World War Two Studies Association

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Established in 1967 “to promote historical research in the period of World War II in all its aspects,” the World War Two Studies Association, whose original name was the American Committee on the History of the Second World War, is a private organization supported by the dues and donations of its members. It is affiliated with the American Historical Association, with the International Committee for the History of the Second World War, and with corresponding national committees in other countries, including Australia, Austria, Belgium, Canada, the Czech Republic, Finland, France, Germany, Hungary, Italy, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovenia, the United Kingdom, and the Vatican.

The Newsletter

The WWTSA issues a semiannual newsletter, which is assigned International Standard Serial Number [ISSN] 0885-5668 by the Library of Congress. Back issues of the Newsletter are available from Kansas State University Institute for Military History and 20th Century Studies, 221 Eisenhower Hall, Kansas State University, Manhattan, KS 66506-1002.

Please send information for the Newsletter to:

Mark Parillo
Department of History
Kansas State University
Eisenhower Hall
Manhattan, KS 66506-1002
Tel.: (785) 532-0374
Fax: (785) 532-7004
E-mail: parillo@ksu.edu

Annual Membership Dues

Membership is open to all who are interested in the era of the Second World War. Annual membership dues of $15.00 are payable at the beginning of each calendar year. Students with U.S. addresses may, if their circumstances require it, pay annual dues of $5.00 for up to six years. There is no surcharge for members abroad, but it is requested that dues be remitted directly to the secretary of the WWTSA (not through an agency or subscription service) in U.S. dollars. The Newsletter, which is mailed at bulk rates within the United States, will be sent by surface mail to foreign addresses unless special arrangements are made to cover the cost of airmail postage.
News and Notes

WWTSA Annual Business Meeting

The 2004 WWTSA annual business meeting will be held in conjunction with the annual meeting of the Society for Military History, to be held at the Hyatt Regency Bethesda, 20-23 May 2004. The time and place of the business meeting had not been scheduled at press time for the newsletter. The time and location of the meeting will be sent to members by separate mailing and will be posted on the WWTSA Web site.

WWTSA members may make hotel reservations at the SMH conference host hotel, the Hyatt Regency Bethesda (1 Bethesda Metro Center, Bethesda, MD 20814; 301-657-6411; fax 301-657-6478; Central reservation number: 1-800-233-1234; House reservation number: 301-657-1234; Ask for the Society for Military History group rate. The conference has reserved 85 rooms for Thursday, 20 May, and 150 rooms for Friday and Saturday, 21-22 May. The costs are $149.00/night for single and double occupancy, $174.00/night for triple occupancy, and $199.00/night for quadruple occupancy. One bedroom parlor suites are $400.00/night.

WWTSA Elections

Election of WWTSA Board of Directors members for the 2004-06 term will be conducted by ballot mailed separately from the newsletter.

WWTSA Annual Dues

The WWTSA annual membership fee comes due at the beginning of the calendar year. Members should include the enclosed renewal form with their dues payment.

WWTSA at the AHA

The WWTSA is jointly sponsoring a scholarly session at the American Historical Association annual meeting in Washington, D.C., on 8-11 January 2004. The session will be in the Senate Room of the Omni Shoreham Hotel (2500 Calvert Street, N.W.; 202-234-0700) from 11:30 a.m. to 1:00 p.m. on Sunday January 11th. Titled “Teaching Military History to Undergraduates: A Roundtable on Methods, Challenges, and Opportunities,” the participants will include:

Chair: Michael A. Ramsay, Kansas State University

Dale Clifford, University of North Florida, “The Integration of Military History into the Curriculum”

John Guilmartin, Ohio State University, “The Role of Military History in the Historical Discipline with Particular Regard to Undergraduate Education”

Patrice Olsen, Illinois State University, “Secrets, Spies, and Scandals: Approaches to the Teaching of Foreign Intelligence”

Comment: Lori Lyn Bogle, United States Naval Academy
Germany at War: A Review Essay

by

Donald S. Detwiler


These two recent volumes in the Modern War Studies series published under the general editorship of Theodore A. Wilson are important contributions to the literature on Germany in the Second World War. The first, a magisterial survey and evaluation of German military leadership during the Third Reich, is based on thorough knowledge of the literature and the most important primary sources, augmented by interviews with German General Staff officers who served during the war. The second is a detailed study of German anti-aircraft defenses from the beginning of the First World War to the end of the second, but concentrating on the latter, utilizing the available literature, yet going far beyond it on the basis of extensive research in German, British, and American archives and research centers, thereby making a valuable contribution to a relatively neglected aspect of the history of World War II.

1. Hitler's High Command

Geoffrey P. Megargee's readable monograph is an authoritative study of German military leadership in World War II, reviewing its origins and structure in historical context, analyzing its organizational development and mode of operation from Hitler's appointment as chancellor to the end of the war, and evaluating the roles, values, and ideas of the senior military leaders, their relationship to National Socialism, and their interaction with their Supreme Commander.

As the author points out in his preface, there has been, especially in the extensive popular literature, considerable myth-making regarding the German armed forces having been led to defeat by a fanatical dictator who repeatedly ignored professional military counsel--an interpretation reinforced by sometimes self-serving postwar memoirs. During the past quarter century, a more critical and sophisticated view has emerged among scholars and specialists, epitomized in the multi-volume official history of the war that began to appear in Germany in 1979 and in English translation in 1990.¹ But until now there has been no concise and accessible, yet thoroughly...
documented and intellectually even-handed overview of the vexed collaboration of the German military leadership and the Supreme Commander who in six years built up a war machine that in the first three years of World War II overran Europe from the Pyrenees to the Ukraine before being crushed, in three more years, by a global coalition forged in response to its aggression.

In his preface, Megargee writes that he offers "no radically new interpretation of the war as a whole. The primary value of the work lies in the fact that it draws together information that has been scattered throughout a large number of sources, many of them in German, up until now. My goal," he continues, "is to present the reader with the most up-to-date information and thus correct some of the myths and errors that have sprung up in the last fifty-odd years. The result is, I hope, a picture of the German high command that is both more accurate and subtly more complete than that which a reader could acquire by studying the sources individually, even if he or she had the time and expertise. The whole was more than the sum of the parts, and one must examine it accordingly. To the extent that I have done so in a form that the average educated person will find clear, readable, and informative, I have achieved my objective" (p. xvii).

He has achieved not only his objective with regard to Hitler's high command, but also provided a valuable contribution to the study of the Third Reich and Hitler's dictatorship in the context of modern German history. The opening chapter, "The Roots of the Command System," is a well-crafted sixteen-page essay on the Prussian-German General Staff tradition from the late eighteenth century to the end of the Weimar Republic, augmented by fifty-eight endnotes citing and, in many cases, evaluating the relevant literature both in English and in German, including monographs and important articles published in the past decade. The next two chapters, on the period from Hitler's accession to power to the eve of the war, trace the build-up of the German armed forces and the development of the complex command structure, in which the Armed Forces High Command (Oberkommando der Wehrmacht or OKW) was established as the headquarters staff of the Supreme Commander of the Armed Forces, without, initially, usurping the institutionalized role of the High Command of the Army (Oberkommando des Heeres or OKH) as the General Staff. In his treatment of the prewar period, with coverage of the military aspects of the annexation of Austria, the occupation of the Sudetenland, and the march to Prague, Megargee provides a brief but carefully nuanced account of the organizational and personnel decisions and manipulations whereby Hitler assured himself full control if not always enthusiastic loyalty of the senior leadership corps of the armed forces.

The fourth chapter, beginning with German planning in spring 1939 for the attack on Poland and concluding with the fall of France in June 1940, surveys the functioning of Hitler's command system during the first phase of the war, when Hitler demonstrated "that curious genius that marked his performance in the early years of the war: that of the inspired amateur" (p. 77). In terms of the history of the German high command, Megargee points out that Hitler's assignment to the OKW of planning and control of the German operation launched in April 1940 against Denmark and Norway, code-named Weser Exercise, marked "a significant new direction" in "the evolution of the command system . . . . For the first time, Hitler had given the OKW responsibility for operational planning, a responsibility that, until then, had been the General Staff's alone. Hitler justified this measure in several ways at the time. He claimed that Weser Exercise was too large an operation for the OKW to direct, since it would require the close
cooperation of all three armed services. He also said that the OKW was better suited to coordinate the operation with the Foreign Ministry. Finally, he stated that the OKH needed to concentrate on the upcoming invasion of France. However, as Megargee stresses, "the OKW was simply not equipped to be an operational headquarters . . . [and] had to call upon the OKH for help. The General Staff's Supply, Transportation, and Foreign Armies West Branches had to formulate large parts of the plan . . . " (p. 78).

In his treatment of the conclusion of the campaign in the West in May and June 1940, Megargee writes regarding the German halt before Dunkirk: "The German postwar accounts are nearly unanimous in blaming Hitler for the debacle, but the reality of the situation was more complex. Hitler did give the halt order on the twenty-fourth [of May], but he was, in part, reacting to Rundstedt's pessimism. The armored units had suffered severely from enemy action and the long advance, and some of Rundstedt's subordinates were pushing for a rest; the commanders in Army Group A [under Rundstedt] were apparently willing to leave the reduction of the Allied pocket to Army Group B. Göring had also boasted to Hitler that the Luftwaffe could finish off the Allies, and there is some thought that Hitler wanted to take some glory away from the army. Brauchitsch [the commander-in-chief of the army] and Halder [the chief of staff of the army] protested the halt strongly, and on May 25 Hitler gave Rundstedt the choice of whether or not to resume the advance, but Rundstedt held back for another day. By then the British had formed a more solid defensive line from which they held off the Germans while the bulk of their army escaped by sea. Halder's diary reveals that both he and Brauchitsch were fuming at the delay and its results, but there was nothing they could do."

In his fifth chapter, treating the year from the French capitulation in June 1940 to the attack on the Soviet Union a year later, Megargee, shows, in connection with his treatment of operational plans and their implementation, how, "by the middle of 1941, the OKW, rather than remaining a strategic planning organ, had begun to take on direct responsibility for more theaters itself, leaving the OKH eventually to control only a narrow operational zone in the east" (pp. 94-95). Since the invasion of Denmark and Norway, those countries had been under OKW control, and the OKW gradually became "the de facto operational headquarters for the west... Finland became an 'OKW theater' in March 1941...", and, on Hitler's initiative, the Balkans did also (p. 95). However, the airborne invasion of Crete in May 1941, code-named Operation Mercury, was a special case; because the airborne troops as well as the planes involved belonged to the Air Force, this operation was placed under control of the High Command of the Air Force (Oberkommando der Luftwaffe or OKL). "The result, due in part to the OKL's inexperience with land and naval warfare, was a Pyrrhic victory," Megargee writes; "Crete fell to the German assault, but the losses to the airborne forces were so high that Hitler refused to use them again until the war was nearly over" (p. 96). Particularly complex was the command situation in North Africa, where a German force was deployed early in 1941, nominally under Italian command, led by "Major General Erwin Rommel, a talented tactical leader but also an acerbic and independent officer with a large reserve of faith in his own abilities. Rommel lionized Hitler and knew he had the Führer's support. He also knew that his force was going to North Africa to prevent an Italian collapse. Under the circumstances, the extent to which he would cooperate with the Italians--or with anyone else, for that matter--was open to question. The OKH, which had appointed Rommel, tried to keep a tight rein on him. Rommel was not popular with the
senior army leadership. He was not a General Staff officer (he would become the only German field marshal in the Second World War who was not). His superiors also noted his popularity with Hitler and his willingness to use that popularity to avoid their instructions. ... At one point, Halder even sent his assistant chief of staff for operations, Major General Friedrich Paulus, to Africa, to 'head off this soldier gone stark mad.' Hitler never formally shifted control of the North African theater from the OKH to the OKW and the Italians retained nominal authority, but the OKW played an increasingly important role in directing operations there and "Rommel put the confusion to good use, sometimes ignoring orders with which he disagreed, or appealing to whatever headquarters he believed would support him. His operational successes and his firm rapport with Hitler strengthened his bid for independence from the Italians and the OKH" (p. 97).

In his sixth through eighth chapters, Megargee deals with the planning and preparations for the German attack on the Soviet Union, code-named *Operation Barbarossa*, and the course of the conflict through December 1941, when the Russians launched their stunning counter-attack before the gates of Moscow, the Japanese attacked American and British holdings in Asia and the Pacific, and Hitler declared war on the United States, and Hitler assumed direct, personal command of the army. Megargee begins this segment of his book by focusing on the deficiencies in German military intelligence, logistical, and personnel management systems. Under the subheading "Cultural Weaknesses and the Intelligence Input to *Barbarossa*," he writes: "The problem with German intelligence was not really structural but attitudinal; it did not have so much to do with the quantity, or even the quality, of the information available, but with the ability of the high command to evaluate and use that information correctly. Actually, the flaw in the German intelligence system breaks down into two components. One of these was a subtle but pervasive bias against the intelligence function itself, a bias that intelligence officers themselves unconsciously shared to some extent. The other component was a tendency to accept convenient preconceptions in place of hard facts, especially when the analysis left the realm of operations and moved into political, economic, and social issues. Neither of these tendencies was unique to the Wehrmacht, but within that organization they took on particularly insidious and disruptive forms" (p. 108). In the paragraph concluding Megargee's account of the gathering and utilization of intelligence in the planning of *Barbarossa*, he writes: "Clearly the upper echelons of the German military were not interested in information that did not match their plans and preconceptions. Michael Geyer's conclusion about Hitler can be broadened to include the senior military leaders: they did not gather information in order to make major decisions but only to plan the implementation of decisions they had already made" (p. 116).

Regarding logistics, Megargee writes that "the term *Logistik* did not come into general use until after 1945; before that time, everything in that sphere came under the rubrics *Nachschub* or *Versorgung*, both meaning 'supply,' a much narrower term," and explains that "the hierarchy within German staffs mirrored the dominant attitude: supply officers, like their counterparts in intelligence, were junior in rank and position to the operations officers. Their job was to support the operation however they could" (p. 123). Due to their miscalculation of the scope of the operational challenge they faced, the German military leaders grossly underestimated the logistical support that would be needed. Moreover, Megargee writes, their "illusions applied not just to logistics but also to manpower" (p. 124). In May 1941, the month before the attack on the Soviet Union, General Friedrich Fromm reported to Halder that he had 385,000 men available in
the Replacement Army, and that there were 90,000 in field replacement battalions. Considering that 275,000 casualties were predicted in the border battles and 200,000 more in September, the army could run out of replacements in October, unless the OKH called up the next class of conscripts early. However, Fromm advised against doing this and Halder accepted his recommendation, for both thought the campaign would be over before more troops were needed. Referring to the detailed treatment of this issue in the fourth volume of *Germany and the Second World War*, Megargee writes: "As Ernst Klink has noted, the problems in manning and equipping the army turned the leaders' assumption of a short campaign into an obligation. The Germans simply could not afford to allow serious reverses that would lead to a winter campaign; they made no preparations for such an eventuality before June 22, 1941, when the attack began. One can only add that, given the gaps in German intelligence regarding their opponent, the leaders' confidence becomes difficult to comprehend. The fact that the General Staff could generate such an exercise in wishful thinking is a damning indictment of their professional standards."5

In his treatment of the planning for *Barbarossa*, Megargee writes: "The army's deployment and attack orders... differed significantly from Hitler's intentions, but Halder glossed over this fact in his briefings. Apparently, he expected that his concept would win out, once the campaign was under way" (p. 132). In view of the dramatic success of the first phase of the campaign, the latent conflict over operational goals did not initially emerge. By mid-July 1941, however, there was a problem: even though "the German thrusts had stalled almost exactly where the precampaign planning had forecast,... preparations for the next phase progressed much more slowly than expected" (p. 133). Then, on 19 July 1941, Hitler "issued orders that redirected forces from Army Group Center to the north and south, essentially halting the drive on Moscow. For the next month various army generals... attempted to change Hitler's mind, but he remained adamant" (p. 134). When the march on Moscow was resumed in the fall, after the conquest of the Ukraine, it soon bogged down in mud and then, when the roads began to freeze early in November, making them passable once more, damage to vehicles and locomotives by the severe cold hampered resupply operations no less than the mud. On 27 November 1941 the chief supply officer of the army, Gen. Eduard "Wagner told Halder that the German army was 'at the end of our personnel and material strength...',' and the commanding general of Army Group Center, advancing on Moscow, Field Marshal Fedor von "Bock reported to Brauchitsch shortly thereafter that the expected Russian collapse was a myth, that he could not encircle Moscow, and that the time had come to decide what to do next. He stayed on the attack for the next few days, because he believed that was better than losing the initiative. But on the morning of December 4, with the temperature below zero degrees Fahrenheit, the Soviets launched a massive counteroffensive. Surprise was total; neither Bock's staff nor Foreign Armies East [the relevant intelligence branch of the OKH] had thought that the Russians possessed the forces to mount such an attack. By December 6 the Germans were struggling, not to advance, but to hold on to what they had."6 While the Germans were reeling from the shock of the Soviet attack, the Japanese attacked American and British holdings in Asia and the Pacific, and Hitler, four days later, declared war on America. About this, Megargee writes: "Historians have wondered at Hitler's hubris ever since, but in truth, as Gerhard Weinberg has pointed out, Hitler had believed for years that he would have to fight the United States eventually. His determination to do so had even helped to shape his policy decisions and plans after the fall of France. Hitler knew that his navy was too weak to power a war against the United States, but any plans he had for the invasion of America now became academic. For the moment he had no plans for the United States and he had no illusions as to what would happen if or when the United States entered the war."7
weak to take on the Americans directly—but with Japan on his side he would have an ally with a powerful fleet. Thus Germany's declaration of war represents neither a change in German policy nor a great risk from the point of view of the Wehrmacht's leaders. As subscribers to the 'stab in the back' myth, most of them did not believe that the United States had contributed much to Germany's defeat in the First World War, and so they easily dismissed the threat that America now posed. [The head of the German navy, Grand Admiral Erich] Raeder was positively eager for the fight, while the Army and the Luftwaffe paid hardly any attention at all. Halder, who still occasionally noted international events in his journal, had nothing to say on the subject of the German declaration. Whether because he was too wrapped up in the crisis in the east, or because he had completely given up on strategic thinking, he failed to comment on the event that all but sealed Germany's fate" (pp. 137-38).

The crisis on the eastern front triggered a change in the German high command. Brauchitsch's position as commanding general of the German Army had become increasingly difficult. "Any reverse, any perceived failure or hesitation," Megargee notes, "was enough to bring Hitler's wrath down upon his army commander in chief, who meanwhile also had to face Halder and his other subordinates. Brauchitsch frequently agreed with their assessments and intentions, but he was powerless to affect Hitler's opinions, and few below him were slow to notice that fact. . . . The strain told on him more and more as the campaign went on. On November 10 Halder recorded that Brauchitsch had suffered a severe heart attack the night before, but the commander in chief continued to work even from his hospital bed, and in less than three weeks he was back on duty. As the crisis on the eastern front developed, the pressure on Brauchitsch intensified. Halder noted his dilemma on December 7: 'The commander in chief is hardly even a messenger boy anymore. The Führer goes over his head to the army group commanders.' In the meantime, rumors of Brauchitsch's powerlessness were spreading in the headquarters. On December 15 Halder reported that Brauchitsch was 'very depressed and sees no way to save the army from its difficult situation.' . . . On December 19 Hitler relieved him at his own request. 'I'm going home,' Brauchitsch told [the chief of the OKW, Field Marshal Wilhelm] Keitel after meeting with the Führer; 'he has relieved me; I can't do any more'" (p. 138). Rather than appointing a successor to Brauchitsch, Hitler assumed personal command of the army, adding its operational control to his responsibilities as head of state and government and as commander in chief of the Armed Forces (the position he had assumed in 1938 when, rather than replacing Field Marshal Werner von Blomberg as minister of war, he had replaced the war ministry with the OKW and assumed personal command). For Hitler, Megargee writes, taking command of the army represented "the chance to blame the emerging debacle in the east on Brauchitsch and the OKH (and on the three army group commanders and other senior officers he would relieve during this period), while he could appear as the savior of the situation. The army's reaction is illuminating. In retrospect many officers would see this latest coup as the final death knell for the army's independence, but at the time no one expressed any such misgivings. On the contrary, this appeared to be the perfect solution to the army's problems. Even Halder did his best to accommodate himself to the new situation, in the hope that he could work with Hitler more successfully than Brauchitsch had." But he could not prevent the army losing power to the OKW and the National Socialist Party. "Inasmuch as the army had been a unified institution, separate from the OKW," Megargee writes, "it had possessed some limited ability to resist inroads into its authority. Now that changed. Hitler had no intention of overseeing all the administrative matters with which
Brauchitsch had occupied himself, so all the associated agencies that had been subordinate to the commander in chief of the army, such as the Replacement Army commander, the Army Personnel Office, and the Army Ordnance Office, went to Keitel to administer. In effect, the OKH had ceased to exist as a unified organization" (pp. 138-40).

Regarding responsibility for the December 1941 crisis on the eastern front, Megargee observes: "Debate rages to this day over the conduct of Barbarossa. The significance of the battle of Moscow and of Hitler's earlier decision to divert forces away from Army Group Center have received most of the attention. Some historians maintain that Germany had only to take the Soviet capital to knock Russia out of the war, and many of them blame Hitler for fatally weakening the central thrust just when victory appeared certain. Certainly, the army's leading generals felt the same way: at the time they argued against the diversion, and after the war they continued to maintain that Hitler made a fatal blunder that summer. There are several reasons that their argument is not convincing, but the most important is that the Soviets were showing no sign of the political collapse upon which the Germans were depending. If anything, reports of German barbarity in occupied Russia were strengthening resistance. The Soviet administrative apparatus behind the front was functioning, contrary to German expectations, and the Russians still had significant industrial assets beyond the Urals (as the Germans knew before they attacked). On the eve of the last German offensive against Moscow in November, the Soviets were already preparing a further line of defense far to the east. Desperate though this measure was, it indicates that they were not ready to give up. The Germans were by then at the end of their resources (as they had known they would be); in fact, any additional gains in the east would have only put them in a worse position. The Wehrmacht had depended upon operational success to overcome a strategic risk. Now the Germans' miscalculations had caught up with them. With the failure of Barbarossa and the entry of the United States into the war, only a miracle could stave off defeat" (pp. 140-41).

Megargee's ninth, tenth, and eleventh chapters focus on various factors from the beginning of 1942 to the end of the war, including the increasing influence of the National Socialist party and the competition for resources. As Hitler's high command prepared plans for a summer offensive in spring 1942, it had to take into account Germany's great losses since Barbarossa had been launched on 22 June 1941. Since the beginning of November alone some 900,000 men had been lost and only half that many had been available to replace them; only 20,000 horses had been found to replace over 180,000 lost; and in March 1942 the Luftwaffe had nearly six hundred fewer aircraft than in June 1941--and, in fact, forty fewer than when the war began in September 1939 (p. 174). In late March 1942, comprehensive intelligence estimates of Soviet material and personnel resources underestimated the Soviet manpower potential, but nonetheless "clearly showed that the USSR was nowhere near the end of its strength." However, "Hitler . . . made his attitude toward intelligence clear when, on March 17, he issued an order to the OKH, saying that all comprehensive evaluations of enemy plans and capabilities had to agree with his opinion before they went to subordinate commands. He was convinced that the Soviet Union had nearly exhausted its military capabilities" (pp. 174-76). A number of senior officers opposed an offensive, but it was launched on 28 June 1942 toward the Southeast. Initially the Germans advanced rapidly, suffering only light casualties, but also taking relatively few prisoners, for, unlike the previous year, when the Russians had stood in place and let themselves be surrounded,
they now withdrew, so that the Germans' tactical envelopments "closed mostly upon thin air. Nevertheless, Hitler believed that the Wehrmacht was winning a great victory. He decided to change the concept of the operation entirely; instead of sending all his forces to Stalingrad . . ., he would split them. . . . He ordered that Army Group A turn south into the Caucasus right away while only Army Group B continued on to the east." As the operation proceeded, Hitler involved himself in operational control; he "issued orders with growing frequency and in increasing detail. This was not a role for which Hitler was suited. His occasional bursts of inspiration during the first two years of the war were no replacement for real operational expertise, and as flawed as the General Staff's performance sometimes was, Hitler's was even worse" (p. 178). A passage from Halder's journal on 27 July 1942, quoted by Megargee, concludes: "The chronic underestimation of the enemy's capabilities is gradually taking on grotesque forms and is growing dangerous. It is becoming less and less bearable. One cannot speak of serious work any more. This so-called 'leadership' is characterized by pathological reaction to the impressions of the moment and a complete lack of judgment in assessing the command apparatus and its capabilities" (p. 178).

Under a subheading entitled "The Command Degenerates Further," Megargee recounts the crisis in Hitler's headquarters in September 1942 that led to Halder's dismissal. Hitler had pressed Field Marshal Wilhelm List, the commander of the army group advancing into the Caucasus "to push a spearhead through one particularly mountainous area, and List was resisting the idea because his forces would be too vulnerable and difficult to supply. Jodl finally flew out at List's request, reviewed the situation, and returned to report that he agreed with List completely. Hitler was infuriated. The exact nature of his complaint against Jodl is still somewhat in doubt; he may have believed that Jodl was blaming him for the campaign's weaknesses. In any case, his reaction was immediate, broad, and petty. He considered relieving not only Jodl but Keitel and [Jodl's deputy, General Walter] Warlimont as well. For months afterward he refused to shake Jodl's or Keitel's hand or have the two of them at his dinner table. He also insisted that two stenographers be present at every meeting and briefing from now on, so that his officers could not twist his words against him. On September 9, moreover, he had Keitel contact Halder to say that List ought to resign his post. List did so the next day. The Führer did not replace him, however; instead, he took over command of the army group himself, and kept that position until November 22. Now he occupied four levels in the hierarchy at the same time: head of state, commander in chief of the Armed Forces, commander in chief of the army, and commander of an army group that was operating roughly eight hundred miles from his headquarters" (pp. 179-80). Meanwhile, Hitler, who found Halder's increasingly urgent warnings about the overextended German front and the dangerous threat posed by Soviet operational reserves unbearable, dismissed the army chief of staff on 24 September, saying "that Halder's nerves were used up and also that his own nerves had suffered from their confrontations. Halder listened silently, then got up and left, saying only that he would announce his departure."

"Ironically, in dismissing Halder," Megargee continues, "Hitler got rid of one of his most fundamentally optimistic military leaders. Even at this late date, Halder was unable to grasp the seriousness of Germany's position. In a letter of September 21 to the commander of Army Group North, Field Marshal Georg von Kückler, Halder wrote, 'The numerical superiority of the Russians is a fact that we will continue to face . . . . It will be balanced out through the high value of the German soldier.' He expressed similar sentiments to [Foreign Ministry State Secretary
Ernst von Weizsäcker a week after his dismissal, although he also admitted that the threat from the west concerned him. Most incredibly, he maintained an unrealistic view even after Germany went down in defeat. Perhaps the most damning indictment comes from a letter he wrote six years after the war ended: 'The question [put by an American historian], of when the last war had to be seen as lost, makes no sense. A war is a political act and can be militarily hopeless for the longest time while it still offers political chances. Such chances can even come up unexpectedly, as the Seven Years' War [1756-63] proved. So the correct answer remains: a war is only lost when one gives up.' Here Halder applied eighteenth-century strategic principles to a modern mass war in exactly the way that Hitler himself did. Thus, despite his differences with Halder, the Führer could hardly have asked for a more like-minded chief of staff” (p. 181).

As Halder’s successor, Hitler chose Brigadier General Kurt Zeitzler, chief of staff to the commander in chief west, Rundstedt, promoting him two grades. Considered a National Socialist before arriving at Hitler’s headquarters, he used the greeting "Heil Hitler!" rather than the customary military salute and expected the same of his OKH colleagues. Under Zeitzler, in fall 1942, what Megargee refers to as "the final split between the OKW and the OKH" took place. "Up until this point, both staffs had kept themselves informed of broad developments in the war. A section of the General Staff’s Operations Branch had devoted itself solely to monitoring events in the OKW theaters, and Halder had also received reports personally from officers whose duties gave them insights into those areas. In addition, Hitler had been issuing his operational orders for the east through the Armed Forces Command Staff to the Army General Staff, which then modified them and sent them on to the army groups. After Zeitzler took over, however, Hitler only used the Command Staff to issue orders that applied to OKW theaters or—in increasingly rare cases—to the war as a whole, while he sent his orders for the east directly to the army group headquarters, using the General Staff as the issuing agency. From this point forward, no single organization could pretend to control the army on all fronts. The divide in the high command was complete..."

In October 1942, Zeitzler requested that Hitler transfer forces from the west to the east, but, Megargee writes, "developments in Africa as well as Hitler’s concerns about the west made such transfers increasingly unlikely.... After the Allies landed in Algeria and Morocco, Hitler ordered the occupation of the remainder of France and then decided to reinforce his army in Africa; by the end of the year he would send fifty thousand German and eighteen thousand Italian troops there, with significant amounts of equipment and air support.... From this point forward two factors would dominate the Germans’ war effort: an inexorable strategic squeeze as their enemies gained strength, and conflict within their own command apparatus. The relative importance of these two factors to the overall situation is something that must remain in the foreground. Barring some absolute miracle, the Germans could no longer win the war. From that standpoint, then, the command apparatus was completely irrelevant. No matter how well or poorly organized it was, it could not change the situation in any fundamental sense. Its organizational evolution and performance during the remainder of the war remain of interest, however, for two reasons. First, they provide a window into the National Socialist state; an examination of the high command will reveal the growing power of the Nazi Party. And second, the performance of the high command, although it could not affect the basic outcome of the war, is an essential element in explaining the war’s nature and length after 1942."
In 1943, Megargee writes, "the relationship between Zeitzler and Jodl ... reached a new low as they competed ... for every new asset that became available or any existing unit that one headquarters wanted from another. New units, replacements, tanks, ammunition, and fuel were the objects of heated disputes. A single trainload of supplies might spark an argument that would continue, off and on, for days. The subordinate staffs became involved as well, especially those such as the General Quartermaster, which had to try to meet the conflicting demands of two sets of superiors. In nearly every case Hitler finally had to make the decision, since he was the only one at the top of the command structure, the only one with authority over each of the competing agencies. Since everyone recognized that fact, they came to him first when they could, and he tended to side with whomever had offered the latest proposal. The conflicts became so serious that, on September 11, he had to issue an order regulating his conferences with Jodl and Zeitzler. From then on, both men had to be present whenever one of them wanted to discuss any measure that would affect the other's strength. On a more personal level, [Hitler's Wehrmacht adjutant, Gen. Rudolf] Schmundt offered to mediate between the two men, so acrimonious had their correspondence become, but Zeitzler rejected the idea" (pp. 200-201).

By mid-summer 1944, the successful Allied landings in Normandy in the west, the destruction of Army Group Center in the east, and the escalating bombardment of Germany from the air brought the conflict to "the point at which, all hindsight aside, anyone with knowledge of the situation and a modicum of intelligence would have been able to see that Germany had lost the war." But following the attempt on Hitler's life on 20 July 1944, Megargee writes, his "confidence was stronger than ever ... because Providence had spared him, seemingly, from certain death, saving him to complete his task. At the same time, the events of that day ... sent the high command into its final chaotic decline." 11

Shortly before the assassination attempt, Zeitzler had argued with Hitler and offered his resignation, and, when it was refused, reported sick. The day after the attack, Hitler entrusted General Heinz Guderian, the Inspector General of Armored Troops, with the duties of chief of staff of the army, without appointing him to the post. Guderian, "who had been unstinting in his criticism of Zeitzler and whose actions on July 20 indicated that he was not part of the conspiracy," served in that capacity until late March 1945. 12 Regarding Guderian's role at the time and his postwar account of it, Megargee points out that he "presented himself after the war as a military genius and a staunch opponent of Hitler; he was perhaps the most successful of the Wehrmacht's former leaders at creating an anti-Nazi image for himself. . . . There is barely a hint in any of his writings that Guderian might ever have been attracted to Nazism, while he implies again and again that he could have saved Germany if only Hitler and the OKW had listened to him. In fact the new chief of the General Staff was one of the Führer's most ardent admirers, even if the two did not always agree on military matters. Furthermore, Guderian shared the same strategic myopia, the same callous determination to fight to the last, as the other members of the high command" (p. 213).

Immediately after the assassination attempt, Hitler named the head of the SS, Heinrich Himmler, commander of the Replacement Army, which had been the principal base for the conspiracy, and in October, Hitler decreed the establishment of the Volkssturm, or Home Guard, who were to be organized, trained, and employed by the SS. The Home Guard "never amounted to an effective fighting force," notes Megargee; "in fact, it achieved little except to bring an awful death to
thousands of boys and old men. For Himmler, however, it was another military organization under his control, one that he could add to the Waffen-SS, which by the end of 1944 would reach a strength of 590,000 men, in twenty-four divisions plus special units, twelve corps headquarters, and an army headquarters" (p. 221).

Regarding the preparations for the Ardennes offensive (the Battle of the Bulge) at the end of 1944, Megargee points out that Hitler involved only Keitel, Jodl, and a small group of other officers in the planning, keeping the preliminary planning for the projected counteroffensive secret even from the chiefs of staff of Field Marshal Rundstedt, commander in chief west, and Field Marshall Walter Model, commander in chief of Army Group B, until 22 October 1944. Once fully informed, "neither Rundstedt nor Model believed that Hitler's plan would work, but they could not depart from it, despite repeated requests," writes Megargee, adding that "the contrast with the planning processes for the offensives of 1939 to 1941 was marked" (p. 218).

On the eve of the final collapse, on 24 April 1945, Megargee reports, "Hitler finally unified the command: he gave overall control of operations to the OKW and placed the General Staff's Command Group officially under Jodl's control. As [General Adolf] Heusinger said later, in the last fourteen days of the war, the Germans had the perfect high command organization." However, as Megargee continues, "when Hitler issued that last order regarding the command structure, Russian artillery shells were already bursting in the Chancellery courtyard above his head" (pp. 228-29). Only when the Wehrmacht had been shattered was he prepared to relinquish even nominal operational control to a single officer. Until then, at the cost of efficiency, he had been determined to exercise personal control. The extent of his success in this would not have been possible without the dedicated cooperation and collaboration of the overwhelming majority of the senior members of the German officer corps. Readers of Megargee's illuminating study of their role and their interaction with their Supreme Commander will, I think, generally agree with the conclusion of his final assessment: "Although Hitler does remain central to the story of the German high command, we can now place him in the proper context, at the center of a flawed system that supported him almost unconditionally" (p. 236).

2. German Flak

In Flak: German Anti-aircraft Defenses 1914-1945, Edward B. Westermann draws on relevant monographic, periodical, and governmental publications, but his study, largely based on extensive archival research in America, Britain, and Germany, is an original, important and welcome contribution to the literature on a relatively neglected aspect of the history of World War II and of twentieth-century military aviation and warfare. The work, as he puts it, "examines the organization and operations of German ground-based air defenses in the period between 1914 and 1945." In preparing it, he found that "discussion of the Luftwaffe's fighter forces and the development of strategic bombardment was necessary to place the Luftwaffe's earthbound efforts in context" (p. 6). He has done so, in meticulously documented detail, with the consequence that his book provides a wealth of information and valuable insight on the Anglo-American bombing campaign, on the use of German anti-aircraft artillery in land combat, and on the impact of the air war on the German home front.13
In his introductory essay and first three chapters, Westermann recounts the emergence of German ground-based air defenses during World War I, the development of air defense theory from the end of the war to the early thirties, and the establishment of a ground-based air defense force by the Third Reich by the beginning of World War II (pp. 1-78, with endnotes, explanatory as well as documentary, on pp. 303-322). Treating his subject in the historical context of the quarter century from the eve of the First World War to the eve of the Second, Westermann provides information and insight on an aspect of German military development that will interest not just specialists in aviation, but historians of twentieth-century Germany and Europe as well. As a contribution to the history of the Second World War, this volume brings out in great detail the scale of the German commitment to the air defense, enabling the reader to see that, in terms of the resources it commanded, the defensive air war was a major front, employing personnel, ordnance, and ammunition that, if available for deployment on the Eastern front or against the Western Allies, could have changed the course of the war.

Under the aggressive leadership of Hermann Göring, who was initially appointed to Hitler's cabinet as a minister without portfolio, but within three months became Minister of Aviation and less than two years later Commander-in-Chief of the newly established German Air Force, ground-based German air defense forces were not developed by the German Army, but as an integral part of the new Luftwaffe. "Göring followed Hitler's lead," Westermann writes, "concerning the air defense of the Third Reich by emphasizing flak, searchlights, and sound detectors as the first line of protection against aerial attack. He, like Hitler, believed that ground-based anti-aircraft defenses could create a formidable barrier around important urban and industrial centers, as well as along the borders of the Third Reich." But Westermann adds: "One must be careful... to not overdraw this point. Clearly both men placed great store in flak forces; however, it is highly unlikely that a Luftwaffe run by a close circle of fighter pilots like Göring, Helmuth Felmy, Ernst Udet, Karl Bodenschatz et al. would completely neglect the necessary role of fighters in air defense, and indeed they did not" (p. 57). How and why they did not is one of the central themes of this study; Westermann explains in detail the coordination of the German ground-based air defense forces with the airborne fighter forces, enabling them to achieve, in coordination, a level of effectiveness that did not succeed in preventing the bombing of Germany and German-occupied Europe, but certainly made the bombing campaign extremely costly and severely handicapped and constrained it until very late in the war.

In June 1938, Göring's deputy, General Erhard Milch, State Secretary in the Ministry of Aviation and Inspector General of the Luftwaffe, ordered the establishment of Air Defense Zone, West [Luftverteidigungszone-West], an aerial barrier of flak guns, searchlights, and sound detectors integrated with the army's West Wall fortifications, augmented by fighters, to engage attacking aircraft "as they attempted to penetrate German airspace and once again as they attempted to leave"; by fall 1939, 245 anti-aircraft artillery sites had been completed, providing for 788 heavy (88-mm or 105-mm) flak guns and 576 light (20-mm or 37-mm) guns (pp. 79-80). Westermann notes that, after the war, the former inspector of flak artillery, General Walther von Axthelm, observed that the Air Defense Zone, West, had not met expectations, but that this judgment "was somewhat misleading, as the Air Defense Zone must be seen in the context of the times. For example, British doctrine throughout the 1930s called for the daylight bombing of targets from approximately 10,000 feet; from this altitude, the flak forces of the ADZ would have been highly effective in either engaging these aircraft or forcing them to higher altitudes. The RAF simply..."
chose to ignore the danger posed by anti-aircraft fire at an altitude of 10,000 feet and relied on the speed of the aircraft to get it through the flak zone quickly. Ironically, this was an assumption shared by the U.S. Army Air Corps ... [at that time]. If some within the RAF and the Army Air Corps underestimated the effect of flak, it is equally true that both Hitler and Göring overestimated the effectiveness of flak in the years prior to the war. However, they had taken substantive measures in creating the most modern ground-based air defense force in the world" (p. 81). The effectiveness of the German defense system was dramatically demonstrated in the response to RAF daytime attacks during the early months of the war, culminating on 18 December 1939: "German radar identified the force [of twenty-four bombers] and alerted fighter and ground-based air defense units. German flak guns forced the bombers to 13,000 feet and loosened the formation, allowing fighters to press home their attacks. The RAF lost twelve bombers on this raid . . . ." The unacceptable cost of these raids "shook the RAF's faith in daylight raids by large bomber formations" and led British air planners to draw the lesson "that fighters were superior to bombers in daylight operations." During the next few months, "the RAF bombing campaign was extraordinarily limited."15 But on 15 May 1940, "the War Cabinet authorised Bomber Command to extend its operations ... to the heart of Germany. That night, ninety-nine aircraft of Bomber Command were despatched to attack oil and railway targets in the Ruhr," and with that, wrote one of the leading British historians of the air war, Noble Frankland, "the strategic air offensive against Germany had begun."16

The German air defense forces were not heavily engaged in defending the homeland during the first months of the war, but they did have an important role to play in the protection of German Army units engaged in combat on the ground. "The transfer of the air defense forces to Luftwaffe control in April 1935 had . . . shifted the responsibility for this mission from organic army assets within the Wehrmacht to the air defense units of the air force. During operations against Poland [in 1939], the Luftwaffe attached anti-aircraft forces to each of the numbered German armies (AOK), the highest organizational echelon of the German army," Westermann writes, noting that on several occasions during the Polish campaign, flak forces participated in direct ground actions; and during the campaign in the West, the Luftwaffe deployed twenty-four mixed flak battalions and eleven light flak battalions, which accounted for "the destruction of 503 aircraft, 152 tanks, 151 bunkers, thirteen forts, and over twenty warships and naval transports" and "played a key role in assisting the army in breaking the French positions along the Maginot line." Early in July 1940, Hitler praised the performance of the flak in the Battle of France, "especially in the destruction of bunker fortifications," but he "prohibited the official publication of these results until the end of the war to prevent Germany's enemies from taking countermeasures." By the end of 1941, two Luftwaffe flak battalions of the Africa Corps had destroyed, in addition to 42 aircraft, 264 tanks, and thirty Luftwaffe mixed flak battalions and eleven light flak battalions were credited with 1,891 aircraft, 926 tanks, and 583 bunkers in the Soviet Union.17

Westermann writes that "one of the greatest successes achieved by the ground-based air defenses in the early stage of the war was the construction of numerous dummy installations (Scheinanlagen) throughout the Reich." In the vicinity of existing industrial sites, the Luftwaffe "constructed replica buildings, factory facilities, railway stations, and even streetcar lines, including devices to simulate the electric sparks generated in the overhead lines by the passage of a streetcar. They also placed flak guns and searchlights around the targets. . . . The flak guns
came to firing and searchlights scanned the skies upon the approach of British aircraft. . . ."

To cite but two of the cases considered by Westermann, "in Augsburg, on the night of November 6 [1940], the fake sites alone received 33 percent of the high-explosive bombs and 70 percent of the incendiaries dropped by the RAF bombers. Similarly, in Stuttgart on the night of November 8 [1940], the numbers were almost reversed, with 65 percent of the high-explosive bombs and 38 percent of the incendiaries hitting the dummy installations." Westermann points out that the phony sites "required few resources and very little effort to maintain" and that they "offered an excellent live fire training ground for inexperienced gun and searchlight crews, as well as recently mobilized reservists." 18

At the beginning of the war, the Germans had eight radar installations in operation along the northern coasts capable of identifying approaching planes at distances up to eighty miles. These were useful in warning of impending attacks, but did not provide altitude information and were not precise enough to be used in directing anti-aircraft fire. During the following year, Telefunken developed what was known as the Würzburg gun-laying radar system, which came into service in August 1940. Gradual improvements made the system increasingly effective for aircraft targeting at night and when daytime visibility was reduced by cloud cover, and a model introduced in December 1941 remained "the standard flak control radar through the end of the war" (p. 96).

In the course of 1941, the increasing use of gun-laying radar to direct flak, coordinated at night with searchlights and the deployment of night fighters (that began to carry aerial intercept radar in August 1941) led to increasing success against the British bombing attacks. "In the last six months of the year, flak forces in the Reich and in the west brought down 405 aircraft during the day and an additional 242 at night for a total of 647 aircraft destroyed" (p. 133). In mid-1941, meanwhile, the British changed their bombing strategy as a consequence of "a devastating evaluation of the results of some 100 RAF bombing raids conducted between June 2 and July 25. After examining poststrike photographs of the targets, the report concluded that no more than one crew in five of all aircraft dispatched had dropped their bombs within five miles of the correct target. Furthermore, the flight crews had obtained even worse results in the heavily built-up and smog-filled Ruhr, where only one in ten bombers placed its bomb load within five miles of the target. 19 In addition to being concerned about the problem of accuracy, the British were increasingly worried about the growing effectiveness of German ground-based air defenses, and seriously considered, in the fall of 1941, the employment of the new radar countermeasure code-named "Window," which used bundles of aluminum strips (chaff) to disrupt radar by causing a cloud of returns, preventing the targeting of individual aircraft by gun-laying radar. However, as Air Marshal Sir Charles Portal explained to the head of RAF Bomber Command in his letter of 30 September 1941, the influential scientific adviser Sir Henry Tizard had misgivings that the utilization of this countermeasure "would help the enemy beat our own defences." Consequently the use of chaff was deferred for almost two years, until the summer of 1943. 20

As the year 1941 drew to a close, German air defenses were exacting a relatively high toll of attacking British aircraft. Following the loss of 37 bombers in raids on the night of 7 November against Berlin, Mannheim, and targets in the Ruhr, a total of fourteen percent of the attacking force, Bomber Command ordered that raids be limited to coastal areas, with occasional incursions into the Ruhr. Apart from "numerous nuisance raids by [high-flying, very fast]
Mosquito bombers, it would be fourteen months before a large Allied bomber force again would be seen in the skies over Berlin. Despite the restrictions on deep penetration missions, the RAF lost a further 141 aircraft in the last six weeks of the year [1941] in attacks on Hamburg, Kiel, Emden, and Essen ...." But the achievements of the German air defense program did not come cheaply. "The percentage of total funding from the entire armed forces weapons budget devoted to the flak arm rose continually throughout 1941, from 15 percent in the first quarter, to 17 percent in the second quarter, 19 percent in the third quarter, and finally 24 percent in the fourth quarter"21—this at a time when the German armed forces were engaged in the largest land operation in their history, the invasion of the Soviet Union.

The limited success of British bombing and the losses incurred in RAF attacks on Germany late in 1941 led to the shift from precision bombing of specific targets to area bombing, aiming "for 'built-areas' within German cities instead of specific targets, the goal being to strike at 'the morale of the enemy civil populations and, in particular, of the industrial workers."22 This new approach was implemented under the leadership of Air Marshal Sir Arthur Harris, who became head of Bomber Command in February 1942, at a time when an increasing number of long-range, four-motor bombers were coming into service. On the night of 28 March 1942, as a "test case for the emergent strategy of area bombardment ...," Harris sent 234 aircraft of Bomber Command against Lübeck, an easily distinguishable target because of its location as a port city on the Baltic coast.23 The lead planes, flown by specially selected crews, were "ordered to illuminate the target with flares and, as far as possible, to set it on fire with incendiaries. This was intended to make it conspicuous to the main force following up with, for the most part, less experienced crews .... Most of these too carried maximum incendiary loads ..., exploiting the self-destructive capacity of the target, that is its inflammability, instead of trying to knock it down piece by piece .... Photographic reconnaissance, carried out ... on 12th April, showed that nearly half of the entire city ... had been devastated."24 The attack on Lübeck, though considered operationally successful, had cost the RAF thirteen bombers, some 5.5% of the attacking force, "a rate that, according to Harris, if continued over time, threatened to prevent the expansion of Bomber Command or at least keep its offensive from reaching its fullest intensity." However, the fact that the losses over Lübeck and in later attacks on the Baltic port of Rostock were not higher indicated that "a large bomber force of several hundred aircraft could saturate German defenses over a lightly defended target," leading Harris "to test his theory concerning bomber concentration on a major urban area in a massive nighttime raid." This was done on the night of 30 May 1942 in a thousand-bomber raid, code-named Millennium, against the city of Cologne. "To assemble a thousand planes, Harris had to gather crews and aircraft not only from Bomber Command but also from operational training units and aircraft conversion units. Initially, Bomber Command chose Hamburg as the primary target, but poor weather in the north of Germany sealed the fate of the alternate target, the city of Cologne .... On the night of May 30, thousands of seasoned operational crew members and a lesser number of inexperienced student trainees clambered aboard a diverse array of RAF bombers with instructions to strike Cologne. Over 900 aircraft reached the target and released their loads of high explosives and incendiaries with devastating effect."25 The fact that the Cologne raid cost the RAF no more than 41 aircraft, a loss rate of some four percent, was seen as bearing out Harris' theory that German air defenses could be swamped by concentrated attacks by large numbers of bombers against individual targets.26 Following this raid, the German night fighter force was substantially strengthened: from 154 aircraft in January 1942 to 362 in December; and after mid-1942 its interceptors were
increasingly equipped with onboard radar.  

In order to increase the volume and accuracy of firepower of its anti-aircraft artillery, the Luftwaffe in spring 1942 began creating "superbatteries" (Grossbatterien) that linked three batteries of four flak guns each to a centrally located fire director with improved Würzburg gun-laying radar. The three guns of the superbattery formed the corners of an equilateral triangle, with the radar and fire director in the center. The superbatteries were "vulnerable to attack and disruption due to the centralization of the fire direction function and the thousands of yards of cable and wiring needed to provide the gun batteries with firing solutions," but they had the advantage that they required fewer technically qualified personnel. This was a critically important consideration by 1942, because of the very heavy losses suffered on the Eastern Front. To release personnel for duty there, the Luftwaffe in 1942 began organizing Home Guard flak batteries to protect individual factories and augment the defenses of various cities. Usually equipped with a diverse mix of older German flak weapons and captured enemy flak guns and equipment, they were often manned by industrial workers, who, after work, would train at the flak batteries and be on alert in case of an RAF night attack. By the end of 1942, over 200 heavy flak batteries and 300 light flak batteries were manned by approximately 100,000 Home Guard members. Westermann points out that while the creation of these units "demonstrated the increasing manpower strains being felt throughout the Wehrmacht by the summer of 1942 ..., the fact that sufficient weapons and munitions existed to arm over 500 heavy and light batteries, even if for the most part with captured weapons stores, highlighted the available stockpiles still present within the war economy by mid-1942." The steadily worsening personnel shortage led, by the end of 1942, to the mobilization not only of young German women in the flak force, but also prisoners of war. "With the promise of better rations, pay, and cigarettes, the Luftwaffe enticed Russian enlisted men for the physically demanding positions associated with hauling ammunition and loading the heavy flak guns."  

Although unequivocally committed to area bombing by night rather than precision bombing by day, the American approach, RAF's Bomber Command did conduct one daylight raid into Germany in mid-April 1942. "In an attempt to show that RAF bombers could best assist in the Battle of the Atlantic in attacks on targets within Germany instead of raids aimed at port facilities, Harris ordered an attack on the submarine engine assembly plant in ... Augsburg. On April 17, 12 Lancasters took off on a low-level flight of over 1,000 miles. Luftwaffe fighters brought down 4 ... over France, while flak defenses in Augsburg tallied 3 more bombers and damaged the 5 remaining Lancasters. The bomber force had suffered a catastrophic 58 percent loss rate on the mission. In the words of one British historian, 'The main lesson of the raid ... was in any case clear. Lancasters in 1942 could no more brave the skies of Germany in daylight without crippling losses than could Blenheims or Wellingtons in 1939 and 1940.'  

The first American bombing mission, on 4 July 1942, was by "a joint Anglo-American force of six Boston light bombers each against aerodromes in Holland. Of the six aircraft with American crews, only two actually hit their targets, while German flak defenses brought down two bombers and severely damaged a third. In addition, the British force lost one aircraft to flak." Thereafter USAAF "medium bombers were ordered to higher altitudes." In the second raid, on 17 August, twelve B-17 bombers escorted by RAF fighters "attacked the railroad marshaling yards at Rouen (France) from an altitude of 23,000 feet ... and the bomber force experienced no
losses." During the next two months, the Eighth Air Force (which, unlike the British Bomber Command, was committed to conducting precision-bombing raids by daylight) carried out over a dozen "missions against targets mostly in France. The largest effort included a raid of 108 bombers against industrial targets in the French city of Lille. Despite heavy fighter escort, only 69 bombers succeeded in reaching the target." Three B-17s and one B-24 were lost and another 46 bombers damaged, and "accuracy proved disappointing, with only 9 of 588 high-explosive bombs falling within 1,500 feet of the aiming point." Because of poor weather in Europe, the need to support Allied landings in North Africa (resulting in the diversion of Eighth Air Force aircraft to the Twelfth Air Force), and attacks on German submarine pens on the French coast to reduce the threat of U-boats to the North African invasion convoys, U.S. air attacks on targets in Germany itself began only late in January 1943, and it was not until March that "the Eighth Air Force would be able to conduct missions involving more than one hundred bombers on a consistent basis."

Early in 1943, the cost of the bombing campaign to the RAF remained very high. During the first months of the year, "only 17 percent of Bomber Command aircrews could be expected to survive thirty operational missions, and the life span of a bomber was a mere forty flying hours. In his postwar memoir, Harris observed that between 1942 and 1943, the Germans 'brought their radar-assisted night fighters and anti-aircraft guns to a point of extreme efficiency.'" Westermann points out, however, that in considering the relative success of the German air defenses as of the start of 1943, several factors should be borne in mind. Only 6.5 percent of the total tonnage of bombs that were eventually to fall on German targets had yet been dropped; the Luftwaffe suffered critical losses on the Eastern Front near Stalingrad as well as in North Africa during late 1942; and already acute shortages of personnel and equipment would become worse, increasingly hampering the ground-based air defense force. On 13 January 1943, Hitler issued a directive on the "Comprehensive Employment of Men and Women for Duties in the Defense of the Reich" that applied to men between the ages of sixteen and sixty-five and women between seventeen and fifty and that led to the employment of tens of thousands of teenagers as Flakhelfer (flak auxiliaries). "In 1943 alone, approximately 116,000 young women replaced Luftwaffe enlisted men employed in air defense duties." The equipment shortages that became critical in 1943 directly affected training. Flak guns and fire directing equipment for flak guns were taken from the schools for use at the front and the shortage of fuel triggered curtailment not only of Luftwaffe target training aircraft, but also the training of new pilots. Despite shortages, however, ground-based air defense continued to be upgraded; in the course of 1943, all heavy searchlight batteries were converted to radar control, and the stepped-up consolidation of the flak units into superbatteries not only improved the utilization of available firepower but decreased the overall demand for highly trained personnel and fire control equipment. In absolute terms, the year 1943 saw an increase in flak protection. "On January 13, 1943, there were 659 heavy and 558 light anti-aircraft gun batteries defending Germany proper," and at "the end of 1943, . . . 1,234 and 693, respectively." In addition to the gains through increased production, the Luftwaffe reboxed captured Russian artillery pieces to accommodate German 88-mm ammunition. "Between 1939 and 1944, the Luftwaffe's captured weapons section salvaged a total of 9,504 flak guns and almost 14 million rounds of flak ammunition." And from 1942 to the end of 1943, the number of searchlight batteries within Germany increased from 174 to 350.

On the night of 5 March 1943, RAF Bomber Command began the employment, on a large scale,
of the use of a Pathfinder Force in a raid by 442 bombers on Essen in the heart of Germany's Ruhr industrial region. Using improved navigational aids, Pathfinder Mosquito bombers at altitudes of some 29,000 feet dropped red target indicators on the city, whereupon "Pathfinder Force Stirling and Halifax bombers followed up by raining green target markers onto the red target markers to ensure the visibility of the aim points during the entire raid. Finally, waves of bombers carrying loads of one-third high-explosive and two-thirds incendiary blasted the city for approximately forty minutes." The raid left 160 acres of the city, including 3,000 dwellings, in ruins, and severely damaged another 450 acres, though the damage to numerous buildings in the Krupp factory complex "failed to destroy the factory's heavy equipment or to disrupt production significantly." The attack, which cost the RAF fourteen planes, 3.2 percent of the number dispatched, and which was celebrated by Harris "as the greatest victory on any front," did mark, according to Westermann, "a new phase in the battle for control of the skies over the Third Reich," for, in addition to validating the effectiveness of the Pathfinder target-finding system, it confirmed what had been demonstrated in the attack on Cologne ten months earlier, that "a tightly bunched bomber stream not only overloaded German night fighter areas in the west but also provided flak crews with less time to successfully acquire and engage their targets."35

On the evening of 24 July 1943, after having bombed Hamburg almost one hundred times since the beginning of the war, RAF Bomber Command launched a series of attacks code-named Gomorrah. Almost 800 planes were deployed to drop bomb loads that averaged, per square kilometer, seven armor-piercing bombs, 147 high-explosive bombs, 459 phosphorous bombs, 29 jellied gasoline bombs, and 17,580 incendiaries. Eighty miles from the German coast leading aircraft began dropping, at one-minute intervals, bundles of twelve-inch aluminum foil strips. As these thousands of strips of chaff, code-named "Window," descended, "they expanded into a growing cloud of radar-reflective material that in effect blinded the ground-based Würzburg radar, as well as the night fighters' built-in aerial intercept radar sets. In the words of one participant, the ground-based radar operators were faced with 'an undecipherable jumble of echo points resembling giant insects, from which nothing could be recognised at all.' Likewise, one Luftwaffe night fighter pilot described the situation as equivalent to 'fishing in the murk'. With their gun-laying radar out of commission, searchlight batteries wandered aimlessly across the sky ..." The raid, which cost the RAF twelve aircraft, 1.5% of the aircraft dispatched, killed some 1,500 and left an estimated 200,000 without shelter.36 Hamburg and other targets were hit in daylight raids by the American Eighth Air Force on 25 and 26 July, but at the cost of a loss rate of over ten percent, demonstrating the effectiveness of the Luftwaffe's flak and fighter defenses in daylight and during good weather. Finally, on the night of 27 July, Bomber Command again attacked Hamburg with over 700 bombers that dropped more than 2,300 tons of high-explosive and incendiary bombs. "Dry conditions and the damage sustained ... earlier ... , including the loss of numerous water mains, combined to produce a firestorm that ravaged the city. The resulting inferno proved apocalyptic, melting asphalt streets, ripping three-foot-diameter trees up by their roots, and even burning thick wooden pilings in the city's canals down to the level of the water. Approximately 40,000 persons perished in this single raid, many dying of asphyxiation as the fires literally sucked oxygen out from basements and air-raid shelters throughout the city."37

On 1 August, German flak batteries downed 41 American bombers, almost a third of the force conducting a daylight attack on the oil refineries and storage facilities at Ploesti, Romania, and on the twelfth of the same month, when the USAAF conducted its only mission in 1943 against
the heavily defended Ruhr, 25 of 243 heavy bombers were downed, largely by flak. In daylight raids on 17 August, 46 of the two-pronged force of 310 bombers attacking targets in Regensburg and Schweinfurth were shot down by Luftwaffe fighters, 5 were downed by flak, 8 were finished off by fighters, and almost a third of the surviving bombers returned with flak damage. On 14 October 1943, "the Eighth Air Force chose to launch one of its most ambitious raids of the year in a return visit to the ball-bearing factories at Schweinfurt . . . Lying deep within Germany, Schweinfurt was a daunting target with approximately twenty-three heavy flak batteries, five light flak batteries, six searchlight batteries, and a smoke generator company, making it per square mile one of the most heavily defended cities within Germany. The USAAF massed 291 bombers for the mission, with 229 successfully reaching the target. The prevailing clear weather not only allowed for an excellent bomb pattern but also allowed Luftwaffe fighters and flak to inflict a crippling toll on the attacking force. In the course of the mission, fighters intercepted the bomber formations along their route of flight prior to, and after, they released their bomb loads. At the end of the day, the Eighth Air Force had lost 60 aircraft, or almost 17 percent of the force dispatched on the raid." The USAAF did not launch another raid deep into Germany for the rest of the year, but RAF's Bomber Command conducted eight raids on Berlin during the last two months of 1943, during which, at a cost of 180 bombers, over fourteen thousand tons of bombs were dropped, taking the lives of almost 6,000 and leaving over 470,000 homeless.

Although German flak could not spare Berlin from extensive devastation late in 1943, it did contribute substantially to the successful evacuation of Axis forces from Sicily to the Italian mainland; "the massed firepower of one hundred flak batteries established a 'fire canopy' over the Straits of Messina that prevented effective attacks by Allied aircraft and enabled the Wehrmacht to withdraw 100,000 troops and 10,000 vehicles from Sicily in August" (p. 232).

By February 1944, "the size of the Luftwaffe's ground-based air defense force had swelled to a wartime high of 13,500 heavy flak guns, 21,000 light flak guns, 7,000 searchlights, and 2,400 barrage balloons" (p. 234). Moreover, "despite the growing shortages of personnel and material resources within Germany, the Luftwaffe's air defense forces experienced a major expansion in the first half of 1944 . . . , " with fighter production exceeding 2,000 aircraft per month for the first time in May of that year (p. 236). However, the ground-based air defense force became increasingly hampered, in 1944, by an ammunition shortage, with the continued expansion of the number of flak guns beginning to "outpace the ability of the German armaments industry to provide these guns with adequate supplies of ammunition." During the third and fourth quarters of 1943, flak ammunition had accounted for 20 and 19 percent, respectively, of the Wehrmacht's ammunition budget, but in the first two quarters of 1944, it declined to 17 and 16 percent, respectively (p. 238). In terms of personnel, the shortage of manpower was increasingly made up by employment of women. "In the spring of 1944, some 111,000 young women were active in the air defense network of the Reich proper. By the end of the year, the searchlight batteries were operated almost exclusively by female auxiliaries, and growing numbers of women were serving with the barrage balloon units. Furthermore, young women increasingly could be found operating fire control equipment, communications systems, and sound detectors within the heavy flak batteries" (p. 239). Moreover, foreign workers and POWs were increasingly employed, as illustrated by the composition of the 14th Flak Division in October 1944, primarily responsible for the defense of the Leuna synthetic oil refinery in central Germany, which had 28,000 regular Luftwaffe personnel, 18,000 Labor Service personnel, 6,000 male Luftwaffe auxiliaries, 3,050


female Luftwaffe auxiliaries, 900 Hungarian and Italian volunteers, 3,600 Soviet POWs, and 3,000 others, totalling altogether 62,550. 41

From the beginning of 1944 to late March of that year, Bomber Command continued its attacks on Berlin, launching a series of eight raids against the German capital, half of them involving over 500 aircraft, costing the RAF 351 planes, with 1,787 airmen killed and 506 crew members captured, but causing extensive damage, killing 3,589 and leaving over 230,000 homeless. 42 On 4 March 1944, meanwhile, the USAAF Eighth Air Force dispatched its first mission to the Berlin area, escorted with the newly available long-range P-51 Mustang fighters equipped with drop tanks, and returned five times during the month, in the course of which an average of some 470 bombers per raid dropped a total of 6379 tons of bombs, at a total cost, for the six raids, of 187 aircraft and 1,870 aircrew members killed or captured. But the cost to the Luftwaffe of inflicting the losses caused by interceptors was very severe because it was becoming extremely difficult to replace fallen personnel and destroyed equipment. In April 1944, General Adolf Galland, commander of the Luftwaffe fighter arm, "noted in a report concerning Luftwaffe fighter losses that 'the day fighters have lost more than 1,000 aircraft during the last four months, among them our best officers. These gaps cannot be filled... Things have gone so far that the danger of a collapse of our [fighter] arm exists.'" 43 On the other hand, technical improvements in fire control and the development of antijamming devices for gun-laying radar significantly improved the performance of the German flak during the first half of 1944. Consequently, by the late spring of that year, the improvement of German anti-aircraft gunnery together with the crippling losses suffered by the German interceptors (and the increasingly critical shortages of aviation fuel) meant that German ground-based air defenses were "emerging as the main line of defense in the face of the combined Allied bombing effort" (p. 249).

During spring 1944, the USAAF's Eighth Air Force and the RAF's Bomber Command were largely diverted from their strategic campaign against Germany to operations over France in support of the impending cross-channel invasion. However, in April and May, the American Fifteenth Air Force, based in Italy, launched a series of raids on the major oil facilities at Ploesti, Romania. Moreover, in May, Eighth Air Force conducted three major raids on synthetic oil production facilities in Germany. And on 20 June, the Eighth Air Force sent a record force of 1,361 heavy bombers and 729 fighter escorts against oil targets in Germany. 44 The cumulative impact of these raids was such that on 21 June, Göring ordered reinforcement of the flak defenses around the synthetic oil and hydrogenation plants and on 30 June, Armaments Minister Albert Speer informed Hitler of the "catastrophic" attacks and severe reduction in fuel production capacity, urging that more fighters be assigned to protect the critically important facilities. Six weeks later, when Hitler ordered the transfer of Luftwaffe "fighter reserves from the defense of Germany proper to the Western Front," Speer and General Galland flew to his headquarters in East Prussia to ask that he rescind the order, only to have Hitler categorically reject their advice; he ordered that all available resources be utilized to upgrade the flak artillery and that there be a two-fold increase in flak ammunition. 45

The ensuing effort to strengthen ground-based defenses of the oil sites led to the deployment at Leuna, by the end of 1944, of a total of "over 500 heavy flak guns, including 150 of the Luftwaffe's prized 128-mm guns..." while "the heavy gun defenses of the hydrogenation plants at Pöllitz and Böhlen rose from 26 and 24 heavy guns in March to 352 and 203, respectively, by
December." But reinforcing the defenses of the oil sites was not achieved merely by giving them priority for newly produced guns; it also required the reallocation of already deployed resources, leading the Luftwaffe "to withdraw flak units from Berlin and the Ruhr, and even to completely strip Eisenach, Weimar, Chemnitz, and Dresden of their ... flak defenses." Regarding the effectiveness of the upgrading of the defenses at Leuna, Westermann writes that "of the 82 aircraft destroyed by known causes in raids on Leuna, flak defenses accounted for 59, fighters received credit for 13, and 7 fell to accidents. In other words, flak accounted for 72 percent of known losses, a figure 4.5 times greater than the number of fighter shootdowns. On the other hand, the United States Strategic Bombing Survey team found that the flak defenses surrounding Leuna 'undoubtedly contributed to inaccuracy in the bombing of the target.' In fact, the survey found that only 10 percent of all bombs delivered against the target fell within the plant grounds, an area of 757 acres." Thus massed flak fire could not only inflict damage, but also "prevent accurate bombing."46

As 1944 drew to a close, the ability of the Luftwaffe to respond to the steadily escalating air attacks on Germany gradually declined. "By the fall of 1944, the Luftwaffe's consumption of flak ammunition peaked at over 3.5 million rounds of heavy flak ammunition and 12.5 million rounds of light flak ammunition per month." But the damage inflicted on the German chemical industry resulted in so serious a shortage of nitrogen that inert fillers increasingly had to be used in the flak shells, reducing the explosive force of individual rounds, contributing to "the increase in the number of rounds per aircraft destroyed in 1944."47 As late as September 1944, "Eighth Air Force flak reports ... remarked on the 'noticeable increase' in flak damages and losses." But in the last quarter of the year there was marked change. "By the end of October ... the bombers experienced a 'sharp reduction' in the number of losses due to flak," attributable only in part to poor weather. "The number of Eighth Air Force bombers destroyed by the flak in the last four months of 1944 fell from a high of 162 aircraft in September to 66 aircraft in October, then rose slightly to 90 in November but plummeted to 44 in December."48

During the final months of the war, German ground-based air defenses were widely dismantled to provide artillery support for the Wehrmacht units defending the beleaguered Reich. "In the last week of January [1945], the Luftwaffe withdrew flak batteries from the defense of Hamburg for duties at the front, despite the strenuous objections of the local National Socialist district leader." On 7 February, "in a clear-weather attack against oil facilities near Vienna . . ., the Fifteenth Air Force lost between 19 and 25 bombers to the city's still formidable flak defenses . . .," but "a Bomber Command raid on the night of February 13 and a follow-up raid by the Eighth Air Force on February 14 devastated the city of Dresden in a firestorm reminiscent of Hamburg, leading to the deaths of an estimated 25,000 persons. In one respect, the success of British bombers in achieving a tight concentration of bombs resulted from the Luftwaffe's previous decision to strip Dresden of its flak batteries to strengthen the defenses of other more important objectives. Although the presence of flak defenses might not have prevented the conflagration that arose in the ancient baroque city, it is conceivable that anti-aircraft fire might have prevented the RAF from achieving the massive concentration of incendiaries that eventually generated the devastating firestorm that engulfed the city. In any event, devoid of flak defenses, the city's inhabitants paid the ultimate price for the Luftwaffe's shell game involving the flak."49

By the last month of the war, "the flak arm was receiving only one-third of the ammunition it
required," and the fuel shortage had become so critical that "teams of oxen were used to pull Me-
262 jet fighters to runways to conserve the fuel used by these aircraft in taxiing to their takeoff
positions." But although the Messerschmitt jets were more than a match for the P-51 Mustangs,
only very few of them actually came into service, and a number of American bomber pilots did
not see a German fighter during their entire tour of duty in the last months of the war.50

Between July 1942 and April 1945, German flak destroyed some 1,345 RAF Bomber Command
aircraft, compared to Luftwaffe interceptors' estimated tally of 2,278, although many of the RAF
planes shot down by fighters had been damaged and rendered vulnerable by anti-aircraft fire. But
flak accounted for more than half of the USAAF's wartime combat losses in Europe, almost
5,400 aircraft having been downed by anti-aircraft artillery, opposed to the 4,300 by Luftwaffe
fighters (pp. 286-87). Yet as Westermann points out repeatedly in his monograph and stresses in
his conclusion, a realistic evaluation of German ground-based air defenses during the Second
World War should take into account not only the number of enemy aircraft shot down (not to
mention the far greater number damaged), but also the effectiveness of flak in "prevent[ing] the
bombers from accurately striking their intended targets" (p. 300). On the basis of the wartime
record and carefully examined postwar assessments, Westermann demonstrates that German
ground-based air defenses substantially contributed to inaccuracy in bombing, thereby
diminishing the effectiveness of the Allied air raids--apart from their success in downing
attacking bombers--and that "the efforts and performance of these defenses clearly deserve more
credit than they have received" (p. 301).

Notes

1. Issued by the Research Institute for Military History (initially in Freiburg, since unification in
Potsdam) and published in English translation by Oxford University Press, *Germany and the
Second World War*, vols. 1-3 were reviewed in the fall 1966 issue of this newsletter, vol. 4 was
reviewed in the fall 1999 issue, vol 5, part 1, in the spring 2001 issue, and vol. 6 in the spring

2. Megargee's annotations to his subsequent chapters do not suffer by comparison to those in his
first, but because of the broad scope of the initial chapter, his expert overview of the relevant
literature in the endnotes, in which he cites English translations where available, is worth special
mention.

3. The Armed Forces High Command was not created from scratch by Hitler. Early in 1938,
when Field Marshal Werner von Blomberg was constrained to resign as Minister of War, Hitler
did not replace him, but assumed direct control of what had been the War Ministry, redesignating
it as the OKW and naming General Wilhelm Keitel, who had headed Blomberg's staff in the
ministry, as OKW chief of staff. The classic study of this epoch-making event, in historical
context, and of the accompanying measures whereby Hitler secured effective personal control of
the leadership corps of the German military establishment during the first half of 1938 is the very
readable account by the late Harold C. Deutsch, *Hitler and His Generals: The Hidden Crisis,*
January-June 1938 (Minneapolis: University of Minnesota Press, 1974).

4. Megargee, p. 85. In considering the controversy regarding Rundstedt's role at Dunkirk, it should be noted that he was the senior general serving in the German Army. On 1 January 1938, he was third in seniority after Field Marshal von Blomberg, the Minister of War, and General Werner von Fritsch, the Commander-in-Chief of the Army, but later that year Blomberg was stricken from the Army list, and never recalled to duty, and Fritsch, though replaced by Brauchitsch in 1938 and not reassigned, exercised his honorary prerogative as Chef of Artillery Regiment 12 to go to the front with this unit when the war began and was killed in action on 22 September 1939, as spelled out in Rank Lists 4 and 7 on pp. 382 and 388 of Telford Taylor, Sword and Swastika: General and Nazis in the Third Reich (New York: Simon & Schuster, 1952; repr., Chicago: Quadrangle, 1969). For a concise biographical summary of Rundstedt, giving dates of birth, promotions, assignments, and death, see footnote 5 on p. 335 of Helmut Heiber, ed., Hitlers Lagebesprechungen. Die Protokollfragmente seiner militärischen Konferenzen 1942-1945 (Stuttgart: Deutsche Verlags-Anstalt, 1962), a 971-page critical edition of the salvaged fragments of the protocols of Hitler's situation conferences (incompletely burned at the end of the war), in which copious annotations provide, among much else, personnel record summaries of hundreds of officers mentioned in the conferences (and listed by name in the index of persons).

5. Megargee, p. 130, where he cites, in endnote 42, the German edition of the fourth volume of the official German history of the war; in the English edition, Germany and the Second World War, vol. 4 (Oxford at the Clarendon Press, 1999), reviewed in this newsletter in Fall 1999, the relevant passage in Ernst Klink's subchapter on the planning of the land war against the Soviet Union is on p. 317. In his text, Megargee follows his indictment by citing (on pp. 130-31) the official General Staff manual (and adding a comment about Clausewitz to his endnote): "Their actions," he writes, "did not even agree with the principles by which they had been trained: 'In war the situations are of unlimited variety. They change often and suddenly, and they can only seldom be seen clearly in advance. Unknown quantities are often of decisive influence. The independent will of the enemy encounters your own will. Friction and error are everyday phenomena' [Germany, Heer, Heeresdienstvorschrift 300/1 (H.Dv. 300/1), I. Teil. Truppenführung (Berlin: E. S. Mittler & Sohn, 1936), 1. This is pure Clausewitz]."

6. Megargee, pp. 135-37. Bock referred to encircling rather than taking Moscow because, as Megargee notes parenthetically on p. 136, "the plan was not to take the city but to surround it, starve its citizens to death, and flatten it. Hitler ordered on October 12 [1941] that Army Group Center not accept the city's surrender even if offered."

7. Megargee writes that "after the war Halder and his associates would maintain that he opposed the renewal of offensive operations in the east in 1942. A postwar footnote to his diary entry of February 15, 1942, for example, states that Halder wanted Germany to stay on strategic defensive in 1942, in the belief that the army needed lots of time to recover from the losses it had sustained. If Halder really believed that, however, there is no record that he said so at the time. In contrast, many other officers believed that an attack was foolish. These included [Field Marshal von] Rundstedt and [Field Marshal von] Leeb, who both suggested a withdrawal, perhaps as far back
as the Polish border. [The head of the Replacement Army, General Friedrich] Fromm, [the head of the Replacement Army], [General Eduard] Wagner, [the chief supply officer of the army.] and [General Georg] Thomas (head of the OKW's Military Economics and Armaments Office) all opposed an offensive as well, as did many in the General Staff's Operations Branch; they all believed that Germany did not possess the forces to achieve Hitler's goals. Some such as [the head of the OKW's Foreign- and Counter-Intelligence Office, Admiral Wilhelm] Canaris, were even suggesting--quietly--that the war was already lost" (p. 175).

8. Megargee, pp. 183-85. On 23 July 1944, at Göring's suggestion, following the assassination attempt on Hitler's life, the so-called "German greeting" officially replaced the traditional military salute throughout the Wehrmacht (Megargee, p. 222).

9. Ibid., p. 189. Although operational control was divided between the OKW and the OKH, the course of the war as a whole, including the air war and the war at sea, based on staff notes made daily at Hitler's midday and evening briefings, was recorded in the war diary of the OKW, which was reconstructed after the war by the former war diary officer and subsequently published as Kriegstagebuch des Oberkommandos der Wehrmacht (Wehrmachtführungsstab) 1940-1945, edited by Percy Ernst Schramm, 4 vols. (Frankfurt am Main: Bernard & Graefe, 1961-65), with supplements containing previously lost segments of the fourth volume following in 1969 and 1979.

10. Megargee, pp. 190-91. Megargee also reports that when Zeitzler, not long after having been appointed OKH chief of staff, briefed Hitler on a study showing that "the army had reached its peak strength and ... would not be able to make up its losses," Hitler offered him two hundred thousand Luftwaffe troops. "Göring intervened, however; he said he did not want his National Socialist youths going to the reactionary army. He instead offered to form ten so-called Luftwaffe Field Divisions. The army would have to equip these divisions, but the Luftwaffe would provide all the personnel, including officers. This measure ... spelled certain doom for the inexperienced Luftwaffe personnel who would now have to fight as infantry, without proper training or leadership. Lieutenant Colonel Burkhart Müller-Hillebrand, then chief of the [OKH] Organization Branch, thought this idea so outrageous that he protested strenuously, in writing and verbally, until Zeitzler finally sacked him at the end of October [1942]" (p. 190).

11. Megargee, pp. 210-11, where he writes that, on 22 June 1944, the Red Army "launched a gigantic pincer attack against Army Group Center. Within twelve days, twenty-five German divisions--at least three hundred thousand men--disappeared ... ." Regarding the bombardment of Germany, he writes on p. 209 that "the air war over the Reich was draining resources away from the front; most of the Luftwaffe was already defending Germany, and there would come a point in 1944 after which half of all German artillery would be 'at home pointing skyward' [citing Gerhard L. Weinberg, A World at Arms: A Global History of World War II (Cambridge University Press, 1994), p. 617]."

12. Megargee, pp. 213 and 225. Guderian, who had distinguished himself in France and had been promoted to general in July 1940, had been relieved of command when he insisted on ordering a pullback of his armored forces before Moscow in December 1941. But in February 1943, when
Hitler wanted to upgrade the armored forces, he recalled Guderian from the Führerreserve and appointed him to the new post of Inspector General of Armored Troops, directly subordinate to Hitler himself, rather than to the chief of staff of the OKW or to that of the OKH. About this appointment, Megargee writes (on p. 196) that Hitler's Wehrmacht adjutant, Gen. Schmundt, "reminded the Führer that Guderian... was 'one of his [Hitler's] truest followers among the generals.' (Even Goebbels, who did not generally hold army officers in high esteem, liked Guderian, whom he believed... [to be] 'certainly an ardent and unquestioning disciple of the Führer.')"

13. Westermann's book is also timely, in that the air war over Germany has recently been the subject of reconsideration. In 1999, a work was published in Germany that dealt with the bombing of that country during World War II, that gained considerable attention, and that has recently been published in this country, W. G. Sebald, On the Natural History of Destruction, translated by Anthea Bell (New York: Random House, 2003). Meanwhile, the publication last fall of Jörg Friederich, Der Brand. Deutschland im Bombenkrieg 1940-1945 (Berlin: Propyläen, 2002), has generated further controversy whether and/or to what extent Germans should be regarded as having been victims, leading to the compilation and publication of Lothar Kettenacker, ed., Ein Volk von Opfern? Die neue Debatte um den Bombenkrieg 1940-45 (Berlin: Rowohlt, 2003), which, according to the online listing (with descriptive information) of the German branch of the internet bookseller Amazon.com, <http://www.amazon.de>, includes contributions by Horst Boog, Hans Mommsen, Richard Overy, Martin Walser, Hans-Ulrich Wehler, and others.

14. In A World at Arms, Gerhard Weinberg wrote of a major contribution of the bombing offensive having been "the enforced diversion of German resources to the defense of cities and installations, to the defense of the skies. By 1944, over 1.1 million... were employed in firing and controlling 12,000 heavy and 19,000 other anti-aircraft guns. Almost half a million of the crew members were auxiliaries--primarily teenagers and women--who could not have been employed in front-line units; but, on the other hand, not only were enormous quantities of ammunition as well as guns tied up in defense of the Reich against air attacks, but the bulk of the German air force had had to be shifted to this defensive mission. The German air force was absorbing the majority of Germany's military industrial resources..." (p. 773).

15. Westermann, pp. 88-89.

16. Noble Westermann, pp. 86-87 on flak in Poland, pp. 92-93 on flak in France and Hitler's quashing publicity about it, and p. 121 on flak in North Africa. For a brief but well-informed overview of German anti-aircraft ordnance in World War II, see the segment "German Flak Defenses" on pp. 23-43 of Kenneth P. Werrell, Archie, Flak, AAA, and SAM: A Short Operational History of Ground-Based Air Defense (Maxwell AFB, Alabama: Air University Press, 1988). "Flak" is an acronym for Flugzeugabwehrkanone ["aircraft defense cannon"]. The standard 88-mm Flak gun, initially designed by Krupp engineers at Bofors in Sweden and refined in Germany in the 1930s, comprised about sixty percent of Germany's heavy flak guns during World War II. It fired a 20.3-pound shell at a muzzle velocity of 2,690 feet per second (fps) to an effective ceiling of 26,000 feet. With its high muzzle velocity and accuracy, this versatile weapon was widely employed not only against aircraft, but as an anti-tank gun and a
standard artillery piece. (The 1941 model of the 88-mm flak gun fired a 20.7-pound shell at a muzzle velocity of 3280 fps to an effective ceiling of 37,000 feet, but because of mechanical problems did not come into service until 1943; by February 1944 only 279 units had been fielded.) The 128-mm flak gun, which fired a 57.2-pound shell at 2,890 fps to a maximum ceiling of 35,000 feet, used a powder charge four times as great as the 88-mm gun, making its shell's flight time only one-third as long. Werrell also reports that "the AAF lost 18,418 aircraft in combat against Germany in World War II. The American airmen credit antiaircraft artillery with downing 7,821 of these, enemy aircraft with 6,800," and he adds a consideration that Westermann treats in detail, that "flak also degraded bombing accuracy. A 1941 British report said the accuracy had been degraded by a figure of one-third. A similar study of [U.S.] Eighth Air Force bombing errors between May 1944 and February 1945 credits almost 40 percent of these errors to enemy guns" (Werrell, pp. 42-43).


17.

18. Ibid., pp. 99-101, where Westermann also mentions that Göring's deputy, Field Marshal Erhard Milch "ordered that only captured flak pieces be used at the [dummy] sites, a measure that prevented the further dilution of German air defense resources and saved the best flak guns for operational positions."

19. Westermann, op. cit., p. 125. Noble Frankland, on pp. 38-39 of Bomber Offensive (cited in note 16 above), explains that the report by D. M. Butt was instigated by Prime Minister Churchill's scientific advisor, Lord Cherwell, "to find out the answer to the increasingly raised question of how accurate or otherwise was night bombing." In endnote 86 on p. 333, Westermann mentions that the entire text of the Butt Report is printed in the official history of the British bombing campaign, Charles Webster and Noble Frankland, The Strategic Air Offensive Against Germany, 1939-1945, Vol. 4, Annexes and Appendices (London: H. M. Stationery Office, 1961), pp. 205-213.

20. Westermann, op. cit., p. 133 for the Portal letter and pp. 213-14 for the initial employment of chaff in July 1943 attacks on Hamburg code-named Operation Gomorrah. (See also note 36 below for German concern about the Allies' possible use of chaff.)


22. Ibid., p. 150.

23. Ibid., p. 154.

24. Frankland, Bomber Offensive, pp. 42-43. Westermann on p. 154 quotes Harris' statement in his postwar memoirs that "the main object of the attack [on Lübeck] was to learn to what extent a first wave of aircraft could guide a second wave to the aiming point by starting a conflagration."

26. Ibid., p. 156. Although the Cologne raid revealed severe limitations in the German air defense system, it also led to a demonstration of the extent of the civil defense program developed in Germany by 1942. Earl R. Beck, in his monograph Under the Bombs: The German Home Front 1942-1945 (Lexington: University Press of Kentucky, 1986), writes that there had been an extensive program for air-raid alarms and shelters before the war, but that civilian defense was greatly expanded following an emergency decree by Hitler in September 1940 designating eighty-two cities in which air raid shelters and emergency installations were to be built. "Prior to the thousand- bomber raid [on Cologne]," Beck continues, "five hundred air raid shelters, secure against bomb fragments, provided places for 75,000 people. Fourteen auxiliary hospitals with 1,760 beds had been built. Twenty-seven emergency first-aid stations and fourteen stations for secondary medical assistance were in place. Twenty-five bunkers secure against direct hits provided shelter for 7,250 people. Twenty-nine more were under construction. These projects and auxiliary provisions had cost twenty-four million marks and involved the movement of 200,000 cubic meters of earth and the use of 100,000 cubic meters of iron and 35,000 tons of cement. Emergency water supplies had been provided. Forty-two thousand private air-raid shelters were being built in private homes. In all, thirty-nine million marks had gone for air-raid protection. And the bombs fell, buildings were destroyed, and there were 460 dead--not a heavy toll . . . ."

"Within a few hours after the May 30/31 attack, the roads to Cologne were filled with trucks bringing 61,000 sheets, 100,000 meters of curtain material, 34,000 pieces of clothing for men and women, 50,000 pieces of clothing for boys and girls, 90,000 boxes of soap powder, 700,000 cakes of soap, and ten million cigarettes. Three hundred seventy-four workers dealing with claims for war damage were aided by 43 from Bonn and Düsseldorf, 160 more from the Interior Ministry, and 150 court agents, and before a month had passed, 140,000 claims had been handled. The final total of claims amounted to 370,000 and 126 million marks were paid as damages. Five thousand two hundred workmen from Cologne itself were backed up in the repair work by 3,400 glaziers brought in from outside, 10,000 building advisers, 25,000 soldiers . . . ."

"These figures present in brief summary a part of the story to follow. The bombings were to prove damaging to the houses and buildings of the cities but took a relatively minimal toll of people and had a relatively insignificant effect upon war production. The bureaucracy made heroic efforts to deal with the bombing damages as they occurred. But behind the figures lies the story of lost homes, of constant fear and uncertainty, of the movement of thousands of people to unfamiliar places . . . ."

"During the remainder of 1942, there were thirty-two more attacks on German cities. Approximately 12,600 tons of bombs fell on nineteen different targets, with Bremen being attacked five times, Duisburg four times, and Essen, Hamburg, and Emden twice each. But this was only a modest beginning to the hail of bombs released in 1943" (pp. 8-9).

27. Westermann, p. 175, where he explains that the onboard radar (Lichtenstein) "consisted of three cathode-ray tube displays in the cockpit that indicated the range, height, and horizontal displacement of the aircraft being tracked. Although tested operationally in August 1941, the aerial intercept radar was not readily available until the middle of 1942."

28. Ibid., pp. 157-163.
29. Westermann, p. 178. Blenheims and Wellingtons were twin-engined bombers, Lancasters four-engined. The Avro Lancaster, powered by four 1,460-horsepower Rolls-Royce Merlin engines, compared to the four 2,000-horsepower engines of the American B-17 Flying Fortresses and B-24 Liberators, carried heavier bomb loads than the American heavy bombers (Thomas Parrish, ed., The Simon and Schuster Encyclopedia of World War II [New York: Simon and Schuster, 1978], pp. 41 and 355; Percy Ernst Schramm et al., Geschichte des Zweitent Weltkrieges, 2. Teil, Die Kriegsmittel [Würzburg: A. G. Ploetz, 1960], pp. 537, 615, and 616). In Under the Bombs, cited above, Earl Beck writes that in 1944, when the USAAF was attacking the Third Reich by day and the RAF by night, the "Germans soon came to realize that the British bombers carried the larger and more destructive bombs," noting the particular "force of the vacuum or suction created by the explosion" of the 4,000-pound bomb (pp. 108-109).

30. Westermann, p. 179.

31. Ibid., pp. 180, 183.


33. Westermann, pp. 185-86.

34. Westermann, pp. 187-192, where Table 7.2 provides a comparison of the change in flak strength from 1942 to 1943 in terms of heavy and light flak batteries and searchlight batteries in Germany, in occupied western Europe, in Norway and Finland, on the Eastern Front, in the Southeast (Romania, Greece, and Hungary), and in the South (North Africa and Italy).

35. Ibid., pp. 194-95; however, the effectiveness of the target-marking system was in time "somewhat reduced by the Luftwaffe's adoption of "decoy rockets . . . [and] decoy ground flares in a variety of colors"" (p. 198).

36. Ibid., pp. 213-214, where Westermann goes on to point out that just three days before the raid on Hamburg, some of Hamburg's heavy flak batteries had been sent to the Mediterranean, where Sicily had been invaded earlier in July. He also writes that the Germans had been concerned about the Allies' use of chaff before the Hamburg raid, explaining that they had tested chaff in secret trials over the Baltic and gone so far as to prohibit work on a countermeasure lest knowledge of it leak out and alert the Allies to its potential. (Their concern corresponded to that of Sir Henry Tizard, noted above, regarding the danger of an enemy using chaff.)

37. Ibid., pp. 214-216, where the author notes that Bomber Command followed up their earlier attacks with raids on 29 July and 2 August, thereby launching, during the "Battle of Hamburg" a total of over 3,000 sorties dropping more than 8,500 tons of bombs, mostly incendiaries, and suffering a total loss rate of less than 2.5 percent. He cites, in addition to Harris, Bomber Offensive (noted above), Denis Richards, The Hardest Victory: RAF Bomber Command in the Second World War (New York: Norton, 1994), and Gordon Musgrove, Operation Gomorrah: The Hamburg Firestorm Raids (London: Jane's, 1981). Regarding chaff, Westermann goes on to explain that it was not always successful, particularly when high winds dispersed it. In fall 1943
the USAAF introduced an active radar-jamming device (named "Carpet") carried by lead elements of a bomber formation that transmitted "a powerful electromagnetic signal designed to overwhelm the ground radar" (p. 220).


40. Ibid., pp. 230-31, where the author describes Berlin's formidable defenses, "with over 700 heavy flak guns, including three mammoth concrete flak towers studded with twin-barrelled 128-mm flak guns," adding that "by the end of September [1943] the Luftwaffe had withdrawn German and Italian flak forces stationed in Italy into the Reich's defenses," that "the flak area surrounding the capital was forty miles wide, and the searchlight belt extended for sixty miles," and quoting what an RAF bombardier wrote regarding a mission against Berlin: "Lying in the nose of a Lancaster on a visual bomb run over Berlin was probably the most frightening experience in my lifetime. Approaching the target, the city appeared to be surrounded by rings of searchlights, and the Flak was always intense. The run-up seemed endless, the minutes of flying 'straight and level' seemed like hours and every second I expected to be blown to pieces" (citing Martin Middlebrook, *The Berlin Raids: R.A.F. Bomber Command Winter, 1943-1944* [New York: Viking, 1988], p. 26).

41. Westermann, p. 240, where it is noted that "approximately 51,000 Soviet prisoners of war were serving with the flak by August 1944."

42. Westermann, pp. 241-43, noting that Flak gunners restricted their fire to no higher than 16,500 feet in order to avoid hitting German interceptors that were operating at that altitude and higher against the bombers (especially those illuminated by searchlights).


44. Westermann, pp. 258-262, and Carter and Mueller, *The Army Air Forces in World War II: Combat Chronology*, pp. 334-376, where the entry for 20 June 1944 notes that on that day 50 heavy bombers (B-17s and B-24s both were used) and seven fighters were lost, and that the attacking force claimed to have destroyed 76 aircraft.

45. Westermann, pp. 262-69. Galland feared that the relatively inexperienced pilots who would be transferred to the Western Front would be lost without serving any useful purpose; Speer thought that they could be most usefully deployed in the defense of key installations in Germany. Throughout his book, Westermann brings out clearly that Hitler, from the beginning, was a strong supporter of the flak arm and that his consistent support was instrumental, among other
things, in its being provided a relatively large proportion of the Wehrmacht's budget for ordnance and ammunition. In 1944, "the percentage of the total Wehrmacht budget allocated to anti-aircraft weapons remained between 25 and 27 percent for the entire year" (p. 273).

46. Ibid., p. 263-64.

47. Ibid., p. 273.

48. Ibid., pp. 275-76. Westermann cites a corresponding decline in the number of aircraft damaged by flak during this time span. He also notes that Fifteenth Air Force, operating out of Italy against targets in southern and southeastern Europe, did not experience the same decline in losses due to flak, explaining that this was due in part to the continuing attacks against very heavily defended oil facilities and in part because of missions in support of the Russian advance in the Balkans, which involved attacks on bridges, airfields, and transportation hubs requiring bombing from lower altitudes for the sake of accuracy.

49. Ibid., pp. 280-81.

50. Ibid., p. 281. The Me-262 was a turbojet fighter, of which well over a thousand were built, though very few came into operational use. On 18 March 1945, when 1,251 Eighth Air Force heavy bombers attacked the Berlin area, escorted by 645 P-51 Mustangs (Carter and Mueller, The Army Air Forces in World War II: Combat Chronology, p. 601), Me-262 jets shot down 25 bombers and 5 fighters without suffering any losses (Percy Ernst Schramm et al., Geschichte des Zweiten Weltkrieges, 2. Teil, Die Kriegsmittel [Würtzburg: A. G. Ploetz, 1960], p. 209).
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Dunn, Walter S. *Heroes or Traitors: The German Replacement Army, the July Plot, and Adolf Hitler*. Westport, CT: Greenwood Publishing Group, 2003.


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