, the CCS evidently reached a decision by 19 August, for in a cable of that date General Eisenhower referred to their decision to return the B-24's to General Eaker.<sup>17</sup>

But this was not the last of the competition for the three groups whose control must have been rapidly assuming the proportions of a major headache for all concerned. On 15 September, General Eisenhower returned



to the subject and again made a strong request for their services. This time the tactical situation was greatly in his favor. On the 9th, the Allies had made a very precarious landing at Salerno. The beach-head held, but a heavy German counterattack had been launched on the 11th and not till the 15th was there any assurance that the position could be maintained.<sup>18</sup> However, the situation was still critical, and Eisenhower assured the War Department that if assigned to him, the Liberator groups would be used on daily missions to upset communications between the north and south enemy concentrations.<sup>19</sup> Upon receiving Eisenhower's cable, the Joint Chiefs of Staff agreed to lend him the B-24's for a short period, provided British concurrence could be obtained.<sup>20</sup> This was soon given and on the 16th, Devers was able to report that the 93d, 389th, and 44th were to be sent,<sup>21</sup> making a total of 37 aircraft and 108 combat crews.<sup>22</sup> Thus the Eighth again lost the use of practically all its experienced B-24 crews and their planes. However, it was evident that the arguments of General Devers, no doubt based on the advice of his airmen, had made an impression in the War Department for General Marshall made it clear that the groups were to be returned to England as soon as possible. On the 22d he cabled Eisenhower that the groups were sent to him as an emergency measure, and that the bomber offensive from England was thereby weakened at a critical time. Pointing out that there was considerable opposition, he concluded: "I hope that you will see your way clear to release them very soon."<sup>23</sup> This request was promptly complied with; the planes were released on 24 September and shortly after returned to England.<sup>24</sup>

It is probably useless to argue the question of what these three groups would have done if they had been able to remain in England

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during July, August, and September. However, it might be pointed out that during the first two months the theater strength was low, and it seems very likely that their absence had something to do with the decreased tonnage and claims for August. Important as was the POINTBLANK offensive, it had to compete with other high-ranking priorities, and it did not always succeed in holding its own. However, it is significant that after September 1943, the heavy-bomber forces in England were not raided again by other theaters. It is true that the medium bombers of the 3d Wing later became the nucleus for the IX Bomber Command which was organized in October, and in November some heavy groups in the United States were switched from the Eighth to the Fifteenth, but the B-17's and B-24's in the theater were henceforth able to turn their undivided attention to the bombing program planned for them.

Another serious problem affecting the success of operations was a shortage in replacement crews. The situation became critical in June. Following the mission of the 13th against Kiel, in which losses were heavy, General Baker cabled General Arnold that "it is now perfectly obvious we are going to have a tough battle."<sup>25</sup> He was gravely concerned over the flow of replacement crews and felt that the 73 promised in June and the 50 promised in July would not do. He was taking gunners, ground personnel, navigators, and bombardiers from the mediums to increase his crews and he urged Arnold to get crews from any source and rush him a minimum of 150 in June and 200 in July. In conclusion he summed up the crisis in trenchant phrases: "This battle against the German fighters is reaching its critical stage. We must press it at maximum. Any weakening or discouragement would be fatal. Repeat our greatest need

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more replacement crews, next more depot facilities, third get long range tanks for fighters. All must come through fast if we are to win this air battle this summer."<sup>26</sup>

In his reply, Arnold indicated some of the difficulties involved in keeping up a sufficient flow of crews to the theater. One aspect of the problem was to continue this movement of replacements from the United States and at the same time to maintain and increase the regular theater strength. To keep up replacements, it would be necessary to shift planes from combat purposes to training, and that would hold down the number that could be sent to the theater. Furthermore, if the planned flow of replacements should be kept up,<sup>\*</sup> it would be impossible to turn out the additional combat crews needed for the scheduled build-up of strength in the United Kingdom between August 1943 and January 1944. "We are accordingly facing," he cabled, "one of the most serious decisions that we have had to make."<sup>27</sup>

Replying two days later, Eaker definitely favored keeping up replacements even at the expense of new units, if necessary. He believed that 10 groups maintained at full strength could exert much more pressure on the enemy than 20 groups at half strength with battle casualties not promptly replaced.<sup>28</sup>

I know now that we must keep our combat units up to organizational plane and combat crew strength if we are to win the American bomber versus the German fighter battle now in progress. . . . Hence we must get a higher flow of replacement crews even at a sacrifice of some new units on schedule.

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<sup>\*</sup>The War Department was trying to furnish two and one-half crews per plane in all heavy and medium groups, and two crews for all other types of aircraft in combat organizations.

General Devers strongly concurred in these recommendations.

It is not clear from the available documents whether General Baker's suggestions were accepted at this time or not. Certainly, the replacement-crew crisis remained acute for the next two months. In July 159 crews were received, but 171 were expended. In August 164 arrived and 120 were lost in operations, but in September there was a considerable improvement with 281 coming in and losses of 104.<sup>29</sup> However, the heavy casualties in the early October operations made the situation critical again. On the 13th, just one day before the loss of 60 bombers and crews in the Schweinfurt mission, Baker was forced to cable that only 37 heavy crews had been received so far that month and that replacements for the month were far below predictions.<sup>30</sup> Following the Schweinfurt mission, he again cabled Arnold that replacements and crews must be rushed at once; he expected to lose 200 that month\* and must receive a minimum of 250.<sup>31</sup> In his reply General Arnold assured him that enough heavy bombers and crews were scheduled for delivery to insure his getting his minimum of 250.<sup>32</sup> By the end of November incoming crews had brought the total (including casuals) for the United Kingdom up to 1,543 heavy-bomber and 1,187 fighter personnel.<sup>33</sup>

Although, according to General Baker, the shortage of combat crews was more of a factor in restricting operations than a shortage of planes,<sup>34</sup> General Arnold was concerned over the large number of bombers which were reported as not ready for combat. It is perhaps significant that the previous week, General Spatz had written him expressing his regret that the full weight of American bomber production had not been thrown

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\*This was a fairly close guess, for actual losses came to 186.

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against Germany proper. "I still believe that such an attack, if it had been followed through, may well have been decisive,"<sup>35</sup> Spaatz had written. On 2 June, Arnold cabled Baker that "according to statistical reports too large percentage of your heavy bomber aircraft are reported not ready for combat . . . . I am much concerned over the limited number of aircraft reported ready for combat."<sup>36</sup>

In the reply signed by General Devers, it was pointed out that two factors were keeping planes out of combat. The first was the need of making additional modifications on aircraft after their arrival in the theater because of special local needs. The second factor was battle damage. The strength of the enemy opposition was greater in this theater than in any other, and the battle damage caused by the G.F. resistance was greater than had ever been contemplated.<sup>37</sup> As yet, the repair organizations had not reached the necessary efficiency. As an example, Devers cited a recent mission of 23 planes in which 27 had received some battle damage. Of the 541 heavy bombers allocated to units, only 355, or 65.5 per cent, were ready for combat.<sup>38</sup>

This problem continued to disturb both the theater authorities and General Arnold throughout 1943. On 25 September he was again urging General Baker to keep only the minimum number of bombers in reserve or on the ground at bases,<sup>39</sup> and similar remarks can be found throughout the October and November cables and letters. Of course, the modification and maintenance situation was only partly a cause of the slow build-up of combat forces. Another factor was the fact that apparently the bombers did not arrive from America in the amount which the CBU planners anticipated. This was especially disturbing to the British.

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On 15 August, the JCS Chief of Air Staff, Air Charles F. Boardman, complained that the Eighth Air Force was considerably below the build-up as organized in COMINTREP and approved at the Trident Conference. He urged that "the US Chiefs of Staff take all practicable steps to increase striking power of the VIII Bomber Command during the next two months."<sup>40</sup> When General Arnold visited the theater and was able to see the situation for himself, he cabled General Marshall that it was necessary to send 200 B-17's to the theater at the earliest practical moment.<sup>41</sup> Since 20 days were necessary to install the theater accommodations, it would take till October at the earliest to get them all into combat. "The battle losses, battle damage and operational losses to the heavy bombers have cut down the number available to the organized groups so that they can not even approximate a total of 35 planes per group ready for service."<sup>42</sup>

Even more critical was the fighter situation. On 1 July, when the total fighter strength with units consisted of 216 F-47's, Maj. Gen. Barney D. Giles sent a memo to General Arnold stating that the Eighth Air Force did not have enough fighter forces to conduct escort operations, and recommending that a minimum ratio of one fighter group for each two heavy bombardment groups be immediately established.<sup>43</sup> Furthermore, he suggested that the 20th Fighter Group, F-38 organization destined for North Africa but still in America, be sent to England and that three more F-38 groups then with the Twelfth also be transferred to the Eighth at the earliest opportunity.<sup>44</sup> After some discussion, the question of the 20th group was referred to the JCS who agreed to send it to England, but nothing was done about the other three groups mentioned by General Giles and they remained in the Twelfth until after the activation of the

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Fifteenth Air Force.<sup>45</sup>

In August the fighter situation was somewhat improved by additional shipments which brought the number on hand with units up to 298. In September the arrival of the first P-38's (all 13 of them) plus additional Thunderbolts brought the total up to 422.<sup>46</sup> Since the twin-engine Lightning had a greater operational range than the Thunderbolt, General Arnold made special efforts to get P-38's into the Eighth Air Force as soon as possible. We finally decided to divert to Baker all long-range type P-38's and P-51's promised to the Mediterranean and Pacific areas for the last quarter of 1943. This should provide General Baker with 45 additional long-range P-38's in October, 92 in November, and 110 in December. It would also give him 31 Mustangs in November and 73 in December above previous expectancies.<sup>47</sup> Here again, the number sent to the theater remained considerably larger than the number that filtered through modification centers to become operational with combat units. The figures for the last four months of 1943 are as follows:<sup>48</sup>

	<u>P-38</u>	<u>P-47</u>	<u>P-51</u>	<u>total with units</u>
September	13	409	0	422
October	74	430	1	555
November	68	587	21	676
December	53	741	44	838

Nevertheless, by the end of the year the fighter strength had been greatly augmented and was no longer a pressing problem.

The desire to increase the number of American fighters in the theater was closely connected with the growing menace of German fighter attacks on the bomber squadrons. It had been believed at one time that the Fortress formations could fight their way through flak and enemy aircraft to the target and back without undue losses. The early missions in 1942 had

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tended to substantiate this theory for losses were relatively light. However, by the spring of 1943 this comforting hypothesis was being shot to pieces. General Spaatz had foreseen that a time might come when the Germans would solve the problem of meeting the B-17, and warned that this would be a severe setback.<sup>49</sup> Unfortunately, it began to look as though his warning was coming true.

The first signs of trouble were noticed early in January 1943 when the G.I.F began to concentrate on frontal attacks, since it appeared that the firepower of the B-17 was weakest from this direction. General Eaker was forced to admit that "the Germans are making frontal attacks almost exclusively and all our recent losses have resulted from this form of attack." However, he felt the front or chin turret would greatly reduce bomber casualties.<sup>50</sup>

By April the Luftwaffe pilots had worked out new methods of assault that were hard to parry. In the Bremen raid of the 17th, which resulted in the loss of 16 bombers, these new maneuvers seemed especially effective. Instead of striking indiscriminately at the formations, the Messerschmitt and Focke-Wulf fighters concentrated on the lead group as soon as the open bomb bay doors indicated the bombing run was begun and that evasive action would be impossible. By this time the Germans had a good idea of the limits of traverse of the nose .50's, for pilots reported that the heaviest attacks came from 10 o'clock and 2 o'clock, just outside the cone of fire and from just below the lower traverse limit of the nose guns.<sup>51</sup> Other techniques tried, which were going to become part of the standard equipment of the Luftwaffe, were diving nose attacks from higher levels in which the plane acquired great speed, mass attacks by

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fighters in formation in line or abreast, and shelling of the formations with 40- or 50-mm. cannon by twin-engine fighters that paced the bombers just out of range.<sup>52</sup> All of these methods proved to be effective, especially when the Germans learned to concentrate large masses of fighters at given points along the bomber routes.

By summer of 1943 the G.F. had learned enough about the American heavy bombers and their tactics to put up a fierce defense when vital targets were threatened. The Eighth's attack on Kiel and Bremen, 13 June, produced an unusually heavy air battle. It had been assumed that the 1st Wing, which was attacking Bremen, would bear the brunt of the enemy attack and consequently it was made the stronger of the two. However, the formations were intercepted while still off the Danish coast and it was the 4th Wing which had to sustain violent assaults by some 200 enemy fighters. The 1st Wing's losses were relatively light, but the 4th lost 22 aircraft.<sup>53</sup> This habit of concentrating on one formation while leaving the other almost unmolested was a popular technique with the G.F. All types of attack and pursuit planes took part in the Kiel battle. The majority consisted of Me-109's and Fw-190's, but Ju-88's, Me-110's, and Me-210's were also sighted. Attacks came from all angles, but frontal assaults predominated; the fighters came in in pairs, in 3's, 6's, and 8's. Several attacks by six to eight planes abreast and in V's against the rear of the bomber formations were reported. Aerial bombing by enemy fighters was tried; the fighters dropped their bombs on the bombers and then attacked as soon as the bursts had dissipated, in the apparent hope of upsetting the formation flying.<sup>54</sup> On the way home, while the bombers were just leaving the Dutch coast behind, there was another

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violent attack which lasted until the planes were within 30 miles of the English coast; a particular effort was made, during this last phase of the battle, to pick off straggling Fortresses that could not keep up with the formations.<sup>55</sup> Altogether, 71 per cent of the returning planes were rendered temporarily inoperative because of battle damage.

Ninety bombers were lost during June. While not a large number, perhaps, it represented 8 per cent of the attacking forces and this was considered serious.<sup>56</sup> The percentage was only slightly lower in July, and at the beginning of August, General Arnold wrote General Eaker that he had asked the School of Applied Tactics to go into the matter very carefully and prepare a report on the best type of bombardment formation to be used over Germany. Furthermore, he had had H.L. Roach and other expert cameramen at AFSAT make photographs of various heavy-bomber formations employing nose and belly turrets, to determine the best defense against enemy attack, especially those coming from the front.<sup>57</sup>

Meanwhile, the air war went on. By now the GAF seldom rose in force to defend airdromes or similiar installations in France, Belgium, or Holland, but deep penetrations of the Reich always produced a fight. Such was the result of the RAF attack on Schweinfurt and Regensburg on 17 August. These targets were highly important to the production of German aircraft; therefore, they were defended "with determination, persistency and savageness seldom experienced by our crews before this mission."<sup>58</sup> Several attacks were made by entire squadrons in line astern, and packs of Fw-190's and Me-109's came roaring down on the formations, spraying them with bullets on the approach and then passing through the groups to attack again. An interesting variation on the

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usual German methods was the vertical attack by diving enemy fighters to knock out the top turret; the attackers would then pass through the formations and seek a position for another strike.<sup>59</sup>

The German controller handled his fighters well on this mission. It had been hoped that as the extent of British and American operations spread over more and more of northwest Europe, the German defense network would be badly strained. Unfortunately, such was not the case in 1943.<sup>60</sup> The development of the air situation had evidently been foreseen and prepared for, and fighter pilots called out of their normal zone showed complete familiarity with the new combat area. At the same time, the controllers in France and Holland appeared to have a bird's-eye view of the raiders' progress into Germany and knew well in advance how to fit their units into the interception plans. In this case, the defense staffeln based in Holland pursued the Regensburg formations down the Rhine while their places were taken by other units transferred to the Holland area from northwest Germany.<sup>61</sup> As a result, when the Schweinfurt raiders were returning to England, they were attacked over the Dutch area by these relatively fresh replacements.<sup>62</sup>

One new development was reported which was destined to provide one of the severest tests of the Eighth Air Force. It can best be described by quoting from the Tactical Mission Report of this operation:<sup>63</sup>

Shortly after entering the enemy coast in, a pack of 7 Fw-190s attacked the low squadron of our formation from the tail. They approached firing steadily with 20 mm cannon and small calibre tracer ammunition. When these A/C were about 750 yards from our A/C a very large flash burst from the center of each E/A obliterating it from view. These A/C then dived under our formation. A second or two after the flash, several large black bursts appeared amongst our formation about one and one-half times as large as the ordinary flak burst. The projectile fired from these A/C and which was accompanied by the flash, could be followed with the unaided eye

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and appeared to be about 3 inches in diameter. This projectile burst in the air and not upon impact indicating a timed, rather than a percussion fuse. This attack crippled two of our A/C, who were forced out of formation and were later brought down by a single attack.

Undoubtedly, this is a description of a rocket attack, which though not the first instance was certainly one of the best observed. Actually, the use of rockets against Fortress formations had been suspected as early as 29 April, although British Air Ministry Intelligence did not take much stock in the early rumors of such a weapon. On 1 June, a report was submitted containing a brief description of the German rocket gun, and pointing out that equipped with such a weapon "one group of German planes could easily raise hell with a fortress formation if no countermeasures were taken."<sup>64</sup>

After the Schweinfurt and Regensburg missions, there was little doubt that the GAF had perfected a new aerial weapon whose development and use had already been foreseen by Alexander de Seversky in his Victory Through Air Power. In a memo for the Commanding General of the Army Air Forces, Col. A. M. Brock, Jr., Assistant Chief of Air Staff, Intelligence, recommended that we should expend every effort to work out a defense up to 2,500 yards for our heavy-bomber formations,<sup>65</sup> and General Giles advised General Baker that the situation was being studied in Washington. As tentative solutions of the problem, he suggested that Baker consider increasing his fighter support so as to provide successive waves of escorts; or perhaps employ specially trained bomber formation leaders with extra armor on the planes.<sup>66</sup> In reply, Arnold cabled from the theater that the situation was serious. The rocket development of the GAF had now reached a point where it was a hazard to our heavy operations, and there was evidence that planes had been hit by rockets,

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causing great damage. These rockets were usually lobbed into the formations from distances of 100 to 1,700 yards. He urged that countermeasures be initiated at once to protect the bombers.<sup>67</sup>

Meanwhile, the Germans had perfected their tactics for the use of rocket-firing planes in combination with single-engine fighters, and as a result they were able to stage one of the most costly battles of the air war when the Eighth attacked Schweinfurt on 14 October. In the words of General Baker, it was "the final countermeasure to our daylight bombing . . . a full scale dress rehearsal perfectly timed and executed."<sup>68</sup> Concentrating on one bomber wave, a force of single-engine fighters attacked very close from the front, firing 20-mm. cannon and machine guns. As they broke away, they were followed by large numbers of twin-engine aircraft with rockets fastened under the wings. The rockets were lobbed in barrage quantities into the bomber formations with the firing beginning at long range. While this maneuver was being carried out, the fighters were refueling and on taking the air again they at once attacked from all directions, while the twin-engine planes re-formed and prepared to deliver new rocket assaults. The Germans skillfully massed all their forces on one formation and after the rockets were expended, the fighters concentrated on eliminating the crippled bombers by gunfire. In this way, one combat wing was practically wiped out, losing 29 planes out of 49 attacking. The total losses were 60 bombers out of an effective force of 226.<sup>69</sup>

This operation with its heavy casualties caused something of a sensation. The War Department was especially concerned over the successful employment of rockets by the Germans. General Marshall cabled Baker that he was "intensely interested in your message describing

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the German rocket technique in their attack on your formations and I feel certain that you and your people will find quickly a means of reducing this hazard."<sup>70</sup> General Arnold cabled that "we must be equally versatile in our technique and original in our ideas if we are going to continue these operations with any degree of success."<sup>71</sup> He then inquired as to the countermeasures General Minter proposed to take.

In reply, the general indicated a considerable change in the scope of his operations. He now intended to try multiple attacks by seven or eight combat wings of 54 bombers each on widely dispersed targets; this, he hoped, would force a thinning out of enemy defenses. He also said he wanted to use more fighter cover at longer range and urged Arnold to send him every available plane of this type. Greater emphasis was to be placed on counter-air force operations by attacking the fields with the medium bombers recently transferred to the Ninth Air Force, and by pressing the destruction of factories and repair establishments with the heavy bombers. Minter concluded by a request for more bombers and crews, more fighters, and more long-range fuel tanks.<sup>72</sup>

By this time, it was clear that our way in of success in the air war was a narrow one at best, and some means to provide additional protection for the bomber formations had to be discovered. Certainly, the Eighth could not afford any missions which resulted in the loss of 100 planes and battle damage to 115. The English had been skeptical of the whole idea of daylight attacks and one American general had already suggested that, pending the acquisition of bases on the Continent itself, the Eighth should give up its day raids and confine itself to night attacks on the Ruhr.<sup>73</sup> If the American bombardment doctrine was

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to avoid a complete revision, something would have to be done to counter German fighter and rocket attacks on the heavy bombers.

A solution to this problem had been sought for some time. One of the first ideas was proposed by General Spatz. Writing General Arnold on 29 April 1942, he suggested that auxiliary, free tanks seemed to offer the only immediate solution for extending the range of fighters "unless it can be developed that the bomber, with its firepower, can substitute ammunition for tonnage and act as an accompanying fighter."<sup>74</sup>

Whether or not General Spatz's suggestion led to any action at that time is not clear. However, about the beginning of 1943 it was decided to reconvert a certain number of fortresses for escort work. These planes, known as YB-40's, were to carry no bombs, but were to be provided with chin turrets to increase the forward firepower, and with additional belly and top guns. Armor was to be distributed liberally; all essential on-line and fuel accessories were to be well covered with manganese steel sheeting up to one-half inch in thickness, and sections of the fuselage were protected.<sup>75</sup> Good fuel was expected from this experiment, and there was considerable pressure from the theater commanders to get the YB-40's into combat. When deliveries to the Eighth Air Force had been several times postponed, General Eaker protested vigorously that he needed them badly and wanted them hurried up.<sup>76</sup> Eventually, the planes reached him and on 22 June 1943 a force of 11 YB-40's accompanied 297 bombers on a mission to industrial targets near Antwerp.<sup>77</sup>

Unfortunately, the scheme was not a success. After several operations, General Eaker was regretfully forced to write General Giles that "our tactical people insist that they do not want this aeroplane."<sup>78</sup>

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The objections seem to have been due to the greatly increased weight of the ship. (wing) to its extreme mass and armor, it became so heavy that it could not climb fast enough or fly fast enough to keep up with the regular B-17 formations. As a result, when the YB-40's accompanied bombers, they upset the formations. Then it was decided to try them out as "winners," and two of them were assigned to fly protection for the leaders of each combat wing. Here again their quite different flying characteristics caused trouble and rendered them useless.<sup>79</sup> By the 15th of October, it was decided to use them in flexible gunnery schools in the United States as they could not be used in the theater.<sup>80</sup>

At least one good thing came from the YB-40 experiment. The value of the chin turret was shown as a means of strengthening the forward fire power and this later became standard equipment. Additional improvements on the Flying Fortress included computing sights for all turrets, reflector gun sights for flexible, hand-held guns, and better frontal armor. Likewise, the B-24 received additional forward guns and an improved turret for the tail position.<sup>81</sup>

Another attempt to meet the CAP attack led to the development of blind-bombing techniques. Thus bombing could be carried out when the overcast made it difficult for the enemy fighters to assemble, and at the same time bad weather over the target would no longer keep the bombing planes bound to their bases. The first successful blind-bombing techniques and equipment were developed by the British and used by the Eighth Air Force. By the latter part of July 1943, the War Department had approved a T/O for a pathfinder (blind-bombing) force and the first squadron was soon forming at Massachusetts Institute of Technology. At the same time, a prototype B-17 was being fitted up for this sort of

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won. at the Aircraft Radio Laboratory, Wright Field, and early in September the first pathfinder units moved to England.<sup>62</sup>

By the end of September there were four planes equipped with a British device known as H2S and it was decided not to wait for additional equipment. These four planes were used to lead 330 bombers to Eindhoven on 27 September. The combat wing led by the H2S planes was to bomb on the leader and the following units were to bomb on sky markers left by the pathfinder planes. Unfortunately, the clouds went up to 20,000 feet and the markers were not visible. Nevertheless, General Anderson commanding the VIII Bomber Command and his combat leaders considered the experiment encouraging.<sup>63</sup> As a result, General Baker cabled General Arnold that every effort should be made to get an H2X<sup>\*</sup> squadron to England by 15 November, and to provide 30 per cent monthly replacements. He believed that overcast bombing might be the answer to the German fighter and was anxious to improve the technique.<sup>64</sup> By the end of October additional blind-bombing devices such as OBOA were being used by the Eighth<sup>65</sup> and by the end of November pathfinder missions were a regular feature of operations.

But none of these developments really met the threat of the German fighter attack on the bomber formations. The real answer to this problem was to provide more Mustangs and Thunderbolts for the "big friends" on their deep penetrations. General Doolittle had stressed this point in a memo to the head of Army Air Forces on 22 May 1943. He pointed out that in the Northwest African Air Forces there was a serious shortage of long-range fighter escorts. If escort fighters could be used, losses

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\*H2X was the American version of the British H2S.

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would be reduced, the bombing would be improved, and the psychological effects would be so favorable that crews could be sent more frequently on missions. Furthermore, the new German methods of air-to-air bombing, heavy attacks by strongly armored fighters, and long-range machine-gun attacks could only be met by more fighters. "Although escort fighters have been desirable in the past," the general concluded prophetically, "they will be essential in the future."<sup>86</sup>

Granted that long-range fighters were necessary, how was the range of the P-38, P-51, and the P-47 to be extended until they could provide fighter protection all the way out and back for the bombers? The answer had been given by General Spaatz when in 1942 he wrote: "Auxiliary (expendable) tanks offer the only immediate solution for extending the range of fighters."<sup>87</sup>

On 3 October 1942 the question was raised by the theater authorities as to the possibility of the United States furnishing jettisonable belly tanks for fighters. The first P-38's in the theater had possessed two 150-gallon tanks as standard equipment, but shortly after reaching England, the P-38's were transferred to North Africa.<sup>88</sup> Nothing was done about the tanks during the remainder of 1942, but early in 1943 the question was taken up again. The Air Technical Section of the VIII Fighter Command was investigating the possibility of having the tanks made in England, but it was first decided to obtain the equipment from the United States if possible, and on 18 February a request was sent out for 60,000. Owing to the immediate need for them, Washington decided to request the British Ministry of Aircraft Production to supply 16,000 jettisonable tanks of 200-gallon capacity for the P-47 aircraft.

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The MAP instead countered with the suggestion that the tanks be made in the United States and shipped for assembly to England.<sup>89</sup> This plan was rejected. Meanwhile, the Air Technical Service worked out a design for a steel tank which was approved by the Eighth Air Force on 29 May and the British were requested to manufacture it in quantity. Owing to the current steel shortage in the British Isles the MAP offered instead to construct 108-gallon paper tanks of British design reinforced to withstand seven pounds per inch working pressure. This paper tank was approved by the VIII Fighter Command on 26 June and the initial delivery was made on 12 July.<sup>90</sup> A short time later the first mission was flown with the paper tanks and was successful.<sup>91</sup>

But the paper tanks were not the final solution, and since 4,000 metal tanks of 75-gallon capacity had recently arrived from the United States, it was decided to try equipping the P-47 (which had the shortest range of the three principal fighter types) with them, pending the availability of the larger paper tanks.<sup>92</sup> It was believed that the Thunderbolt should be able to climb to 22,000 feet and travel 140 to 150 miles before having to drop the tank. The first flight tests of the P-47 with the metal tank were run off on 17 August and were successful. One week later the P-47's were sent on a combat mission with this equipment.<sup>93</sup>

Meanwhile, the 108-gallon paper tank had reached production and on 3 September the British made their first delivery to the Eighth Air Force.<sup>94</sup> However, as the steel situation in the United Kingdom eased somewhat, it was decided to manufacture steel tanks of 100 and 150 gallons. When the P-51 arrived in the theater it complicated the

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situation since it had equipment for two 75-gallon external tanks, but because they were unpressurized and could not be used at altitudes of over 20,000 feet they were not desirable.<sup>95</sup> It was finally decided to transfer the P-47 tanks to the P-51 as needed, and a temporary installation for the 108-gallon paper tank was worked out for the Thunderbolt.<sup>96</sup>

Thus the difficulties were eliminated little by little. At the end of September there were enough fighters equipped with jettisonable fuel containers to go on a long-range escort mission. On the 27th, the day that saw the first pathfinder operation, the bombers that went to Bremen were escorted to the target and back by long-range P-47 fighters.<sup>97</sup> By November enough planes were being equipped with the smaller tanks so that the radius of penetration and withdrawal support had greatly increased. By 14 December the shipments of British tanks were so large that production of the 75-gallon container was stopped in the United States, and at the end of the year there were between 2,000 and 3,000 jettisonable tanks at each VIII Fighter Command station.<sup>98</sup> In 1944, the fighters would be able to accompany the bombers virtually to any target.

The long-range American fighter plane was the answer to the rocket and fighter combined attack on the heavy bombers. At the end of October, General Arnold could still write: "My concern about the fighter opposition that the Eighth Air Force bombers are meeting is very great."<sup>99</sup> But after October the bomber losses never seriously threatened the build-up of strength in the United Kingdom. By May, only 2.7 per cent of the bombers reaching the target were destroyed.<sup>100</sup>

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In this victory, the adaptation of the single-engine fighter to long-range work played a large part. In the opinion of Wing Commander Nigel Tangye, it was "one of the most remarkable achievements of the war."<sup>101</sup> Nor was the significance of this lost on the Germans. During his interrogation, P/O Hermann Goering, late of the Luftwaffe, stated that he could hardly believe it when told that American fighters had appeared over Hanover, and that he realized it was a tragic development for Germany.<sup>102</sup>

Thus, as the winter of 1943-44 approached, some of the problems of the Eighth Air Force seemed to have been solved. The increasing flow of planes and crews from the United States relieved fears that the offensive against Germany might fail for lack of strength and materiel. It seemed unlikely that POINTBLANK would be threatened by diversions to other projects, and the appearance of the long-range fighter made it probable that by the first of the year the bomber squadrons would have complete fighter protection to the target and back.

Nevertheless, General Arnold was not satisfied with the progress of POINTBLANK. The production of German fighters had been held down to approximately 400 Me-109's and 200 FW-190's per month for the last quarter of 1943, but the Luftwaffe was far from destroyed, and with the restriction of bombing operations which the winter weather would undoubtedly cause, it might be able to increase its production. On the day of the great Schweinfurt mission, Arnold communicated some of his dissatisfaction to Air Marshal Sir Charles Portal. "OVERLORD hangs directly on the success of our combined aerial offensive," he began, "and I am sure that our failure to decisively cripple both the sources

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of German air power and the GAF itself is causing you and me real concern."<sup>103</sup> General Arnold then stated that he felt not enough planes were getting off the ground, and that he was "pressing" Eaker on this. He was likewise disturbed over deviations from the CBO priorities to such targets as shipbuilding installations, port cities, and the like, and he was also anxious to see more British fighters go into action.<sup>104</sup> Two days later, he cabled Portal that the great effort being expended against the German aircraft industry by our heavy bombers would not show any early results unless the present front-line strength of the GAF could be severely crippled. "We must bring into the battle against him all of our numerical superiority in aircraft. By this I mean specifically the aircraft of our tactical forces, your home defense forces, and the total weight of our combined bomber forces against the installations mutually selected for destruction."<sup>105</sup>

In his reply on the 24th of October, Air Marshal Portal disagreed with certain parts of General Arnold's letter of the 14th while he agreed with others. He stated definitely that none of the official priorities had been altered in any way. The attacks to which Arnold had objected were dictated by reason of the training needs of crews, and because of the low number of crews and aircraft which did not permit of deep or frequent penetration into heavily defended areas.<sup>106</sup> General Eaker had been asked to attack targets outside of Germany proper only when weather prevented operations against more important objectives.<sup>107</sup> As to the failure to destroy the Luftwaffe, the main difficulty was to force the German to come up and fight. "I fear that this is not always successful since his policy is to conserve his fighters and to use them only against

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large bomber formations which penetrate deep into the heart of his country."<sup>108</sup>

On the other hand, the air marshal admitted that in the CBO they had "fallen far short of what we hoped to accomplish."<sup>109</sup> For one thing, the RAF bombers had had to concentrate on Ruhr targets because of the short summer nights. Also, it was difficult at night to locate the small towns in which many of the aircraft factories were located. The Eighth Air Force had been held back because of its slow build-up. It had by now come within 70 per cent of what had been anticipated for October, but its effective strength was only 50 per cent of what had been expected as available for Phase 1 of the CBO. Thus a great tactical advantage had been thrown away by the delay in the accumulation of strength, and the enemy had been able to handle this small force while he developed adequate countermeasures. Fortal now believed that, unless it was decided to accept heavy casualties, it would take a greater force than that provided for in the CBO to achieve the anticipated effect.<sup>110</sup>

It is evident that both Arnold and Fortal felt a critical period lay ahead. Given an unusually bad winter with many nonoperational days and overcast targets, the RAF might succeed in recovering from the losses it sustained in the heavy attacks of July, August, and October. Much would depend on the operations of the next four months. Few bases for the attack on the Luftwaffe and a few days of good flying weather in the winter might decide the success of the land invasion of the Continent in 1944.

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Chapter IV

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With the November operations, a fundamental change took place in the conduct of the offensive against the Luftwaffe and German aircraft production: the Eighth Air Force ceased to be the sole executant of the offensive. The activation of the Ninth Air Force in the UK<sup>1</sup> on 16 October and the Fifteenth Air Force on 1 November brought new forces into the air war, and new bases from which hitherto unscathed targets might be attacked.

The Ninth developed out of a plan to expand the VIII Air Support Command. In preparation for the coming invasion, it was arranged to increase the fighters and medium bombers of the VIII Air Support Command until it became virtually a tactical air force operating under the Eighth. However, when it was decided to combine both American and British tactical aircraft under the overall supervision of Air Marshal Sir Trafford Leigh-Mallory, it seemed best to create a new American air force for this purpose, although the organization would come under the operational control of the Eighth for administrative missions. The new commander was Lt. Gen. Lewis H. Brereton, former commander of the Eighth Air Force in the Pacific East. In deference to his wishes, the name of his old command was transferred to his new post, and on 16 October the new Ninth Air Force came into being, and use of some headquarters organizations of the old command, the 3d Air Group of the VIII Air Support Command,

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and the tactical air command of the VIII Air Force Service Command. Until recently, the 1st Bomber Command operated under the former VIII Air Force Service Command directives of 12,000 to 15,000 aircraft, which allowed the medium bombers to take part in B-29 operations and have a first priority to the attack on the German fighter force and supporting installations.<sup>2</sup>

The establishment of a new strategic air force in the Mediterranean theater was a much more complicated and involved matter. The main purpose of operations in this area had been to (1) destroy the Axis forces in North Africa, (2) eliminate Italy from the war, and (3) secure bases in Italy for operations against Germany.<sup>3</sup> The air organizations involved in these campaigns were the Ninth (later Ninth Air Force) Bomber Command, the Twelfth (later Twelfth Air Force) Bomber Command, and the Northwest African Strategic Air Force (NWSAF), a mixed heavy and medium bomber outfit composed of the VIII Bomber Command and the 1st Bomber Command.<sup>4</sup> General Curtis E. LeMay, commander in chief of NWSAF since 20 February 1943, had for some time been advocating the use of aerial bombs against German industry and air installations.<sup>5</sup> An exchange of letters in the summer of 1943 between him and General Arnold indicates that these two air strategists were thinking in terms of major operations from Italian air bases. On the 27th of June, General LeMay wrote to General Arnold as follows:<sup>6</sup>

I have been very much concerned as to what will happen to the air forces here after the next operation or two. It seems very desirable that the heavy bomber effort against Germany be applied from more than one base area. If we can establish ourselves in Italy, some of Germany can be reached from there with better weather conditions at our airbases than we can achieve normally in

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Italy. This would immediately, when allied, force a diversion of the German fighter and anti-aircraft defenses.

In his reply on the 23th General Arnold stated that his idea of a number one priority mission was a heavy attack on German fighter establishments, and on 14 August\* he again emphasized to Spatz that the effect of a sustained strategic bombardment on German key industrial targets from Mediterranean bases would justify giving this type of operation a number one priority.<sup>7</sup>

Support for a strategic bombing offensive from Italian bases also came from General Eisenhower. After the crisis at the Salerno beach-head had abated and it looked as if a fairly rapid advance might take place, he wrote General Marshall that he and General Spatz believed a greater effectiveness might be achieved with less loss, if a portion of the bomber offensive could be applied from Italy during the winter months.<sup>8</sup> This would also make it possible to attack targets beyond reach of Britain-based bombers, there would be less G.F. and anti-aircraft opposition generally, and the Luftwaffe would have to thin itself out to meet attacks from two directions. Eisenhower concluded: "Since one of the major reasons for the move into Italy was to secure air bases for this type of operation, I feel that it is a matter which should receive early consideration."

On 20 August, General Arnold prepared a memo entitled "Command and Control of Strategic Air Forces operating against Germany."<sup>9</sup> Although primarily concerned with a question of command, this document did go into the desirability of establishing a new strategic air force in Italy.

\*The date on the letter is not clearly typed; it may be 20 August.

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Arnold felt that with suitable airfields in this peninsula, the carrying out of air actions against German industry would be facilitated by the alternative use of British and Italian bases, depending on the weather. Since he believed that the weather in the Po Valley would probably be better for bombers than that in England, it would be useful to have some airbases in this area.<sup>10</sup> Shuttle operations between England and Italy could also be carried out.

At this point, opposition to the plan developed. The British air authorities were strongly opposed to diverting heavy groups to Italy, and certain American generals in the AFU were dubious about the idea. On 29 September Air Marshal Sir Arthur I. Harris wrote General Eaker that he was seriously disturbed by the belief that bombers operating from Italy could do more damage to Germany than planes coming from English bases. He thought that many important production centers were closer to Britain and that weather conditions in the Lombard Plain were no better than England's. Furthermore, since the Italy-based planes would have to make a detour to preserve the neutrality of Switzerland, this would add to their journey besides simplifying the German fighter defense. In conclusion he stated:<sup>11</sup>

It would take at least a year before a ponderable force of heavy bombers could be operated economically from Northern Italy--after we have taken Northern Italy. For these reasons, I am convinced that the advantages to be gained from using bases in Italy are negligible. The loss of striking power against the vital parts of Germany, and of time, which would be incurred by transferring bombers to them from this country would, on the other hand, be quite disastrous.

General Eaker was opposed to the plan because he feared it would cut into his bomber and fighter forces and make difficult the accomplishment

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of POLYTELASH.<sup>12</sup> Maj. Gen. Iowal H. Edwards wondered if sufficient consideration had been given to the idea of a new air force in Italy.<sup>13</sup> Like the British, he questioned the value and availability of Italian bases and felt that already existing facilities in the United Kingdom were adequate. He was afraid that shuttle operations would require more service personnel in both areas and if the Cradley Plan\* was not being met in the United Kingdom, how would this larger demand be satisfied?<sup>14</sup> Air Marshal Bottonley warned that "we must avoid precipitate action which may result in sending aircraft and resources to the Mediterranean only to find them unable to contribute effectively from that theater."<sup>15</sup>

At this point, the opposing arguments can be summarized briefly. General Arnold advocated the creation of a new strategic air force operating from Italian bases for the following reasons: (1) it would enable our bombers to reach objectives out of range of Britain-based planes, (2) it would divide German fighter strength, (3) it would make possible shuttle bombing between England and Italy, and (4) weather conditions in northern Italy would make possible winter operations against the Reich when British bases would be frequently nonoperational.

These arguments were apparently opposed by Harris, Portal, Bottonley, Baker, and Edwards on the following grounds: (1) the most important German targets could already be reached from the United Kingdom, (2) Italian weather was quite as foul as the British variety, (3) to avoid Switzerland would greatly add to the length and danger of each mission, and (4) to set up a new strategic air force would seriously

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\*The troop build-up for the Eighth Air Force. See A.F. Historical Studies: No. 32.

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weaken the operations of the Eighth.\*

In view of the later operations of the Fifteenth Air Force, it is possible to make some sort of an estimate of these arguments. British claims that most of the important German targets were within reach of RAF and Eighth Air Force bombers seem to have failed to take into account the eastward dispersion of the aircraft industry. An Office of Strategic Services report of 17 August 1943 estimated that only 12 per cent of the German single-engine fighter assembly was carried out within 500 miles of London, while slightly over 80 per cent was located within about 400 miles of possible north Italian bases.<sup>16</sup> Actually, in addition to the bombing of the great complex of Wiener Neustadt, attacks on important Italian, Hungarian, and Yugoslav aircraft factories would have been impossible without the Fifteenth. Furthermore, the easterly dispersal of the GfF plants completely knocked out the argument based on preserving the neutrality of Switzerland. The bomber routes lay far to the east of that nation. On the other hand there is no question but the English were right about the weather. Climatic conditions, according to Maj. Gen. Nathan F. Twining, commander after 3 January 1944, greatly hindered the Fifteenth's pursuit of POINTBLANK during January and February and they effectually prevented shuttle bombing and many combined operations.<sup>17</sup> It is difficult to say how much the German fighters were split by the attack from Italy. Had it been possible to run more combined operations, there might be more evidence upon which to make a judgment, but as pointed out above, the weather usually interfered. It is also next to impossible to

\*Perhaps the British and Americans in England were thinking of what happened to the Eighth's operations and supply system when the Twelfth was set up in the Mediterranean area.

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estimate how much greater the Eighth's operations would have been without the establishment of the Fifteenth. Since the principal obstacle to carrying out the air offensive against the Luftwaffe was weather rather than lack of planes, perhaps the question is academic.

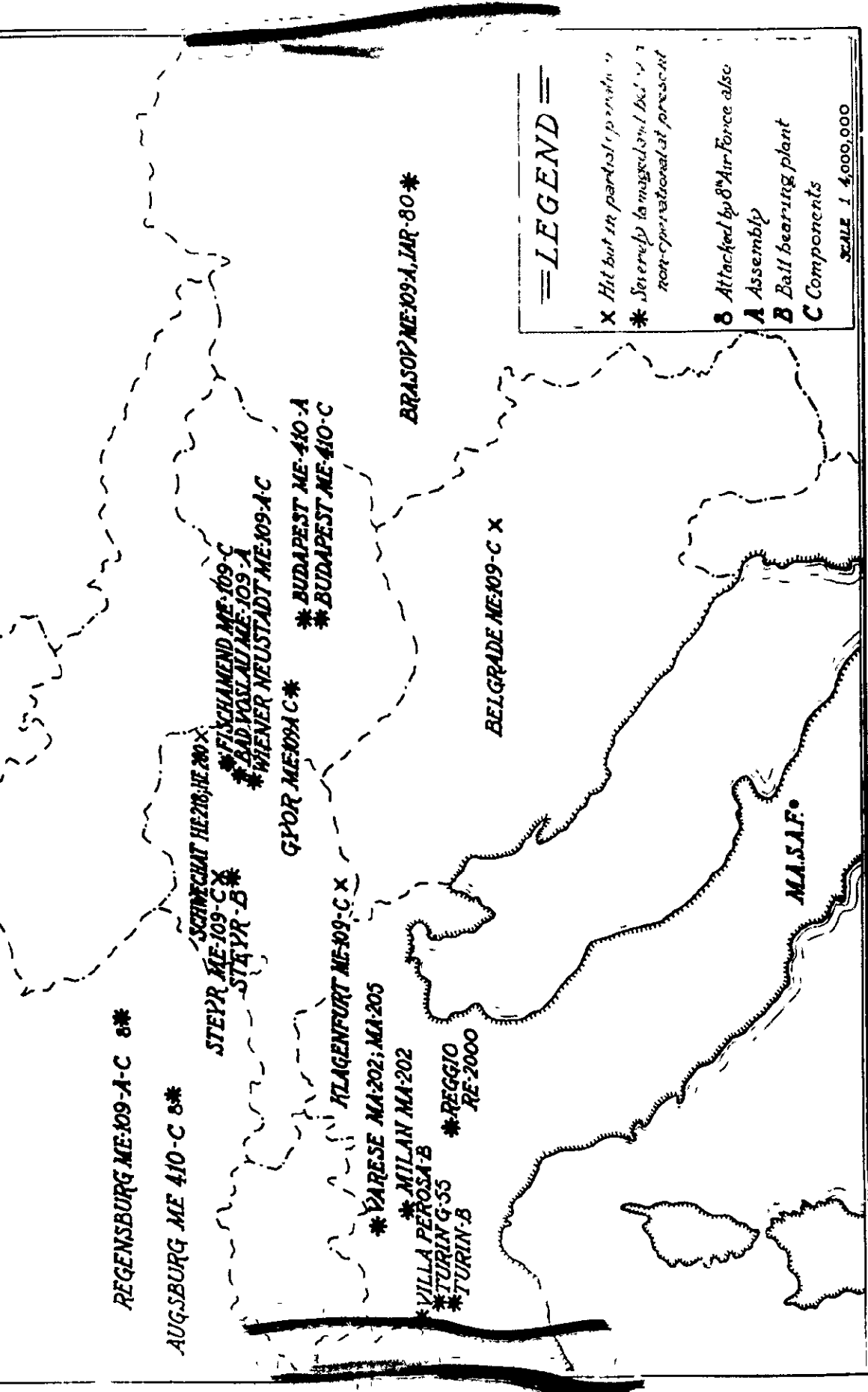
In spite of opposing arguments, General Arnold prepared a "Plan to Assure the Most Effective Exploitation of the Combined Bomber Offensive" and submitted it to the Joint Chiefs of Staff about 9 October.<sup>13</sup> This provided for the establishment of a strategic air force in Italy to be formed by combining the six heavy groups of the VIII Bomber Command with 13 groups to be diverted from allocations to the Eighth. The scheduled build-up was to bring the Fifteenth up to 21 heavy bombardment groups, 1 reconnaissance, and 7 long-range fighter groups by the end of March 1944.<sup>19</sup> After being approved by JCS, it reached CJS and received their approval on 22 October, with the activation of the Fifteenth scheduled for the beginning of November.<sup>20</sup> Even after this decision there was still some discussion. At the JCS meeting on 29 October, Sir John Bill voiced his doubts as to the wisdom of creating a new diversion from the bomber effort.<sup>21</sup> As far as additional groups went, he was sure that the facilities in England were fully prepared to take them. General Arnold replied that General Spatz would be able to accommodate them in Italy, and General Marshall said that he was concerned over the losses of the Eighth Air Force and felt it was essential to create a new air force or bomber force to help disperse the German fighters.<sup>22</sup> Apparently this ended the discussion; on 1 November, the Fifteenth was formally activated under Maj. Gen. James H. Doolittle with 233 bombers and 202 fighters on hand with units.

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# AIRCRAFT INDUSTRY TARGETS ATTACKED BY M.A.S.A.F.

1 Nov 1943 - 10 May 1944



**LEGEND**

- X Hit but in partial position
- \* Severely damaged but still in non-operational at present
- 8 Attached by 8<sup>th</sup> Air Force also
- A Assembly
- B Ball bearing plant
- C Components

SCALE 1:4,000,000

Immediately after the establishment of the new strategic force, the question of its control and control policy was settled. By a directive of 13 October, the War Department ordered the theater commander, General Eisenhower, to see to it that the operations of the Fifteenth were closely coordinated with the Ninth to improve the effectiveness of their operations against targets of the combined bomber offensive.<sup>23</sup> At the same time, in case of a strategic or tactical emergency, he was authorized to use the Fifteenth for purposes "other than its primary mission," including the job of the action plan.<sup>24</sup> Once the Fifteenth was established, General Marshall was clear that barring the exceptions noted, he did not intend it to be diverted from its primary mission and that some of its units should be temporarily transferred to the Ninth and the Twelfth Air Forces.<sup>25</sup>

The objectives of the new air force were four: (1) to destroy the German air force, (2) to participate in the land battle in Italy, (3) to continue POINTBLANK operations,<sup>26</sup> and (4) to weaken the German position in the Balkans.<sup>26</sup> Operations against the 72 aircraft and air installations were to be carried out whenever a profitable target offered itself. Special attention was to be paid to German-held airbases in southern France and Italy, our coasts along the North African coast had frequently been attacked.<sup>27</sup>

Special attention was to be paid to German-held airbases in southern France and Italy, our coasts along the North African coast had frequently been attacked.<sup>27</sup>

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As used here, the term "operations" refers to the activities. For as a rule, a distinction was made between training operations and attacks on airfields and aircraft. Later this is tended to be out.

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tentative priority list of targets was given as follows:<sup>28</sup>

1. Werke II, Heimerleustadt
2. Messerschmitt Factory, Augsburg
3. Villacheross 220 Bearing Factory, Aurin
4. Bad Lauterbach 220 Bearing Factory, Stuttgart
5. Manfred Weiss Messerschmitt Plant, Augsburg
6. Steyr-Daimler-Puch Factory, Steyr (Austria)
7. Messerschmitt Aircraft Factory, Augsburg

On 8 November, an important meeting was held at Bomber War to coordinate Allied arrangements. Generals Edward Doolittle and Carl Spaatz and General Robert Oldendorf. An understanding was reached as to the proper allocation of Allied targets between the two strategic air forces, and procedures were set up to facilitate the many combined operations which were expected to take place involving the Eighth and Fifteenth. To insure the rapid exchange of operational experiences and intelligence data, liaison officers were to be exchanged between the two headquarters. As a result of this meeting, a complete agreement was reached on procedure common to both strategic organizations.<sup>29</sup>

Meanwhile, the Fifteenth had already become operational on 2 November by one of the great raids of the war against the Messerschmitt factory at Heimerleustadt. It will be recalled that this complex had been attacked in August by the old Eighth Air Force and considerable damage had been done. It was believed that the Germans planned to double the factory's output by 1944, but these plans had been delayed by the August attack.<sup>30</sup> By the end of October some of the damage had been repaired and work was just starting on a large building in Werke II which was supposed to be making Me-109 fuselages and was known to be an important unit in the expansion plans. Consequently, the raid of 2 November was well timed.

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A great deal of careful preparation was involved in this mission. The distance which the bombers had to fly from their Sicilian bases was more than 1,000 miles round-trip, and 600 of it was over enemy-held territory. Since this made it possible for the GAF to make many interceptions, the fighter escort was to be extended to the maximum range which would give the bombers protection to within 100 miles of the target.<sup>31</sup> Another group of fighters would then meet the formations at maximum range and escort them back to their bases.

Shortly after noon on the 2d, most of the operational aircraft of the Fifteenth took off and headed northward.<sup>32</sup> Apparently intimidated by the attendant fighter groups, enemy interceptors based on the nearby fields at Shopice, Lenonico, Sagreb, and Graz did not take the air, and no serious fighter opposition appeared until about 10 minutes before the target was reached. A total of 112 Liberators and Fortresses dropped 327 tons of high explosive in spite of attacks by 150 to 175 enemy planes. The results were most gratifying. One aircraft assembly plant was destroyed and another damaged, two flight hangars were wired out, and many buildings showed blast damage. Craters spotted the Wiener Neustadt/Flord airfield and 13 aircraft were damaged on the ground. Buildings in the southwest corner of the plant and the adjoining labor camp were hit, and some of the machine shops in the Steyr-Daimler-Puch factory were struck.<sup>33</sup> Eleven bombers were lost and claims of 56-27-8 were filed. It was believed that this raid deprived the Luftwaffe of a monthly output of approximately 250 of their best fighters, or 40 per cent of the total output of the Me-109.<sup>34</sup>

While the Fifteenth was making this impressive debut, the Eighth was progressing rapidly in its development of blind-bombing techniques.

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In the largest daylight operation yet carried out by American planes, a total of 1,238 bombers and fighters attacked German targets on 11 November using H2X leader planes, although F25 equipment was present in case the F2X failed.<sup>35</sup> The results were satisfactory, and General Arnold instructed the Fifteenth to send certain officers to the United States to help organize a PFF unit for the new strategic air force. He contemplated sending eight B-24's equipped with H2X and crews in January and 16 more in February.<sup>36</sup> Another big H2X mission took place on 13 November when 317 heavy bombers attacked Bremen, although covered by 10/10 cloud. Evidently the Germans had learned that the overcast was no longer adequate protection, for the mission was strongly contested and a fierce air battle took place over the clouds.<sup>37</sup>

On 8 November, the Fifteenth began a series of attacks against ball-bearing installations lasting three days. The Turin works were bombed on the first day, and on the 9th and 10th the Villar Ferrosa plant slightly west of Turin was the target.<sup>38</sup> The mission of the 8th was successful and the mission intelligence summary estimated that the factory would be completely inoperative for some time to come. The missions against Villar Ferrosa were not so effective; the first attack missed the target entirely, and the second caused only slight damage.<sup>39</sup>

After five days of inactivity, the Fifteenth turned from ball bearings to airfields. The first target was, by request, the Athens/Eleusis airrome. This was the most active long-range bomber field in Greece. From 60 to 70 aircraft were usually based there including a large number of Ju-88's which had been operating against islands in the Dodecanese group held by the Allies. The island of Leros where

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the Germans had seized a beachhead was under especially heavy attack by enemy formations based at Eleusis.<sup>40</sup> Consequently, it was hoped that a successful blow against it might ease the pressure at Leros.

The field was bombed by 46 B-24's with fragmentation bombs during the morning of the 15th with some success.<sup>41</sup> However, a much more successful raid occurred on the 17th when 40 B-17's dropped 120 tons of 500-pound GP bombs with a heavy concentration on hangars, buildings, and the landing area west of the central runway. There were probable direct hits on five of the nine hangars and a direct hit on the central administration building. Of the 55 aircraft seen on the field, 10 were damaged and 5 were destroyed.<sup>42</sup> On the 18th Athens/Eleusis was struck again by 50 B-17's dropping 6,900 fragmentation bombs to complete the destruction caused by the heavier explosives used the previous day. By this time the field was so thoroughly postholed as to be temporarily inoperative.<sup>43</sup>

Meanwhile on the 16th, bombers of the Fifteenth Air Force carried out a raid on two airdromes in southern France, thus fulfilling one of the requirements of their bombing directive. Istres le Tube and Salon de Provence were bombed by 85 and 43\* B-26 bombers respectively with good results.<sup>44</sup> On the 18th the Eighth made one of its longest flights to bomb the GAF airplane engine and fuselage repair depot at the Oslo/Ljeller airdrome, Norway. Owing to the distance involved, no fighters could accompany the 102 B-24's which were dispatched.<sup>45</sup> A total of 78 Liberators reached the target and bombed from the relatively low altitude of 12,000 feet to insure accuracy.<sup>46</sup> The results were very good. The

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\*at this time there were two medium bomb groups in the Fifteenth Air Force.

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C. L. Brinker Eisenwerke Airframe Repair Factory was severely damaged with hits on the dismantling shop, a storage depot, offices for production and blue prints, the heat treatment establishment, FV-190 and Me-109 component storage building, and other installations. The Daimler Benz Aero Engine Repair Factory had two main buildings almost completely demolished, and the Bayerische Motorenwerke Aero Engine Repair Factory was still burning when the photo reconnaissance was made.<sup>47</sup> As the planes retired from the targets, fires were burning fiercely, there were heavy explosions, and a column of smoke arose that could be seen 25 miles away.<sup>48</sup>

Operations of both air forces for the remainder of November were not especially outstanding. Weather constantly interfered; many missions had to be canceled and the results of those that were carried out were often unobserved. Some Wellingtons of the Fifteenth bombed the Turin ball-bearing works and the Ciampino airdrome in night raids with undisclosed results.<sup>49</sup> Somewhat better luck was had when medium bombers attacked the Grosseto airdrome with 93.5 tons of 500-pound GP bombs. The Eighth concluded its November operations by two attacks on the town of Solingen in the Rhineland. This town was an aircraft parts and steel alloy center. In both missions the weather prevented an assessment of the damage. On the second mission on 1 December, the fighter escort stayed with the bombers until the IP was reached where upon the "little friends" withdrew. The formations were then attacked viciously by G.F. fighters and 24 bombers were lost.<sup>50</sup>

November was not an important month for FULMELMA operations. The most important operation was the Fifteenth's attack on Wiener Neustadt on the 2d; for the most part, however, both strategic organizations

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confined their efforts against the Luftwaffe to attacks on airdromes and repair installations. Claims were considerably less than in previous months. The Eighth listed a total of 222 enemy aircraft destroyed, and the Fifteenth credited its aircraft with 135 kills.<sup>51</sup> The Eighth lost 95 planes and the Fifteenth, 28.<sup>52</sup> The newly organized Ninth Air Force confined itself almost entirely to bomber attacks on airdromes in northwest France, Belgium, and the important Amsterdam/Schipol airport in Holland,<sup>53</sup> while its fighters often escorted the heavy bombers of the Eighth over the Continent.<sup>54</sup>

In December, the weather continued to restrict the operations of the Fifteenth Air Force, and the POINTBLANK program suffered especially. Airdromes were the principal target, with several attacks being made against GAF bases near Athens. The Fiat Ball Bearing Works at Turin which had been twice raided in November was visited again by 113 B-17's for the first mission of the month on 1 December. Coverage of the target by some 354 tons of bombs was regarded as complete by the returning bombers and later reconnaissance reported considerable damage to the factory.<sup>55</sup> Prior to these attacks, the Fiat plant was supposed to produce 40 per cent of all the ball bearings available to Germany; it was now believed that two months' output had been eliminated.<sup>56</sup>

The Rome/Casale airdrome was attacked without opposition on 3 December by a small force of Liberators dropping 32.24 tons of fragmentation and 16 tons of GP bombs.<sup>57</sup> On the 6th, a series of raids on the Athenian airdromes was begun by attacks on the field installations at Athens/ Eleusis and Athens/Kalanaki. The attack on Eleusis was made by 45 B-17's escorted by 38 P-38's. Fragmentation bombs were dropped with fair success,

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but the photo coverage was not good and an exact estimate seems to be lacking.<sup>58</sup> The Kalamaki airdrome was first bombed by 500-pound GP bombs and then hit by 4,250 fragmentation bombs. Dust and debris made it difficult to assess the damage done. In both cases, these attacks provoked a certain G.F. reaction, but the air battles were usually small affairs and not very costly to either side.<sup>59</sup>

Another attack was made on the Creek fields on the 8th. Eleusis was raided again and well covered with 8,172 fragmentation bombs. The Athens/Tatoi field revealed a concentration of 42 aircraft, and so it was hit by 30 Liberators dropping 4,000 of the 20-pound antiaircraft and antipersonnel bombs. It was estimated that 14 aircraft were destroyed on the ground, including seven bomber-transport types.<sup>60</sup> Later reconnaissance confirmed this, and credited the attacking forces with wiping out 21 aircraft at the Eleusis airdrome.<sup>61</sup> Again on the 14th the three Athenian fields were attacked by Liberators and Fortresses of the Fifteenth, with F-38 and P-47 escorts. Tatoi was well covered and seven hangars received direct hits or near misses; the runway and west dispersal area were a mass of smoke and debris as the bombers retired from the area.<sup>62</sup> Kalamaki was hit by the largest task force (76 bombers) of the three, dropping 224.5 tons of 500-pound GP explosives. Between 15 and 20 F4U-190's and Me-109's were encountered over the target and 3 were claimed as destroyed. During the attack, 29 enemy planes were counted on the airfield of which 8 were destroyed and 7 believed damaged. There were heavy concentrations of hits on the hangar area, storage facilities, landing strips and runways, and dispersal areas.<sup>63</sup>

A final blow was struck on the 20th when Eleusis was heavily bombed

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by a task force of 109 B-17's escorted by 66 F-38's. The defense was the stiffest yet encountered over the Greek airdromes. Both flak and planes were well controlled, and the tactics had obviously been planned in advance by experienced personnel.<sup>64</sup> The bombing was considered successful; many buildings were struck and the field was well holed. Three bombers were lost.<sup>65</sup>

The only attempt made to bomb a high-priority POINTBLANK target occurred on 17 December when a small force attempted to bomb the Messerschmitt factory at Munsburg in southern Germany. Unfortunately, the strike photos contained nothing but an excellent view of the cloud cover over the target, and visual estimates indicated that the bombs fell south of the objective. Five Liberators were lost.<sup>66</sup>

A final blow was struck at airfields when medium bombers of the Fifteenth (the 17th and 319th Groups) attacked Guidonia and Centocelle on 28 December. Strike photos showed 18 aircraft on the ground at Guidonia with 7 destroyed and 1 damaged. The bomb pattern covered the field. At Centocelle, bomb strikes were distributed over the southeast side of the field only.<sup>67</sup>

POINTBLANK targets within range of the Eighth Air Force did not come in for much bombing during December. Weather conditions often made deep penetrations of the Continent impossible and consequently ports and shipbuilding establishments received more than usual attention. Many attacks were made on Emden and since this city was well defended by fighters and flak, a big air battle resulted each time the heavy bombers came over. The attack of 11 December produced an unusually fierce reaction with very large forces involved. A total of 1,088 American

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planes--582 heavy bombers and 500 fighters--attacked the city.<sup>68</sup> The German fighter controller apparently correctly diagnosed the objective of the mission shortly after the bombers left the English coast, and as a result the German fighters committed themselves early in the raid. Several fighter groups were jumped on their way to the bomber rendezvous while they were still flying on belly tanks. According to one comment, "The new single-engine ME 209 was encountered this raid and it out-turned, out-climbed and out-ran our F-47 at 27,000 feet altitude."<sup>69</sup> The 3d Bomb Division, which did not have close fighter support, bore the brunt of the German attacks and suffered the heaviest losses. The Me-109's and Me-210's attacked the lead groups in formations of three to four abreast from high 12 o'clock. All carried rockets which were released simultaneously at 400-yard range. Then the enemy opened up with cannon and machine guns. They came in close to 200 yards and then dived against the low groups. These attacks were effective and are believed to have accounted for most of the total losses of 17 bombers.<sup>70</sup> Claims were 80-22-23.

The only strictly formation operation carried out by the VIII Bomber Command during December took place on the 31st. The targets were Paris plants producing ball bearings for the German war machine and Luftwaffe depots and fields in southwestern France. Ten combat wings of the VIII Bomber Command were involved, totaling 464 effective sorties. Claims were 20-14-23 and losses were 25 bombers.<sup>71</sup> Approximately 350 tons were dropped on ball-bearing plants at Ivry and Bois-Colombe and also the Lisieux-Bois-aux-Bois aero-engine works at the latter town. The photos show wide-spread damage at all the targets. The airfields at Comme, St. Jean d'Angely, and Landes de Gascogne were bombed by 257, 69,

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and 19 aircraft respectively.<sup>72</sup> Good results were obtained at all three places, with heaviest damage being done at Logans where an oil storage camp was hit.<sup>73</sup>

Although the weather interfered with operations to a considerable extent in December, the growing strength of both the Eighth and Fifteenth Air Forces as well as the use of B-29 equipment made possible a much heavier tonnage load than in November. Several missions of well over 400 planes were mounted by the VIII Bomber Command, and approximately 12,000 tons of explosives were dropped. The Fifteenth dispatched 1,595 effective sorties and dropped 4,300 tons.<sup>74</sup> Nevertheless, B-29 operations were practically nil, except for the raids on Greek and Italian airbases by the IX Bomber Command. Of the some 10,000 tons dropped by both strategic air forces, only about 1,000 tons fell on B-29 targets. A British source estimated that this phase of the B-29 war was about three months behind schedule,<sup>75</sup> and the A-2 of the Fifteenth Air Force warned that if the offensive against the German fighter industry were not followed up with further attacks, production would remain in the post July level by late May.<sup>76</sup>

There is no doubt that General Arnold was seriously concerned. Gen. Sir Harold Sir Trafford Leigh-Mallory visited him in November, he had been very emphatic in his demands for greater action against Luftwaffe, in accordance with our great numerical superiority.<sup>77</sup> Although more and more bombers were being sent out and more bombs were being dropped, Arnold was not satisfied with the results. He believed that there had been too many diversionary raids, especially in the case of the Eighth Air Force, against targets such as secondary goals that did

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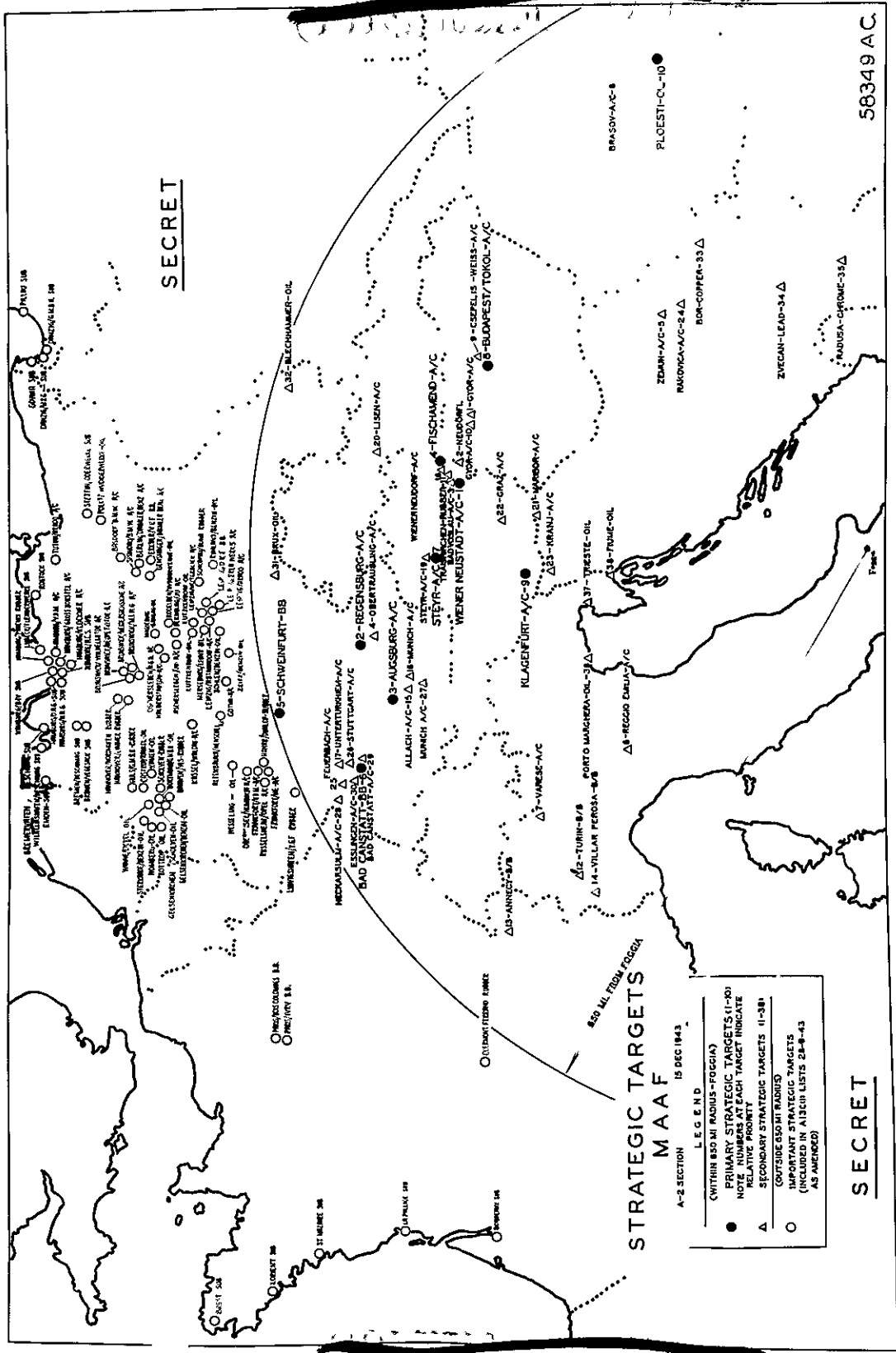
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not contribute to the destruction of the German Air Force.<sup>79</sup> In his  
few days' message to the commanding generals of the Eighth and Fifteenth  
he stated:<sup>80</sup>

It is a conceded fact that V-1s, V-2s and V-3s will not be possible  
unless the German Air Force is destroyed. Therefore, a personal  
message to you--this is a V-1--is to destroy the Luftwaffe.  
I want you to destroy it, to destroy it, to destroy it, to destroy it,  
to destroy it.

It seems likely that the slow progress of AIRTELIN also affected  
the decision on a command problem that had been concerning the American  
and British staffs for some time. For the activation of strategic  
air force in Italy was being considered, several plans were put forward  
by the American authorities to establish some sort of over-all control  
for the various air organizations operating in Europe.<sup>81</sup> Failing to  
convince the British of the desirability of setting up a supreme air  
commander for all American air forces and the RAF Bomber Command, Gen-  
eral Arnold argued that strategic operations would be greatly facilitated  
if the Eighth and Fifteenth were under a unified control.<sup>82</sup> This  
question was discussed throughout October and November with considerable  
opposition to the proposal coming from the British, and from General  
Sayer.<sup>83</sup> Early in December, the U.S. Chiefs of Staff rejected the  
British objections and indicated their intention of setting up a  
unified strategic control for Army Air Forces in the European Theater.<sup>84</sup>  
In their memo to Combined Chiefs of Staff, the U. S. Joint Chiefs of  
Staff stated that "these forces should be employed primarily against  
COBALT objectives as the Combined Chiefs of Staff may from time to  
time direct."<sup>85</sup> It seems reasonable to assume that General Arnold's  
dissatisfaction with the progress of the offensive against the GAF was  
one of the factors which led him to favor this new arrangement.

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SECRET

**STRATEGIC TARGETS**  
**M A F**

A-2 SECTION 15 DEC 1943

**L E G E N D**

- (WITHIN 500 MI RADIUS-FOGGIA)
  - PRIMARY STRATEGIC TARGETS (I-10)
  - △ SECONDARY STRATEGIC TARGETS (I-30)
  - IMPORTANT STRATEGIC TARGETS (INCLUDED IN AIRCOR LISTS 28-4-43 AS-10000)
- NOTE: NUMBERS AT EACH TARGET INDICATE RELATIVE PRIORITY

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Meanwhile, it had already been decided to reorganize the air command in the Mediterranean, and on 10 December 1943, the Mediterranean Allied Air Forces (MAAF) was officially authorized.<sup>85</sup> This command, under Air Marshal Sir Arthur N. Tedder with Lt. Gen. Carl Spaatz as deputy, consisted of the Fifteenth and Twelfth Air Forces, the Coastal Air Force (U. S., British, and French units), and the MAF Middle East Air Force, totaling approximately some 12,500 aircraft and 321,000 men (January 1944).<sup>86</sup>

However, almost immediately after the formation of MAAF its command was changed. General Spaatz and Air Marshal Tedder were brought to England and General Eaker was moved from the Eighth to command MAAF with Air Marshal Sir John Slessor as his deputy.<sup>87</sup> These final changes were not completed until the middle of January.

The Cairo Conference which sanctioned the creation of MAAF also gave formal approval to the centralized control of strategic operations in Europe, so long desired by General Arnold. The official directive activating the U.S. Strategic Air Forces in Europe (USSAFE, later USSAFE) was issued 5 January 1944. USSAFE was to come under the Supreme Allied Commander (SAC) at a future date; in the meantime, all COMBATTING operations would be coordinated by Air Marshal Portal, acting as agent of the CJS for both British and American air forces.<sup>88</sup> Under his direction, General Spaatz, commander of USSAFE, would direct strategic activities of the Eighth and Fifteenth Air Forces, coordinating the latter's activities as far as possible with the operations of the Allied Commander in Chief in the Mediterranean, Sir Harry Maitland Wilson. In case of a strategic or tactical emergency, General Wilson was empowered

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to use the Fifteenth Air Force as he saw fit, but for the rest, he was required to provide it full support in COMBELL missions, its first priority.<sup>89</sup> It was soon arranged that General Spaatz would deal with the Fifteenth only through IMAF, and that General Baker would have operational control of this force subject to CBI directives.<sup>90</sup>

Issuing these directives was the responsibility of Air Marshal Portal. Joint Anglo-American committees prepared studies of the various targets and presented evaluations of missions. Their recommendations finally went to the Joint Target Committee which prepared the directives for Portal's signature.<sup>91</sup> The directives were received by USSTAF and then reprocessed to the Eighth and Fifteenth. General Spaatz and his deputy commander for operations, Maj. Gen. F. L. Anderson, controlled the order of selection of targets.<sup>92</sup>

In some ways, the problems and duties facing the new commanding general of IMAF were much more involved than the situation in the United Kingdom had been, and it did not take General Baker long to discover this. He wrote in March:<sup>93</sup>

This is a new kettle of fish from U.K. The job there was clean out. We had really but one major program: to deliver the maximum bombload against German industry. Here we have three primary tasks and many, many subsidiary ones. The primary tasks are: the accomplishment of COMBELL with the Strategic Air Force; the support of land armies in battle with the Tactical Air Force; and keeping the sea lanes open and protecting the logistic establishments with the Coastal Command. In addition, we have such odorous morsels, or secondary commitments, as reequipping the French, maximum lift to the Balkan partisans, moving out of Africa and leaving the African war behind and moving into Italy and getting on with the continental war.

Furthermore, the demands of the land battle in Italy frequently cut into the strategic bombing operations.<sup>94</sup> Thus when General Baker arrived at IMAF Headquarters, he found the Fifteenth involved in an extensive attack on airbases in preparation for the Anzio landings on 22 January, and

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this continued into February. Indeed, a great deal could be written during this period about the constant tug-of-war that went on between the often conflicting demands on IAF's vast reservoir of air power. There were conflicts between different projects: LITTL vs. STRANGLE vs. HARDHOCK; also between tacticians as to whether the ground campaigns or FORTBLIND should have first call on the heavy bombers; and between the airmen as to which types of target were the best for the bombardment effort.<sup>95</sup>

In spite of policy disagreements, the air war continued as intensively as the weather permitted. On 3 January, the Fifteenth raided the Fiat ball-bearing establishment at VillarPerosa. With the successful raids on other centers of ball-bearing production such as Schweinfurt (14 October 1943) and Turin (8 November), the Fiat plant had assumed an especial importance. It was reported that 40 tons of ball bearings had been shipped from Italy to Germany in November; before this date, there were no comparable shipments. Furthermore, the plant at VillarPerosa was supposed to be making a special type of bearing essential to aircraft production.<sup>96</sup> Consequently, a small force of 50 B-17's attacked this target on the 3d, dropping 150 tons of 1,000-pound bombs from an altitude of 23,000 feet. The strike photos showed 12 direct hits on the main units of the plant and damaging near misses. Later reconnaissance photos showed that the factory had sustained extensive damage with 25 per cent of the roofing destroyed.<sup>97</sup>

The next missions for both the Eighth and Ninth were minor. As part of a larger mission to Kiel, Eighth Air Force bombers struck at the airfields at Bordeaux and Tours on the 4th,<sup>98</sup> while the Fifteenth

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dispatched 43 heavy bombers to bomb the Steyr aero-engine factory at Maribor, Yugoslavia, on 7 January.<sup>99</sup> No strike photos were obtained and the results were not evaluated until the end of the month.

On the 6th, the Fifteenth bombed the Reggiane Aircraft Factory at Reggio-Emilia. This mission was preceded by a careful reconnaissance which indicated a considerable turnover of single-engine aircraft. Between 3 and 7 January, the number of aircraft on the adjoining airfield varied from day to day as follows: 17, 23, 40, 18, and 35. It seemed likely that the Germans had converted this factory and airfield into an important depot for fighter repair, maintenance, and supply.<sup>100</sup> The target was first attacked during the night of 7-8 January by 26 Wellingtons dropping 39.5 tons from 2,000 to 8,500 feet. The town, factory, and airfield were covered with bursts, and at least two 4,000-pound bombs hit the factory. Many fires were started.<sup>101</sup> The following day, 109 B-17's escorted by 32 P-38's dropped 324 tons on the still smoldering buildings. All opposition seemed crushed as there were no aircraft over the town and no flak. With at least 20 direct hits on the factory buildings, this target was eliminated for the time being.<sup>102</sup>

The Eighth did not send out another FORTLEIGH mission until 11 January when, unfortunately, weather seriously interfered. It had been planned to make an attack in force on the FW-190 assembly and component plant at Oschersleben, the Ju-88 wing manufacturing works at Halberstadt, and the Puhlenbau u. Industrie A. G. aircraft assembly plants in and about the city of Brunswick. Over 700 bombers assembled, but unforeseen cloud formations made the mission confused and ultimately costly.<sup>103</sup>

Three bombardment divisions totaling 12 combat wings were dispatched.



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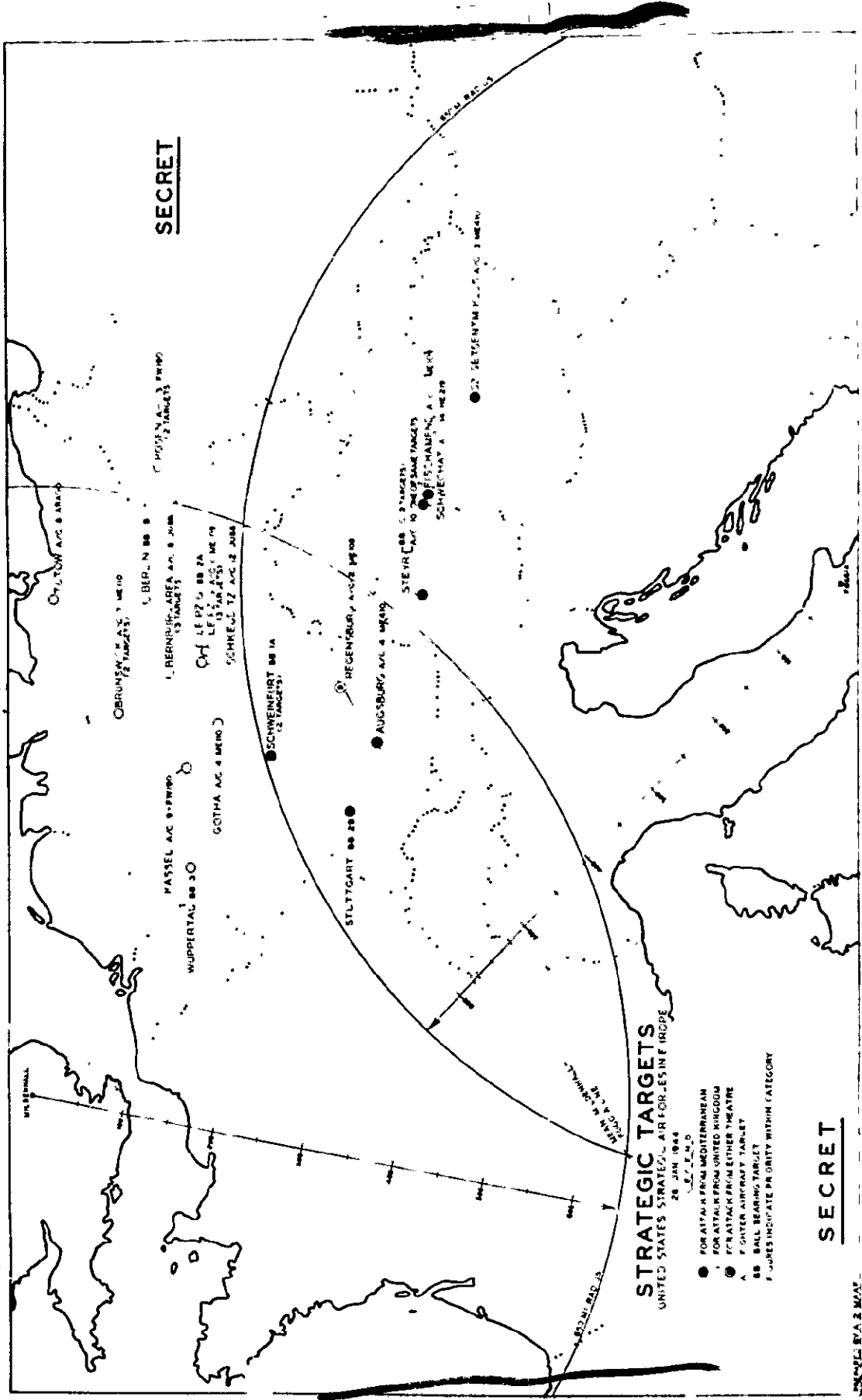
The 1st Division consisted of 5 B-17 wings; 3 wings containing 175 bombers were to attack Oschersleben, and 2 containing 114 planes were sent to Halberstadt. The 3d Division made up the second formation and had two objectives: 3 wings of 172 aircraft were to bomb the I.G. plant at Magdeburg, and 1 wing of 62 Fortresses was to bomb I.G. in the Wilhelmshafen suburb of Brunswick. The 2d Division which was flying last was to hit the I.G. plants at Neupotz and Wilhelmshafen with 85 and 55 aircraft respectively. A total of 663 planes was dispatched.<sup>104</sup>

The 1st Division took off as planned but had difficulty in contacting its full quota of escort fighters, and over the last 100 miles it was attended by only one Mustang group which had to divide itself in two parts when the division approached its twin targets. After the 3d Division took off the weather began to deteriorate rapidly and the formation finally received a signal ordering it to return. However, the 1st Combat Wing was near its objective and it elected to continue on to the target; the other wings decided to return and bomb targets of opportunity on the way out, thus causing considerable confusion to the covering fighters. The last formation was over the Dutch coast when the recall signal was received and it turned back, bombing the towns of Veppen and Lingen on its return to England.

In spite of these difficulties, the formations that reached their targets did good work. There was some confusion among the formations of the 1st Division as the target came into view, but a good pattern was dropped on the I.G. plant at Oschersleben. Damage was severe in the main plant area with fires burning in the machine and assembly shops. At Halberstadt, the main concentration fell just east of the

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**STRATEGIC TARGETS**  
 UNITED STATES STRATEGIC AIR FORCE - LES INF TROPE  
 28 JAN 1944  
 S.I. 100

- FOR ATTACK FROM MEDITERRANEAN
- FOR ATTACK FROM UNITED KINGDOM
- FOR ATTACK FROM EITHER THEATRE
- A. F. OUTER AIRCRAFT TARGET
- BB. BALL BEARING TARGET
- F. JAMES INDICATE PR. UNITY WITHIN CATEGORY

**SECRET**

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plant area, but a second wave scored heavily on a large workshop, and smaller buildings nearby. Good bombing was done on the I.L.G. factories in the Brunswick area.<sup>105</sup>

Apparently, the German fighter controller first diagnosed the attacks as directed against Berlin, for virtually every German fighter within range was called into the battle, even including one enemy-flown 1-38.<sup>106</sup> Owing to weather and the recall of some of the wings, fighter protection for the bombers was not as successful as in previous missions. As a result, some 500 German fighters were able to inflict considerable damage on the task force. The heaviest assaults came on the lead groups in the 1st Division which had its low squadron entirely destroyed and lost a total of 30 planes. The combat wings of the 3d Division which penetrated to the primary target lost 12 bombers, and two more were lost by the 2d during its withdrawal. Altogether, 60 heavy bombers failed to return.<sup>107</sup>

The middle of the month brought a new operational directive for the Fifteenth from General Spatz. The ranking objective was the destruction of the German fighter force, to be accomplished in the following schedule of priority:<sup>108</sup>

1. G.F. single-engine fighters
2. G.F. twin-engine fighters
3. The ball-bearing industry

Chief targets in the first priority were the Messerschmitt factory at Regensburg (first), the Fischamond Works (second), Werke I and II (third) at the great Messerschmitt complex in Jener Mustadt, and the extension of the complex at Flauenfurt (fourth). Also listed as secondary targets in the first priority were the factories at Bad Woslau, Győr (Hungary), Neudorf, Regensburg/Coertraubling, and Lemun.<sup>109</sup> Only

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two objectives were listed as twin-engine factories: these were the Messerschmitt plant at Augsburg, and the Duna Repulo Gyar Factory at Szigetcsanaklos, Hungary.<sup>110</sup> For ball-bearing attacks, the directive listed the Fischer plant at Schweinfurt, the V. A. F. at Stuttgart/Bad Canstatt, the Steyr-Daimler-Puch works at Steyr, Austria, and the G. Muller factory at Nurnberg.<sup>111</sup>

However, this list remained more of a sign of things to come rather than something immediately effective. The weather, of course, frequently interfered with the long flights into Central Europe which were necessary to reach many of these high-priority objectives. However, in addition to weather, the Fifteenth was unable to devote its full attention to aircraft factories because it was involved in support of the amphibious operations of the ground forces in the Rome area (operation SILEX) which began with the landings at Anzio. Both before and during this operation, more than 5,000 tons of bombs were dropped by the strategic force on airbases and communications.<sup>112</sup> Of special importance were the attacks on 11 major airfields, which rendered the enemy air reconnaissance completely ineffective and allowed the Allies to achieve a rare thing in modern warfare--a complete surprise.<sup>112</sup>

The 13th of January was a big day in counter-air force operations. As a part of the preliminaries to the Anzio landings, three airfields at Perugia, Montecelio, and Guidonia were attacked. The Perugia airfield, which was a big reconnaissance center, was attacked on the night of 12-13 January by 49 B-17's with undetermined results. The following morning it was again struck by 40 B-17's dropping 43.9 tons

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only the attack on Guidonia will be discussed in this study.

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of fragmentation bombs. A cloud over the target prevented an estimate of the bombing.<sup>113</sup> Montocelle, located on the fringes of Rome, was an important fighter base for GAF operations in support of the forces defending central Italy. It was hit by escorted fortresses which did some damage to service and administrative buildings.<sup>114</sup> Guidonia, a little to the north, was attacked by 10 B-17's of which only 30 were able to return, the remainder bringing their explosives back to base. There were direct hits on four hangars, a workshop, an assembly building, and a transformer station.<sup>115</sup> The next day, perhaps to divert the Luftwaffe's attention from central Italy, the Fieseler airfield, near the Yugoslav coast, was raided by 140 B-17's dropping 9,042 fragmentation and 213 tons of bombs.<sup>116</sup> Two-thirds of the field was well destroyed and many installations hit.

Three days later bombers from the Fifteenth Air Force were directed to strike at the Lancia, chassis and engine works at Villorba in northern Venezia, while another force attacked the Messerschmitt component factory at Monfalcone in southern Austria. The results were satisfactory.<sup>117</sup> On the 19th, small forces raided the fields at Corchiano, 120 mi. from Montocelle, and, with a larger formation of 75 B-29's, 220.75 tons of bombs were dropped on the fields at S. Maria in the same area. The 100 B-29's which were dispatched on the following day were reconnoitered, bombed to the extent of the entire Lancia field was rendered Montocelle unserviceable; the, the Luftwaffe in the same situation while Ciampino south was considered usable but hazardous.<sup>118</sup>

On the 21st, the attack was switched to southern France, and Istres, Le Poteau and Salon de Provence airfields were successfully bombed by all forces of B-17's.<sup>119</sup> Bordeaux-Mérignac airfield was also attacked

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to receive the report on the 23rd of January, 1943 and on the day of 23-24  
January, 1943. It is noted that the report is dated on what they  
found was the river shore at Ostia.<sup>121</sup>

In the meantime, the landing of the troops had taken place, and after  
a short period of confusion, the Germans had reacted strongly; the  
situation was critical. While the Allied troops were still in the  
their beachhead, the German air force based in southern France  
began to conduct air scale attacks on the shipping in Naples harbor,  
and against the Nazi beachhead on the 23rd and 24th of January. The  
damage was considerable. However, weather prevented operations on the 25th,  
but the next day at least the Nazi forces were again attacked by  
elements of the Luftwaffe which included some B-17's.<sup>122</sup> It seemed  
likely that there would be some continuation of the installations  
in southern France could be expected. In fact, in the night with  
the 27th, a series of vigorous attacks was launched for a four-day  
period not only against the French air force, but others in northern  
Italy which were contributing to the effort against the Germans were  
attacking in central Italy.

On the 27th, 28th and 29th of January, however, four or five  
times, the anti-aircraft defenses were hit a few minutes after noon. It  
was, therefore, a considerable one; between 25 and 30  
B-17's and B-19's took to the air and the vigorous attacks,  
shooting down one or two of the B-17's. The target was well  
covered by the defenses of explosives are good.<sup>123</sup> The damage to the  
was quite good. Photos showed two targets in the target area with 60  
hits on the landing area and considerable destruction of installations.<sup>124</sup>

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at Montpellier, and tons of bombs inflicted damage on hangars, workshops, and ammunition dumps and covered the landing area with some well-distributed craters.<sup>125</sup>

This task finished, the Fifteenth was next called upon to deal with a situation at the Aviano airfield. Reconnaissance of 29 January had revealed an increase in the number of enemy planes at this base from 54 to 72, of which 45 were now Ju-52's. It seemed possible that the Germans had withdrawn the bombers from the Greece-Ireco area for operations against the Azio landings. The day following the action against the French air bases, 64 Ju-17's visited this target and covered it with some 9,000 fragmentation bombs. Although German fighters took the air against the bomber formations, there were no losses. Many of the buildings on the field were hit, and the main landing area was well covered with bursts. Of the 50 enemy planes sighted on the field, 4 were damaged and 1 reported destroyed.<sup>126</sup>

The climax of this series of tactical operations in support of the Azio beachhead was the great counter-air force action of 30 January. The Aviano bombing was, in a sense, the prelude to this operation, for it was an attempt to break up a concentration of German low-range bombers. Following this raid, there was a wide-spread reconnaissance of German bases in northern Italy on the 28th. This showed a total of 170 enemy fighters in the area, with 127 distributed on the four fields of Penigo, Livariano, Villorba, and Udine.<sup>127</sup> It seemed likely that the Germans were trying to counteract the threat of American bombers based in southern Italy by developing considerable air strength in the North, especially low-range bombers. Villorba,

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For example, was showing a considerable increase in Ju-88's.<sup>128</sup> Such bases could be used for raids against shipping and airfields in the southern area, and therefore a large operation was planned to render them useless. It was decided to bomb the four fields, but to take care of the concentration of planes at Villalba, this field was to be the object of a special mission planned with great skill. Since the Germans usually put all their aircraft into the air as soon as the radar informed them of the approach of heavy-bomber formations, it was decided to send a group of P-47's in below the radar screen if possible and a few minutes in advance of the heavy formations to catch the German planes still on the ground.<sup>129</sup>

The surprise worked perfectly. About 1130 on the morning of the 30th, an approach force of heavy bombers showed strong on the radar screen of the Villalba field and the pilots began warming their motors for a quick take-off. A few had just left the ground when suddenly at 1140 a force of 60 Thunderbolt fighters swept in at terrific speed just above the treetops. The Germans were caught completely off balance, and for the next few minutes the Thunderbolts had a field day. Altogether 29 enemy planes were shot down for a loss of two. Hardly had the dust settled before 70 P-47's came sailing over at 23,000 feet to drop 10,988 frags and complete the job.<sup>130</sup>

While this brilliant tour de force was being carried out at Villalba, the three other fields were also being dealt with in summary fashion. Maniago was bombed at 1157 by 35 P-47's, and a heavy concentration was achieved on the northern landing area. There were several fires started, and bombs were seen exploding among the parked

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aircraft.<sup>131</sup> Lavariano was attacked at the same time by 41 heavy bombers flying in two waves. The second formation was attacked by 25 to 30 German fighters during the bomb run, but only 1 bomber was lost and the field was well covered with hits.<sup>132</sup> Shortly after these three missions, 63 Liberators reached the Udine airfield and dropped a heavy load of fragmentation bombs. The north landing ground and hangar area were hit repeatedly, and some bursts were noted among the 40 aircraft parked on the field. About 35 Me-109's and Fw-190's pressed home attacks just after the bomb run was made. The bombers claimed the destruction of 14 fighters at a loss of two Liberators.<sup>133</sup>

The raids of 30 January undoubtedly dealt the enemy a severe blow. In addition to losing valuable planes, the large number of damaged aircraft probably strained his repair and maintenance facilities to the uttermost. The destruction of those facilities at Udine and Aviano made the situation even more critical. The nearest repair center now available was at Klagenfurt in Austria very near the Italian border and considered a key point in the defense of south Germany. To complete the work of the 30th, the airfields at Aviano, Udine, and Klagenfurt were attacked on the 31st by 41, 70, and 74 heavy bombers respectively, with successful results. At the last field 67 aircraft were seen on the ground, and 11 were destroyed and 7 damaged.<sup>134</sup> An estimate of the enemy air situation given in the Intops Summary for 31 January stated the following:<sup>135</sup>

Experience in previous campaigns indicates that estimates of ground damage based on photographic evidence are conservative. In the present case, air claims appear reasonable on analysis of the apparently serviceable aircraft remaining after the attacks. Concrete evidence shows at least 145 enemy aircraft destroyed or damaged and it is highly probable that substantially more were rendered unserviceable by the operation.

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Eighth Air Force operations during this same period were against other than POINTBLANK targets. Weather in many cases prevented the deep penetrations necessary to reach centers of G.F. production, and blind-bombing equipment worked more successfully against harbors and port installations than against the small towns where some of the factories were located. The only major mission of the month against an aircraft factory turned out to be unsuccessful. Out of an available strength of 918 bombers 777 were dispatched on the 30th to attack the factories in the Brunswick area. Unfortunately weather conditions proved very bad with 10/10 cloud over the entire Continent with tops reaching up as high as 27,000 feet. The 14th Combat Wing lost contact with the other formations and bombed Hanover instead of the primary. No estimates of the bombing could be given because all formations bombed by RAF equipment. The German fighter opposition was strong, with approximately 300 fighters involved. Rockets were used successfully. In spite of escort fighters numbering 635, 20 bombers were lost, and 4 fighters. The fighters claimed 45-15-34.<sup>136</sup>

A new phase of air warfare was introduced on the 31st when 75 fighter-bombers of the VIII Fighter Command were dispatched with an escort to dive-bomb the Gilze-Rijen airbase. A total of 17.5 tons were so dropped and as the weather was generally clear in the area, the results were good. Approximately 120 enemy aircraft opposed the operation and some vicious combats took place. Six escorting fighters were shot down and in return the Eighth's fighters claimed enemy losses of 13-0-1.<sup>137</sup>

On the whole, January like December was not an important month for

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POULBLEN operations. The Fifteenth was handicapped by bad weather and its obligations to support the ground battle. Nevertheless, its extensive attacks on German airfields, while dictated by the current tactical situation, were in keeping with General Arnold's orders to strike the Luftwaffe on the ground and in the air, and should be counted as a phase of PULBLEN. This air force mounted 3,802 effective bomber sorties for the relatively low loss of 64 heavy bombers. A total of 11,051 tons of bombs were dropped on all targets, and fighter and bomber claims of enemy planes destroyed came to 320.<sup>138</sup>

The Eighth Air Force was likewise handicapped by the ever-present problem of weather. Although not involved in supporting a land battle, its program of operations was somewhat thrown off balance by the appearance of new and totally unexpected targets with a high priority. These were the German robot-plane installations, at first known as "construction works" and later as MOBALL targets, which began to stud the Channel coast of France late in 1943. Although there had been a few exploratory raids in the autumn, really serious attacks did not begin until December. From that month until the end of March, both the Eighth and Ninth Air Forces were forced to deliver repeated attacks against these menacing installations. Thus, the MOBALL targets combined with weather to make PULBLEN operations difficult. The Ninth Air Force, for example, was so occupied with missions against MOBALL that it was able to bomb only one airfield, that at Cherbourg/Maugerius, which was hit twice as a secondary target on 7 January.<sup>139</sup>

In spite of their losses, the Luftwaffe was still able to make a vigorous defense of targets it considered vital. On some occasions,

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deep penetrations were opposed by as many as 300 enemy fighter planes, and nearly all the important missions were met by at least 100 fighters.<sup>140</sup> It was evident that the enemy was still experimenting with all kinds of aerial weapons in the hopes of meeting the attacks on his industries. Aerial bombs, glide bombs, parachute bombs, and even bombs on cables were used at one time or another against our formations. Rockets were constantly fired by enemy planes during the air battles, and were responsible for a good many losses.<sup>141</sup> Nevertheless, our wastage remained relatively low; the 203 bombers destroyed in January were only 4.3 per cent of the effective sorties. Against this loss, the VIII Bomber Command dropped 12,397 tons, and made claims of 552-156-129.<sup>142</sup> If the fighter Command's claims are added to these figures, we get the overall claim of 795 German planes of all types destroyed during January. However, there is strong reason for believing these claims were unduly high, and General Doolittle once stated as much, urging his lower-echelon commanders to see that all figures were as accurate as possible.<sup>143</sup>

The CBS was now into its fourth phase, according to the original schedule. It had been assumed that by 1944, air operations would be designed to prepare for the coming invasion of the Continent and that the Luftwaffe would not be a serious threat. But in January the Luftwaffe was still very much of a threat. An CBS study estimated that the P-50 program was seven months behind schedule and the P-49 was four;<sup>144</sup> nevertheless, the Air Ministry's figures showed an increase of 50 single-engine planes over the December production figures.<sup>145</sup> If the weather during February continued to prevent deep penetrations of the Reich, perhaps the German aircraft production would again reach the

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high figures of July 1943.

On the 24th of January, General Arnold discussed the situation in a letter to General Spatz. He was concerned over the small number of bombers being sent to destroy important targets, and feared that our air superiority was being divided up into small forces assigned to targets all over Europe. "Can't we, some day, and not too far distant," he concluded, "send out a big number--and I mean a big number--of bombers to hit something in the nature of an aircraft factory and lay it flat?"<sup>146</sup> The answer to this question was to come in the raids of 20-25 February, the famous "Big Week" of the U. S. Army Air Forces.

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Chapter V

THE BIG WEEK AND ITS BACKGROUND

At the end of January, the Air Ministry estimates of G.F. monthly production were as follows:<sup>1</sup>

S/E fighters	650
T/E fighters	190
LR bombers and reconnaissance a/c	315

Following the February attacks, especially the period from the 20th through the 25th, known as the Big Week, Air Ministry estimates indicated a drop in production to these figures:<sup>2</sup>

S/E fighters	245
T/E fighters	55
LR bombers and reconnaissance a/c	210

This achievement was the result of the heaviest bomber attacks yet mounted in the air war, plus the determination of General Spatz to press home the offensive against the Luftwaffe. In a letter of 23 January 1944 to Robert A. Lovett, Assistant Secretary of War for Air, he stated his coming plans:<sup>3</sup>

I believe . . . that the ability to apply the pressure from two sides against the middle can be utilized to the discomfiture of the enemy. My tendency will be to place a little bit more emphasis upon swatting the enemy on his airdromes whenever possible, and force him to fight under conditions most advantageous to us. There are certain essential targets, however, such as fighter factories and ball-bearing works, beyond fighter cover, which must be hit when weather conditions permit accurate bombing results. These attacks will no doubt result in heavy losses, but will materially reduce our later losses.

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Shortly after, the Air Ministry issued a comprehensive bombardment program for the Eighth, Fifteenth, and British bomber commands. First and equal priority was to go to single-engine and twin-engine fighter airframe and component production. The Eighth Air Force's targets were listed in the following order:<sup>4</sup>

1. He-109 plant at Leipzig
2. He-109 plant at Regensburg/Prufening (also the Fifteenth)
3. He-190 plant at Rosen
4. He-110 plant at Gotha
5. He-110 plants at Lembur, Kallertstaut, and Uchersleben
6. He-110 plant at Brunswick
7. He-190 assembly (fuselage) at Tutow
8. He-190 assembly at Passel/Altau
9. He-110 plant at Schidauitz

For the fifteenth Air force, the first-priority aircraft production centers were:<sup>5</sup>

1. He-109 assembly plant at Regensburg/Prufening
2. He-110 assembly plant at Augsburg
3. He components plant at Steyr
4. He-109 components plant at Fischamond
5. He-110 assembly plant at Szigetzentek (Hungary)
6. He-219 assembly plant at Schwechat

The RAF was to accord first priority to the following industrial cities: Schwechat, Leipzig, Brunswick, Regensburg, Augsburg, and Gotha. When weather was not suitable for priority objectives, both the RAF Bomber Command and the Eighth Air Force were to attack Berlin if conditions permitted.<sup>6</sup> Ball-bearing plants were also given an equal priority with aircraft establishments.<sup>7</sup>

With the question of bombing policy and targets settled, other problems were dealt with. In order to enable both bomber crews and fighter pilots to understand each other's problems, a fighter liaison officer was henceforth to be sent to each bombardment division in the Eighth Air Force. At the same time, the RAF fighter command prepared

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a memo on the tactics and technique of fighter escort which was to serve as a guide, not only for the liaison officer, but also for staff officers of the bombardment divisions. When unusual problems were being discussed which might concern fighters as well as bombers, fighter personnel were to attend the operational critiques held at bomber command headquarters. Henceforth, fighter command intelligence was to receive more information from the bomber crews as to where and when the heaviest attacks came, tactics employed by the enemy, and so on.<sup>9</sup> It was hoped that in this way closer coordination between bomber and fighter groups might be achieved, and more effective escort missions be flown.

The question of claims, so often the object of criticism by both British and American authorities, came up again during February. As General Bealittle admitted,<sup>9</sup> Eighth Air Force air-to-air claims undoubtedly had been high. In an effort to avoid duplicate claims, a new system for recording them was developed and sent to the lower echelons. However, it is not certain that much was accomplished. Because of the close formations flown by the heavy bombers, German fighters shot down were almost always the target of several gunners. In this connection, it is interesting to point out that, after his capture, Herman Goering stated our claims were usually about three times the actual losses. The heaviest loss in fighter pilots, according to the former chief of the Luftwaffe, was on 1 January 1945 when approximately 100 pilots were shot down.<sup>10</sup> In spite of all efforts, claims continued to be difficult to evaluate throughout the war.

The first part of February was, as General Spatz had indicated it

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might be, largely given over to attacks on German airfields. On the 5th, the Eighth went on a big sweep of five C-52 training bases and one assembly and repair depot. All the targets were in France. A total of 509 bombers, from an available effective strength of 855, was dispatched to Chateaufort, Orleans/Pricy, Tours, Evord, and Chateaudun. Romilly had originally been included in the target list, but since it was covered with cloud, the repair depot at Villacoublay was bombed instead. Some 1,200 tons were dropped with excellent or good results at all targets except Chateaudun where results were estimated as fair. Only two bombers and two fighters were lost and the total claims were 10-5-6.<sup>11</sup>

On the 6th, the Eighth was out again in force. This time 642 heavies were sent to strike targets in the Pas de Calais area, but found it covered by 10/10 cloud; consequently eight targets of opportunity were bombed instead. Among these were the airfields at Chateaudun, St. Maure de l'Eure, Evreux/Fauville, and Caen/Carpicquet. The VIII Fighter Command and the RAF provided 632 escorts.<sup>12</sup>

Two days later, the Fifteenth attacked the airdromes at Viterbo, Tarquina, and Civieto with small task forces. Of the 44 aircraft present at Viterbo, 6 were probably destroyed and 4 damaged. All three fields were in central Italy a short distance north of Rome,<sup>13</sup> and all were in fighter range of the beleaguered Anzio beachhead.

On the 10th, the Eighth scheduled a mission to attack targets in the Brunswick area and also the Gilze-Rijen airdrome in Holland. However, adverse weather and the failure of IFF equipment interfered with the 81 Liberators dispatched to the airdrome and only 27 attacked. Unfortunately two mid-air collisions occurred, causing the loss of three

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B-24's.<sup>14</sup> The 109 Flying Fortresses that were sent to Brunswick experienced some weather trouble, but two of the three wings found holes in the overcast and were able to drop their bombs visually. Strike photos indicated that the 350 tons of bombs covered the area of the old town with good results,<sup>15</sup> although it was not possible to tell if the aircraft establishments there had been hit. It had been hoped that the attack on Gilze-Rijen would cause the Germans to divert some of the fighter force in this direction. Unfortunately the G.F. was not deceived. Furthermore, bad weather caused the withdrawal escorts to be delayed in meeting the formations and two groups completely missed the rendezvous; this gave the Luftwaffe its opportunity. About 350 fighters attacked the bomber formations. Contrails were exceptionally heavy and afforded the enemy an excellent cover from which to make sudden strikes. Our claims were 55-2-42, but the cost was high; 8 fighters and 29 bombers were destroyed.<sup>16</sup>

The 21st operation on the 11th, although not directed against a POINTBLANK target, is of considerable interest because of what looked like a possible change in G.F. tactics. Heretofore, it had been sometimes difficult for our fighters to get the German fighters to engage them. The G.F. usually preferred to keep away from the Mustangs, Thunderbolt, and Lightnings in order to concentrate on the bombers. However, in this mission the opposite technique was followed. The Germans abandoned their usual tactics and turned viciously on the fighters. Several sharp engagements took place. As a result, the American escorts claimed 32-3-22, but lost 14 of their own number--a high figure for fighters. In addition, 4 P-47's, 2 P-38's, and 1 P-51 were seriously

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damaged.<sup>17</sup> When General Arnold received this information he was quick to see the possibility of a change in G1F tactics, and he cabled General Spaatz to inquire if our fighters were going to abandon their escort functions to take aggressive action against German fighters whenever encountered.<sup>18</sup> Replying for General Spaatz, General Anderson stated that they welcomed this aggressive action against the fighters as it permitted them to restore considerable freedom of action to our escorts who would now be able to force the Germans into combat.<sup>19</sup> As it turned out, this did not mark the beginning of a new policy and other missions found the Luftwaffe none too anxious to engage the Thunderbolts and Mustangs, preferring instead to save ammunition and gasoline for the big formations of heavy bombers.

Certainly these operations were not the "big number" of bombers out to lay something "flat" that General Arnold had been hoping for. Nevertheless, such an operation involving both the Eighth and Fifteenth Air Forces had been scheduled for some time. One of the principal motives in the activation of the Fifteenth had been the hope that the two strategic bombing forces could coordinate their joint operations. It was confidently expected that the Po Valley would soon be available for Anglo-American air bases and that the Fifteenth "and the Eighth would integrate their attacks on German targets with frequent joint raids, shuttles, one-two punches, etc."<sup>20</sup> The Po Valley remained in enemy hands, but in early December a plan for a combined attack on the German aircraft industry was being drawn up under the code name of ARGUMENT. It is not clear if this operation was actually planned for 1943, although one writer suggests that it was first scheduled for

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12 December, and that supply deficiencies and weather had forced a cancellation.<sup>21</sup>

ARGUMENT was definitely scheduled for January, and it was hoped that weather conditions on the 15th might be suitable for combined operations, but the plans had to be canceled. Fog bound down the English bases and storms lay along the air routes beyond the Alps.<sup>22</sup> On the 20th, General Spaatz cabled General Arnold that he had been going into the weather situation carefully with Anderson, Doolittle, LeMay, Hodges, and Williams. He felt that unless some frequency of operation could be maintained and increased pressure applied to the "Hun Air Force," necessary wastage would not be obtained.<sup>23</sup>

Hoping that February might provide the opportunity for this increased pressure, USSM.F., on the 3d, set up an elaborate system for coordinating operations. Coordinated actions might be instituted by either air force, or they could be brought about by the Combined Operational Planning Committee. The commanding general of USSM.F. could also order a combined operation and it could be canceled only by him, except in an extreme emergency in the land battle in Italy when the theater commander could commandeer bomber support for his ground troops.<sup>24</sup>

Another combined operation was ordered for the 9th as there seemed a chance that the weather might be favorable. Some 243 heavy bombers were actually dispatched by the Eighth, but were recalled before they had crossed the English coast. The Fifteenth was held down by inoperative bases and deteriorating weather conditions along the route and consequently its bombers did not take to the air.<sup>25</sup> General Baker wrote to General Spaatz that he was "most disappointed that our joint plan for

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operation was again messed up by the weather last night and today. One day we shall get on with that job. I am personally certain there has been no decent day for it since last August 18th. That is almost unbelievable but nevertheless true."<sup>26</sup>

Meanwhile in the United Kingdom, Maj. Gen. F. L. Anderson, Spaatz's deputy for operations, was still hopeful that a few good days might be vouchsafed to them, although his weather experts cheerfully assured him that the chances were 8 to 1 against it.<sup>27</sup> In spite of this dubious prediction, he wrote to General Huter on the 11th that he was "now in the midst of preparing a plan which will best exploit the destruction of the aircraft and ball-bearing factories."<sup>28</sup> His confidence was justified. The atmospheric conditions took a turn for the better, and on the 17th Anderson was informed that a stretch of relatively good weather seemed to be shaping up.<sup>29</sup> With this long-awaited gift of Fortune almost in his hands, General Spaatz began to set in motion the machinery for a combined offensive by the Eighth and Fifteenth, when suddenly a new obstacle appeared.<sup>30</sup>

As this study has already pointed out, the directive which provided for the control of the Fifteenth permitted the theater commander to make use of the strategic air arm in case of an emergency. The battle at the Anzio beachhead, which had been going on since 22 January, was reaching a climax. On the night of 15-16 February, the Germans launched a heavy counterattack on the beachhead with intensive air and artillery preparation. The situation was critical, and General Clark and Maj. Gen. John H. Cannon of the tactical air force felt the need of assistance from the heavy bombers of the strategic force.<sup>31</sup> This

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was of course, the possibility foreseen in the directive giving General Wilson the authority temporarily to withdraw the Fifteenth from POINT-BLANK to assist in the land battle. Nevertheless, General Baker, for the sake of precedent, wished to prevent a situation where an official demarche by General Wilson would be necessary. Consequently, when it was apparent that a combined operation was to take place on the 20th, General Baker signaled Spaatz on their private wire as follows:<sup>32</sup>

Re your mission assignment to Fifteenth for tomorrow, here is our situation: (a.) Clark and Cannon believe tomorrow will be critical day in beachhead; both hope for full heavy bomber help. Cannon believes some heavies must help. (b.) Our weather prophets believe we have little chance for visual targets in South Germany. You speak of area targets. We have no H2X as you know. In view of foregoing we face this problem: Shall General Wilson declare emergency under CCS directive and employ heavies. I hope to avoid this. Will you therefore tell me as soon as possible whether your other planned attacks require our help as diversion even with no prospect of visual bombing. In that event we must make a split and send five or six groups on one or two targets you name and put at least four on beachhead support. In view of our dilemma please give me desires.

General Spaatz immediately gave Baker a release from the combined operation, but he was concerned for fear a continuous emergency at the beachhead might interfere with POINT-BLANK. During the next two or three days the favorable weather conditions, which had been so anxiously awaited for almost three months, might occur. Consequently, although he appreciated the emergency conditions at the beachhead and was willing to release the Fifteenth from participation in the POINT-BLANK operation scheduled for the 20th, he hoped that nothing "would prevent heavy force of Fifteenth Air Force from being utilized against POINT-BLANK targets Monday and Tuesday [21 and 22 February] if weather permits."<sup>33</sup>

In this way the power of the Fifteenth was made available to the

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ground forces without the necessity of General Wilson's intervention under the provisions of the JCS directive. As a matter of fact, such action was never necessary, because this procedure set the pattern for the future. There were at least six occasions when the effort of the heavy bombers was swung to the side of the ground forces, and on each occasion the cooperation was secured on a request basis.<sup>34</sup> As a result of the arrangement with General Spaatz, the Fifteenth dispatched 105 bombers to the beachhead on the 20th, and another force of 126 attempted to reach Regensburg but was prevented by the weather which, in south Germany at least, failed to live up to expectations. It was not until the 22d that a combined operation was possible.<sup>35</sup>

Meanwhile, the Eighth Air Force was preparing to take advantage of the clearing weather promised for the 20th. Since the targets to be bombed lay in central and eastern Germany, the RAF coordinated its night bombing with AIF plans by hitting Leipzig and Berlin during the night of 19-20 February.<sup>36</sup> At that time the weather forecast indicated relatively favorable weather conditions: small, low clouds were predicted for central Germany, nil to 3/10 cloud for eastern and 6/10 to 8/10 low cloud for northern Germany.<sup>37</sup>

Therefore, it was decided to send out the heaviest possible force against some 12 targets connected with the production of the Me-109, Me-110, Ju-88, Ju-188, and the Fw-190. The Fw facilities at Kreisling, Posen, and Tutow in northern Germany were one general objective, and in the Leipzig/Brunswick area the targets included the Leipzig-Mockau airfield, the Erla Messerschmitt factory, the Junkers repair and assembly plant, the Erla machine works at Heiterblick and Abtnaudorf,

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the Junkers airframe and engine works at Ischersleben, Halberstadt, and Bernburg, the Me-110 components factories in the Wilhelmtritor and Neupetrtritor suburbs of Brunswick, and the Gothaer Waggonfabrik at Gotha, a component and assembly plant for the Me-110.<sup>38</sup>

Plans for the mission were very carefully worked out. The heaviest weight of the attack was to fall on the Leipzig/Brunswick targets, with the force dispatched to the Posen/Tutow area acting as a diversion on the flank. The routes were chosen to deceive the enemy as long as possible concerning the real objectives, and to make it appear as though Berlin might be the destination. The approach to the Posen targets was to be a wide swing to the north over Denmark just about the same time that the main task force to the south would be entering the enemy's radar screen. This was to prevent the enemy controller from dispatching his full fighter strength against the flanking attack from the north, and also to force him to split his forces.<sup>39</sup> It was also planned that the Fifteenth should come up from the south to strike at Regensburg, but it has already been pointed out that weather and other commitments interfered.

At 0930 on 20 February the first formations took off on what was then the largest force of heavy bombers ever employed on a daylight mission.<sup>40</sup> Participating were 12 combat wings totaling 1,003 bombers. To protect this tremendous force, RAF and American fighters flew 632 sorties.<sup>41</sup> This was the "really big" mission that General Arnold had been hoping for, and it was out to lay the German aircraft industry "flat."

The flanking diversionary forces found the weather not quite so

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good as had been expected. Weather was overcast and the bombers used blind-bombing techniques, or attacked targets of opportunity. There was no observation of results. Finding the overcast equally heavy at Posen and Kreisling, the planes decided to bomb Rostock as a target of opportunity and dropped 196.5 tons of HE and 121.8 tons of EB. Considerable damage was done to the Neptunwerke shipyard, and the Ernst Heinkel airframe and assembly factory at Marienehe. In spite of the fact that this was not the major part of the operation, considerable fighter opposition developed.<sup>42</sup>

Ten combat wings comprised the main task force which was dispatched into central Germany. The routes were flown almost as briefed with good fighter cover. From the behavior of the German fighter controller, it appears evident that the enemy was completely outwitted by the diversion to the north. This force was apparently considered the main thrust and a large force of GAF fighters was dispatched north to intercept it "while the controller who had launched it looked anxiously over his left shoulder at another large bomber force which was approaching the Reich across Holland." Suddenly he decided that the southern force was the main attack and ordered his fighters to return to the Hanover area. This was a fundamental mistake for it brought the enemy interceptors back too late to oppose the bomber formations en route to the objectives. As a result, the enemy was never able to oppose this operation in force.<sup>43</sup>

As the bombers approached the target area, the undercast broke up and visual bombing was possible. The Leipzig/Hockau airfield and the Triebesselerschmitt factory were attacked by 131 aircraft dropping 241.8 tons of HE bombs and 85.2 tons of incendiaries. Three aircraft factories

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bordering the field received extensive damage and there were direct hits on the assembly shop of the Erla plant and near-by hangars. The transport-border assembly factory was covered with a heavy concentration and some Junkers installations were damaged. At Weiterblick near Leipzig the weight of the attack fell on the power houses and workshops as 75 bombers dropped high explosive and incendiaries. At Bernburg the Junkers airframe and aero-engine centers were assaulted by a small force of 37 planes, but the bombardiers were able to achieve hits on factory buildings and probably did blast damage to a fuselage storage building.<sup>44</sup> At Brunswick both the Leupetrator and Wilhelmator suburbs were successfully bombed and direct hits were scored on Le-110 component-manufacturing installations at the former. Due to the overcast, the Gothaer Waggonfabrik was attacked by 39 bombers using blind-bombing techniques and the results were not immediately observable. Targets of opportunity were also hit at Wechsungen, Wehstedt, and Strassfurt, the first two with fair to good results.<sup>45</sup>

This operation of the 20th was later adjudged one of the most successful ever carried out by this air force.<sup>46</sup> German fighter defense was far below what was expected. Uncertainty as to the destination of the bombers may have contributed to this weakness, as well as the weather over Poland and the possible exhaustion of the night fighters as a result of the heavy attack on Leipzig which kept the German pilots flying until 0150.<sup>47</sup> In the words of the historian of the Eighth Air Force, "The major mistake seems to have been made in either the planning or execution of this day's work."<sup>48</sup> The total losses were 21 bombers and 4 fighters. The claims of both bombers and fighters were tentatively set at 125-45-66.<sup>49</sup>

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The next day the weather began to deteriorate; the forecast for central and northwest Germany was 5/10 to 7/10 cloud at low level with large breaks.<sup>50</sup> Under such circumstances there was a good chance for some clear targets, and consequently 601 planes were dispatched against two aircraft factories in Brunswick and six major airfields and aircraft storage parks in western Germany. The Brunswick targets and the field and storage park at Diepholz were to be hit, but the weather interfered at the other targets. As a result, numerous targets of opportunity were bombed, including the airfields at Lebrun, Francke, Heiden, Meine, Quakenbrück, Verden, Alhorn, and Pesepe, and the aircraft storage parks at Linde.<sup>51</sup> More than one explosion in assembly, and not all the formations were organized when the target area was reached. The third combat wing, originally assigned to a Brunswick target, inadvertently followed the second combat wing to the Diepholz area and was far off its planned route to Brunswick when the error was discovered. Consequently, this wing decided to bomb the sites at Alhorn and Verden as targets of opportunity.<sup>52</sup> Large amounts of damage were inflicted on the airfields. At Diepholz four storage buildings and two workshops were destroyed while major damage was done to hangars and barracks. A direct hit on an ammunition dump was achieved at Pesepe and a severe explosion followed. The bombing of Brunswick was hard to evaluate since it was carried out with A-17 equipment, but it was believed that most of the bombs fell in the center of the city.<sup>53</sup>

The G-1 reaction was somewhat slow in developing. Some 150 enemy aircraft were airborne but did not attack until the bombers reached the target area. Unfavorable weather conditions may have hampered the

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Luftwaffe, but it was also believed that the German fighter defenses were beginning to show the strain which these large-scale operations put upon them. The B-26 bombers of the IX Bomber Command attacked enemy airfields and caused some fighters to become airborne prematurely. The RAF also contributed its share by attacking Stuttgart 12 hours before the start of its operations. American claims were only 19-10-14, and the loss of 10 bombers out of a total of 801 airborne was not considered heavy. Although the weather did not hold up as well as had been expected, General Spatz cabled General Arnold that he was well pleased with the results of the battle so far. Full pressure was being maintained on the enemy air force, and he was to be allowed no time for recuperation even if it meant some extra American losses because of weather.<sup>54</sup>

The forecast for the 22d indicated that southwest France and parts of Germany would be clear; it also seemed possible that the air routes over the Alps would be open and that the Fifteenth could at last take part in the Big Week. For the third successive day of this massive attack on the Luftwaffe and its sources of supply, six high-priority GSO targets were selected: (1) the Junkers plant at Mulderstadt, makers of wings for the Ju-88 and -188, (2) the Junkers aircraft components and final assembly at Ischersleben, (3) the Go components and final assembly of the Ju-190 at Ischersleben, (4) the Junkers assembly at Bernburg, (5) the ball-bearing factory at Schweinfurt, and (6) the Gothaer component and assembly plant for the He-110 at Gotha, the largest producer of twin-engine fighters.<sup>55</sup> In addition, the Fifteenth was scheduled to bomb the aircraft factories at Bernburg.

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To deceive the German fighter control, one combat wing was ordered to attack the Halborg/ est airfield in north Germany as a diversionary mission. This force was the first to use aircraft equipped with "Anuroi, a device to jam the enemy Freya, Chinney, Houndine, and Wurzburg radar sets. Using their jammers, it was hoped that the Landrel planes of this force could deny the Germans the use of their own radar to detect the approach of the main task force. It was also hoped that the diversionary force would hold down a considerable number of German fighter units in the Helgoland fight area and prevent their joining with other groups in the defense of central Germany.<sup>56</sup>

These elaborate plans were not too successful. Weather prevented the 53 bombers of the diversionary task force from bombing the Halborg field, and the German fighters were not diverted from the main effort. However, in the opinion of some experts the Fifteenth's attack on Regensburg may have attracted twin-engine fighters that otherwise might have been used against the Eighth's formations.<sup>57</sup> Fourteen combat wings constituted the main effort of the VIII Bomber Command. In the first wave were 259 B-17's headed for Halberstadt, Aschersleben, Bernburg, and Oschersleben. The second formation consisted of 333 B-17's assigned to attack Schweinfurt and the third and final wave was made up of 253 B-24's bound for Gotha.<sup>58</sup>

Trouble was encountered from the very beginning. Clouds, snow, haze, and stronger-than-predicted winds considerably disturbed the assembling formations. Some wings managed to get into some sort of order by the time the coast of Holland was reached, but others did not and were forced to abort. The 2d Bomb Division was unable to organize,

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and after penetrating about 100 miles inland, it decided to abandon the Gotha mission and bomb targets of opportunity. Unfortunately, the bombardiers did not allow sufficiently for the strong wind and four Dutch towns were bombed by mistake.<sup>59</sup>

Of the 455 bombers which were actually dispatched, 101 attacked the primary targets and 154 bombed targets of opportunity. Thirty-four aircraft reached Oschersleben and dropped 64.5 tons of high explosives and 12.6 tons of incendiaries on the Junkers factory. The concentration on the target was good and it was estimated that the damage was extensive; six large workshops received direct hits. The Junkers factory at Eernburg was hit successfully by 45 bombers dropping 45 tons of GP and 64.9 tons of fragmentation bombs. Only 13 airplanes managed to reach the Halberstadt installations, and photographic cover failed to show any hits on the Junkers factory, although 49.5 tons were dropped. The formations headed for Oschersleben bombed targets of opportunity with generally poor results.<sup>60</sup>

For the first time during the three days of continuous operations against the German fighter industry, the Luftwaffe reacted vigorously. For one thing, they had an excellent opportunity to inflict considerable damage. The bad weather upset the formations, as has been pointed out, and generally scrambled the timetable and over-all plans. Since many of the groups were looking for targets of opportunity, the schedule for the withdrawal was not adhered to. All this made it very difficult for the escort fighters to give proper support and coverage, especially since they were frequently outnumbered by the German fighters. In addition, some of the bombers elected to return along courses north of

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the planned route and this gave the Ruhr defense system time to engage them. All these factors made the mission a costly one; 11 fighters and 41 bombers were lost. The bombers claimed 27-2-31 and the fighters claimed 60-7-25.<sup>61</sup>

Meanwhile, the Fifteenth Air Force had at last been able to get its planes into southern Germany. While the Eighth was struggling with weather and the Luftwaffe, the Fifteenth was attacking the great Messerschmitt complex at Regensburg. Sixty-five Flying Fortresses dropped 153 tons of high explosive and incendiary bombs on the Messerschmitt factory; weather prevented an accurate appraisal of the bombing. At the same time, 118 Liberators attacked the aircraft factory at Regensburg/Obertraubling with GP and incendiary bombs. Here again, poor photos and bad weather prevented an estimate of the results, although visual observations during the attack indicated that the target area was hit, and one considerable explosion was noted. At the same time, 23 unescorted B-17's dropped 81 tons of 500-lb. GP bombs on the Zagreb (Yugoslavia) airbase with fair results.<sup>62</sup>

Although the operations of 22 February were not among the most successful of the so-called Big Week, they are of special interest because of the fact that both the Eighth and the Fifteenth were able to run coordinated missions. Those who have struggled along with the author of this study so far will recall that one of the arguments for the creation of the Fifteenth Air Force was based on the idea of combined operations with the Eighth. Nevertheless, bad weather and the demands of the land battle in Italy made such coordination relatively rare. In this particular case, it is not clear whether or not the

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combination was of much assistance to either force. The losses of the Eighth, which were heavy, do not appear to have been greatly affected by the attack on Regensburg or the Zagreb airdrome; nor, in this instance, was the operation against the Regensburg factories of sufficient weight to divert many of the fighter groups from central Germany. The one-two punch against the German aircraft industry by both the strategic air forces was still something to be worked out in the future.

The 23d found bad weather settling down on the British Isles and no operations took place. The Fifteenth sent 102 Liberators to the Steyrwaffen Walzlagerwerk at Steyr, Austria, where they dropped 214 tons of bombs, but without much success, according to the photos which showed no serious damage to any vital installation. The C.F. reacted vigorously to this mission and aggressive attacks were launched against the formations for about 30 minutes. Seven Liberators were seen shot down and 10 more were missing when the bombers returned to their bases.<sup>63</sup> No other attacks were staged by the Fifteenth because of the bad weather.

By the morning of the 24th, climatic conditions had greatly improved, and nil to 3/10 low cloud was promised for most continental areas. Selecting its targets in furtherance of the over-all plan for the destruction of the German aircraft industry, the Eighth scheduled something like a repetition of the first mission of the Big Week. The targets were the WNF Werke I at Schweinfurt, already heavily damaged in prior raids, the Gothaer Waggonfabrik at Gotha, and a northern diversionary raid on the aircraft assembly plants at Tutow, Focen, and Kreisling, plus a feint over the North Sea.<sup>64</sup>

Elaborate precautions were taken to confuse the C.F. fighters. The

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Tutow-Fosen-Kreisling task force was to leave one hour and 15 minutes before the rest so as to bring the main force into the enemy radar screen as late as possible and yet discourage the bulk of the German fighters from attacking the weaker northern forces.<sup>65</sup> On the other hand, it was hoped that the late commitment of the main formations would not give the enemy time to recall his fighter groups moving north toward the Tutow-Fosen-Kreisling nexus. The diversionary force dispatched over the North Sea was not intended to bomb anything, but it had the two-fold task of jamming the enemy's radar with its Mandrel planes and drawing some units of the Luftwaffe away from the target areas. If the timing could be carried out properly, the enemy units attacking the diversionary forces would need refueling about the time the bombers assigned to Schweinfurt and Gotha would be crossing the coast of Holland. A further trick to confuse the German fighter control was the fact that the forces going into northern Germany were so routed as to appear headed for Berlin. The withdrawal routes were plotted south of the Ruhr to pull the GAF away from the retiring northern forces.<sup>66</sup>

Unfortunately, the behavior of the weather did not fit into these elaborate plans. When the Fosen-Tutow-Kreisling task force reached the target area, it was found to be completely overcast. It was therefore decided to bomb Rostock instead, and 230 aircraft dropped 550.6 tons of high explosive and incendiary bombs. Owing to the smoke, recon photos were not available. Sixty-one bombers dropped 150.3 tons prematurely on an unidentified point east of the target with undisclosed results. The diversionary force over the North Sea flew its mission without incident and it does not appear to have deceived the Germans.<sup>67</sup>

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Meanwhile, the main forces were proceeding toward their objectives. The Schweinfurt force consisted of 206 Fortresses, while 238 Liberators were assigned to bomb Gotha. At Schweinfurt some 574.3 tons were dropped on the ball-bearing plants with excellent results. Three out of four of the factories sustained major damage, and there were additional hits on machine shops, storage buildings, and power stations. The tonnage on Gotha was not as heavy as had been expected owing to the fact that 44 B-24's dropped 107.4 tons on Eisenach by mistake. The remaining 171 Liberators found the proper target and covered it with 421.1 tons of incendiaries and high explosives. The Gothaer Waggonfabrik lost four large workshops, while three others and several medium workshops were damaged. In a near-by G.F. airfield a heavy concentration of bursts covered the field, barracks, and administration buildings.<sup>68</sup>

In spite of a large fighter cover--201 fighters were airborne, and 767 sorties were flown--the bomber losses were the heaviest of the Big Week. For one thing, an unexpectedly strong tail wind brought the lead groups into the target area ahead of schedule and carried them away from their escorts at times. G.F. opposition was moderate in the Schweinfurt area and only 11 bombers were lost there, but at Gotha the defense was stubborn and intense. As the Liberators retired from the area, they were subjected to heavy attacks, apparently because they were flying at a considerably lower altitude than the B-17's. A total of 33 B-24's was lost on the Gotha mission, and losses for the entire operation came to 49 bombers and 10 fighters. The heavies claimed 79-9-31 enemy losses, and fighter claims were 37-5-14.<sup>69</sup>

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The Fifteenth Air Force was also operational on the 24th. The target was the Steyr-Daimler-Puch aircraft factory at Steyr, Austria. Eighty-seven B-17's dropped 201 tons of 500-lb. CP bombs in the target area. Several of the machine shops were badly damaged, one building receiving 12 direct hits, another 6, and a third 1. In the main part of the factory, 3 direct hits landed on the machine shops, 2 were scored on assemblies, and 1 on the vehicle assembly shop.<sup>70</sup> About 110 enemy aircraft of all types subjected the Fifteenth's bombers to an hour's heavy attack. Rockets and aerial bombs were employed, and 16 B-17's, 2 P-38's, and 1 P-47 were destroyed. The attacks seemed to be concentrated on the rear formations; the 2d Bomb Group flying in that position lost 10 planes. American claims against the GAF were 35-12-5.<sup>71</sup>

During the hours following this double operation by the Eighth and Fifteenth, the weather continued to improve, and the RAF was able to visit Schweinfurt on the night of the 24th in the wake of the Eighth's successful mission a few hours before. In view of the heavy strain being imposed on the Luftwaffe, and the weather forecast of generally clear for inland continental areas on 25 February, General Spatz decided to mount another attack in great strength against German aircraft production. Both the two strategic air forces were assigned to batter the great Me-109 complex at Merzenburg, and in addition the Eighth was to attack the Messerschmitt parent plant and research center at Augsburg, the ball-bearing factory at Stuttgart, and the Me-110 component and assembly plant at Furth. As in the two previous air battles, a small land force was to operate against the German radar from the North Sea.<sup>72</sup>

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The first phase of the highly successful operations of the 25th was carried out by the fifteenth air force. Striking north from Italian bases, 40 B-17's and 103 B-24's headed for Regensburg, escorted by 36 F-47's and 25 F-39's. Just as this task force was crossing the northern tip of the Adriatic, they sighted vapor trails 4,000 to 5,000 feet ahead and above the formations, and realized that the Luftwaffe was waiting for them. Attacks began immediately afterward and continued for one hour and 30 minutes without interruption. The original attacking force probably came from the Udine-Graz area and as the battle developed replacements moved in from Flensburg. As in the mission of 24 February, the rear groups were subjected to the hottest part of the assault:<sup>73</sup>

The lead elements of the rear groups were jumped by single-engine fighters attacking in threes-in-line astern, or sometimes in line abreast, from ahead, head on and below.... Twin-engine fighters in formations of ten in line abreast, concluded four or five deep were observed. These echelons attacked in successive waves laying down a barrage of cannon fire on a specific element of the bomber formation. It appeared that at least 1 B-17 was lost to each pass.

In spite of this fierce opposition, the bombers reached the Regensburg/Wulfening aircraft factory, and inflicted great injury on it. Photos showed at least 24 direct hits and 19 near misses on the final assembly shop, and on the component erection shop for wings and fuselages. Many fires were burning as the bombers left the area.<sup>74</sup> American losses were 39 bombers.

While this operation was being carried out, 700 heavy bombers of the 15th were flying through the air toward their various targets. The routes were flown approximately as planned. Favoring wind caused many of the formations to gain on their timetable; consequently, some of the lead bombers missed the fighter formations and were without escort

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support on the ... reached the target area. There was also a tendency ... of the ... of the formations to ... north of the ... route. This was at the ... in range of the defenses of the ... area and ... losses occurred here.<sup>75</sup>

Scarcely 45 minutes after the last bomber of the ... had left the ... of .../Prutening, the first of 107 Fortresses of the ... appeared over the target and began the ... run. A total of 175 tons of high explosive and 99.7 tons of incendiaries were dropped in this mission and the already ... aircraft plant received further damage.<sup>76</sup> An interpretation of photos taken the day following this attack shows the almost complete destruction of the entire plant.<sup>77</sup>

Other targets were now under attack. A force of 159 B-17's dropped a heavy load of high explosives and fragmentation bombs on the ... schmitt assembly plant at .../Obertraubling. The target was well covered and hits were scored on ... shops, sub-assemblies, a boiler house, and the landing ground. Of the 90 aircraft visible on the ground, it was believed that at least 25 were ...<sup>78</sup> At the ... schmitt motor, ... stung, 177 B-17's dropped 369.5 tons of ... and 133.9 tons of ... side-spread damage was caused to ... hangars, workshops, and research and administration buildings. The main target at ... was the ... schmitt component and assembly factory of ... von ... and ... After receiving 277.2 tons of ... 57.0 tons of ... and 110.3 tons of ... fragmentation bombs, most of the target was in flames, and of the 54 aircraft sighted on the field, 30 were probably damaged.<sup>79</sup> The least successful phase of these operations was the attack on the ball-bearing

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plant at Stuttgart. More 53 F4U's were destroyed out of their bases in a surprise raid to the factory; only 1 burst fell in the corner of the target area.<sup>9</sup>

Opposition to the Eighth's operations was less than expected. German attacks during the penetration were not aggressive, and became progressively weaker on the withdrawal. Although 31 bombers were lost during the day's actions, this was not a high price to pay for the successful bombing of many targets, considering the number of planes involved. Bomber claims were 33-3-9, and fighter claims were 20-4-13.<sup>10</sup> According to the Tactical Mission Report, "The simultaneous threat against southern Germany from two directions by the two forces of the U. S. Strategic Air Force appears to have caused the enemy controller to dissipate his forces to the extent that neither of the attacking forces could be successfully countered."<sup>11</sup>

The combined operation of 25 February ended the six-day offensive against the sources of German aircraft production and marked the virtual end of February's operations.\* One outstanding characteristic of this six-day period was the high degree of coordination between the Eighth and Fifteenth Air Forces, and between the Eighth and the RAF. The heavy night attacks which the British unleashed against Leipzig (19-20 February), Stuttgart (20-21 February), Schweinfurt (24-25 February), and Augsburg (25-26 February) were closely connected with the Eighth's operations; likewise, the Fifteenth, whenever weather permitted, tried to time its blows against southern Germany and Austria to coincide with

\*226 B-17's attempted to attack the Messerschmitt plant in Brunswick on 29 February, but owing to clouds, there was no observation of results.

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the Eighth's assaults on northern Europe. In the opinion of the ~~RAF~~ historian, "This coordination, together with other counter-air force aspects of these operations, unquestionably held Allied bomber losses far below what they might otherwise have been against these stoutly defended targets."<sup>23</sup> Some idea of the scale of the effort involved can be gained from the following table:<sup>24</sup>

Operations 20-25 February 1944

	<u>8th</u>	<u>15th</u>	<u>total</u>	<u>RAF</u>	<u>grand total</u>
Heavy bombers dispatched	3,600	1,540	5,140	2,740	7,880
Heavy bombers attacking	3,116	800	3,916	2,300	6,216
Tonnage dropped	5,150	1,825	6,975	3,330	15,305

The damage inflicted on the German aircraft industry seems to have been great. Erla at Leipzig was one of the worst hit, and its pre-raid output of 250 Me-109's per month fell to 160 in February and nil in March, according to US estimates.<sup>25</sup> The complex at Regensburg was bombed by both strategic air forces and heavily damaged. It was believed that its January output of 225 Me-109's could not be regained until August 1944, and it was assumed that the Germans would prefer to disperse this factory rather than try to rebuild at the ruined site. The Ago plant at Oschersleben was not quite so badly damaged by the attacks of 11 January, and 20 and 22 February. It was assumed that only about a month's output was lost.<sup>26</sup> The units of the Junkers complex at Halberstadt, Oschersleben, and Bernburg were believed to have been seriously hurt. The attacks on Halberstadt (wings) and Oschersleben (fuselages) probably complemented each other, although the results of the attacks on these "deep processes" could hardly be felt for a month or so.<sup>27</sup>

USC estimated that serious ancillary effects would result from the fact that many of these blows were almost simultaneous. Some of the

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factories lost stocks of tools, and jig-making machinery. This could have serious effect, since outside jig makers were undoubtedly swamped with orders. The scheduled transfer of I.L.G. and Gothaer to the production of the FV-190 might have been started by the time of the big raid on Gotha. If this were so, the heavy destruction at Gotha might have wiped out a large supply of FV-190 jigs, a fact which would indirectly affect other factories. And finally, the casualties, which were probably heavy, could be expected to slow down production by causing a shortage of skilled labor.<sup>88</sup>

Air Ministry estimates tended to support the optimistic interpretation of GCS. March estimates for the production of the Me-109 were 225, as compared with the 400 estimated for February; these figures also included salvaged as well as new output.<sup>89</sup> However, the FV-190 factories, which were less severely damaged in the Big Week attacks, managed to increase production from 200 in February to 275 in March--these figures again including salvaged planes.<sup>90</sup>

Information obtained from high-ranking officers in the Wehrmacht and Luftwaffe after the collapse of Germany testifies to the effectiveness of the February attacks. In the opinion of Generalleutnant Galland, one of the most famous German fighter pilots, the attacks by our strategic bombers early in 1944 "practically destroyed the German fighter production for a short period."<sup>91</sup> Of particular significance is the evidence contributed by Dr. Carl Frydag, chief of the Airframe Industry, while being interrogated by American intelligence officers:<sup>92</sup>

- Q. Would you say roughly that as a direct result of the February 1944 attacks, approximately four thousand aircraft were lost to the German Air Force? Your statement was that 50% of the production was lost for two and one-half months.

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11. Yes, that is right. Only an exceptional effort could come up to that figure and that was an effort which we could not have kept up.

Operations for the month as a whole were the largest yet undertaken in the air war. The Eighth Air Force put 7,190 bombers over the target for a loss of only 3.8 of the attacking force. Bomb tonnage was 19,146, and bomber and fighter claims of destroyed enemy aircraft amounted to 740 planes.<sup>93</sup> The Fifteenth Air Force was more hampered by weather and enemy action. Some 2,300 effective bomber sorties were carried out and losses were 5.4 per cent. The bomb load came to 6,747 tons, and 355 enemy aircraft were claimed as destroyed.<sup>94</sup>

As the Big Week ended,\* General Arnold cabled his congratulations to the Commanding General of the U. S. Strategic Air Forces and stated that his attacks on Regensburg, Leipzig, Gotha, Merzbach, and other vital fighter factories were wiping out German fighter production. He expressed his thanks to all ranks in the command from top to bottom for the superb job they were doing and wished them all the best luck in continuing to carry destruction through the heart of Germany.<sup>95</sup>

\*The Eighth's participation in the operations of 20-25 February can be shown by the following table:

<u>Date</u>	<u>Dispatched</u>	<u>Lost</u>	<u>Claims</u>
20-2	1003	21	85-33-29
21-2	361	16	19-16-14
22-2	467	41	24-13-17
24-2	509	49	83-22-42
25-2	754	31	49-11-26

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## Chapter VI

OPERATIONS DURING THE SPRING OF 1944<sup>2</sup>

The period from the end of the Big Week to D-day constitutes a definite phase in the war against the Luftwaffe and its supporting industries. It is characterized by certain changes of policy, not only of the attacking forces, but also on the part of the Germans. During the first large-scale attacks in the fall of 1943, the Germans often tried to rebuild their plants at the original sites; where this was not practical, they tried to spread the resources, originally planned for expansion, into dispersal factories.<sup>1</sup> As the attacks increased in weight and number, the process of dispersal was greatly accelerated, and it is quite possible that this, in addition to the air offensive, helped to keep down production during the last three months of 1943. However, the Germans were gambling for survival and could afford to forego a temporary advantage if it would profit them in the long run. "The decision to disperse undoubtedly saved aircraft production,"<sup>2</sup> and thus the C-47, although terribly crippled, was able to survive the attacks of 20-25 February.

During the three months that elapsed between the end of POINT BLANK and the immediate preparation for D-day, German aircraft factories were distributed out of the great complexes and into new centers,

<sup>1</sup>Fifth Air Force missions which were only partly devoted to POINT BLANK are not treated here. For an account of tactical air operations, see AFHQ studies Nos. 32 and 30.

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some of which were underground. The Italian aircraft industry was brought more closely under German control, and tools and machinery were sent from the Reich to improve production methods.<sup>3</sup> On 21 February, the monthly production of Italian aircraft was estimated as follows:<sup>4</sup>

<u>Fighters:</u>		
Me-205	35	
Me-202	25	
Re-2002	15	
C-55	32	
<u>Trainers:</u>		
Cz-314	50	
<u>Boomber-transport:</u>		
St-52	35	

Italian production of aero-engines (DB-603 and DB-605) was estimated at 150 per month, and it was believed that some of the Daimler-Benz machinery had been shipped to Italy.<sup>5</sup>

Meanwhile additional Me-109 output was being developed at Brasov, Rumania, and Gyor, Hungary. The Hungarian Car and Machinery Works, in this latter city, had since 1941 been manufacturing a wide variety of war equipment. According to ground intelligence, plans for 1944 production called for a monthly output of 50 Me-109's, and it was believed that the Germans were sending production machinery to Gyor to avoid the bombings farther west.<sup>6</sup>

These new developments in German aircraft production were largely within the Fifteenth's sphere of operation. With its principal AIRF-ELITE effort directed against Messerschmitt production, it had attacked the Jener Neustadt complex on 21 October and stopped work there for several months. By the end of March, the Fifteenth was ready to turn its attention to the second unit of the complex, the Fischlerstrasse Plant

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aircraft factory in the Vienna area, and to the new production centers at Győr and Tatabánya. In addition, attacks were planned for other vital parts of the complex now dispersed to the Tuzsoly assembly plant, the Luthar-Deck plant at Szeged (Hungary), the Károlyi and Károlyi plants at Belgrade (Yugoslavia) and a network of smaller plants in the Vienna area.<sup>7</sup> As a result, a new target priority was received at Fifteenth Air Force headquarters from General Hapner. Accordingly, the following priorities were set up:<sup>8</sup>

1. Győr "Miklós Győri" (ball bearings)
2. Tatabánya (ball bearings)
3. Miskolc (I-109)
4. Budapest (I-10)
5. Schwechat (Ie-219)
6. Friedrichshafen A/B (Ie-217)
7. Friedrichshafen A/C (ball bearings)
8. Miskolc (I-109)

Additional information on the eastward dispersal of the Luftwaffe was soon forthcoming. Photo reconnaissance of the Budapest/Bécses airfield revealed an assembly plant that seemed to be engaged in the final assembly of the I-110, possibly in connection with the Dunaföldvár engine plant at Szigetzentmiklós (Hungary). The Schwei plant at Veszprém was now confirmed as an active producer of the I-305, the monthly output being estimated at 50 aircraft. Since the Luftwaffe, the Italian aircraft industry had increased in importance it was conceived that the Luftwaffe would have to use some Italian fighters to make up its losses.<sup>9</sup> On 9 March, in response to a signal from General Hapner, General Hapner informed the commander of the Fifteenth, General Whiting, that photo reconnaissance indicated large concentrations of enemy aircraft at the fields at

<sup>7</sup> These targets were to be attacked only if a photo reconnaissance indicated renewed activity.

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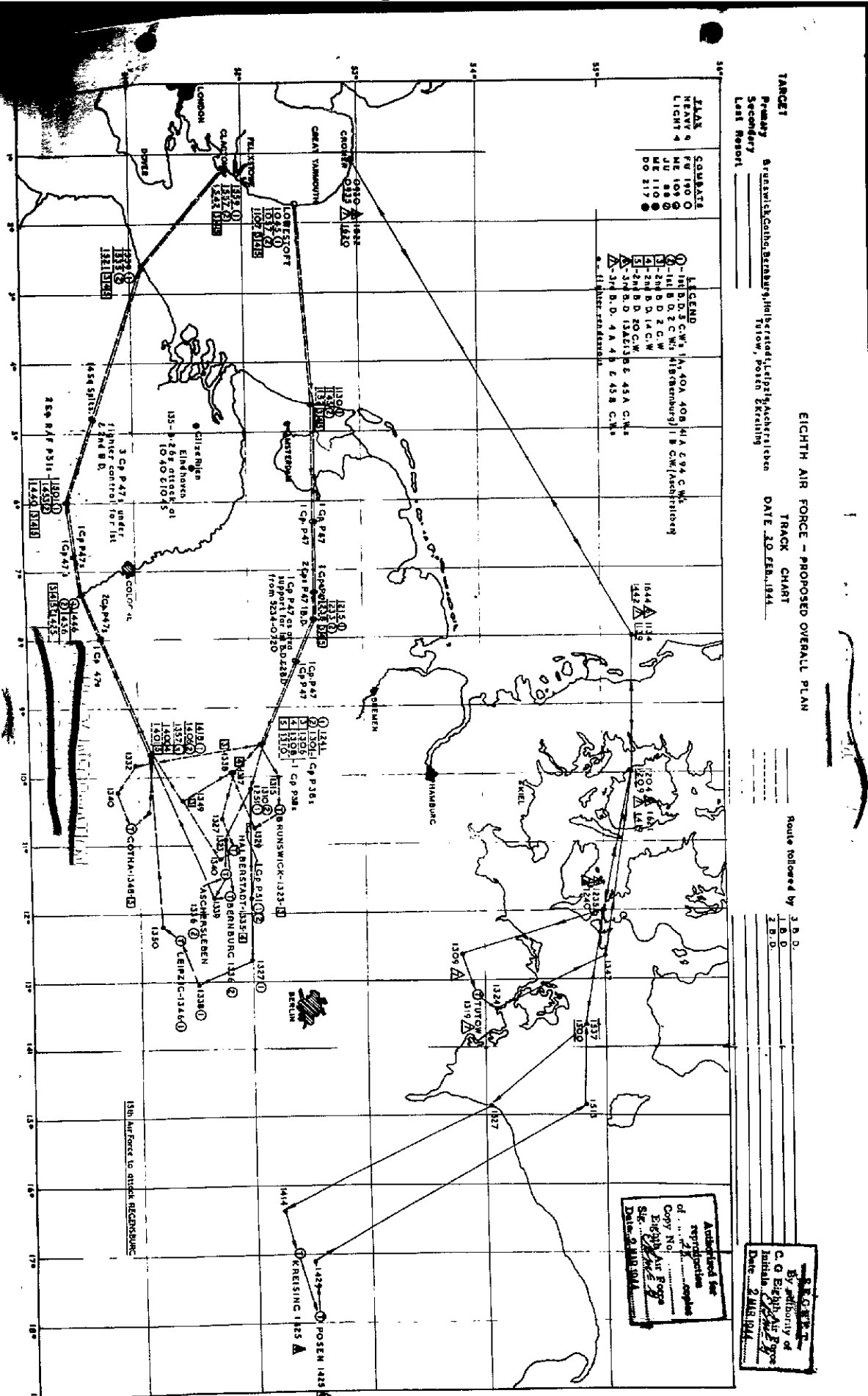
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ollarsuoni, Bad Fochler, Pokol, Poeses, Gersaffenhoven, Bernier, and Lanusery. These fields were to be attacked whenever the opportunity offered, but such operations should not be allowed to interfere with primary objectives.<sup>10</sup>

Unquestionably, the incredibly bad weather which had hampered the operations of the Fifteenth Air Force ever since its activation persisted throughout much of the Spring of 1944.<sup>11</sup> Although the weather in northern Italy was not too bad, there were few suitable targets in this area, and storms in the trans-alpine region frequently prevented the deep penetrations that the more important COMINTBLAN objectives required.<sup>12</sup> Consequently, the Fifteenth devoted most of its operations during March to the support of the land battle in Italy, especially the Anzio and Cassino actions.

In England, the Eighth Air Force continued its attacks on prescribed strategic targets, assisted by the Ninth. There was no fundamental change in the priorities, and the Luftwaffe and its sources of supply still remained a chief objective. Weather was often the factor which determined the sequence and number of attacks delivered against a particular target. By this time the impressive build-up of theater strength--there were approximately 1,156 heavy bombers operational with units<sup>13</sup>--permitted the Eighth to afford heavy air battles, and it was the deliberate policy of headquarters to entice the German formations into the air by all possible means. According to General Spaatz, three of the March attacks were flown without any attempt at deception, the route followed in each attack being the same.<sup>14</sup> General Deolittle succinctly characterized the situation when he said: "It is now a case of either the Hun will fold or we will fold."<sup>15</sup> The odds, however, were all in favor of the Eighth Air Force.

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TARGET

Primary Brunswick, Götting, Bielefeld, Leipzig, Magdeburg  
 Secondary Tübingen, Wehrhahn, Wehrhahn, Wehrhahn  
 Last Resort \_\_\_\_\_

EIGHTH AIR FORCE - PROPOSED OVERALL PLAN TRACK CHART

TRACK CHART

DATE 20 FEB. 1944

Route followed by

- 3 B.D.
- 1 B.D.
- 2 B.D.
- 1 B.D.

Approved for  
 By authority of  
 C. G. Eberhart Air Force  
 Headquarters  
 Date 20 Feb 1944

Authenticated for  
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 Date 20 Feb 1944

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In theory, USAAF felt it desirable to relax a little its pressure against the bases and facilities of the Luftwaffe in order to pay greater attention to high-priority industrial targets. It was reasoned that since the great increase of theater strength and the development of the long-range fighter practically assured us air superiority, it would be possible to keep the German fighter force "in a state of relative impotency rather than complete destruction."<sup>16</sup> However, this idea remained largely theoretical during March, for the weather often arbitrarily forced attacks on western airfields by covering everything further inland with a deep overcast.

The Eighth's first counter-air force operation of the month occurred on 2 March. While a heavy force was sent to Frankfurt, 105 bombers attacked the airfield at the famous old cathedral city of Chartres, France. Some 150 tons of explosives were dropped without any opposition; the ground haze coming up from the fields made aiming difficult and the strike photos indicated only fair results.<sup>17</sup>

Airfields were also the target for the Fifteenth. On the 3d, Viterbo, Janiro, and Fabrica di Roma were bombed by small forces without conspicuous success.<sup>18</sup> The Eighth returned to the attack on 5 March by scheduling missions against German-held airbases in France. Unfortunately, 10/10 cloud covered all the primary targets and the 219 Liberators were forced to bomb Cognac, Bergerac, and Landes de Bussac through holes in the overcast. The results varied; they were believed to be good at Cognac and Bergerac, but were very ineffective at Landes de Bussac. Four bombers were destroyed and claims of 11-0-12 were made.<sup>19</sup>

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In spite of the heavy blows delivered against it in February, the Luftwaffe was still capable of a fierce defense of targets it considered vital. This was clearly shown by the great air battle of 6 March. On this day, 740 heavy bombers were dispatched by the Eighth against Berlin. In spite of the fact that the bombers were escorted by 790 fighters of the VIII and IX Fighter Commands, and two squadrons of RAF Mustangs, the opposition was unusually heavy. It was estimated that approximately 615 German fighters rose to defend the Reich, making this the largest defensive effort yet carried out by the GfV. In addition to the usual single-engine fighters, twin-engine and single-engine night fighters were called into the battle. As the formations reached the Hanover area the 3d Division was subjected to intense attack. The bombers of this division formed a line of combat wing pairs approximately sixty miles long with the escort fighters slightly weaker in the middle than at the two ends. Taking advantage of this, the German fighter controller attacked the front and the rear of the formation with forces of moderate size, and while the escorts were occupied with this attack he threw more than 100 fighters at the momentarily unprotected center. This maneuver proved to be most effective; in about 30 minutes, the German fighters had destroyed some 20 bombers. When the bombers passed north of Brunswick, the attacks from this first line of defense ceased, but when the 1st Division reached the Berlin area the air battle began again and continued until the bombers left the area.<sup>20</sup>

Some of the fighter escorts were subjected to attack as the formations crossed into Germany, but the majority of the Geschwader concentrated their strikes against the low bomber groups. Some of the formations were

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under fire for as long as two hours and 45 minutes, and all types of tactics were tried by the Germans. Rocket attacks and air-to-air bombing were attempted, and a new type of projectile (believed to be a fused 20-mm. incendiary shell) which burst with a sparkling effect and invariably set fire to aircraft which it hit was seen for the first time.<sup>21</sup> Antiaircraft fire over the Berlin area was intense and accurate. Weather conditions at the target were unfavorable and the bombing was generally regarded as poor. A total of 69 bombers and 11 fighters was the cost which the RAF had to pay; however, losses were not all on one side. The bombers claimed 93-44-66 German fighters, and the escort fighters listed 32-9-32 as destroyed, probably destroyed, and damaged.<sup>22</sup>

On the 7th, the Fifteenth returned to the airfields in the Rome area and struck Fabrica di Roma, Civiteto, and two fields at Viterbo. Only at Fabrica di Roma and the main Viterbo field was assessment possible, bursts showing on both those landing grounds.<sup>23</sup> Clearing weather over northern Europe permitted the Eighth to make another attempt at the Berlin area on the 8th, and 620 bombers dropped 949.5 tons on the major ball-bearing plant. The excellent visibility permitted accurate bombing, and General Spatz believed that the target had been completely destroyed.<sup>24</sup> Once again the Luftwaffe put up a sturdy defense as the loss of 37 bombers and 17 fighters indicated. Total bomber and fighter claims came to 123-26-41.<sup>25</sup>

After this there was a pause in the Eighth's FOLWELAND operations. Several missions were directed against robot-bomb installations in the Pas de Calais sector and there were the usual weather holidays. On

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the 15th, 344 bombers were dispatched to bomb Brunswick, a city rich in aircraft targets. Unfortunately, when the planes reached their objective, they found it covered by 10/10 clouds and although 745 tons were dropped by means of blind-bombing equipment, the results were not observed.<sup>26</sup> A dive-bombing mission accompanied by a low-level fighter sweep was carried out by 160 Mustangs on the 17th. On the following day when a heavy force of bombers attempted to get through to strike airbases and aircraft factories in south central Germany, the overcast again protected the primaries. The cities of Munich and Friedrichshafen, and five smaller targets of opportunity, were bombed instead. As so often happened when the primaries were overcast and targets of opportunity were bombed, arrangements with the fighter escort were thoroughly upset. Many bombers missed the rendezvous with the fighters altogether and were, consequently, exceedingly vulnerable to the attacks of the C.F. Forty-three heavy bombers were lost, of which four were destroyed in mid-air collisions and one was struck by bombs from a friendly craft above it. The returning bombers made claims of 45-10-17; 15 fighters were lost and escort claims were 40-5-9.<sup>27</sup>

While the Eighth was so engaged in the skies over southern Germany, the Fifteenth was carrying out one of the most brilliantly planned aerial maneuvers of the European war. The target was a group of airfields and landing grounds located in the area surrounding Udine at the northern tip of the Adriatic. This "pocket of enemy air power," as a tactical mission report described it,<sup>28</sup> operated directly against the most convenient routes from Italy to targets in Austria and southern

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Germany, and was a constant source of irritation to the fifteenth Air Force. Recognizing the strategic importance of these bases, early in 1944 the Luftwaffe began to concentrate considerable strength on them. The photo reconnaissance of 29 January showed approximately 170 fighters present in the area. The highly successful raids of 30 January reduced this number to about 70 undamaged planes, but because of the important part these airfields played in the defense of southern Germany, the destroyed and damaged planes were replaced and fighter strength was gradually built up again.<sup>29</sup> Recent photographs of the fighter airfields at Biello, Luvariano, Maniago,<sup>30</sup> Osoppo, Conizia, and Udine showed a total of 235 enemy fighters, and it was known that the Villavieca landing ground was the main base for the German bombers harassing Allied shipping at and around the Anzio-Nettuno area.<sup>30</sup>

To neutralize these fields and destroy the maximum number of enemy planes, a series of carefully planned and timed operations was worked out, and was mounted on the morning of 13 March. The first phase occurred when 95 P-39's took off at 0720 hours, rendezvoused at 1,000 feet over San Severo, and then flew off down the Adriatic at approximately 75 feet above the water to avoid radar detection. As they neared the coast, they rose to 6,000 feet and separated to perform their parts in the developing action. One group circled over Treviso, strafed trains and airfields, made a short patrol north to the mountains, and then flew to Venice to continue its nuisance activities.<sup>31</sup> Others

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<sup>29</sup> When this photo reconnaissance was conducted, the Maniago field actually showed a drop from 50 to 20 aircraft present. However, at this time a raid was going on in the Vienna area and it was assumed that some of the Maniago planes were taking part in the battle. This presumably temporary decrease at Maniago is not allowed for in the figure of 235 aircraft cited above.

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 carried out a fighter sweep in great force at 0920 in the Udine/Villorba area and succeeded in holding most of the enemy fighters on the ground.

Meanwhile, 113 B-17's had been flying up the Yugoslav coast making a feint toward southern Germany and flushing up the fighters based in the Pflanzfurt and Graz areas. When the bombers reached a point north-east of Trieste, instead of continuing into southern Germany, they turned sharply west, drawing the Pflanzfurt/Graz attacking forces with them.<sup>32</sup> Shortly afterwards at 1013 hours they dropped 20-lb. fragmentation bombs on the Villorba and Udine landing grounds.<sup>33</sup> Just as the bombing ceased, the Pflanzfurt/Graz fighters, who had considerably extended themselves, had to land to refuel; however, because of the damage at the fields just bombed, they had to come down at other near-by bases.

The stage was thus set for the final phase. While the enemy aircraft normally based in the area were concentrated on the ground together with the fighters from the Pflanzfurt and Graz areas, three task forces of 72, 67, and 121 Liberators swept in to blast the fields at Gorizia, Lavarino, and Maniago between 1059 and 1111 hours. The effect was devastating: a total of 32,970 20-lb. fragmentation bombs was dropped and only 2 enemy aircraft were able to get off the ground to intercept the B-24 forces.<sup>34</sup> This raid was a heavy blow to enemy air power in northern Italy. In the official report, the task forces were credited with destroying or damaging 50 aircraft on the ground. Bomber claims for the aerial battle were 23-7-9, and the fighters claimed 33-3-3. Losses were extremely light: out of the 400 bombers and 110 fighters that went out, 7 and 4, respectively, failed to return.<sup>35</sup>

Next day the Fifteenth launched a follow-up blow at Pflanzfurt and Graz. The Pflanzfurt airbase was hit by 234 heavy bombers that

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dropped 56.65 tons of ~~incendiary bombs~~ in the afternoon. Smoke made it difficult to assess the damage, but hits were seen on barracks, administration buildings, dispersal areas, and the landing field. Thirty-two fighters and 7 bomber-transports were seen on the field: 13 of the former and 3 of the latter were claimed destroyed. Between 40 and 50 enemy aircraft attacked the bombers in waves and shot down 2 bombers, while 2 more were lost to flak and another 2 collided.<sup>36</sup> Cruz was attacked by 70 aircraft dropping 100.2 tons of 500-lb. and 3.1 tons of 100-lb. bombs. Photos showed the bombs falling in the southwest part of the city. Fifteen enemy planes were destroyed and 12 Liberators were lost.<sup>37</sup> The same day 74 P-47's and P-51's of the Eighth Air Force made a combination dive-bombing attack and fighter sweep on the Gilze-Rijen (Netherlands) airbase and surrounding country. Some hits were reported on the northwest portion of the field and near ammunition stores, but in general the weather was only fair. There was no opposition and no claims or losses.<sup>38</sup>

Air operations were planned for 23 March when the Eighth assigned 70 B-29 Superfortresses to attack aircraft factories and airbases in western and central Germany. However, cloud conditions interfered with bombing, and dense fog persisted over the area so it had to be postponed for days together. Only 27 planes were able to get through to the assigned primaries. A total of 1,755 tons was dropped on ammunition, transport, maintenance, and other auxiliary targets of opportunity. A change in the wind caused considerable confusion as the lead group reached the 10-15 minute area of time, and the time for actions were 20 to 25 minutes early. This naturally made it difficult for the

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efforts to locate the center formations and the airfield force was completely unproductive up to the target. The results of the bombing were difficult to estimate. The Gieser/Ansbach airfield received a good many bursts on and around its main buildings, and the I.G. Factory at Arnswich may have been hit, but cloud cover prevented successful photo reconnaissance. Heavy attacks were unproductive, and 27 bombers failed to return.<sup>39</sup>

Weather did not interfere with the mission of the 2nd. A force of 230 B-17's was sent to bomb the ball-bearing plant at St. Etienne while two B-24's were to strike airfields in northern France. Heavy clouds covered the continent for the most part, and some contrails prevailed; only one formation of 95 B-17's attacked Schweinfurt with 100 bombs, and the results were questionable. St. Etienne/Ansbach airfield was also bombed with 100 bombs and excellent results. The remaining B-24's dropped 75 tons on the Gieser/Ansbach airfield with little apparent damage. The enemy provided practically no opposition to this mission.<sup>40</sup>

A more intensive counter-air force operation was carried out on the 27th. Clouds covered central Europe but in the east the weather was clear. Consequently a large force of 707 bombers was sent out to attack major airbases and the air force factories in west and north-west France. The targets and their significance were as follows:<sup>41</sup>

- |                         |                                     |
|-------------------------|-------------------------------------|
| Luftwaffe base airfield | 3/2 fighter school                  |
| Stritz airfield         | 3/2 fighter pool                    |
| Luftwaffe base airfield | 1. record and anti-aircraft base    |
| Corbeaux/Ors airfield   | anti-aircraft base                  |
| Ors airfield            | primary air fighter operations base |

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St. Paul, 6th Army Airfield	1/2 Fighter pool
St. Germain Airfield	1/2 Fighter pool
Tours/Avoye-les-Bains Airfield	Reserve training unit fighter base
Tours Airfield repair depot	P-190 repairs
Chartres Airfield	1/2 Fighter reserve training unit

All bombing was done visually and 700 tons were dropped. With the exception of the Tours repair depot, all the objectives were well covered and the bombing was considered good.<sup>42</sup> The next day a force of 373 B-17's and 77 B-24's were sent to attack airfields in France again. Because of deteriorating weather conditions, the Liberators were all recalled before reaching the targets; however, the Fortresses pressed on and dropped 930.5 tons of bombs. The results at Chartres and Dijon were good, and only fair at Reims and Chateaudun. The accompanying fighters claimed 30-1-33 for aircraft attacked on the ground. Losses were light: two bombers and three fighters.<sup>43</sup>

These operations virtually ended the counter-air operations for March both in England and in Italy. On the whole, it was a month marked by much greater activity against airfields than against the basic factories of the aircraft industry. In the case of the Eighth Air Force, weather prevented a heavier effort against the industry, for ALTBLEN was still the number one commitment. The Eighth dropped a total of 21,340 tons during the month in 8,570 effective sorties for losses of 4.1 per cent of the attacking forces.<sup>44</sup> A very large number of German fighters were claimed destroyed during the month, the total being no less than 834 planes; 263 of this number were credited to the bombers.<sup>45</sup>

The Fifteenth Air Force was equally handicapped by some of the worst weather observed in years, but, unlike the Eighth, it was also

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 involved in occasional support of ground battle. A certain amount of time and effort were spent on the Anzio operations, on the Cassino battle, and in attacks on rail communications in the peninsula.

Theoretically, AIRFIELD remained the top priority for the Fifteenth,<sup>46</sup> but for the reasons listed above, little could be done against the aircraft factories located across the Alps in Austria and southern Germany. Instead, counter-air operations took the form of attacks against airbases. This not only satisfied General Arnold's instructions to hit the Luftwaffe in the air and on the ground, but it also gave support to the ground battle. A total of 1,731 tons<sup>47</sup> was dropped on these targets during the month as compared with 417 tons dropped on similar objectives in February. However, the March tonnage on aircraft and components factories was a meager 273 tons.<sup>47</sup> Losses were considerably less than in the previous month, being only 2 per cent of the 4,201 effective sorties. Joint bomber and fighter claims of destroyed enemy aircraft came to 210.<sup>48</sup>

Naturally, the many demands on the Fifteenth Air Force sometimes produced wise decisions in the high places. Something like this took place toward the end of March. General Sir Harry Mitchell Wilson, the theater commander, had ordered the strategic force to proceed against the marshalling yards at Bucharest, Ploesti, and other Balkan targets, although Air Marshal Sir Charles Portal had decided that Ploesti was not to be bombed. General Spaatz requested General Arnold to let the matter straighten with the higher authorities, stating that

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<sup>46</sup>The total tonnage on all targets for the month was 10,376.



it seemed to him that there were too many people giving orders to the Fifteenth, and that he could not accept responsibility for the control of the strategic force until the matter was clarified.<sup>49</sup>

This cable produced no action. General Arnold had once protested to Air Marshal Portal against the diversion of the Fifteenth into Balkan operations on the orders of S. J. M. It was his understanding that General Arnold should control the strategic air forces under Portal's direction as a member of the Combined Chiefs of Staff.<sup>50</sup> At the same time General Arnold and Staff protested in vain against the apparent desire of the British to give the theater commander the right to direct strategic attacks against political objectives--for example, the desire to hit the partisans in the Balkans--whenever they occurred.<sup>51</sup>

In his reply to Arnold, Portal stated that he respected the plans and arrangements made and did not wish to deviate from them, but the British believed that a very favorable situation existed in the Balkans and wished to exploit it. He urged that the theater commander in the Mediterranean be given authority to order the Fifteenth to attack certain Balkan targets.<sup>52</sup> The matter came before SACM almost immediately and their decision was in favor of the British request.<sup>53</sup> Arnold continued to insist, however, that Balkan targets should be attacked only when the theater commander was able to see an objective, although he was willing to admit that some exceptions in this area might be made the next time for SACM. He concluded by requesting Portal to assure him that "whenever the advantages of all diversions from the main effort are carefully weighed by you."<sup>54</sup>

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Following this decision of 1943, a new order of priority for the Fifteenth Air Force was set up. First place was given to the requirements of the battle of Italy, second went to Germany, and third was given to targets in southeastern Europe. It was also stated that when the occasion warranted General Hapow and General Quatz could deviate from the established priorities to attack other targets of great political and military importance. The ban on attacking targets in Hungary was abolished.<sup>55</sup>

After these basic policies had been formulated, detailed operational instructions were received at Fifteenth Air Force Headquarters on 27 March. Ten major targets were listed in the following priority:<sup>56</sup>

1. Steyr-Daimler-Puch factory and ball-bearing plant, Steyr, Austria
2. Fischl and plant unit of the Me-109 complex at Wiener Neustadt
3. Wiener engine plant
4. Dan Voslau factory and airframe
5. Dana aircraft plant, Szegedcentriklos, Hungary, and the Budapest/Bokol factory and airframe
6. Hungarian engine and machine works, Győr, Hungary
7. Ikarus aircraft factory at Brasov, Romania
8. Messerschmitt factory at Augsburg
9. Georgsmarienhofen factory and field near Munich
10. Schmechat factory, Austria

The Fischl and plant, although in second place, was believed to be the largest remaining unit of the Wiener Neustadt Messerschmitt complex, and was probably producing wings and other Me-109 components. Work I at Wiener Neustadt was reviving and was presumably assembling at least 75 Me-109's per month. It was linked with the Dan Voslau plant. The Dana and the Bokol factories were supposed to be assembling

<sup>56</sup> The Budapest/Bokol factory appears in third place in a list telephoned to the Fifteenth Air Force on 28 March. This discrepancy cannot be explained.

both Me-210's and -410's. The facilities at Braşov, Augsburg, and Oberpfaffenhofen were involved in the production of the Me-410, while the Schwechat plant was supposed to be making a few jets and possibly assembling the Me-219 night fighter.<sup>57</sup>

In case weather prevented attacks on the primary targets, secondaries were listed as follows:<sup>58</sup>

1. Blochi aircraft factory at Varese, Italy
2. Fiat aeritalia factory and airfield at Turin
3. Dreda works at the Dresso/ Milan airfield
4. The extension of the Wiener Neustadt complex at Hagenfurt, Austria, and
5. Its extension at Zemun, Yugoslavia, where the Ikarus and Koczarovi factory was producing and repairing Me-109's
6. Muller ball-bearing factory at Luremberg

On 3 April a few modifications were made in both lists. The Erd Voslau factory was moved up to third place in the primaries, and in the secondaries, the Fiat aeritalia plant became first priority, Hagenfurt was put in third rank, and Dreda was dropped.<sup>59</sup>

The emphasis on relatively new targets in these directives is indicative of the progress of dispersal within the German aircraft industry. Since many of these plants were in central or southeastern Europe, they affected the operational policies of the Fifteenth more than those of the Eighth. Some new plants and some expanded old ones were bombed, but it was not considered possible to locate and destroy all of them. Rather, it was decided to pound the ball-bearing industry hard, and try to concentrate on a small number of large aero-engine component and assembly plants. This, plus the basic strategy of attacking finished enemy planes on the ground wherever they could be found, was considered the best way to hold down the Luftwaffe if it could not be totally destroyed.<sup>60</sup>

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Both the Eighth and the Fifteenth were faced with priority conflicts during the spring of 1944. In England there was a tendency for the strategic effort to swing to the bombardment of tactical targets in preparation for OVERLORD, and in Italy a great deal of emphasis was placed on the destruction of rail facilities, as a result of the insistence of Air Marshal Tedder. Nonetheless, the pressure on the C.F. was kept up as much as possible.<sup>61</sup>

In keeping with the new directive, the Fifteenth launched an attack on the Steyr ball-bearing plant, the number one priority, on 2 April. The German ball-bearing industry had been a frequent target for attacks by both strategic air forces. After the heavy raids on Schweinfurt, the Steyrwaffen Walzgerwerke had become one of the most important ball-bearing plants in the Reich. Once an aero-engine works, it was now known to be producing bearings and ball-bearing assemblies for the German government. Although this plant had been heavily damaged by the Fifteenth in previous raids, the latest reconnaissance showed definite signs of activity. A recent photo coverage of the Wiener Neustadt complex revealed that its capacity for aircraft assembly was being increased and it was thought that the Steyr plant might, in some way, be connected with this.<sup>62</sup> For this reason it was decided to strike it in force.

Just at noon on the 2d, 127 B-17's and 137 B-24's, escorted by Lightnings and Thunderbolts on penetration and 78 Lightnings for target cover and withdrawal, roared over the Steyr plant at altitudes from 19,000 to 25,000 feet. Nearly 700 tons of bombs were dropped with great success. In two ball-bearing and two case-manufacturing

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buildings the damage was practically total, and in the packing and dispatching building, 50 per cent of the roofing collapsed. The testing and assembly building received one direct hit and the receiving depot got two direct hits and two near misses. At the same time, a force of 108 B-24's bombed the Steyr airfield with 333.30 tons but failed to do any damage to the main structures, and a freshman force of 28 B-24's attacked the Postar airbase as a secondary target.<sup>63</sup>

The attack on the Steyr plant produced a sharp reaction from the Luftwaffe. The bomber crews estimated that they were attacked by 250 to 300 enemy planes, and believed that they had shot down 84. The majority of the intercepting fighters were from the Vienna-Graz-Wagenfurt area, with the exception of 60 or 70 aircraft from fields east of Linz and a few from Munich.<sup>64</sup> As a result of this mission, the Steyr ball-bearing plant was suspended from the priorities list; pending more definite information, the undamaged portions of the Steyr-Daimler-Puch factory were classified as "a secondary target of low priority."<sup>65</sup>

The next three operations of the Fifteenth against POLYTECHNICAL targets were on a smaller scale. On 3 April a force of 112 Fortresses bombed the Budapest/Tokol aircraft factory with 331.75 tons. Although enemy attacks were aggressive, only four bombers failed to return. Strike photos showed 350 craters within the precincts of the factory, but only two buildings received serious damage.<sup>66</sup> On the night of 3-4 April, 7 Liberators and 70 Wellingtons dropped high explosives and incendiaries on the Manfred Weiss works at Budapest. A good concentration of bombing was reported with two large explosions and

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many fires.<sup>67</sup> On the 6th, a force of 97 bombers was sent to the Zwickau airbase, but owing to a heavy overcast, only 19 Liberators were able to attack. No bombing results could be observed.<sup>68</sup>

After an absence of 10 days, the Eighth Air Force began a period of intense COMBATTANT activity by staging an operation against several targets in northwest Germany on the 8th. Nine combat wings were committed; 314 B-17's were to attack five Luftwaffe installations and 330 B-24's were to bomb two aircraft factories in Brunswick. Although the forces encountered no opposition, the Liberators which spearheaded the attack ran into a considerable air battle. At first, nothing happened as the bombers passed Lingen, then Durner Lake, Steinhuder Lake, Panover, and even Brunswick without seeing any sign of the enemy. About 40 miles northeast of Brunswick near Salzwedel, the formations ran into a concentration of 150 enemy fighters, and a fierce combat resulted in which the 2nd Division lost 30 planes,<sup>69</sup> although it appears that the American fighter escorts outnumbered the attacking planes. The heavy bomber losses can be partly explained by a navigational error made by one of the combat wings of the 2d Division. This wing turned south too soon and flew an "inside course" to Brunswick which placed it some 60 miles ahead of the scheduled escort pattern. In the words of an official report, this wing "suffered the usual consequences of such a navigational error. The enemy exploited the situation with his usual alacrity and effectiveness."<sup>70</sup>

The bombing of the IIG plant in the Wilhelmshafen suburb of Brunswick produced excellent results. The 302 tons of bombs were well distributed and every building in the installation was hit. Owing to navigational

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difficulties, many of the B-17's were unable to reach their assigned objectives and many targets of opportunity had to be sought. As a result, the following C.A.F. airfields were attacked with generally good results: Langenhagen (142 tons), Hesslingen (152.5 tons), Oldenburg (147 tons), Hesepe (39.6 tons), Twente Enschede (41.8 tons), Luckenbruck (154.6 tons), Mandorf (36 tons), Lehnor (112.5 tons), and Rheine (41 tons).<sup>71</sup> The VIII Bomber Command lost 34 planes in this operation and 22 fighters were missing also. Total bomber and fighter claims against the enemy were 148-25-58.<sup>72</sup>

Another extensive operation was planned for the next day, 9 April. This was to be a very deep penetration of the Reich to attack Focke-Wulf factories in north central Germany and Poland. A total of 542 bombers were airborne, but high clouds over England hindered the formation assembly and only 402 planes actually reached the targets. The German opposition was vigorous in some areas, but in general it was sporadic and confused. The enemy seemed uncertain both as to the destination and the withdrawal route of the bombers, and the heaviest attacks finally fell on a portion of the returning bombers who chose to fly a course farther south than originally planned. Had they kept to the briefed route, they would have probably missed the German interceptors who were nearly out of fuel. By returning some 90 miles farther south than intended, they flew into a concentration of some 60 single- and twin-engine fighters, and some bombers were lost.<sup>73</sup>

The Focke-Wulf plant at Marienburg was well bombed with 217.5 tons dropped from medium altitude. Various assembly shops received direct hits, and 25 per cent of one subassembly building was destroyed.

Office buildings were damaged and fires started in the barracks. At Gydnie/Rahmel, the bombing was done by a relatively small force and was considered fair to good. Larnemunde and its aircraft installations received severe injuries; a heavy concentration landed on the north end of the workshop area and there was another good pattern on the marshalling yards and the warehouse area. A small force attacked the Pz airframe factory at Posen scoring many hits while another small formation attacked Rostock with poor results. At Tutow 106 Liberators dropped 270.8 tons with fair results. There was a concentration on the aircraft installations between the two airfields and photos showed many fires burning.<sup>74</sup> On the various phases of this operation, a total of 31 bombers and 10 fighters were lost and combined fighter and bomber claims came to 63-15-30.<sup>75</sup>

On 10 April another blow was delivered against the dwindling reserve strength of the Luftwaffe. A force of 406 B-17's and 243 B-24's was dispatched to attack G.F. air bases and centers of production and repair in Belgium and France. In coordination with the main operation, one combat wing of Liberators attacked a military installation in the Pas de Calais area while two groups of F-33 fighter-bombers attacked two French airdromes. Weather interfered with attacks on four primaries, but all other objectives were hit. The attacks on the aircraft repair centers at Brussels and Fourges were particularly successful. Airdromes and fields were bombed at Ivree, Elseroer, Laldeyom, Beaumont-sur-Oise, Florennes/Juzaine, Diest/Schauffen, Orleans/Bricy, and Comorantin.<sup>76</sup> The enemy opposition was very weak, suggesting that the Luftwaffe was not prepared to commit itself in force to the defense of northwest Europe.



The favorable weather conditions which permitted these operations may have influenced General Spatz to schedule a modified form of operation ~~XXXX~~ which had been so successfully carried out during 20-25 February. At any rate, on 11 April he signaled Eaker via the Redline communication system that the weather looked very favorable for combined operations and he wished the Fifteenth to attack: Henger, Heustadt, Fischmend, and Eud Voslau while the Eighth attacked Schweinfurt, Tutow, Erickau, Leipzig, and Halle.<sup>77</sup> However, for reasons which are not very clear, the plan was abandoned after several postponements.

Meanwhile, the Eighth continued its large-scale assault on the aircraft industry deep within the Reich. The emphasis continued to be placed on the Gotha-All plants, in comparison with earlier efforts which had been directed largely against the Messerschmitt complexes. On the 11th, a big mission was planned against six F.-190 and Junkers assembly plants far in the interior of Germany. The tactics were strongly reminiscent of the very successful operation of 20 February. The main force composed of the 2d Division was to proceed along the well-traveled Guder Zee-Hanover-Berlin route to Gockersleben and Lennburg, and was to be followed by the 1st Division en route to Cottbus and Sorau. At the same time, an unescorted diversionary force made up of the 3d Division was to proceed over the North Sea to Roesen.<sup>78</sup>

Unfortunately, the Germans seemed to have solved this particular form of attack. The Roesen force's course was accurately predicted from the outset and it was intercepted over the Baltic Sea by a force of twin- and single-engine fighters which flew directly from the Berlin

area. Heavy attacks followed, and as the weather was deteriorating, the attack on Leoben was abandoned and Stettin and Pestock were bombed instead. Here again the resistance was strong, and as a result of its lack of fighter protection the 3d Division lost 33 bombers.<sup>79</sup>

Meanwhile the 2d and 1st Divisions, to list them in their order of flight, were apparently neglected by the Luftwaffe, and penetrated the air over Hannover before they were attacked. Then about 150 enemy aircraft concentrated in the Hannover-Braunschweig-Lernburg area launched heavy attacks on the American formations, the 1st Division being severely harassed and sustaining considerable losses.<sup>80</sup>

At Lernburg, the Ju-88 and -130 assembly factory received 299.3 tons of G and fragmentation bombs as well as 97.2 tons of incendiaries. Three large bursts covered the main assembly shop and there were isolated hits on offices, hangars, and barracks. The Ju-190 assembly at Cochersleben was visited by 121 B-24's dropping explosives and incendiaries with good results. Jena, which contained another Ju-190 assembly, was bombed for the first time by the 12th Air Force. The target area was covered by six large concentrations and there were direct hits on important installations. Damage to the town itself was severe. A small force of 39 B-17's dropped 7 tons of incendiaries on the factory and on the main building, placing direct hits on the corner of the main building and 9 direct hits on another shop. This bombardment caused the surface aircraft components factory to interrupt production almost completely. One of the B-17's was dispatched, as were others, during this operation one of the more costly ones of the war. The German losses, according to the claims of the bombers and fighters, were 124 destroyed, 20

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problems, and J. d. d. ed.<sup>82</sup> General Nicoll, Assistant Chief of Staff for G-2, stated: "Determined German air resistance in defense of vital targets in Germany proper [sic] still being encountered."<sup>83</sup>

After reviewing the mission for the 12th, but the skies cleared the following day and an operation was possible. The targets were the German twin-engine fighter centers at Augsburg, Lechfeld, and Oberpfaffenhofen, and the ball-bearing factory at Schweinfurt which had been partially destroyed since the last attack by the VIII Bomber Command. The weather was clear and the operation was flown essentially as planned, with the 1st Division leading, two others until the Moselle River was reached, then the 1st continued on to Schweinfurt and the other two turned south to Augsburg and the other objectives. The 1st Division received all out the entire enemy attack.<sup>84</sup>

The German fighters assembled in the Juvin-court-Verins area well to the south of the formations and out of range of any American escorts roving ahead of the bombers. After assembly they proceeded north, receiving reinforcements from bases in Belgium and the southern Netherlands. By this time the enemy fighters were over 100 strong, and with this formidable concentration they engaged the bombers of the 1st Division just north of Trier. At this time, the entire fighter escort of the division consisted of 43 P-47's. As this fierce combat broke up, the formations came into the Frankfurt area where another 100 single-engine fighters were assembling; some of the fighters had flown 200 miles from remote bases to take part in the engagement, and when the battle was joined near Wertheim, they threw themselves enthusiastically into the the meleé. The small force of P-47's was inadequate to defend the formations and in spite of their best efforts, 11 bombers

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 went down at this point before the enemy fighter assaults. By this time the target area was reached and the bombs were dropped; shortly afterwards a force of Mustangs which had gone on ahead to clear 20 fighters from the Wersheim area rejoined the Thunderbolts, and the enemy fighters retired. From this point back to Linland, the 1st Division was unopposed. Nor were the other two task forces seriously engaged by the enemy. Either he had concentrated all his efforts on the 1st Division, or a raid by the Fifteenth in the Ludgest area had drawn the Luftwaffe away from southern Germany.<sup>85</sup>

The bombing was, on the whole, successful. Schweinfurt was struck by 343 tons which covered most of the Luftfischer plant. Photos showed that the entire west part of Werk I was severely damaged. At Werk II, three direct hits on a large assembly and machine shop were seen, although smoke and debris made observation difficult.<sup>86</sup> The Lechfeld airbase, believed to be a testing field for He-410's and experimental aircraft of the Messerschmitt plant at Augsburg, received 245.0 tons of G and H with results that were believed to be good. Oberpfaffenhofen, an important factory and airfield for the Do-217, and possibly for the He-410, was bombed by 60 Liberators with fair results. The heaviest bomb load fell on the aircraft factory at Augsburg where 207 B-17's dropped 474 tons. Hits were seen on subassembly machine shops, a power house, and a flight hangar. There were incendiary strikes on two round hangars and machine and press shops. The great volume of smoke made further assessment impossible. The cost of this operation was 33 bombers. Total claims against the enemy were 124-20-59.<sup>87</sup>

While the Eighth was carrying out these intensive actions against
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the German aircraft industry, farther south the Fifteenth was making its contribution to the same end. On 9 April a modification of Operational Instruction No. 13 was sent to the Fifteenth. This new order suspended the Dunajezovce plant near Budapest and the Stuttgart ball-bearing factory; some changes were also made in the secondary targets by placing the Turin Meritalia factory at the head of the list and readjusting some of the low-ranking objectives.<sup>23</sup> The destruction of Messerschmitt production still remained a prime duty of the Fifteenth, and on 12 April missions were scheduled against important centers that were still presumed to be in production. The important Fischlam Markt factory was attacked by 172 B-17's dropping 423 tons of GP bombs and 42.4 tons of incendiaries. In spite of intense flak, direct hits were made on three component shops, and other installations suffered damage. One bomber was shot down by anti-aircraft. Unfortunately, a certain percentage of the bombs fell in the residential area of Vienna. Another task force of 134 B-24's was sent to Wiener Neustadt where a scattered but heavy concentration was achieved over about half the target area. There were direct hits on machine and locomotive shops as well as on some of the workshops. Between 40 and 50 enemy planes made attacks from all angles on this task force. The Bad Voslau aircraft assembly plant was the target for 140 bombers of the 304th Wing. A very heavy concentration inflicted severe damage on hangars and barracks near the landing field. The field itself was well covered, and of the large number of planes present when the attack occurred, it was estimated in later evaluations that 24 were destroyed, 7 probably destroyed, and 5 damaged. Six bombers were lost

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at this target. The final phase of the operation occurred when 107 Liberators dispatched without escort bombed the Zegreb airbase and marshalling yards. The bombing was good and only one bomber was lost.<sup>89</sup>

The following day was a big one in the history of the Fifteenth's operations. Attacks were planned against a series of important POINT-BLANK targets. High on the priority list was the aircraft production complex at Győr, Hungary. This plant was engaged in producing the Me-109, and it was believed that no less than 40 per cent were coming from the assembly factory located at the Győr airfield. The destruction of this plant would reduce to 75 the entire monthly production of single-engine fighters being produced within the range of the Fifteenth Air Force.<sup>90</sup> In addition to this important target, there were others that needed attention. The Duna components plant at Budapest had been seriously damaged by previous attacks, but it was believed that further demolition was necessary. Another objective was the Budapest/Bokol airfield which was thought to be assembling the components from the Duna plant. At the Budapest/Vecses airfield extensive modification and repair facilities were available to the GAF. In the opinion of the Fifteenth's bombing experts, "the destruction of the Duna complex and the Vecses depot should reduce by two-thirds the total current production of Me-210's and Me-410's of the enemy."<sup>91</sup>

To destroy these important sources of GAF production and repair, the Fifteenth mounted one of its largest missions. On 13 April some 314 fighters and bombers were airborne in a three-phase operation. The Győr factory and airfield were attacked by 103 Flying Fortresses

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that dropped 355.74 tons with excellent results. Practically all installations were hit, and the landing field was well post-holed. Nine enemy aircraft were claimed as destroyed on the ground. The Győr task force was aggressively attacked by 20 to 30 German fighters that approached the rear formations firing rockets up to within 100 yards as they came. They then broke below the bombers and reformed to attack the second wave. The Budapest/Vecses airdrome was bombed by 121 B-24's that wrought considerable damage to installations and played havoc with the large number of aircraft parked on the landing ground. The main buildings were hit by 100-lb. bombs which formed a heavy concentration in the southwest part of the field. Of the 130 aircraft present, 69 were believed damaged or destroyed. The Budapest/Tokol airdrome was similarly bombed with light explosives and fragmentation bombs by 124 aircraft. Installations were well covered and about 44 planes on the field were believed destroyed. The Láná repülőgépgyár aircraft factory near Budapest was bombed by 107 Liberators; the photos showed a good distribution of bombs over the factory area, and direct hits on four assembly buildings.<sup>92</sup>

The German fighters put up a good defense of these important targets. The Luftwaffe called in all types of attack planes, and Me-109's, -210's, -110's, F-190's, and Ju-88's were sighted. All the formations ran into opposition, but the last unit over the Budapest area, the 304th Inf, had the most trouble. Twin-engine planes stayed out of range of the bombers' guns and fired rockets into the formations while single-engine fighters concentrated on stragglers, cripples, and separated units.<sup>93</sup> Eighteen bombers and three fighters were lost in

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the different phases of the operation. The destruction among enemy planes was heavy. Conservatively, it was estimated that at least 70 planes had been destroyed on the ground, and fighter and bomber air claims were 43-13-15.<sup>94</sup>

For the next few days the fifteenth continued its attacks on air-dromes and similar installations. On the 16th, medium-sized forces struck the air-dromes at Iarnu-Severin and Belgrade/Zemun, inflicting some damage but leaving the fields still usable.<sup>95</sup> On the same day, a larger force of 103 Fortresses attacked the Belgrade/Rogozarski aircraft factory as a secondary target when the primary was found covered by cloud. The main concentration did not fall on the target but landed on the neighboring Zemun airfield; there was one direct hit on the southeast part of the factory.<sup>96</sup> The same Belgrade targets were hit again on the 17th. The Rogozarski factory was hit by a small force with some success. Weather almost prevented the attack on the Zemun air-drome, but 34 bombers managed to get through and drop 7,925 fragmentation bombs which destroyed 4 airplanes and set fire to some hangars. A raid on the Ilirius aircraft factory showed no hits in the target area. Unfortunately, the bombs fell in the residential part of Belgrade.<sup>97</sup> This phase of counter-air operations ended on the following day when fighter sweeps were scheduled for the Udine and Biello air-dromes. Bad weather held some of the units back, but 12 P-38's managed to strafe Udine and 3 attacked Biello.<sup>98</sup>

The 18th had been held up by poor flying weather, and by a CROSSBO mission, but on 18 April the Bomber Command scheduled an operation against targets in the Berlin area. No enemy opposition

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occurred during the penetration or withdrawal, but a short sharp fight occurred at the target area. Choosing his time and place with rare discrimination, the enemy suddenly hurled 100 single-engine fighters at a formation whose units had been separated by weather conditions and which were too split up to receive adequate fighter protection. In the words of an official report, "this was the advantage for which the enemy had been waiting. He saw and exploited it with split-second timing to the tune of at least 10 B-17's. Our fighters did not even see it happen."<sup>99</sup>

The main component plant at Wittenow was bombed with very good results by 121 B-24's. Equally satisfactory were the results at the Lüneburg airbase. Two heavy patterns fell across the target area with numerous hits on hangars, refueling points, a compass-swinging base, and a machine-gun range. The main concentration at Crandenburg/Manahof airbase fell west of the field, but some hits were scored on the Heinkel assembly plant, and 3 He-177's were believed destroyed or damaged. At the Crandenburg/Cornandorf airfield 143 B-17's dropped 101 tons of GP bombs and 173 tons of incendiaries, but no large fires were started and the main installations were not seriously damaged. The radio plant at Brandenburg was raided by a small force with undisclosed results, and 13 Forts dropped bombs on the Forleberg airbase, scoring hits on three medium-sized hangars. The forces involved in the 13 April missions totaled 501 B-17's and 375 B-24's. Bomber losses came to 19 planes and claims were low, being only 16-1-7.<sup>100</sup>

Airfields and A-190 plants were the main targets for the next day's operations (19 April). A large force, 759 airborne, was sent

against the targets, which were readily defended by the enemy. The  
 Russell/Hottenhousen F-17's on their mission was successfully broken  
 by 52 F-17's and large fires were seen as the bombers retired from  
 the target. At Russell/Alida, plant "1" of the F-170 assembly plant  
 was severely damaged. All the important installations received hits  
 and one assembly building was set on fire. Plant "2" was so badly  
 damaged that a lot of the bombs fell outside the target area. The  
 Russell zero-area was not hit. Russell/Hottenhousen received direct hits  
 on four of its eight large hangars; there was also an explosion and  
 fires were started. 101

The errors were analyzed against the airbases at Terol,  
 Lijepol, and Westerm with similar results, with a decrease  
 on the medium altitude at which the bombing took place. However, the  
 raids on Guterloh and Essinge airfields were less successful.  
 Only five bombers were lost during the missions of the day. 102

While the Eighth was thus concentrating on airbases and air-  
 fields, certain important changes in the Fifteenth's priorities were  
 being made. The main fighter assembly plant at an obscure place,  
 which had been suspended from the priority list, was reinstated in a  
 low rank so that it could be attacked should a great deal of numbers of  
 aircraft be required to the factory field. It was decided that  
 airfields with concentrations of operational aircraft should be given  
 an explicit priority, although the choice was to be left to the command  
 on the basis of intelligence. The factory's priority was increased be-  
 cause of its connection with the development of jet-powered aircraft.  
 It was also believed that the factories were essential to the production of

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the e-10 to certain non-priorities, and for the remainder of the production schedule. Several lower or high-priority targets were suspended; these were the factories at  
Munster, Oberpfaffenhofen, and Heideboden. The fighter aircraft assembly at Gotha was reinstated because of the continued presence of a large number of e-10's on its field.<sup>103</sup>

The new target priorities sent out two days later were as follows:<sup>104</sup>

1. Wiener Neustadt, engine and air
2. Bad Woschau
3. Graz
4. Wien
5. Belgrade/Thrus
6. Berlin (critical)
7. Varese

Nischlani, Győr, and Borozarski at Fulrade were removed from the first priority because of the severe damage inflicted on them. The secondary priority included the following:<sup>105</sup>

1. Klagenfurt
2. Gillingen/Lure
3. Steyer-Mühlbacher (Győr)
4. Győr assembly plant
5. Budapest/Belof Airframe

The fillers then available prevented action against the first and second priorities were two minor branches of the Wiener Neustadt complex: the factory at Heideboden and the Holzback spinning mill at Gunglitz. Other fillers were the repair factory for single-engine aircraft at Atzenbrunn, the bomber components factory at Leuzing, the jet aircraft factory at Thessalon (Greece), and the factory at Oberpfaffenhofen.<sup>106</sup> A special point was made of the importance of airfields, especially when connected with repair and related functions. In view

<sup>106</sup> certain number of textile plants were being converted by the Germans to aircraft production.

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of the declining state of the Luftwaffe such installations were much more important as targets than before.<sup>107</sup>

To translate the new instructions into action, the 77 Bomber Command planned a large operation against the airfields and aircraft factories at Bad Neustau, Schwechat, and Wiener Neustadt on 23 April; an attack on the Wiener Neustadt Ford airfield was also scheduled. These objectives were among the most important within the range of the Fifteenth Air Force. Schwechat was especially vital. As has been pointed out, it was the center of important jet developments, and since a plan for using the Me-219 at Lilov in Poland had fallen through, Schwechat was now the sole producer of this twin-engine fighter-bomber. Both Bad Neustau and the Wiener Neustadt Ford airfield housed large numbers of newly assembled Me-109 planes and offered an excellent target for fragmentation bombs.<sup>108</sup>

The attack was mounted approximately as planned. A total of 956 aircraft were airborne and dropped 1,292.5 tons of bombs. In the aerial battle that took place, the bombers were engaged by 175 to 200 enemy planes. Three fighters and 13 bombers were lost, and claims of 51-10-32 were made by the American forces.<sup>109</sup> The Wiener Neustadt factory was to have been attacked by 222 B-17's, but some aborted and only 171 reached the target. The bombing was very successful. Severe damage was inflicted on a large machine shop and the main shop showed fresh roof damage. The east extension of the factory received two direct hits in the center and probably received considerable blast damage. The assembly shop was probably struck directly, for the roof contained large holes.<sup>110</sup>

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At Schwechat, direct hits were scored by 140 bombers on the main assembly shop, a workshop, two flight hangars, and some barracks. Dad Vosku received a heavy load of 201.75 tons of 500-lb. bombs and 12,550 x 20-lb. fragmentation bombs. Later photos show the airdrome and all principal installations heavily hit, and General Twining characterized the results as "superb." The most badly damaged buildings included eight hangars, some office buildings, barracks, the boiler house, and W/T bays. Some 21 aircraft were damaged on the field, and the northwest half of the airdrome was completely covered by 500-lb. and fragmentation bombs.<sup>111</sup>

The Nord airdrome at Wiener Neustadt was bombed by a small force of Liberators dropping 3,642 x 20-lb. fragmentation bombs from 23,500 feet. A total of 37 planes were widely dispersed on the field and only 10 Me-109's were considered destroyed. No fresh damage to the installations was visible.<sup>112</sup> The next day the Messerschmitt aircraft factory at Belgrade was hit by 56.5 tons of high explosive. Only partial coverage of the target was secured, but some bombs fell on the Zeemun station and marshalling yards.<sup>113</sup>

As April drew to a close, the tempo of P-51 operations was stepped up, and missions against the Luftwaffe took place almost daily. On 23 April, the VIII Fighter Command carried out a big fighter sweep and fighter-bomber operations against German-held airdromes in northern France, Belgium, and Germany. Nine groups of P-38's, P-47's, and P-51's were involved in the raids and two other groups acted as escorts. The fields attacked were at Hagenu, Leon, Schner/Erarsche, Lonnen, Chievres, Denain/rouby, Tours, Chateaudun, Brittany,

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le Julot, and Lecloe. There was no enemy opposition in the air, but 7 fighters were lost to flak. The pilots claimed 11 enemy planes destroyed and 24 damaged as a result of the ground strafing.<sup>114</sup>

The VIII Bomber Command took over the attack on the following day when 754 bombers and 892 fighters were airborne in a mission against several G.F. targets. Of the three divisions involved, the only real opposition of the day developed against the 1st, which was attacked by more than 100 single-engine fighters in the Aursburg-Oberpfaffenhofen area. At this point the 1st Division's bombers were considerably spread out and the two groups of escorting Mustangs had their hands full. In spite of all their efforts, 20 B-17's were lost to enemy aircraft in this phase of the action.<sup>115</sup>

Several targets in the vicinity of Friedrichshafen were attacked by 211 B-17's. The largest gear-cutting factory in Germany, the Friedrichshafen Motorenfabrik, was severely damaged, and the home airfield of the Dornier complex received an excellent comb pattern which inflicted damage on important buildings. The largest task force of the operation (120 Liberators) hit the repair and equipment depot at Coblentz with 202 tons. The bombing was carried out from the relatively medium altitude of 15,700 to 19,000 feet. The incendiaries started large fires and there were explosions; three of six large hangars received direct hits and two hangars were gutted by fire. The three-wave attack on Oberpfaffenhofen was quite successful, although the bombs of the second wave fell outside the target area. Nevertheless, a photo reconnaissance mission showed that every major building was now damaged to some degree. At least 12 aircraft parked

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on the field were destroyed or damaged. At Erding, a good pattern fell on the airfield where 14 planes were damaged, but the bombs missed the equipment depot which was one of the objectives. A total of 40 bombers was lost in the different phases of this operation, but to compensate for this, the very high claims of 103-26-43 were filed by bomber and fighter crews.<sup>116</sup>

On the 25th, both the Eighth and Fifteenth were active. The Fifteenth sent 117 B-24's to attack the Turin Meritalia factory with fair success, while the Eighth scheduled a series of medium-sized missions against French airfields. The largest operation was directed against the Dijon/Longvic airfield where 298 tons of GP and 40.1 tons of incendiary bombs were dropped with good results and only 2 hangars left undamaged. Other fields attacked were at Metz/Frescaty and Nancy/Essey.<sup>117</sup> The increasing emphasis on airfields in the operations of both strategic air forces was due to a suspected change in German production methods. It was now clear that the enemy was dispersing his planes to fields where repair facilities were known to exist. However, it was suspected that at some of these fields, particularly those near already destroyed assembly centers, a small amount of assembly work might be taking place. As a result, airfields were now being watched even more carefully for new activities than were the big production complexes.<sup>118</sup>

A significant mission took place on the 26th when 10 combat wings of the VIII Bomber Command were dispatched to attack aircraft plants and airfields in Germany. A low cloud cover prevented visual bombing of the primaries, but five B-17 wings attacked the secondary target

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of Brunswick using RFF technique. The noteworthy aspects of the operation were the facts that it was completely unopposed and that for the first time there were no bomber losses.<sup>119</sup> Although the weather was poor for bombing it was not so bad as to preclude flying, and therefore does not explain the failure of the GAF to rise to the defense of important German targets.<sup>120</sup>

The next two days were devoted to attacking FORTIFIED targets and airfields. On the 27th, two B-17 combat wings found their assigned airfields cloud-covered; consequently Le Culot and the Ostend/Middelkerke airfields were bombed with fair results. Approximately 300 tons of fragmentation, high-explosive, and incendiary bombs were dropped. Another task force of three B-17 combat wings successfully hit the fields at Nancy/Essey and Toul/Droix de Metz with 446 tons. The only opposition in these operations came from flak.<sup>121</sup> The following day, along with missions against installations in the Pas de Calais, a force of 116 Fortresses went out against the Avord airfield and dropped a total of 310.7 tons from medium altitude with very good results. The destruction of hangars was especially effective and 14 barracks received direct hits.<sup>122</sup>

Any belief that the extremely light enemy opposition of the last few days was symptomatic of the early death of the Luftwaffe ended abruptly during the heavy attack on Berlin of 29 April. Although not a FORTIFIED mission, it is worth describing in detail because it affords an excellent illustration of GAF tactics in defense of a vital target. The American bomber forces, some 679 planes strong with 833 protecting fighters, approached the target along a fluidic Zee-Manöver line in three massive formations led by the 3d Division with the 1st

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following, and the 2d in the unpopular position of "tail-end Charlie."<sup>123</sup>

As the 3d Division led the bombers across Holland, one combat wing left the formation and continued eastward on a route of its own<sup>124</sup> which took it well outside the fighter escort. The enemy fighter controller immediately took note of this error, and when this wing reached the area around Magdeburg where the first fighter Staffeln were assembling, it was pounced upon by 75 enemy planes attacking in waves of 15 to 20 aircraft. In its undefended condition, the wing was at a great disadvantage and quickly lost its bombers.<sup>124</sup>

Meanwhile, the bombers were streaming across the Renover area while the German fighter controller held back his fighters waiting for the proper moment to strike. The 3d and 1st Divisions were well escorted and were allowed to pass unchallenged. But the 2d Division, which was following in the rear position, was escorted only by one group of F-47's and one group of F-35's. When the division reached Jelle, the F-47 group had to turn back, thus leaving 233 bombers supported by 37 Mustangs. Here was the moment. As the Thunderbolts retired, 3 Staffeln drew off the remaining Mustangs and 60 to 70 fighters attacked steadily until the bombers reached Berlin. Originally, about 150 fighters had concentrated in this area, but when the combat wing of the 3d Division became separated, about half the GAF fighters left the Berlin sector to engage the . . . Consequently when our formations reached the city strengthened by additional fighter escorts which had joined them at Jelle, the odds were too unequal and the GAF refused to join battle. Instead, the fighter controller decided to concentrate his strength for

<sup>123</sup>The reports of the mission do not explain the reason for the strange behavior of this combat wing.

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a final blow at the time of harassment to Division as it withdrew. By this time the 2d was about 30 minutes behind schedule, and when its attendant F-17's had to leave because of fuel shortages, it had already missed its rendezvous with the F-35's which were to escort it home. Consequently, when the 2d Division passed over the maneuver area it was again attacked by about 100 fighters, most of which had been withheld from combat at the target area. As a result of these careful calculations by the German fighter controller, the 2d Division alone lost 25 bombers, and the total cost of the day's operations was 63 bombers and 13 fighters. Eighth Air Force claims were 27-28-45.<sup>125</sup>

The final operations of the month for the Eighth Air Force consisted of air-drom missions. The Lyon/Lyon Field was attacked very successfully by 114 F-17's and 111 struck at the Clermont-Ferrand base with equally good results. Fighter sweeps were carried out in these hours and enemy fields and a few planes were destroyed on the ground.<sup>126</sup>

With the end of the month in 1944, the Eighth Air Force continued its operations. With improving weather, both the Eighth and the Fifteenth were able to maintain an almost continuous presence on the G.P. For both forces, airbases were increasingly in jeopardy, and, at the same time, a heavy toll was taken of the fighters in the air during the severe fighting that frequently attended the operations. The Eighth Air Force claimed a total of 704 enemy planes destroyed in the air and on the ground. Similar figures for the Fifteenth amounted to 653.<sup>127</sup>

The Eighth turned its attention again to F-190 and twin-engine fighter protection, while the Fifteenth, it is believed, seriously upset the balance in the airbase with operations based on its

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attacks on the inner perimeter and the air operation center  
at Wiesbaden. At the same time, the Luftwaffe struck successfully  
at the airfield dispersal of the 7th Air Division; attacks on subject,  
Dier, and other airfields were of minor effect. It is thought that  
the result of these attacks was no change in the high state of the  
two strategic air forces.

To judge by the surface the enemy was capable of sustaining at  
certain times and places, there was little outward indication that  
the Luftwaffe was nearing collapse. However, these changes were  
not as apparent as they should have been. Missions over northwestern  
France, Belgium, and Holland were not met with little air opposition,  
and attacks on the air bases were occasionally failed to produce a  
multitude reaction. In fact, it was the opinion of the 30th Air  
Division, 1st Air Force, that the Luftwaffe had ceased to defend  
certain areas, or even certain targets as such. Further, they were  
able to exploit the weakness in the barrier except that flight  
levels were low. In fact, the heavy bomber concentrations in the  
Ruhr area, east coast routes across to the north along a Hannover-  
Berlin line, or south along a Frankfurt-Bonn line. In case a  
large formation entered the Reich along either route, it would probably  
meet the way of 50 fighters or more in a forward and rear concentra-  
tion. In the case of bombers flying to Germany across Schleswig-  
Holstein or Denmark, there would likely be less of a rear or  
insurance, unless some measure developed in the fighter escort.  
Owing to the extreme flexibility of the German fighter defense,  
additional forces could be quickly shifted to the north if there

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appeared, sea prospect, ~~unprotected~~, ~~unprotected~~ by ~~ours~~.<sup>128</sup> During the month, the VIII Bomber Command lost 120 planes, or 4.4 per cent of the effective bomber sorties.<sup>129</sup>

Opposition to the Fifteenth Air Force was probably a little lighter than to the Eighth. The IV Bomber Command was likely to be intercepted by fighters based in northern Italy around the head of the Adriatic, or located in the Alpenfurt-Graz area in Austria. However, continued and effective use of these fields probably considerably reduced their effectiveness. During April, the Fifteenth lost 194 bombers, or 2.4 per cent of the effective sorties.<sup>130</sup>

Just at the end of April and the beginning of May, a thorough reshuffling of targets and priorities occurred for both strategic air forces. Many of the objectives which had long been familiar to the pilots and bombardiers of the IV Bomber Command were suspended. In south Germany, the factories and airfields at Augsburg, Lechfeld, "Reichheim," "Gablingen," "Ebersburg/Obertrausling," "Ebersburg/Itzenheim," Erding, and Landsberg were removed from the priority list. Still active targets were base facilities at Leuniberg and Munich/Reim, and the supply (18-410) and command (36-217) center at Leunauing.<sup>131</sup> In the Steyr-Vienna area, the following targets, long famous in the annals of the IV Bomber Command, were taken from the active list: Fischamond, Scheeblat, Bad Voslau, Garsfeld, and the Steyr-Alzlagewerke. The Werke I and II at Wiener Neustadt, the airbases at Munchendorf, Tollersdorf, and Zwoelfaring were still open for attack, as well as the textile mills at Leunirchen, Mottendorf, Eberichsdorf, and Voslau.

Recently well headed by the Eighth Air Force.

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Also kept on the list were Steyr-Daimler-Puch, the He-109 component plant at Illersdorf, and the Craz/Thalerhof Airframe.<sup>132</sup>

In northern Italy, the suspended targets were the Reggio Emilia aircraft factory and the ball-bearing plants at Turin and Villar Perosa. The Macchi factory at Varese, the Airframe at Milan, and the Turin Aeritalia factory could still be attacked. Miscellaneous targets at Braşov, Nuremberg, Salonica (Greece), Kalamaki (Greece), and Luncey (France) were kept open.<sup>133</sup>

In the Balkan area, the suspensions were fewer, being confined to the Rogozarski plant at Zemun (Yugoslavia) and the Hungarian wagon works at Győr. All the other Balkan COMINT targets were to be attacked.<sup>134</sup> For the Eighth Air Force, important targets still remaining were at Sorau, Tutow, Dernburg, Cottbus, and Kreisling.<sup>135</sup>

Basic priorities for both air forces were readjusted on 6 Mar. It will be recalled that late in March some questions had been raised concerning the bombing of targets in southeastern Europe and their relation to the COMINT program. It was now definitely stated that COMINT had priority over these targets, except when weather prevented attacks on COMINT objectives.<sup>136</sup> For the Fifteenth, the objectives were: (1) to support the land battle in Italy, (2) COMINT, (3) rail communications in southern France, and (4) targets in the Balkans.<sup>137</sup> It was further stated that in southeastern Europe, communications were the priority objectives; however, when tactical considerations were paramount, the Fifteenth was authorized to combine attacks on oil refineries with communications.<sup>138</sup> The Eighth was still authorized to consider COMINT as number one

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priority, but second place went to railway centers in occupied countries, and third was assigned to airdromes" in German-held territory.<sup>139</sup>

Operations in northwest Europe were hampered by bad weather during the first week in May. The Eighth sent a small force against the Toix, Montdidier, and Roye/Avoy airfields on 1 May but little was accomplished. A big mission was scheduled for the 4th and was actually airborne, but heavy clouds caused a recall of the bombers. Since some of the leading formations had already reached the Dutch coast, 43 B-17's dropped their bombs on the Bergen/Alkmaar airfield. The results were probably good, as heavy black smoke arose from the target. There were no bomber claims or losses.<sup>140</sup>

The fifteenth went into operation against airdromes on the 6th. A large force was sent against Rumanian targets and 101 Fortresses of the 5th Army were detailed to bomb the Brasov aircraft factory and airdrome. Some 205 tons of 500-lb. Gz bombs were dropped along with 24.55 tons of fragmentation bombs. The results were good. The frags covered the airdrome and landing area, and the high explosives landed on four hangars, two workshops and the main administration buildings. Six aircraft on the field were destroyed and four were damaged.<sup>141</sup>

After several missions against VEHAI targets, cities, and communication centers, the Eighth returned to counter-air targets on the 9th. A large armada of 727 bombers was dispatched to strike at three marshalling yards and eight airfields in France and Belgium.

The exact definition of what VEHAI was never clearly established in current usage. Sometimes airdromes were considered a part of it, and so times they were placed in a separate category. Obviously, attacks on them were a part of the war against the Luftwaffe.

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There was very little enemy opposition, for it appeared that the Germans anticipated a deep penetration from so formidable an array and were concentrating further inland. Only one formation of bombers operating in the vicinity of Antwerp encountered active opposition; the remainder were practically unchallenged. The Lindberghs bombed and the number of planes attacking were as follows: St. Arond (110), Florennes (106), St. Dizier (74), Thionville (54), Juvin-court (72), Laon/Athies (127), Laon/Couvron (124), and Lille/Vendeville (19 as a secondary). Bombing results were considered uniformly good.<sup>142</sup>

On the 13th, the Eighth planned a large mission against German aircraft production at the extreme limits of the bombers' radius of operation. Attacks were scheduled against the FI plants at Freising and Rosen in Poland, and against the airfield and airpark at Tutow, Germany. Unfortunately, weather seriously interfered with the bombing. The overcast at Freising and Rosen prevented bombing, and the bombers assigned to these objectives attacked targets of opportunity. Only at Tutow was the bombing carried out as planned; here 226 B-24's reached the area and bombed with fairly good success on the eastern part of the field. Only 12 bombers were lost in these deep penetrations and total claims were 02-5-16.<sup>143</sup>

Airfields were still high on the priorities of the Fifteenth. Piacenza and Reggio Emilia airbases were attacked on 14 May by 141 and 75 heavy bombers respectively while 43 P-38's strafed the air bases at Aviano, Villaorba, and Rivolta. The bombing was satisfactory and the fighters claimed 19 enemy aircraft were destroyed on the ground.<sup>144</sup> On the same day, other fighters of the Fifteenth strafed

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airfields at Gelli, Villa Franca, Forli, Reggio Emilia, and Modena.  
 At Forli, several hangars were set on fire.<sup>145</sup>

Meanwhile a new list of priorities was being worked out and on  
 15 May, General Eaker sent it to General Trining.<sup>146</sup> As first  
 priority, the following targets were listed:

1. Zollersdorf airdrome and airpark
2. Lemo-Luther-Deck factory at Zollersdorf
3. Bomier factory at Oberpfaffenhofen
4. Munich/Neubiberg airpark
5. Wolfsegg airdrome
6. Vöcklabruck airdrome
7. Munich/Leibniz airpark
8. Bomier factory at Neubiberg
9. Graz/Thalerhof airdrome

The secondary priority contained the following objectives:<sup>147</sup>

1. Erding airdrome and park
2. Ludwigs airdrome
3. Müller ball-bearing factory at Nuremberg
4. Extension of the Wiener Neustadt complex at Klagenfurt
5. Steyr-Daimler-Fuch plant at Steyr
6. Wiener Neustadt extension at Leunkirchen
7. Wiener Neustadt extension at Pottendorf
8. Wiener Neustadt extension at Breichsdorf
9. Wiener Neustadt extension at Voelau
10. Steyr-Daimler-Fuch plant at Graz/Neudorf

The third priority dealt with airdromes and listed the following:<sup>148</sup>

- |                                |                        |
|--------------------------------|------------------------|
| 1. Zemun                       | 8. Vienna/Tulln        |
| 2. Brasov                      | 9. Morsching           |
| 3. Mauthausen                  | 10. Tals               |
| 4. Klagenfurt                  | 11. Neuberg            |
| 5. Markersdorf                 | 12. Permingen          |
| 6. Tokol airdrome and assembly | 13. Kalavakki (Greece) |
| 7. Vienna/Aspern               | 14. Győr               |

The last 10 days in May was a transition period: POINTBLITZ was  
 giving way to CYCLOPS. As the time for invasion drew near, every  
 effort was made to increase the pressure on the Luftwaffe. Both the  
 thirteenth and fifteenth were extremely active against airdromes, especially  
 the former since it was under the imperative necessity of striking the

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fields from which the G.I. flight launch counterattacks on the Anglo-American landing forces.

On 20 May, the Eighth led off with attacks on two French airfields and one aircraft repair center. Reims/Champañe was attacked by 66 Liberators with very good results. Several direct hits were scored on hangars and the west side of the landing area. This airfield received 269 tons from 70 B-17's and a good coverage of the target resulted. Four aiming points were assigned at the Villacoublay aircraft facilities and all were hit. Bursts blanketed the Morane Saulnier assembly works and there were hits on 10 factory buildings. Some 70 bursts fell in the hangar and barracks area at the west corner of the plant. Another large group of bombs fell on the Nord aircraft works causing considerable damage.<sup>149</sup>

On the 22d, a very large force of 1,045 heavy bombers escorted by 1,135 fighters were dispatched to attack marshalling yards and airbases in France. The ground opposition was practically nil, but the weather made up for the lack of German activity. Only 215 bombers were able to attack, and ground haze rendered target identification uncertain. As a result, the bombing varied from poor to good. The airfields attacked were at Bourges, Nord, Orleans/Ericey, Sainte-Meur, Oren/Carpignat, and Etampes/Leclercq. Probably the most successful attack was against the Orleans/Ericey field where 371 tons of G and 70.6 tons of incendiary bombs were dropped from relatively medium altitudes. Transition dumps, fueling pits, dispersal areas, and hangars were all hit.<sup>150</sup>

The next day a large force was dispatched to Berlin, having been

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the airfield in the front area. The water around the  
 the area and the area covered by fragmentation is to be a  
 extent of the 71 bomb dropped on the field were all as described.  
 and 21 were used to this end by cutting 40 to 50 ft holes in the air  
 but without much success. Only one plane, B-24, was lost.<sup>154</sup> The  
 part of the aircraft which was destroyed by B-24's in the air  
 tion on five B-24's in the air. When the B-24's had the  
 necessary light, they fell in the front area and set some of the  
 hangars on fire. The planes struck the field two or three times  
 hitting various targets, and it is believed that casualties at  
 the field were high.<sup>155</sup> Two hundred and sixty-five heavy bombers were  
 sent out on the 27th against the French airbase. Montpelier/  
 Projeant was hit by 202.5 tons with very good results. The main  
 installations such as hangars, warehouses, personnel quarters, admin-  
 istration buildings, and repair facilities were all hit, and  
 the northeast landing ground and runway were well cratered. The Salon  
 de Provence air base, which had been bombed during the critical days  
 of the Anzio beachhead, was also attacked during the raid on Montpelier.  
 Strike photos revealed direct hits on various hangars, 2 hits on the  
 repair shops, 5 hits and 4 near misses on the administration building,  
 and 190 craters on the northeast landing area. One B-24 failed to  
 return from this mission.<sup>156</sup>

The Fifth Air Force concluded the month's operations by five  
 tremendous missions (27-31) against German aircraft, oil, and  
 transportation targets. More than 900 bombers were airborne in each  
 operation and the total tonnage of bombs dropped was well in excess of the

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combombant as exceeded the first attack, although there was not the same concentration on rail and air targets. On 27 May, forces totaling 991 bombers were dispatched to northwest France and the mission to bomb certain targets largely connected with rail communications. However, two small task forces attacked aero-engine plants. The Junker (Junkers) aero-engine plant at Strasbourg was hit by 53 Fortresses with good results, and the engine factory at Sisy near Metz was bombed by 69 Liberators with results that were estimated as fair to good.<sup>157</sup> There was only moderate G.F. opposition. Nineteen heavy bombers were shot down and 7 fighters were lost. Claims against the enemy testified to the laxness of the defense, being only 36-4-13.<sup>158</sup>


The next day the pressure on the Reich was increased when 1,027 heavy bombers went out against oil refineries, aircraft works, and a military depot in central Germany. The attack was made by two task forces: one, which opened the battle, made a diversionary raid south-east to Almedy and then turned north to bomb Cologne and withdrew. The enemy was not deceived by this thrust and proceeded to concentrate 350 single-engine and 50 twin-engine fighters in the Luddeburg area to oppose the huge main force which was rapidly approaching from the Zuider Zee in the direction of Wittlich. On reaching this point, the formations separated to bomb their various targets, and at this moment the German fighter controller threw his heavy concentration at the tail of the 1st Division and the leading formations of the 3d. By concentrating his forces, the enemy was able to achieve a temporary superiority which saturated the fighter defense and brought down 13 bombers. The rest of the formation was successfully dispersed from [REDACTED]

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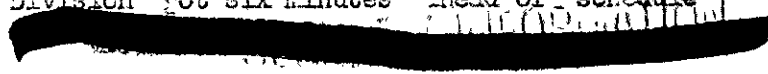
the air.<sup>159</sup> Most of the bombing effort was not directed against the German aircraft industry; however, small forces raided a Junkers aircraft assembly and engine works at Dessau and airfields at Brandis/Folenz and Jutensachsen. Owing to the interference of haze, smoke, and cloud, the results were generally poor.<sup>160</sup> Losses in the whole operation amounted to 32 bombers and 14 fighters. Although the Luftwaffe offered severe opposition in only one phase of the engagement, the battle was fierce and many German planes were shot down. Total claims against the enemy came to 89-31-36.<sup>161</sup>

The Eighth did better against the German aircraft industry on the 29th. Two hundred and fifty-one Fortresses were dispatched against the Me-109 plants of the Arla complex in the Leipzig/Feilerblick area, and the Ju-88 assembly at Leipzig/Leckau. The bombing here was rated fair to good. Another force of 279 B-17's attacked AF facilities, including the components plant at Posen and the assembly factories at Cottbus, Arzesinski, and Sorau. The results at Arzesinski and Sorau were good, but the bombing at Cottbus and Posen was less accurate. The opposition appeared to be confused by a double-thrust approach with one formation coming up over the North Sea and another apparently headed straight for Berlin. Consequently, the Luftwaffe was scattered and its defense was effective at only one point. Total bomber losses came to 34 planes and claims against the G.F. were 79-14-21.<sup>162</sup>

The next day another massive formation was dispatched against airfields and factories, marshalling yards, and POW installations along the French coast. All the bombers followed approximately the same route until the Dutch-German border was reached; then the 1st


  
 Division continued deep into the Reich to attack certain aircraft factories, while the other formations turned out to be "shallow" targets. The Junkers parent plant at Dessau was bombed by 79 B-17's and extensive damage was caused. A machine shop, a workshop, and seven engine-testing beds, as well as offices and storehouses, were completely destroyed. The two Fw-190 plant at Oschersleben, which had been often attacked and promptly repaired, received the attention of 51 B-17's that inflicted extensive injury. At least 10 direct hits were scored on a large machine shop and other installations were damaged. The Halberstadt Junkers plant lost its boiler house, several office buildings, and a large workshop. The recreation center, storehouse, motor transport yard, canteen, fire station, and an office building were partially destroyed. The local airfield was attacked by 48 bombers that were able to cover the southern half of the landing area with bursts.<sup>163</sup>

One of the largest task forces of the 30 May mission was sent to bomb the airfield at Rotenburg. Six heavy concentrations of high explosives and incendiaries were dropped by 147 B-24's in the target area and the objective was blanketed by bursts. At the airfield and seaplane station at Erischenuhr a good concentration was secured on the southern part of the field, and similar results were achieved at Oldenburg. The C.F. stations at Diepholz and Pandorf were bombed by small forces with satisfactory results.<sup>164</sup> Only the 1st Division ran into any opposition, and this was doubtless because of its deep penetration since the Luftwaffe now seldom concerned itself with operations over Belgium, Holland, and northwest France. Owing to the fact that a part of the Division got six minutes ahead of schedule



[REDACTED]  
and lost some of its escort, but was able to make a brief attack with some success. Twelve bombers were lost during the day, but at considerable cost to the enemy. American bomber and fighter claims were 69-7-9.<sup>165</sup>

The final mission of the month was largely devoted to marshalling yards and bridges. However, small units struck the airfields at Luxembourg, Liege, and Gilze-Rijen. A raid on the Mercedes factory at Duppuy had to be canceled because of weather. There were no claims or losses.<sup>166</sup>

While the Eighth was thus making history over the roofless Testament Europe, the Fifteenth was finishing up its attack on German fighter production in southern Germany. Unlike the Eighth, tactical considerations did not force the Fifteenth to concentrate on fighter airbases. Its early attacks had apparently been effective, for a comparison of the photo reconnaissance of 13 April with one of 29 May showed a great decline in aircraft on fields within the Budapest area. On the former date, there were 123 single-engine fighters, 26 Me-110's, and 101 Me-410's at Eudaors, Vecses, Matesfold, and Tokol. On 29 May there were present at these same fields (plus Leoshelet and 3-Gresfeher-var) 17 single-engine fighters, and 29 Me-110's and Me-410's. Of special importance was the fact that the 29 May reconnaissance showed no activity of any kind at the Tokol airfield and factory.<sup>167</sup>

On 29 <sup>May</sup> ~~April~~, the Fifteenth carried out a big operation which virtually gave the coup de grace to the Wiener Neustadt Werk I. This target was attacked by 104 Liberators dropping 219.75 tons with devastating effect. The photographs showed that the hangar and factory

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area were completely saturated with bursts. Many aircraft were destroyed or damaged on the ground and there was considerable blast damage. At least 10 direct hits were seen on the hangars. Another task force of 120 Liberators bombed the Itzgersdorf aircraft factory. It was the assessment of damage difficult, but three direct hits were located on the main factory buildings and the area between the main building and the factory road was blanketed with bursts. A third task force of 304 planes was dispatched to the rollersdorf airbase. This target was smothered by 740.35 tons of different types of explosives. Direct hits occurred on five hangars on the north side and six hangars on the south perimeter. Workshops, storage buildings, administration offices, and barracks were all covered with bursts. Oil fires and explosions were evident in several places. That this was a vital target was evident from the GAF reaction. Some 150 fighters attempted to intercept the bombers, and, failing this, concentrated on stragglers and bombers wounded by flak. Five bombers were shot down in the air battle and two more were missing; the enemy lost 18 planes in the air and 12 on the ground, according to the claims of the bomber and fighter crews. A total of 18 bombers failed to return to their bases from all these operations.<sup>168</sup>

This operation was so effective that it was believed possible completely to eliminate the remaining members of the Wiener Neustadt complex in one more operation. Four units were still suspected of performing important functions in Messerschmitt production: these were the Jels Airfield and Aircraft Factory, the Leudorf factory, the Gottendorf spinning mill, and the Eereichsdorf carpet factory.

[REDACTED]

[REDACTED]



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The [REDACTED] plant was formerly engaged in the repair of bombers, but it was believed that this had been suspended for some time; reconnaissance of 27 July showed 110 planes present of which a large number were He-109's and -110's. This further substantiated the belief that the plant was engaged in aircraft production or repair. It was known that Heudorf was engaged in the manufacture of aircraft components and it was believed that, specifically, these were wings and fuselages for Messerschmitt planes. Less was understood about the Rottendorf and Breichsdorf facilities, although the former had certainly received some of the Heiner Leustadt dispersed production. It was now thought that these functions were some of the metal-shaping work and fuselage subassembling formerly done in Werk II of the Heiner Leustadt plant. The Breichsdorf plant had been converted into a component plant for fighter aircraft, although it was not clear which components were being produced, but the plant was suitable for making small parts and carrying out the subassembly of fuselages. It was definitely considered an important unit.<sup>169</sup>

Consequently a combined day and night operation on a very large scale was organized by the Fifteenth Air Force against the dispersed component plants of the Heiner Leustadt complex, and a few other targets. The first phase began shortly after midnight on 30 July when 38 Wellingtons were dispatched to bomb the Marsbrunn Airbase at low altitude. The bombing was well concentrated with long strings across the field accompanied by explosions and fires.<sup>170</sup> A few hours after sunrise, the next phase began when 401 B-24's and 90 B-17's, accompanied by 137 B-3's and 95 P-51's, went out against the factories. [REDACTED]

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received 17.5 tons of G and 15 tons of incendiaries, and the entire  
 tar of was covered with bursts. Heavy smoke clouds prevented later  
 reconnoissances. Breichendorf was attacked by 67 Liberators, but un-  
 fortunately the bombs did not fall in the target area and the attack  
 must be counted a failure. Better luck occurred at Cottendorf. Here  
 54 B-24's accomplished an excellent coverage and practically all  
 buildings in the area received direct hits or near misses. At Potsdam  
 the bombing was not so accurate; although there were some hits on in-  
 stallations, most of the bombs missed the target. The four fire en-  
 gines were hit by 70 direct hits of the 550 lb bombs. Thirty tons  
 were dropped and the target area was well covered for 900 feet square of  
 one main zone. Many of the buildings received direct hits or near  
 misses from the main concentration of bombs; one large factory building  
 was struck seven times, and another twice.<sup>171</sup>

With the end of the war, the emphasis was shifted from military to  
 other targets. Although some felt that the destruction of the Luft-  
 waffe had not been completely carried out,<sup>172</sup> oil and transportation  
 seemed to have the top-ranking priority targets in the hands to  
 go to. As soon as the primary technique was established, intricate  
 tactical considerations were used still further to reduce the threat  
 to a lower position on the target's priorities, and the results on the  
 coast of Europe were less than similar effect on the Atlantic.

For the same reason both parallel forces established new records  
 in the bombing of the North Atlantic. On 14th April 1945 a force of 13,755 effective bombs  
 was dropped on the coast of the Atlantic. This was the  
 largest bombing in the history of the war. The results were similar to those  
 of the other attacks.

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On 11 April, the 11th Air Force was to engage the 17th in the  
revised plan. This was a definite in the aircraft loss out of  
effective sorties of 4.7 to 2.7. The losses were 3 of 3  
114-174 which, when added to the kills listed by the fighters, brought  
the number of German aircraft estimated destroyed in the night  
fighting up to 700 in six days.<sup>173</sup>

As usual, the 11th Air Force had had to put a variety of  
operations on its services during the day. The operations were divided into  
three major fields of activity: (1) operations in support of ground  
troops; (2) operations to immobilize the flow of supplies to the  
forces in the Westphalian region, and to curtail the flow of oil  
to Germany; and (3) operations to destroy the potential air striking  
power of the Luftwaffe. The operations were conducted in a  
manner which was to be a direct result of the success of the  
fighter attacks on the airfield installations.<sup>174</sup>

Effective to the sorties of 4 to 11,577 and the loss of 10  
10,200 tons. Of this figure, 2,100 tons fell on the ground aircraft re-  
duction, 1,000 tons on the ground air force. Losses were the  
lowest yet recorded. The losses, which were only 1.5 per cent of  
effective sorties. The total number of aircraft destroyed was  
173, which was 221 (222) less than the April total. However, this  
did not mean that the fighters had been less effective, but  
rather that the enemy offered less resistance to the fighter efforts.  
The number of air encounters with the enemy fell from 4,576 in April  
to 2,576 in May, and this accounted for the fewer number of German  
planes destroyed.<sup>175</sup>

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Nevertheless, the fact continues to describe these undoubtedly  
 tremendous losses. If no lander controlled the air, it could only  
 be a complete resistance with errors in navigation or whether  
 suitable a carrier out of base out of the protection of the fighter  
 screen, and the 9-die to be as if it could only be written in the pri-  
 mary function of the air force, but in spite of all this it est-  
 lished to exist. More than that, the production of German fighter  
 planes slowly crept up again after the devastation of February  
 1945, and the pure production of 10-107's and 11-190's was estimated  
 by the Air Ministry at 1945, the highest figure yet recorded for the  
 output of these fighters.<sup>170</sup> Did this mean that the Luftwaffe was a  
 complete or even partial failure? Under any circumstances, was it  
 possible to destroy the Luftwaffe? Perhaps these questions, funda-  
 mental though they be, cannot be answered positively at present.  
 However, the next and concluding chapter of this study will attempt  
 to summarize the latest information on the results of the attack on  
 the Luftwaffe, and the reader may, if he wishes, work out his own  
 answers to the questions.

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Chapter VII

CONCLUSION

Before any summing up of results can be attempted, the reader needs to recall certain problems connected with the writing of this study. One of the principal difficulties was not so much a lack of information as its variety and diversity. For example, statistical information on the bomb load, number of planes dispatched, number bombing, and number lost on each mission can be found in the unit histories, the tactical mission reports, the bomber command operational narratives, and in the files of the Office of Statistical Control, Headquarters, AAF. Quite often all these sources gave different sets of figures for the same operation. Furthermore, there was often disagreement as to the results of a particular bombing mission. Sometimes the overcast prevented any estimate whatsoever of the damage done; sometimes the photographs were poor because smoke or clouds got in between the lens and the target. When excellent photographs were available in quantity, the interpreters disagreed among themselves as to exactly what effect on production the destruction of a certain building would have.

Even less certainty exists in the case of German planes destroyed by our formations, on the ground or in air combat. That such claims might be made in perfectly good faith and yet be considerably exaggerated in the excitement and stress of battle was early recognized

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by the RAF, and great pains were taken to make the official reports as accurate as possible. Nevertheless, American commanders such as General Doolittle admitted the unreliability of such figures,<sup>1</sup> and the British frequently complained that our estimates of destroyed, probably destroyed, and damaged were much too high.<sup>2</sup>

Considerable variation also exists in the estimates of German plane production. Although the RAF frequently used the Air Ministry Estimates in its planning, it was believed that these were apt to be too conservative. However, when G-2 worked out its own estimates, G-2 disagreed with them. And lastly, the leaders of the German aircraft industry themselves were apparently uncertain as to the actual number of planes they produced. Although they seemed to agree on the number made during the peak month of 1944, there was not such unanimity on just what month this was. In view of these differences of opinion and information, the following attempt to summarize some of the results of the war against the Luftwaffe should be seen in its true and tentative aspect. These conclusions are only probabilities. They seem reasonable on the basis of the information available at the end of August 1945, but better knowledge of the facts may obviate any one of them at some future time.

With this preliminary caveat disposed of, it seems possible to begin, like Descartes, with one fundamental fact. The Luftwaffe was not destroyed. Apparently, in 1943, some of the leading American air authorities were still hopeful that this could be done, but by the spring of 1944 a new tone is evident. As pointed out in the previous chapter, one heard less of destroying the German fighter strength

[REDACTED]

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and more about containing it, or rendering it ineffective. One high-ranking officer said quite frankly that it was probably impossible to destroy it.<sup>3</sup>

Not only was the Luftwaffe able to survive, but, quantitatively at least, it increased. Although the attacks of 1943 did not cause the aircraft industry much damage, the raids of February 1944 apparently caused a drop in production that may have been felt for two and one-half months. Nevertheless, the enemy managed to survive this crisis by drawing heavily on reserves, stripping the training program of planes, reducing the training time to the lowest minimum of hours, and above all by ruthlessly carrying out dispersal plans already under way.<sup>4</sup> Terrific difficulties were encountered: "Moving the industry underground, using every available work shop, no matter how small, every garage to produce parts, replacement of workers, moving and housing the workers . . . [these] were but a few of our Cargantuan tasks."<sup>5</sup> In spite of all these difficulties, production began to increase and most German authorities are in agreement that at its peak it came close to 4,000 operational types in the fall of 1944.<sup>6</sup>

How was this possible in view of the tremendous weight of the AF attack on German production? The dispersal of factories, as indicated above, was undoubtedly a prime factor. But there were other considerations. If one can believe the Germans, it is possible that we erred in concentrating on the airframe assemblies. Goerlin believed that it would have been much more effective if we had bombed manufacturers of individual parts instead of the assemblies, and he cited the case of the A. S. 300 factory at Marienburg. This plant was largely

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destroyed in one highly successful raid; yet production of the A-1,90 was not really hindered since it could be quickly transferred elsewhere as long as the supply of important parts was not interfered with.<sup>7</sup> This evidence was corroborated by Dr. Carl Frydag, chief of the Airframe Industry, and Dr. Lind, president of the Focke-Wulf company.

Dr. Frydag maintained that the greatest damage in the February 1, 1944 attacks occurred only when machine tools were destroyed. The attack on Leipzig was much more effective than the aggressive destruction at Pocka because the machine shops at the latter plant were spared. On the other hand, one of the plants on the Rhine was considered extremely destructive because 50 per cent of the facilities for producing component parts were wiped out.<sup>8</sup> These conclusions were supported by Dr. Lind who felt that the core-engines would have been a more vulnerable objective than airplane assemblies. He said that he held this belief in the importance of the core-engine plants, but Hans Hoeserich, designer of the in-line planes for the Luftwaffe, has stated that it makes no difference which is attacked first. According to the Luftwaffe and core-engine plants were of equal importance.<sup>9</sup>

Almost all of the German air authorities interrogated by Americans during the weeks following the end of the war, seem to feel that the Luftwaffe (and incidentally the entire German machine) could have been wiped out much earlier if oil facilities had been the main target. Not only do the facts indicate this in the case, but according to Field Marshal Keitel, oil was one industry that could not disperse to escape tactics like the aircraft industry.<sup>10</sup> Likewise, transportation, when it is finally attacked by heavy forces in the





[REDACTED]

placed the demoralization of the German people and of the nation. "In this connection," he stated, "it would like to stress that the tremendous damage that was inflicted throughout Germany as a result of your air attacks was out of all proportion to the damage inflicted on armament production. There was always the possibility to disperse the production. Only the oil industry was beyond repair."<sup>14</sup>

If these comments by high-ranking military and civilian authorities in the Reich suggest that the Luftwaffe might have been eliminated more quickly and more thoroughly as a factor in the war, it would be well to remember that, as Mr. Fryling said, "after the war is done, everyone is clever." The proper selection of targets for strategic bombing was a matter that received the most intensive study by both British and American authorities, and doubtless the objectives attacked were chosen on the basis of the best information then available. Nor should it be assumed that the Anglo-American air offensive against the German air force was taken lightly in Berlin. As a matter of fact, it caused the most serious concern, and in the words of Major Neubert, an operations officer on the Staff General Staff in Italy, "had it not been that we were fighting a desperate, fanatically defensive war, our aircraft industry could have never overcome your bombings."<sup>15</sup>

When due allowance is made for the fact that production of German aircraft increased during the middle of 1944, it must also be remembered that these figures were considerably less than the goals the Germans had set for themselves. According to Dr. Park, B-190 production was set at 3,000 for August 1944, but by September (which many Germans considered the peak month) output had only reached 2,000 per month,<sup>16</sup>

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and it may have been considerably less.<sup>16</sup> Thus there is little doubt that the AIRBORNE offensive held down the expansion of the aircraft production to a minimum.

Another effect of the counter-air offensive was to create a serious pilot shortage in the Luftwaffe,<sup>17</sup> and this may explain why so few of the aircraft produced in 1944 became actually operational. Naturally, the training program was at once affected. Training of pilots, which had once been a four-year affair, was reduced to 14 air hours by 1944.<sup>18</sup> The growing number of poorly trained, inexperienced pilots also reacted against the increase of operational planes, and Dr. Rank estimated that 25 per cent of aircraft wastage was caused by crashes on landings and other accidents which could be attributed to pilot error.<sup>18</sup>

The complete failure of the Luftwaffe to stop the Allied landings on the Normandy beaches seems to have resulted from a combination of some of the factors discussed earlier in this chapter. According to the highest German sources,<sup>19</sup> the Cotentin peninsula and the west bay of the Seine had long been suspected as possible landing areas for a cross-Channel invasion; complete surprise does not seem to have been achieved. Furthermore, enough planes to have offered a stiff defense appear to have been available. Why, then, was the G.F. so completely helpless during the Normandy invasion?

For one thing, there was the shortage of experienced pilots just

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\*According to Dr. Kaether of the Focke-Wulf company, the average monthly production of the Fw-190 during 1944 was 1,000. During June, the maximum of 2,000 was achieved, but by September this had dropped back to 1,000. See LO 23447 in A-2 Library.

It is only fair to state that Dr. Rank believed the oil shortage played an important part in reducing the number of air hours required in training.


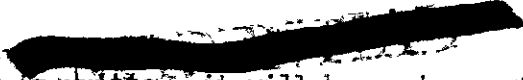
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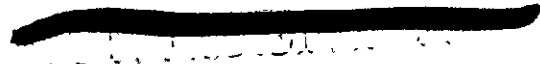
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referred to. ~~\_\_\_\_\_~~ transportation difficulties, usually associated with the movement of the ground troops, also caused trouble for the Luftwaffe. As the Allied tactical air forces successfully interdicted the battle area from its hinterland, it became almost impossible to move short-range fighters into the area where they could reinforce the already greatly outnumbered Staffeln. The intensive bombardment of German-held air bases in northwest France also contributed to the impotency of the German fighter strength by making it very difficult for the GAF to operate in the battle area itself since most of the bases were ruined. And above all, there was not enough fuel to keep a large fighter force constantly in the air.<sup>20</sup> Consequently, at the most critical moment of the war when the walls of Hitler's Festung Europa began to crack open, the vaunted German Air Force, the destroyer of Guernica, Warsaw, and Rotterdam, and Polish, Dutch, Russian, and French civilians beyond counting, was forced out of the air without a struggle.

For by the time the American and British soldiers were wading through the Norman surf and clambering up the beaches, victory over the Luftwaffe had already been won. The great air battles over Berlin, Schweinfurt, Aachen, Leustadt, and Regensburg were all important landmarks along the road. But perhaps the greatest achievements were made far from the battle lines. The development of the long-range fighter, the indisputable flying qualities of the P-51, the tremendous build-up in little more than two years of four air forces operating against Europe were victories against the Nazis as important and as far-reaching as those in the air. ~~\_\_\_\_\_~~ the final and complete history of the war

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 against the Luftwaffe. As written, it will be a story of the combined  
 skill of the pilot, bombardier, navigator, <sup>gunner,</sup> and ground crew united  
 with the technician, the scientist, and the engineer, for it was by  
 all of these that the German air force was defeated.







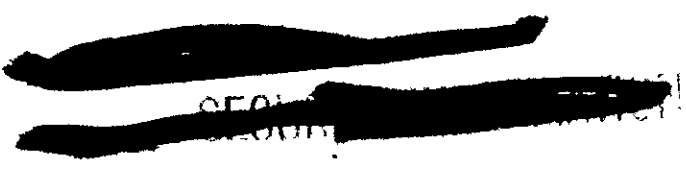


NOTES


Chapter I


1. As late as the end of 1942 a considerable number of bombers were being manufactured for the GAF. Air Staff estimates of production at the end of 1942 were 905 bombers, 720 fighters, and 233 service planes per month. Notes on G-2 (Air Group) Estimates in COA papers. Intelligence file.
2. The early Me-109 was fast, but weak in fire power and carried no armor. Later models corrected these defects.
3. Office of Strategic Services, Research and Analysis Branch (OSS, R&A) Report No. 1064, "Trends in German Single-Engine Fighter Production."
4. Interrogation of P/W Hermann Goering, in No. KO 13951. A-2 lib.
5. Heinrichs, "Achtung Indianer," 49-50.
6. Memo for AC/AS Intelligence from Colonel Stearly, 14 Jan 1943, Tab D. Intelligence file.
7. OSS, R&A Report No. 1064.
8. Ibid.
9. Ibid.
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12. Ibid.
13. Memo for AC/AS Intelligence, 14 Jan 1943; Heinrichs, 50.
14. OSS, R&A Report No. 1064.
15. It is estimated that by the summer of 1942, the GAF had concentrated 2,500 planes against the U. S. S. R. "Impact of American Air Power on the German War Machine." Intelligence file.
16. This initial action of the Eighth AF involved 12 B-17's.
17. OSS, R&A Report No. 1064.


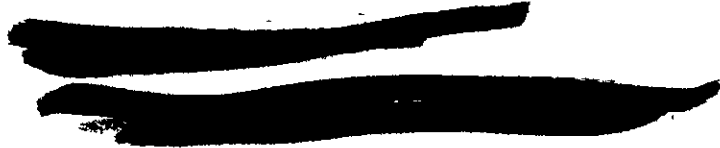
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  30. Notes on G-2 (Air Group) Estimates, 14 Jan. 1943, in COA papers.
  31. Memo to AC/AS, A-2, Estimate of the Situation (Enemy Air) as requested in basic memorandum dated 21 Dec 1942. Intelligence file.
  32. "The Attack on the GAF," April 1943. AFIHI files.
  33. Ibid.
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  35. Memo, CG VIII Bomber Command to CG 8th AF, 1 Nov 1942, Factors limiting Number of Missions. AFAEP files.
  36. Figures furnished by Statistical Control.
  37. AAFRH-2.
  38. Ibid.
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  41. Memo for C/S from Arnold, 9 Sep 1942, in AWPD/42.
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44. Ibid.
45. Arnold to AC/AS, Management Control, 9 Dec 1942, included in Report of Committee of Operations Analysts, submitted 8 March 1943.
46. Ibid.
47. See AAFRH-2 for a fuller discussion of this and other plans.
48. Report of COA, 8 March 1943. AFIHI files.
49. Ibid.
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51. CBO Plan, in AFIHI files.
52. Ibid.
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58. Ltr., Portal to Arnold, 15 April 1943, cited in CEO Plan.
59. Ibid.
60. "The Attack on the GAF."
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2. Hq VIII Bomber Command (BC) Narrative of Operations (N/O), Mission No. 50, 5 April 1943.
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4. 8th AF Tactical Mission Report (TMR), 17 April 1943.
5. Ibid.
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22. Summary, 8th AF Heavy Bomb Opns as called for in CBO Plan, July, 1st month of 2d phase, 1 Aug 1943. Intelligence file.
23. TMR, Mission No. 71. 

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24. Ibid., No. 72, 10 July 1943.
  25. Ibid., No. 73, 14 July 1943.
  26. CM-IN-11928 (17-4-43), Devers to Marshall and Eisenhower, #W 2029, 17 July 43.
  27. See T.R. for 17 and 25 July 1943.
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  29. TMR, Mission No. 78, 25 July 1943.
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  39. AAFRH-3.
  40. Ibid.; also Morgan, Maj. C. H., History of the Ninth Bomber Command in the Middle East, 3d installment.
  41. Ltrs., Spaatz to Arnold, 24 June 1943, Arnold to Spaatz, 14 Aug 1943. See also Chap. III, this study.
  42. Monthly German Aircraft Production, Air Ministry Estimates, in History, HIAAF, V.
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- 51. TMR, Mission No. 82, 15 Aug 1943.
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- 58. Ibid.; also British Air Ministry Estimates.
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- 66. Ibid.
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- 68. TMR, Mission No. 85, 19 Aug 1943.
- 69. TMR, Mission No. 86, 24 Aug 1943.
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- 71. TMR, Mission No. 88, 31 Aug 1943.
- 72. Air Ministry Estimates.

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- 73. [REDACTED] files.
- 74. [REDACTED] Air Force [REDACTED] files.
- 75. Ibid.
- 76. Historical summary of VIII [REDACTED] [REDACTED], U.S.A.
- 77. Report on [REDACTED].
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- 79. Ibid.
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- 81. Ibid.
- 82. Ibid.; [REDACTED] for Missions Nos. 84-90, 1-3 Dec 1943.
- 83. Report on [REDACTED].
- 84. VIII [REDACTED], Mission No. 92, 7 Dec 1943.
- 85. Report on [REDACTED].
- 86. Ibid.
- 87. VIII [REDACTED], Mission No. 94, 9 Dec 1943.
- 88. Report on [REDACTED].
- 89. Ibid.
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- 91. Ibid., Mission No. 97, 16 Dec 1943.
- 92. Ibid., Mission No. 100, 23 Dec 1943.
- 93. Ibid., Mission No. 103, 26 Dec 1943.
- 94. [REDACTED] files.
- 95. [REDACTED]-[REDACTED] (25-9-43), [REDACTED] [REDACTED], [REDACTED] 25 Dec 43.
- 96. [REDACTED]-[REDACTED] (26-9-43), [REDACTED] to [REDACTED], [REDACTED] 26 Dec 43.
- 97. [REDACTED]-[REDACTED], [REDACTED] to [REDACTED] [REDACTED] [REDACTED], [REDACTED] 1 Dec 43. [REDACTED] was correct for [REDACTED] production dropped from 435 to 350.

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100. CM-IN-3026 (5-10-43), Eaker to Arnold, #D 1276, 5 Oct 43.
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105. VIII BC N/O, Mission No. 113, 9 Oct 1943.
106. VIII BC N/O, Mission No. 113, 9 Oct 1943.
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114. CM-OUT-7052 (16-10-43), Stimson to Eaker, #A 3967, 16 Oct 43.
115. CM-OUT-6647 (15-10-43), Marshall to Eaker, #R 4442, 15 Oct 43.
116. AFMSC files.
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118. CM-OUT-6209 (14-10-43), Arnold to Eaker, #R 4389, 14 Oct 43.
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Chapter III

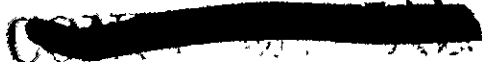
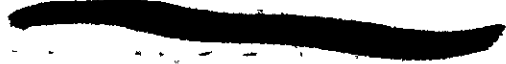

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4. CM-IN-12257 (17-7-43), Devers to Marshall, Arnold, #W 2055, 17 July 43.
5. Marshall to Eisenhower, cable #216A, 19 July 43.
6. CM-IN-14163 (20-7-43), Eisenhower to Marshall, #159, 20 July 43.
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8. CM-IN-21175 (29-7-43), Devers to Marshall, #W 2530, 29 July 43.
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14. CM-IN-3305 (5-8-43), Devers to Marshall, #W 2818, 5 Aug 43.
15. CM-IN-10280 (14-8-43), Devers to Arnold, Marshall, #W 3160, 14 Aug 43.
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17. CM-IN-14200, CINC to AGWAR, #W 7710/3224, 19 Aug 43.
18. McInnis, The War: Fourth Year, 342-43.
19. CM-IN-11726 (15-9-43), Eisenhower to AGWAR, #NAF 371, 15 Sep 43.
20. CM-OUT-7196 (15-9-43), JCC to Eisenhower, #R 3145, 15 Sep 43.
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- 24. CM-IN-18007 (25-9-43), Eisenhower to AGWAR, #578, 24 Sep 43.
- 25. CM-IN-8553 (14-5-43), Eaker to Arnold, #W 725, 14 June 43.
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- 29. CM-IN-7793 (13-10-43), Eaker to Arnold, #D 1357, 13 Oct 43.
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- 32. CM-OUT-6846 (16-10-43), Arnold to Eaker, #A 3957, 15 Oct 43.
- 33. AFMSC files.
- 34. CM-IN-1121 (2-10-43), Eaker to Arnold #W 5195/13, 2 Oct 43.
- 35. Ltr., Spaatz to Arnold, 24 May 1943.
- 36. CM-OUT-725 (2-6-43), Arnold to Devers, Eaker, #R 9124, 2 June 43.
- 37. CM-IN-3216 (6-6-43), Devers to Arnold, #W-472, 5 June 43.
- 38. Ibid.
- 39. CM-OUT-12058 (25-9-43), Arnold to Eaker, #R 3550, 25 Sep 43.
- 40. Notes by Chief of Air Staff, RAF, CCS #309, 15 Aug 43.
- 41. CM-IN-1945 (3-9-43), Arnold to Marshall, #W 3955, 3 Sep 43.
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  67. CM-IN-3264 (4-9-43), Arnold to Giles, #W 4044, 4 Sep 43.
  68. CM-IN-8967 (15-10-43), Eaker to Arnold, #D 1383, 15 Oct 43.
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- 71. CM-OUT-6559 (15-10-43), Arnold to Eaker, #A 3949, 15 Oct 43.
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- 73. Memo, by Brig. Gen. J. H. Atkinson, June 1943, Future Employment of Heavy Bombardment.
- 74. Memo for Arnold from Spaatz, 29 April 1942, cited in Heinrichs, 211.
- 75. CM-OUT-1388 (3-2-44), Arnold to Spaatz, #F 58, 2 Feb 44.
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- 79. Ibid.
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- 81. Report on trip to England by Maj. Edward Elliott, Jr., to AC/AS, MM&D, 21 June 1943.
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- 87. Memo for Arnold from Spaatz, 29 April 1942, in Heinrichs, 211.
- 88. Heinrichs, 214.
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98. Lepawski.
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103. Ltr., Arnold to Portal, 14 Oct 1943.
104. Ibid.
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106. Ltr., Portal to Arnold, 24 Oct 1943, in Opns. Ltrs., 312.11.
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109. Ibid.
110. Ibid.



  
Chapter IV

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2. Ibid. Since that study takes up the Ninth's operations in some detail, they will be treated briefly here and only as they apply to the Eighth's POINTBLANK missions.
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4. Ibid.
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7. Ltr., Arnold to Spaatz, 14 Aug 1943.
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10. Ibid.
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13. Martin, S/Sgt. George V., "Thoughts on the Formation of the 15th AF" Thoughts on 15th AF, in History, 15th AF.
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- 31. Ibid.
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- 36. CM-OUT-2424 (6-11-43), Arnold to Spaatz, # 1372, 5 Nov 43.
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- 38. Intops Sums. Nos. 109-111, 8-10 Nov 1943.
- 39. Ibid.
- 40. 15th AF monograph: Bombing of Athens/Eleusis Airfield.
- 41. Intops Sum. No. 116, 15 Nov 1943.
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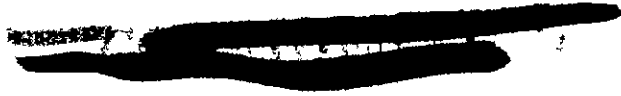
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The most important sources used in the preparation of this study were histories, tactical mission reports, and combat narratives from the theater; and cables, reports, and correspondence in War Department depositories.

In the former category, much useful information was obtained from the several volumes of the History of the Fifteenth Air Force, primarily a collection of selected and well-arranged supporting documents. Even more valuable was the History of the Mediterranean Allied Air Forces, a first-rate job of historical reporting extending to 53 volumes. Volume I is devoted to a narrative account, and the remaining volumes contain valuable documents of all kinds.

The operations of the Fifteenth were adequately described in various histories, in the Intelligence Operations Summaries (Intops Summaries) issued by MAAF, MASAF, and other headquarters, and in the tactical mission monographs published by the Fifteenth. These last were especially important in giving the background and significance of the more important missions.

Information on operations in the ETO can be found in the histories of Eighth Air Force Headquarters and subordinate units. There are also the tactical mission reports, and the bi-weekly summaries issued by General Eaker which terminate at the beginning of 1944. With the establishment of USSTAF, similar summaries were prepared by that

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headquarters for the record of operations.

The War Department cables to and from the various theaters are important, especially in dealing with questions of policy. Many of the most valuable cables were not found in the usual files, but had been removed to the office of the chief of the Message and Cable Branch. The Operations Letters classification in AAF Central Files, and the documents in the Office of AC/AS Plans frequently yield important correspondence; both collections were often consulted by the writer of this study.

In the preparation of the first chapter dealing with early German aircraft expansion and the first steps toward setting up the Combined Bomber Offensive, some significant papers were found in a dossier collected by Lt. Col. James T. Lowe, while with the Operational Division of AC/AS, Intelligence. Since this dossier does not properly belong to any particular archive, it is referred to in this study as Intelligence files. This reference should not be confused with the Intelligence Library. Most of the statistics cited herein come from the Office of Statistical Control, Headquarters AAF.

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G L O S S A R Y

A-2 Lib.	Intelligence Library
AFIH	Historical Division
AFMSC	Office of Statistical Control
ASC	Air Support Command
BMW	Bayrische Motoren Werke
Ca	Caproni
CBO	Combined Bomber Offensive
CCS	Combined Chiefs of Staff
COA	Committee of Operations Analysts
COP	Combined Operational Planning
DB	Daimler Benz
DO	Dornier
D/OPNS	Deputy for Operations (British)
FW	Focke-Wulf
GAF	German Air Force
He	Heinkel
Intops Sum.	Intelligence Operational Summaries
JCS	Joint Chiefs of Staff
Ju	Junkers
Ma	Macchi
MAAF	Mediterranean Allied Air Forces
MAP	Ministry of Aircraft Production (British)
Me	Messerschmitt
MHAG	Muhlenbau u. Industrie A. G.
NAAF	North African Air Forces
NATO	North Africa Theater of Operations
OPSUM	Operational Summaries
OSS	Office of Strategic Services
PEF	Pathfinder
P/W	Prisoner of war
Re	Reggiane
SE	Single engine
SI	Savoia-Marchetti
USSTAF )	
USSTAFB)	U. S. Strategic Air Forces in Europe
VFW	Vereinigte Flugzeug-Fabriken Werke

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