THE WRIGHT FLYER PAPERS

They Too Served

496th Fighter Training Group, 1943-45

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Air Command and Staff College
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MAXWELL AIR FORCE BASE, ALABAMA

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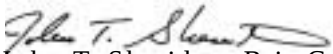
Foreword

It is my great pleasure to present another of the *Wright Flyer Papers* series. In this series, Air Command and Staff College (ACSC) recognizes and publishes the "best of the best" student research projects from the prior academic year. The ACSC research program encourages our students to move beyond the school's core curriculum in their own professional development and in "advancing aerospace power." The series title reflects our desire to perpetuate the pioneering spirit embodied in earlier generations of airmen. Projects selected for publication combine solid research, innovative thought, and lucid presentation in exploring war at the operational level. With this broad perspective, the *Wright Flyer Papers* engage an eclectic range of doctrinal, technological, organizational, and operational questions. Some of these studies provide new solutions to familiar problems. Others encourage us to leave the familiar behind in pursuing new possibilities. By making these research studies available in the *Wright Flyer Papers*, ACSC hopes to encourage critical examination of the findings and to stimulate further research in these areas.



John T. Sheridan, Brig Gen (Sel)
Commandant

Preface

In 1944 a young man from Nahant, Massachusetts, experienced World War II as an unsung corporal assigned to an unheralded unit near an obscure English village. Few history books recall his war. But he and his unit personified a brand of service—seldom newsworthy, often tedious, always selfless—that underpinned Allied victory. This man was my father. This research paper is his unit's story.

I thank the staff of the Air Force Historical Research Agency, especially Donna Billingsley and Deanna Kendrick, for their cheerful and patient assistance during my research. Diana Simpson, Judy Osborne, and the staff of the Air University Library were universally helpful. Pam Hollabaugh's template wizardry and dynamism were wonderful. Thanks to Ron Parker, native of Goxhill, England, for his heartfelt leadership in successfully preserving memories of Anglo–American brotherhood in Goxhill before it was too late.

Dr. Richard R. Muller, dean of Education and Curriculum, thank you for your guidance and contagious sense of wonder in events long past. Finally, my appreciation to the anonymous adjutants, clerks, and executive officers who recorded a glimpse of life in the 496th Fighter Training Group.

Abstract

In-theater combat crew replacement centers (CCRC) represented a brief but important stop for aircrews training as replacements for personnel lost in the European theater during World War II. The Eighth Air Force's 496th Fighter Training Group operated a fighter CCRC at Goxhill, England, and illustrated the unique challenges and successes of the CCRC mission. The 496th Fighter Training Group overcame maintenance shortfalls, aircraft shortages, and persistent morale issues to train more than 2,400 fighter pilots for combat duty in the Lockheed P-38 Lightning and North American P-51 Mustang.

PART I

Historical Background

Introduction

This Command desires no Flying School graduates without specialized transition training.

—Message Gen Carl A. "Tooey" Spaatz to
Gen Henry H. "Hap" Arnold, 29 March 1943

The decisive contribution of US Army Air Forces (AAF) tactical airpower to Allied victory in World War II is well known. In Europe, Eighth Air Force long-range fighter escorts permitted strategic bombers to penetrate German airspace against the Luftwaffe. Eighth Air Force fighter pilots became saviors for embattled bomber crews courageously flying precision daylight raids on German industrial, power, transportation, and military networks. Eighth and Ninth Air Forces fighter pilots were equally skillful in prosecuting interdiction and close air support (CAS) missions against German targets. What did it take to fight with skill and verve in high-performance fighter aircraft? Teaching a man to fly was one thing: What specialized training was required to couple a skilled pilot to a high-performance weapon system and create a man-machine package of singular lethality?

Purpose

This research paper outlines the historical accounts of the 496th Fighter Training Group (FTG) from activation in December 1943 through inactivation in April 1945. The 496th was an Eighth Air Force in-theater combat crew replacement center (CCRC) in the European theater of operations (ETO). The primary mission of the 496th was to train rated pilots in the Lockheed P-38 Lightning and North American P-51 Mustang for assignment to combat units in the Eighth and Ninth Air Forces.

Methodology

This research paper uses two principal types of sources. First, unit- and command-level documents archived at the Air Force Historical Research Agency (AFHRA) at Maxwell AFB, Alabama, provided original material. Documentation

included monthly unit histories for the 496th and subordinate units as well as miscellaneous correspondence and memoranda. Monthly reports were available for most of the 496th's existence and provided a narrative of activities, challenges, and successes. The daily special order supplied snapshots of the 496th during war—a promotion list might be followed by an order for the remains of a student pilot killed in an accident to be "shipped without delay via rail baggage" to the American Military Cemetery in Cambridge.[1] A comparatively small selection of related orders and correspondence from superior units was also available. Most of the original material was classified Secret or Restricted but was declassified following the war. This research paper retains British spelling convention (e.g., theatre, centre, etc.) where it appears in direct quotations.

Some comments are warranted regarding the primary sources used. Unit histories, orders, and correspondence were official documents and, as such, include a professional discretion that may mask genuine events or intentions. The histories appeared to be relatively objective. But unit histories were, after all, intended to report conditions up the military chain of command—so bias, gripes, and soft-pedaling problems all probably occurred to some extent.

Second, published sources complemented the primary materials and established background and historical context for the 496th. These sources represented a range of publication dates from the late 1940s to April 2000; American, British, and German authorship; and formality that varied from official government reports to self-published volumes on life in the 496th.

This research paper provides a chronological rendering of the 496th's history. It begins by outlining the historical background underlying unit activation in late 1943 and introduces the concept of in-theater replacement training for fighter aircrews. Buildup to peak operations in mid-1944 led to geographic dispersion, new missions, and eventual inactivation in April 1945. Anecdotes and recollections reveal personal elements of life in the 496th. The paper concludes by summarizing the group's contributions to Allied air victory in Europe.

The 496th served as the primary dedicated CCRC for P-38 and P-51 aircraft in the ETO. It represented a brief but vital phase in the life of more than 2,400 student pilots who completed training before joining combat units. While the group's precise contributions cannot be calculated, the recognized prowess of Lightning and Mustang crews in 1944–45 suggested the 496th successfully fulfilled a critical need.

Historical Background

The AAF that activated the 496th in December 1943 possessed a global war-fighting capability far surpassing that of the Army Air Corps from which it evolved beginning in the late 1930s. According to the AAF official history, "the whole story of Air Corps activity in the period 1939–41 may be conceived as a race against time in a desperate effort to overtake Axis air forces which had long been on a war basis."[2] In a series of escalating measures, President Franklin D. Roosevelt and Congress approved the manpower and material resources the AAF would require to help counter the Axis threat: it was clear the cost in blood and treasure would be dear.

The Case for Long-Range Escort

The Eighth Air Force was activated in May 1942 and quickly became the primary American contribution to the strategic air war against Nazi Germany. Together with nighttime area raids by the Royal Air Force (RAF) Bomber Command, Eighth Air Force high-altitude precision daylight bombing (HAPDB) would constitute the Combined Bomber Offensive (CBO).

A fundamental flaw in HAPDB doctrine eventually led the AAF to implement long-range fighter escort. Unescorted HAPDB grew out of a popular belief that fast, heavily armed bombers could protect themselves against the air defenses of an industrial adversary.[3] In practice the costs of unescorted HAPDB proved excessive. *The Army Air Forces in World War II* characterized the lack of long-range escort as the service's "most glaring pre-war omission."[4] "For a while in late 1942 and early 1943 some Eighth Air

Force officers professed to be confident that the American heavy bombers could fight their way through German fighter opposition. But their hopes died out as the missions over German soil, begun early in 1943, began to run into stiff resistance; and as the spring and summer campaigns progressed, it became increasingly evident that some sort of escort would be required if daylight strategic bombing were to continue as a successful undertaking."[5]

Establishing a viable, long-range fighter-escort capability became paramount. The AAF's approach involved increasing the range of existing and projected fighters using drop tanks that enabled fighters to carry additional fuel. P-47 Thunderbolt, P-38 Lightning, and P-51 Mustang fighters were all equipped with drop tanks by March 1944.[6] The Mustang would eventually escort the bomber force beyond Berlin and back, earning widespread recognition as the preeminent fighter of the war. In addition, all three fighters (especially the former two) served with distinction in ground support roles with both Eighth and Ninth Air Forces.

Eighth Air Force—Early Fighter Crew Training

The 496th's parent organization, the Eighth Air Force, was formally activated on 5 May 1942 under the command of Maj Gen Carl A. "Tooey" Spaatz. Army Chief of Staff Gen George C. Marshall provided Spaatz with clear guidance: "All air units initially based [in the United Kingdom] were to be integrated into the Eighth Air Force. The basic role of AAF fighter units was to be direct support of bomber operations."[7] The AAF's early fighter aircrew training concept for the ETO can be summarized as follows:

- Stateside AAF organizations were responsible for procuring, classifying, and training pilots who were commissioned, awarded wings, and assigned to specific aircraft types.
- Next, operational training units (OTU) in the United States provided aircraft-specific transition training plus gunnery, tactics, and procedures required for combat.

- Then aircrews were assigned to overseas combat units for local orientation, more specific unit training, and line duty.

However, this process was designed for whole units destined to train and deploy together. Attrition would cost aircraft and crews. Large numbers of replacement crews would be required, and senior leaders knew it.

Combat Crew Replacement Center

The seed concept for the in-theater CCRC appeared in Brig Gen Ira C. Eaker's May 1942 plan for deploying the Eighth Air Force to the United Kingdom. Eaker stated that "in order to supply replacement combat crews it is necessary to set up O.T.U.'s one per wing, in this theatre. The plan calls for taking the combat crew graduate . . . from our standard schools in the U.S., sending him to this theatre and placing him immediately in an O.T.U. Here he will be given transitional training so that he can fit into a combat squadron with the minimum number of freshman missions."[8]

The AAF established a stateside replacement training unit (RTU) system in parallel with stateside OTUs to help prepare individual aircrews to replace combat losses. A postwar US Air Force (USAF) study explained that "early in the war OTU was the more important of the two types of operational training; as more and more units moved overseas, RTU became progressively of greater consequence. By early 1944, OTU was almost at an end."[9] But combat units still had to bridge the gap between stateside training and each replacement crew's readiness for its first combat mission. General Eaker's idea of an OTU attached to every fighter group became impractical as attrition rose. "The overseas air forces," according to the USAF study, "were anxious to reduce this burdensome amount of training to a minimum so that they might concentrate more exclusively on the performance of their mission as combat air forces."[10] The Eighth Air Force eventually consolidated the replacement training function into dedicated training groups called CCRCs.

The CCRC concept relied on seasoned combat veterans to instruct replacement pilots in aerial warfare.[11] CCRC organization and functions ran parallel to combat groups, and CCRCs were established separately for fighter and bomber aircraft. A commanding officer (colonel) exercised command over his station, "troops occupied in the service and supply of the station, those occupied in station complement and airdrome defense functions and those involved in the training function itself."[12] A full-strength fighter CCRC with two flying training squadrons was designed to have a permanent complement of at least 75 officers and 280 enlisted men, plus assigned students.[13] Since the P-38 and P-51 were single-place aircraft, the terms *combat crew, student,* and *pilot* were synonymous in the 496th.

By late 1943 the European air war was consuming men and materials at a frightening rate. The Eighth Air Force positioned itself to consolidate operational training for replacement aircrews: the time for the 496th had arrived.

Notes

1. Headquarters Combat Crew Replacement Center (CCRC) No. 8, Special Order 125, 9 May 1944.

2. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations*, January 1939 to August 1942 (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983), 106.

3. Alan Stephens, ed., *The War in the Air 1914–1994* (Royal Australian Air Force Fairbairn, Australia: Air Power Studies Centre, 1994), 59. British Prime Minister Stanley Baldwin created the catchphrase underlying this belief in 1932. "I think it well . . . for the man in the street to realize," Baldwin warned, "that there is no power on earth that can protect him from bombing, whatever people may tell him. The bomber will always get through." American strategic air doctrine developed at the Air Corps Tactical School (ACTS) during the interwar years embraced this maxim and led to the HAPDB concept.

4. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 6, *Men and Planes* (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983), xiv.

5. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 2, *Europe: Torch to Pointblank*, August 1942 to December 1943 (1949; new imprint, Washington, D.C.: Office of Air Force History, 1983), 679–80.

6. Ibid., 680, 705.

7. Craven and Cate, vol. 1, 589, 590.

8. Brig Gen Ira C. Eaker, chief, American Observer Group, Plan for Bomber Command and Constituent Units to Arrive in the UK, staff study,

1942, 10. Combat crew training represented a small portion of the work ahead. *The Army Air Forces in World War II* (Craven and Cate, eds., vol. 1, 618) underscored the magnitude of the task confronting Eaker this way: "The establishment of another great air force in a country smaller than the state of Alabama (virtually all of the Eighth would be stationed in England proper), and one that was already crowded with airdromes and teeming with air traffic, would require all of the administrative skill, experience, and patience with which both the RAF and the AAF were endowed."

9. *Combat Crew and Unit Training in the AAF 1939–1945*, Army Air Forces Historical Study 61 (Washington, D.C.: Air Historical Office, August 1949), 114.

10. Ibid., 60.

11. Roger A. Freeman, *The Mighty Eighth: A History of the Units, Men, and Machines of the US 8th Air Force* (New York: Orion, 1989), 106. Brig Gen Edmund W. Hill, commanding general of Eighth Air Force Composite Command, emphasized this point in an early CCRC staffing plan: "It is strongly recommended that a minimum of 50% of the air crew instructor personnel be provided by the selection of outstanding officers and enlisted men with recent operational experience. The R.A.F. experience in this same regard has amply proven the justification for such an initial sacrifice of the use of operationally qualified personnel in order that the indoctrination of new air crews may be complete. These instructor personnel could later be returned to operations by rotation."

12. Col Stewart W. Towle, chief of staff, Eighth Fighter Command, to commanding general, Eighth Air Force, letter, subject: Activation of New Units, 21 May 1943.

13. Ibid.

PART II

496th Fighter Training Group Story

Activation—1943

A new batch of Yanks had turned up at Goxhill (rumoured to have crossed in the Queen Mary*). They seem smarter and friendlier than the last lot.*

—British diary entry

The story of the 496th in 1943 is brief. The group was activated in Northern Ireland and almost immediately transferred to England closer to combat units that would need replacement pilots. The village of Goxhill became home, and Goxhill remains the principal site with which the group is associated.

The 496th FTG was activated on 11 December 1943 at AAF station F-237, County Down, Northern Ireland, under Eighth Air Force Composite Command.[1] The AAF used numerical designators (Field - #) instead of airfield names for security: airfield names were typically associated with neighboring towns and enabled the enemy to match AAF units with their exact locations. Eighth Composite Command had been established in August 1942 to provide operational training.[2] As the war progressed, training responsibilities shifted between Composite Command and Fighter Command based on bureaucratic prerogatives and resources. An initial report noted that the 496th's "early history in Ireland was practically nil; manned only with sufficient personnel to constitute an activated organization; it had no function."[3] Within the month the 496th would acquire dedicated manpower and a more permanent home.

On 27 December 1943 the 496th was administratively transferred without personnel to Eighth Fighter Command and assigned to AAF Station F-345 to operate CCRC No. 8.[4] F-345 was Goxhill airfield, located in Lincolnshire County, England, approximately eight miles south of the city of Hull and the Humber River. Figure 1 depicts the locations of Goxhill plus Halesworth (where the group later transferred) and Atcham (home of a sister training group).

Col Harold W. McGee, F-345 station commander, assumed command of the 496th. Support units already on station but previously attached to the 67th Fighter Wing (FW) were consolidated into the new group, and Colonel

McGee began CCRC preparations. He had no time to waste: classes were scheduled to begin on 3 January 1944.

Figure 1. Key Locations

The 496th's new home represented a typical station for Eighth Air Force units. Construction of the Goxhill airfield began in October 1940, and the site opened as an RAF No. 1 Group (Bomber Command) base on 26 June 1941.[5] A succession of RAF units used the airfield until Eighth Air Force was granted control in August 1942.[6] Six separate Eighth Air Force fighter groups then passed through Goxhill as an interim station before the 496th was assigned at the end of 1943.[7] Two 3,300-foot runways supplemented a primary 4,800-foot runway—all built on a flat agricultural plane a few miles from the village of Goxhill.[8] Brick buildings housed a control tower and essential operational functions; three large steel hangars shielded maintenance functions; and Nissen huts provided housing, mess, leisure, and related space. Dispersion of the major sites provided passive defense against air attack and made bicycles a virtual requirement for shuttling between sta-

tion functions.[9] Goxhill's location to the north—away from scores of Eighth Air Force and RAF bases in East Anglia—separated student pilots from high-density combat air traffic but allowed them to experience weather and geography matching what they would later see in operational units.

The 496th was organized according to the standard CCRC model. Headquarters and the Headquarters Squadron provided command and administration. Most 496th personnel were assigned to the training squadrons. The 554th Fighter Training Squadron (FTS) was responsible for P-38 training, operations, and maintenance while the 555th FTS was responsible for P-51 functions. Other units provided support functions (ordnance, quartermaster, etc.). The 2d and 3d Target and Tow Gunnery Flights provided ground-based and aerial gunnery services.[10]

Potential group strength (total 686) by spring 1944 was 129 officers, 11 warrant officers, and 546 enlisted men based on a planned maximum of 250 student replacement pilots.[11] Personnel immediately began arriving from units in the United Kingdom, Iceland, and the United States. The new year promised rapid expansion and hard work in the months ahead.

Evolution and Operations—1944

The bulk of the 496th's operations was compressed into a single eventful year. In 1944 Allied momentum meant good news began to outweigh bad, and the D-day invasion on 6 June established a foothold on Nazi soil. Allied air muscle became increasingly dominant. By year's end the Allies—despite setbacks such as the Battle of the Bulge and the appearance of German jet aircraft—were clearly on the road to victory in Europe.

Capabilities and Challenges

Because Goxhill had previously served as a transient base for fighter units, the 496th was able to benefit from selected personnel who remained on station and were assigned to the new group. Colonel McGee had served as station commander for approximately six months before the 496th was assigned to Goxhill. The 84th Service

Squadron was redesignated the 332d Service Squadron and assisted the new 554th and 555th FTSs with maintenance tasks including furnishing tools and equipment. More important, the 332d continued to operate the Station Air Corps Supply, "greatly facilitating the obtaining of necessary Air Corps supplies."[12] Further continuity was provided by the 79th Service Group, redesignated the 333d Service Group and used for station headquarters functions. The 13th Station Complement Squadron remained in place and supplied experienced personnel for the headquarters, operations, communications, and Link trainer sections. Quartermaster, signal, military police, and ordnance companies all remained in place and continued to perform their assigned duties. A group history explained that "in addition to . . . functions these organizations continued to operate the station messes, clubs, motor pool and other activities until the progress in organization of the group permitted it to assume its share of these activities."[13] Administrative and support functions thus started with a strong foundation. Major challenges stemmed from the fact that previous station operations centered around the Republic P-47 Thunderbolt, while the 496th was tasked with P-38 and P-51 training. Gaining proficiency and experience with these aircraft was the group's biggest challenge.

The first major obstacle of the 496th in January 1944 was a shortage of trained personnel, particularly in the maintenance areas. The new-year effort was to consolidate Eighth Air Force fighter training according to aircraft type. A sister group, the 495th FTG, had been established and assigned to AAF station F-342 at Atcham, Shropshire County, on 25 December 1943.[14] Previous Atcham units had experience with the P-38, and the new 495th was assigned P-47 CCRC duties. The two groups traded P-47 mechanics for P-38 mechanics to boost their expertise in both groups.[15] In addition, "during these formulative stages constant officer meetings were held to discuss general problems and several officers visited Station F-342 . . . to learn from its experiences."[16] In the maintenance sections, "a strenuous on the job training program and experience gained during long days of work" also helped.[17]

Colonel McGee was not able to report satisfactory ground crew proficiency until May 1944.

The second major challenge for the 496th was a shortage of capable training aircraft. The group depended on senior headquarters for relief in this area since aircraft were allocated at the group level. The 496th gained gradually used aircraft from combat groups and other training units. Unfortunately, most of these were "war-weary" planes with high hours and commensurate maintenance requirements.[18] By April the 496th had more than 50 aircraft that were sufficient to execute its assigned training mission without undue measures.[19]

Training for Eighth and Ninth Air Forces

Once operational, the 496th supplied replacement crews to both the Eighth and Ninth Air Forces. Headquarters Ninth Air Force had been moved to England in July 1943 "to lead the U.S. tactical air force intended to support the cross-channel invasion," primarily with CAS and interdiction.[20] In practice the division of responsibilities between the two air forces blurred over time, and their missions became increasingly complementary.[21] The P-38 and P-51 were assigned to both air forces.

In February 1944 General Spaatz, as commanding general of US Strategic Air Forces in Europe, issued a directive assigning CCRC graduates by aircraft type. His basic policy assigned heavy bomber plus P-38, P-47, and P-51 crews to the Eighth, while medium bomber, cargo, and certain specialized crews went to the Ninth.[22] However, the policy also directed that a portion of P-38, P-47, and P-51 crews be assigned to the Ninth according to the proportion of Ninth Air Force groups flying these aircraft.[23] The exact proportion remained fluid for the rest of the war, but the 496th had to prepare replacement pilots for assignment to either air force and a variety of potential missions. The 496th's 20-day ground training syllabus (dated May 1944) illustrated this multimission training with instruction in air tactics, dive bombing, and ground strafing.[24] Flying training was similarly varied. This approach afforded senior commanders flexibility to assign graduate pilots as needed based on fluid requirements.

Mission Execution

The primary mission of the 496th was to prepare pilots for combat duty in the P-38 or P-51. Replacement pilots arrived with previous time in type (P-38 or P-51) and completed a ground school course. P-38 replacement pilots also received flight instruction. Beginning in June 1944, P-51 transition pilots were introduced to the Mustang through ground school plus flying training.[25] Replacement and transition graduates all went on to operational groups to replace attrition losses. In addition, a small number of bomber pilots were cross trained in the P-38 or P-51 for the Bomber Scouting Force.[26] Students were almost exclusively first or second lieutenants.

Training centered around a ground school of classroom lectures, written examinations, and practical drills (e.g., water survival and rescue), plus flying training when applicable. The curriculum evolved from student feedback, aircraft modifications, the instructor cadre, and the availability of advanced training aids.[27] According to the USAF Air Historical Office, "as in all types of air training, the twin goals of training were individual proficiency and teamwork."[28] The group focused on the skills and temperament needed to fight effectively and survive in the air, and assigned combat veterans as instructors.[29] One instructor described the gravity of the enterprise this way. "A belligerent spirit and the desire to kill," he explained, "must be imbued in all replacement pilots. Lack of aggressive spirit and desire to destroy the enemy will result in hesitancy and indecision which are fatal in combat."[30] The 496th's task was to couple this spirit with the skills and specialized information pilots required for combat.

Ground School. The replacement pilot ground school curriculum was baselined at 30 days when the 496th was established, then shortened to 20 days in mid-March. Ground school was the same for P-38 and P-51 replacement pilots except for an additional five-hour engineering block for the P-38 students. The twin-engine P-38 was more complicated than the single-engine P-51. New training aids including films and additional Link trainers (ground-based simulators), an enlarged training center, and refined lectures were credited for allowing the 496th to

accelerate ground training.[31] The 20-day ground curriculum included heavy emphasis on intelligence topics, and within the intelligence portion aircraft recognition represented the single largest block of instruction. Period photographs of CCRC and combat unit pilot lounges are telling in this respect: hanging models and posted silhouettes of Allied, Luftwaffe, and Italian aircraft reinforced combat crews' ability to distinguish friend from foe.

June 1944 featured a series of modifications in the ground school. The geography portion of the curriculum was expanded "as a result of constant and almost unanimous requests from the Replacement Pilots."[32] The geography phase taught student pilots key European geographic features for airborne recognition. An eight-hour block was added to the P-38 curriculum to take advantage of a newly assigned P-38 mobile training unit (MTU). The MTU provided a hands-on aircraft systems model for pilots, mechanics, and technicians. Finally, a special 10-day transition course was added for P-51 transition pilots new to the Mustang.

The P-38 MTU proved very successful for the 496th. The group reported that "the method of presentation and ability of the instructors together with the excellent facilities available made this an outstanding course from which the pilots derived considerable benefit and in which they exhibited a definite interest."[33] The 496th promptly requested a similar device for P-51 instruction and proficiency, and this new capability arrived in August.

Flying Training. Flying training complemented the ground school and was designed to expose students to aerial combat tactics, techniques, and procedures in their particular aircraft type. The training curriculum baselined in January put little emphasis on flying hours. This policy—coupled with a shortage of aircraft and severe difficulty maintaining aircraft in flying condition—limited early classes to an average of less than five hours flying time per student.[34] In March the 496th reversed emphasis to make flying time the top priority for student pilots. By May the group could report that "the arrival of an increasing number of aircraft and strenuous efforts to improve maintenance and painstaking and accurate scheduling of flying

resulted in a gradual rise to an average of ten hours or more per pilot."[35]

The flying syllabus published in May provided a nominal training profile but allowed for the vagaries of students, instructors, equipment, and weather. Comments in the syllabus noted that it was "up to the instructor to increase or decrease instruction as to the requirements of the individual pilot."[36] Furthermore, policy held that instructors were not to "place any replacement pilot up for posting until he is considered satisfactory in all phases of flying."[37] The P-51 transition syllabus began with five introductory hours then continued with more advanced instruction. P-38 and P-51 replacement syllabi were identical except for an additional two hours of single engine operation time for the P-38.

P-38 Lightning. The P-38 was designed in 1937 as a high-altitude interceptor. Lockheed produced a total of 9,536 Lightnings during 1940–45 for use in escort, photo reconnaissance, fighter-bomber and night interceptor roles.[38] Typical armament included four .50-caliber machine guns and one 20-millimeter cannon, plus bombs when required. German pilots nicknamed the P-38 *Der Gabelschwanz Teufel* (the Fork-tailed Devil)[39] or *Bel (sic) Ami Zwei-Schwane* (roughly, Two-tailed Yank).[40]

The P-38 was a challenge for new pilots. Compressibility—a phenomenon which could cause airspeed over certain parts of the aircraft to exceed the speed of sound during steep dives—could render the aircraft uncontrollable. Dive brakes installed on later models beginning in 1944 alleviated this problem, but pilots had to remain wary of excessive speed.[41] One Lightning pilot recounted the consequences of failing to do so:

> By holding such a steep angle too long I entered compressibility, that dread condition in a P-38 where the aircraft goes out of control and tucks under in a fateful dive for the earth . . . so I start all known procedures for getting a P-38 out of compression. I cut and saw the throttles, I kick alternate rudder; I push and pull on the stick but to no avail. I'm heading straight vertical. I try the trim tab and thought I felt a change. Not much but ever so little. I crank back and forth and she starts coming out. Beads of cold sweat are popping out of my pores.[42]

Powerful but complicated engines with turbosuperchargers were especially troublesome in early variants of

the P-38. In hundreds of instances a P-38 engine lost a major component such as a connecting rod and frequently caught fire as a result.[43] Asymmetric thrust created by failure of one engine could easily prove fatal for student pilots. A Luftwaffe pilot explained how German pilots were taught "to exploit its weaknesses like the blind spot presented by its odd configuration below and behind its tail, which allowed us to sneak up on it . . . and its biggest drawback was that it could be easily identified from long distances."[44]

The Lightning's difficult reputation proved tough to shake. By mid-April 1944 the 496th had experienced a dozen P-38 accidents.[45] During 19–20 April Eighth Air Force officials sent Lockheed chief test pilot Tony LeVier to Goxhill to help develop confidence in the aircraft. Two P-38 replacement pilots had been killed within the previous week. LeVier recounted,

> A most deplorable situation had arisen over the past ten days. They were losing an enormous number of pilots in transition training that was going on up there—more than was even conceivable; even if you didn't know what you were doing you shouldn't lose them like that. I went up there immediately and the things I found out amazed me.
>
> To begin with the base commander didn't like P-38s. He admitted at the bar that night that he was strictly a P-40 man, and we thought to ourselves it was a fine state of affairs to have the instructors against the airplane they were teaching people to fly. As a result, he had the most misinformed group of pilots I have ever had contact with, and their feelings toward the P-38 weren't fit to print. In view of this situation, when I gave them my demonstration the next day I really poured it on. It included things I normally wouldn't do. I went all-out to prove that any young man with average intelligence and courage could fly the P-38 just as well as myself. These kids were young, twenty or twenty-one years old on the average, and all they needed was good leaders.
>
> Before I went up I told them the manoevres they were going to see would prove to them that their mistakes were uncalled for, and their buddies were killed because they were not trained properly. When I came down I had never seen such enthusiasm; it was just as if they had been saved from he--. After that, I think they were all convinced, even the base commander, that the airplane had real possibilities and was far from being the killer it was tagged for.[46]

P-51 Mustang. The P-51 Mustang was designed in 1940 based on improvements developed for the Curtiss P-40 Warhawk. The RAF initially used the P-51 for ground support, but subsequent "cross-breeding" of the P-51 with

the powerful Merlin engine created a premier high-altitude escort and interceptor. During 1941–45, 14,490 P-51s were produced.[47] Armament included six .50-caliber machine guns, plus rockets or bombs when required.

Flying the P-51 also required concentration and skill in a new pilot. "The veterans were such skilled fighter pilots, they could do anything with the airplane," explained P-51 ace Robert J. Goebel. "It was easy to lose sight of what a daunting prospect it was for these newcomers, fresh from the States, to take the Mustang up for the first time."[48] The torque produced by the Merlin power plant far exceeded that of less capable aircraft, so ground handling, takeoffs, and landings presented a new experience. A 496th veteran remembered one unfortunate P-51 transition pilot attempting his first takeoff: "Without taking preliminary training in a much slower and easier handled AT-6 trainer plane, he took off in one of our P-51's. His takeoff was very erratic and all of us watching at the time, knew he was in deep trouble. . . . His plane crashed over the River Humber and he was killed."[49]

Fuel management was more involved in the P-51 than in less advanced aircraft. The Mustang was equipped with a fuselage tank, two wing tanks, and for long-duration missions, two drop tanks. When the 85-gallon fuselage tank was half full or more, performance in tight turns suffered markedly. Pilots had to account for this control effect when selecting between tanks on long missions.[50] The water-cooled Merlin engine created another complication for pilots. The Merlin's cooling system was highly susceptible to damage. Historian Roger A. Freeman explained how "a Mustang pilot flew in dread of that sudden rise in temperature indicating a punctured cooling system and the imminent seizure or disintegration of the engine."[51] Ground attack missions were particularly hazardous for the P-51 in this regard, and the Mustang was used primarily for (higher altitude) escort as a result.

Despite limitations the Mustang's superb performance enabled it to avoid the Lightning's troublesome reputation. Student pilots generally enjoyed the P-51 once they understood its characteristics. One P-51 pilot exclaimed, "flying the Mustang was like strapping on a Buck Rogers flying

belt and after flying in it, you didn't feel like flying anything else for years."[52]

Preparation for Combat. Knowledge of the combat environment and aircraft proficiency were only part of the 496th's training package. Determination and youthful bravado were equally important in the budding fighter pilot. Don Kocher transitioned to the P-51 with the 496th:

> When the instructor was satisfied that you knew the location of everything, you took the aircraft in the air for an orientation flight, alone, to learn its flight characteristics. This first flight could be hair-raising because you can't be absolutely certain of the outcome of any manoeuvre until you try it and learn how the aircraft responds.
>
> Most of our flying at Goxhill was alone practising acrobatics and just getting to know the aircraft. Flying with the instructor, we worked on combat formation flying and mock dog-fights.
>
> I did indulge in some low flying around Grimsby and the beach off Cleethorpes. There is something very exhilarating about seeing the ground flash past and under the wings of a speeding aircraft very low. . . . At least that is what it seemed when I was a 20 year old. The object of some of this low flying over the beach probably was to impress any of the girls that might be watching. . . . Couldn't make many passes in case someone reported the aircraft number. . . . This buzzing was frowned upon. A lot of this buzzing took place after two pilots had been practising dog fighting and were heading back to the landing field.[53]

Another student pilot illustrated the delicate balance pilots had to strike between aggressiveness and caution:

> Some time during my stay at Goxhill, we received reports and movies from wing cameras of quite a number of our pilots being too anxious to get credit for a kill and too often they would follow a damaged German plane down and forget to pull out until too late, crashing into the ground behind the enemy plane . . . then we had to change our training methods. From one of our two Link trainers . . . we had removed the canopy and mounted a gunsight (removed from a damaged aircraft) and set up a model German aircraft in the window area where our young pilots could sight in on them—all the while keeping their eyes on their altimeter, needless to say that after these boys were shown a few movies they took more interest in what they were taught in our modified Link trainer.[54]

The realism provided by the 496th was one of the final phases in a pilot's preparation for combat. Only a small portion of the 496th, the instructor corps, was directly engaged with the student pilots. Operating and maintain-

ing the station, classrooms, Link trainers, and aircraft that formed the foundation for training was another endeavor.

Support and Maintenance. While flying operations were the most visible portion of the group's activities, most of the 496th's men served in background roles such as administration, station support, and maintenance. Gunnery ranges, runways, navigation aids, ground trainers, communications equipment, the fuel depot, lodging, and mess facilities all required constant attention. Ground crews in the 554th and 555th FTSs did their best to maintain war-weary aircraft. Crew chiefs and specialists in areas such as armament, avionics, engines, and hydraulics performed regular servicing, routine inspections and adjustments, and minor repairs (first and second echelon maintenance).[55] The maintenance challenges faced by the 496th were nothing new to the Eighth, and a legacy of maintenance difficulties plagued the 496th throughout CCRC operations.[56] War-weary aircraft—coupled with aircraft shortages and constant deficiencies in experienced maintenance personnel—led the group to conclude in August 1944 that "aircraft maintenance has, during the entire history of CCRC #8 been its most pressing problem."[57]

Group and squadron reports consistently cited aircraft war weariness as a major maintenance factor.[58] P-38s and P-51s assigned to the group were mostly castoffs from combat units. As aircraft aged they became more susceptible to breakdowns, required time-consuming overhauls, and became outdated when more advanced models appeared. Spare parts did not appear to be a serious problem for the group. Aircraft inventory was essentially a function of two factors: excess combat aircraft available for CCRC assignment and losses due to accidents. Until August 1944 the group was hard-pressed to meet flying requirements with assigned aircraft. In August the 496th received an influx of P-51s concurrent with the transfer of P-38 aircraft and P-38 CCRC functions to another base. Goxhill's P-51 inventory then stabilized at approximately 60–75 aircraft, with one-half to two-thirds of the inventory usually mission capable on any given day.[59] The third major maintenance limitation—experienced personnel—reflected the AAF's enormous wartime challenge of classifying, training, and assigning the prodigious mechanics

and technicians needed for a worldwide inventory that reached 79,908 aircraft in July 1944.[60] Aircraft mechanics completed a 16-week basic course plus, in some cases, advanced training in a particular subsystem. Other specialties underwent their own training ranging up to six months or more.[61] On-the-job experience under the tutelage of senior personnel was the final training ground. The 496th used extensive on-the-job training, transferees, off-station technical schools operated by Eighth Air Force Service Command, and MTUs to address shortfalls in maintenance personnel.[62] On-the-job training and transferees proved especially helpful when the group relinquished P-38 responsibilities in August. Most of the P-38 support personnel were retained and cross-trained for P-51 responsibilities, and more than 12 inbound transfers brought additional P-51 experience.[63]

The satisfaction gained from keeping aircraft in operation had a cost. The group recorded how in one stretch "the men worked far into the night, after a full day's work, to complete maintenance on their aircraft and have it in commission for the following day's flying. Men scrambled over their planes in between flights to remove paint, grease, gas, etc., and thus allow the next pilot to use the plane in as good a condition as they possibly could."[64] One Goxhill ground crew veteran recalled an exciting—if hazardous—aspect of work on the flight line:

> The crews had to hand-crank the P-38's to start them. We wound up an energizer and on the given signal, the pilot engaged the starter and kicked the engine off. With one engine running, the generator output would start the other engine unassisted. With the pilots using the hand primer in this method we had lots of fires under the engines of the P-38s and -47's when they were over-primed. We really sweated out some pilots more than others. About the time you were ready to unleash the fire extinguisher, the engine would finally kick off and blow out the fire with propwash.[65]

There were positive aspects to support duties. For example, an armament officer explained how "the 496th maintained an aerial gunnery range (Holmpton Range) on the coast of Withernsea. During gunnery practice, four or five people from the armament section would go to Withernsea on temporary duty to set up targets and score hits. Withernsea was a beautiful village, the people were friendly and gracious, and this was delightful duty."[66]

Little touches helped. Outstanding effort might gain a unit a two-day pass, while coffee and donuts from the Red Cross coffee wagon brightened long hours on the flight line.

The final major factor impacting the 496th's ability to execute its training mission was weather. Weather played a profound part in all United Kingdom flying operations, and Lincolnshire County was no exception. In October 1944 the group's historian summarized 10 months of flying operations by noting, "the weather seems to have been almost unvarying in its unsuitability."[67] Fortunately, the local hosts were more welcoming.

Wartime in Goxhill

Relations between station personnel and the British were generally excellent. Mutual respect and common purpose bridged minor cultural gaps. The Eighth had relied heavily on British experience, assistance, and resources from the beginning. British contributions in weather, intelligence, communications, air traffic control, and air defense for Eighth Air Force installations were common; and Goxhill airfield was no exception.[68]

Local residents were no strangers to war when the 496th arrived, as Goxhill native Ron Parker recalled:

> After the Munich affair in 1938, a degree of change began to develop and the military projects were soon making their presence felt locally. . . . The final year of the decade saw a mammoth change in the lives of the residents, namely, the fitting of Gas Masks, new personal identification. A census preparing our village community to receive an influx of evacuees from the urban districts, mainly Hull, in the event of hostilities breaking out. . . . By September 1939 people were being told about Black-out precautions and the impending food rationing system. Instruction in the formation of air-raid warden units and the familiarisation with the tone and duration of the air-raid sirens. . . . Sunday, September 3rd brought the official declaration of war. . . . The short summer nights of June (1940) saw air-raids on the ports of Hull. During a three-night operation, we were to witness at close range the destruction of seven miles of Dockland across the river, by fire and H.E. (high explosive) bombs, together with large sections of the city. Even the rural areas like Goxhill didn't escape and at various times received random sticks of bombs.[69]

British troops and the Home Guard—a civil defense outfit—operated searchlight units and light antiaircraft gun emplacements for air defense of the village.[70] Roadblocks

and several small fortifications with light machine guns were further reminders of war.

Goxhill—nicknamed Goat Hill by US soldiers—offered a mix of familiar and new for members of the 496th. The Brocklesby Hunt and Generous Briton provided a taste of British pub life.[71] The Red Cross in nearby Grimsby was a favorite destination, where one veteran recalled he "could get a bed for 50 cents U.S., and food was also available. We could catch the train after duty hours, spend the night, and return on an early morning train in time for work. On these trips it was not unusual to see Buzz Bombs at dusk and contrails from V-2 rockets at dawn, so we always tried to get a seat on the east side of the train."[72] The group generously opened social activities to local citizens, and soldiers were encouraged to bring food on the many occasions when locals invited them for tea or supper. Years of rationing made the British especially appreciative of treats such as fresh oranges, Coca-Cola, or a ham. The 496th's annual Christmas party offered local children small gifts and an abundance of sweets.

Recreation and Morale. Routine in the 496th centered around the training mission and the support functions required to operate the station and its aircraft. The distinction between officer and enlisted was important in any AAF flying unit. The officer corps at Goxhill included permanent party plus student pilots who transited through the station for brief periods (two to four weeks was typical). Enlisted men outnumbered officers four-to-one, were paid less, and enjoyed a quality of life below officers but often far above the local populace.

Life in the 496th was not all work. Long hours were not unusual, but recreation activities lessened the burden and improved morale. In his 1942 report, General Eaker discussed at length his expectations to provide the Eighth as near as possible with food, living conditions, and activities similar to American standards.[73] By the time the 496th was activated, the Eighth had a well-established infrastructure to satisfy the basic needs of its men. Unit histories for the 496th and subordinate units paid heavy attention to activities—including movies, a gymnasium, a library, chapel services—and athletics—including softball, volleyball, and gardening. An officers' club served commis-

sioned officers, while the post exchange offered enlisted men a parlor for beer and soft drinks. The American Red Cross operated the Aero Club with dances, games, and various parties for the enlisted men. Local women were frequent guests at station social functions, and a number of men from the group married British women. Several factors made morale a persistent issue, however.

The nature of the 496th's mission, limited promotions for enlisted men, and tedium all made morale suffer. Training missions lacked the glamour and excitement of combat. The 496th was ineligible for combat-related citations and decorations, but comparable duties in fighting units earned soldiers these rewards and the associated spotlight. A top-heavy enlisted force made promotion opportunities for junior enlisted men rare. Monotonous duties such as military drill compounded the equation.[74] Maintaining morale was a constant challenge for station leadership.

Unit history reports discussed morale with candor. An August 1944 report illustrated how station leadership tried to assess the intangibles of welfare and morale:

> Venereal disease problems still plague the station and a strenuous effort to halt it has been ineffective. Military courtesy standards fell through and resulted in a three hour course being given all personnel during the month. Morale is seriously affected by lack of promotional opportunities due to filled up T.O.'s [Table of Organization]. The Fighter Training Group which was activated overseas and assigned number of high ranking enlisted men left few opportunities to reward capable men resulting in some degree of dissatisfaction. That factor together with the monotonous role of a training command are difficult to overcome. The station's participation in the Eighth Air Force War Bond Drive met with success with a subscription of 159% of its quota. The purchase of bonds has effectively reduced the cash available and will minimize some of the problems arising out of excessive spending by troops.[75]

Records indicated the 183d Medical Dispensary plotted venereal disease incidence as a primary indicator of morale and off-duty discipline. Absent without leave (AWOL) and various infringements were tracked and reported to Colonel McGee in a similar fashion. The group conducted courts-martial for offenses such as petty theft and going AWOL. The vast majority of discipline problems were minor infractions reflecting the understandable frustrations of

young soldiers—mostly conscripts—assigned to low-profile duties in a support unit.

Anxiety and Confidence—Operation Overlord

During May and June the Allied invasion of Europe was the pivotal event for the 496th. In May the group put heavy emphasis on station defense and force protection, including several major exercises plus daily ground defense alerts at the end of the month. The exercises covered a wide range of potential German threats including day or night bomber raids, airborne assault, sabotage, and poison gas attack.[76] By June measures included 24-hour manning of antiaircraft guns (usually nighttime only), double-strength guard units, firearms assigned to all station personnel, and tight restrictions on station access. Anxiety peaked with the invasion on 6 June. According to the group history, "D day caused a stir of excitement divided between hope and concern particularly over the weather, omni-present in the minds of airmen. As the days passed the alertness against possible counteraction lessened; not officially but in the minds of the individuals. Many of the Replacement Pilots anxious to participate in the fray welcomed the orders posting them to groups immediately, some of whom had not begun training."[77] By late June the 496th reduced defensive measures as threat conditions returned to a normal level.

P-38 Lightning Operations End—August

The most important event to affect the group in August was Eighth Composite Command's decision to consolidate P-38 CCRC functions in the 495th FTG at AAF station F-342, Atcham, on 14 August.[78] The 496th's P-38 aircraft, type-specific training materials, and P-38 instructor corps were quickly transferred to Atcham; and the 554th FTS was assigned training and maintenance responsibilities for the P-51. This new role meant P-38 ground crews had to begin crossover training to assume P-51 duties. The move consolidated P-51 CCRC functions in the 496th and simplified training, operations, and logistics requirements at Goxhill to a single aircraft type.[79]

Command Realignments

Autumn 1944 began a series of command realignments affecting the 496th. The first change—announced in mid-September and effective 1 October—reassigned the 496th and its sister group (495th FTG) from Composite Command to Fighter Command. This move was designed to give Fighter Command greater control over operational training, but the decision to reestablish OTUs at operational fighter groups several weeks later made the move moot. The 496th remained under Fighter Command until early December when it was reassigned to the 2d Bomb Division, Eighth Bomber Command, and transferred to a new station. In February 1945 the 2d Bomb Division was redesignated the 2d Air Division to reflect the attachment of fighter wings. The 65th FW was attached to the 2d Air Division, adding an intermediate level of command. By late February organizational stability was achieved—the 496th FTG reported to the 65th FW which reported to the 2d Air Division, Eighth Bomber Command. This chain of command remained in place until the 496th was inactivated in April.[80] The realignments had little effect on 496th FTG operations since the group's primary mission was abolished in October 1944. The impact on the 496th was primarily administrative.

CCRC Operations End—October

In October a change in in-theater operational training policy ended the group's CCRC mission. Training responsibilities for the 496th and its sister group were terminated on 26 October.[81] The Eighth restored the concept of OTUs within operational fighter groups. This approach allowed replacement crews to train with the same group they would eventually join in combat. The advantages of the in-theater OTU outweighed misgivings about the burdens imposed on combat units. Senior leaders sought a simpler, more seamless transition for new combat pilots in these "clobber colleges." According to Freeman,

> the value of the scheme soon made itself plain . . . in that the trainees quickly became imbued with the spirit of the group and were eager to take part in combat flights. Moreover, in obtaining the necessary final polish to their art they became versed in the opera-

> tional peculiarities pertaining to their particular group, and were as up to date on the latest procedures and tactics as the operational pilots themselves. This, in fact, was the idea behind the scheme, a smooth transition for the newcomer.[82]

The end of CCRC responsibilities brought a lull to the 496th. The group transferred aircraft and training materials to other units but retained most personnel and maintenance equipment. Soldiers were kept occupied with ground defense exercises, military training, and sports.

Farewell to Goxhill—November–December

In a quick succession of moves, the 496th vacated Goxhill airfield at the end of 1944. First, on 18 November the 2d Gunnery and Tow Target Flight was reassigned and moved by air and truck convoy to AAF station F-373 at Leiston. The 554th FTS was reassigned to the 3d Bomb Division and transferred to AAF station F-157 at Raydon with the 353d Fighter Group (a P-51 operational unit) in early December. The 333d Service Group and 1148th Quartermaster Company detachments were reassigned to the 1st Bomb Division but remained on detached service to the 496th and would accompany the group to its new station.

On 9 December the group received orders for a permanent change of station to AAF station F-365 at Halesworth, Suffolk County. Located in the village of Holton in East Anglia, just eight miles from the English Channel, Halesworth airfield had been hurriedly vacated by the 489th Bombardment Group (Heavy) several weeks earlier.[83] The 496th quickly drew up transfer plans, sent an advance echelon on 10 December to prepare the station, and completed the move to Halesworth on 15 December. The group noted, “upon arrival at Station 365 it was found in a deplorable state due undoubtedly to the hurried departure to the Zone of Interior by the previous occupants. The station being non-operational, all personnel were employed in a large scale rehabilitation program and by 31 December, the station was made livable though a great deal of work remains.”[84]

Goxhill airfield was transferred to RAF Fighter Command on 20 January 1945, used primarily for bomb

storage, and eventually inactivated on 14 December 1953.[85]

Endgame—1945

The 496th began 1945 with a reduced mission at a new home. A unit history recorded that the group was assigned "as the coordinator of 2nd Air Division activities of Station 365. They were a unit without a tactical objective. They were engaged in preparing the Station for whatever purpose it might be asked to accomplish."[86] In its final months the group provided manpower, maintenance, and support services for an air-sea rescue squadron and other Halesworth units. The group also serviced aircraft diverted to Halesworth by combat damage, malfunction, or weather.

Late Operations

During the first half of January, the 496th continued station repair and cleanup activities.[87] In mid-January the 5th Emergency Rescue Squadron, 1st Gunnery and Tow Target Flight, and 2d Weather and Relay Flight were assigned to Halesworth.[88] The rescue squadron arrived with experienced staff and established procedures. This fact—and the squadron's unique mission (unrelated to pilot training)—allowed the squadron to function with a high degree of autonomy.

The 5th Emergency Rescue Squadron quickly became the dominant unit at Halesworth in terms of assigned personnel, aircraft inventory, and operations tempo.[89] By 31 January it operated with nine officers and 122 enlisted men, many of these reassigned from the 555th FTS. The squadron used three types of aircraft to perform search and rescue for aircrews forced down over water. War-weary P-47 Thunderbolts modified to carry smoke markers and air-drop dinghy packs were used as spotters. Twin-engine OA-10A Catalina amphibians could land in water to pick up downed crews. Several B-17G airborne lifeboats were assigned in March. The B-17s carried a provisioned, seaworthy, rigid lifeboat that could be dropped by parachute to seaborne aircrews. The rescue squadron remained extremely active while assigned to Halesworth, flying over

300 sorties per month and executing scores of successful rescues.[90] One P-47 and two OA-10 Catalinas were lost during this period.[91]

The 1st Gunnery and Tow Target Flight numbered approximately 40 personnel and towed aerial targets for various fighter groups of the 65th FW. The unit flew a variety of aircraft including the P-47 Thunderbolt, A-35 Vengeance, A-20 Havoc and B-26 Marauder.[92] The 2d Weather and Relay Flight, with more than 90 officers and men, used modified B-24 bombers as long-range weather observation platforms.[93]

Inactivation

The 496th was inactivated on 26 April 1945, two weeks before the German surrender. The rescue squadron and other attached Halesworth units stayed and reported directly to the 65th FW. Virtually all remaining 496th FTG personnel were reassigned to the 332d Air Service Squadron to await the end of European hostilities and subsequent reassignment or discharge. Halesworth airfield was transferred to RAF Bomber Command on 5 June 1945 and closed for flying in February 1946.[94]

Contributions

The 496th FTG made its primary contributions to the war operating as CCRC No. 8 during January–October 1944. After October 1944 the group was relegated to less substantive missions unrelated to fighter training.

Trained Combat Crew

During 10 months of CCRC No. 8 operations, 2,481 student pilots entered training with the 496th. With the number of students assigned in each, there were four categories:

1. P-38 Lightning replacement pilots (ground and flight training)—718
2. P-51 Mustang replacement pilots (some received ground training only)—567

3. P-51 Mustang transition pilots (new to aircraft; ground and flight training)—1,179
4. Bomber Scouting Force pilots (ground and flight training; aircraft not specified)—17[95]

Category two, P-51 Mustang replacement pilots, included some pilots who had recently received P-51-type training in the United States and did not require extensive additional flying training. These students only attended ground school with the 496th for theater familiarization. Category four included Eighth Bomber Command bomber pilots who cross-trained into fighters to scout weather conditions.

A total of 2,434—or 98.1 percent—of entering student pilots successfully graduated.[96] A few graduates went to other units for additional training, but records indicated that the great majority were posted to operational groups in the Eighth and Ninth Air Forces.[97] Table 1 replicates a table from group records, and lists descriptive data for each of the group's 43 classes.[98]

Accidents and Losses

Aircraft accidents were an unfortunate fact of life in the 496th. Seven student pilots were seriously injured, 23 killed, and 53 aircraft were lost in 117 major accidents.[99] Table 2 replicates an accident analysis table from group records.[100]

Observations

Several observations are notable. The group appeared to gain efficiencies and effectiveness over time. Condensing replacement pilot ground school training from 30 to 20 days was one example. Curriculum modifications and the addition of MTUs suggested CCRC No. 8 constantly refined its courses. Strong, sustained effort allowed the group to overcome many shortfalls in aircraft maintenance. Maintenance improvements and increases in aircraft inventory contributed to a marked increase in the average amount of flying training provided students.

Table 1
Class Data

Class #	Arrival	Departure	Type	# Students	# Killed	Avg Flt Time/Student
1	2-Jan	7-Feb	P-51	32		2:50
2	2-Jan	19-Jan	P-51	7		None
3	29-Jan	24-Feb	P-38	82		5:05
4	1-Feb	26-Feb	P-51	72		2:03
5	1-Mar	27-Mar	P-38	51		6:40
6	15-Mar	15-Apr	P-51	9		8:34
7	17-Mar	3-Apr	P-51	41		2:55
8	17-Mar	17-Apr	P-51	40		6:38
9	24-Mar	22-Apr	P-38	29		7:15
10	1-Apr	22-Apr	P-38	69	2	4:10
11	8-Apr	1-May	P-51	75		8:17
12	13-Apr	8-May	P-38	36		6:07
13	20-Apr	15-May	P-38	75	1	4:06
14	20-Apr	15-May	P-51	16		14:36
15	28-Apr	25-May	P-51	56		13:48
16	3-May	23-May	P-38	51	3	9:43
17	3-May	23-May	P-51	51		11:55
18	18-May	15-Jun	New	94	4	15:45
19	18-May	13-Jun	P-38	111	2	6:43
20	20-May	13-Jun	P-38	34	1	7:00
21	7-Jun	13-Jun	P-51	63		None
22	28-May	12-Jul	New	83	1	13:42
23	8-Jun	12-Jul	New	31	3	13:42
24	13-Jun	14-Jul	P-38	106		11:43
25	17-Jun	30-Jun	P-51	30		None
26	3-Jul	1-Aug	P-38	6		36:41
27	29-Jun	1-Aug	New	54		21:25
28	12-Jul	26-Jul	P-51	75		None
29	16-Jul	8-Aug	New	106	2	14:08
30	16-Jul	8-Aug	P-38	50		22:00
31	16-Jul	3-Aug	P-51	40		None
32	26-Jul	16-Aug	New	80	1	15:25
33	26-Jul	16-Aug	P-38	6		21:28
34	6-Aug	4-Sep	New	134	1	16:05
35	18-Aug	1-Sep	P-51	25		None
36	21-Aug	15-Sep	New	71		14:27
37	25-Aug	20-Sep	New	67		13:17
38	26-Aug	20-Sep	New	14		14:31
39	28-Aug	9-Sep	New	8	1	19:18
40	30-Aug	26-Sep	New	144		12:42
41	28-Sep	17-Oct	New	8		20:11
42	29-Sep	27-Oct	New	242		13:17
43	Varied	Varied	New	7	1	Unknown
Totals				2,481	23	13:46

Source: Headquarters 496th Fighter Training Group, Historical Data, GP-496-HI(F) in USAF collection, AFHRA, Maxwell AFB, Ala., October 1944.

Legend:
Class #: Sequential number of each incoming class
Arrival, Departure: Self-explanatory
Type: Category of student pilots. Bomber Scouting Force pilots were folded into these categories.
P-38 = P-38 replacement
P-51 = P-51 replacement
New = P-51 transition
# Students: Number of students entering at class start
# Killed: Student pilots killed in training accidents
Avg Flt Time/Student: Average flying training provided each student (hours:minutes)

Table 2
Accident Analysis

Accident Analysis, AAF Station F-345 January–October 1944																	
			Casualties			Rate/1,000 hours				Type of Accident					Cause		
Aircraft	Hours	#Accidents	Planes Lost	Pilots Killed	Pilots Injured	Accidents	Planes Lost	Pilots Killed	Pilots Injured	Flight	Landing	Taxiing	Takeoff	Other	Material Failure	Pilot Errors	Other
P-51	23,417	71	22	10	3	3.1	0.94	0.43	0.13	29	26	14	2	0	9.15	53.15	9.2
P-38	7,432	46	31	13	4	6.2	4.16	1.75	0.54	24	15	5	1	1	13	29.5	4
Totals	30,849	117	53	23	7	3.8	1.7	0.75	0.22	53	41	19	3	1	22.15	82.65	13

Source: Headquarters 496th Fighter Training Group, Historical Data, GP-496-HI(F) in USAF collection, AFHRA, Maxwell AFB, Ala., October 1944.

Injuries or fatal accidents accounted for all but 18 students who did not complete CCRC training. The extraordinarily high graduation rate suggested CCRC No. 8 was not intended to sort out pilots unfit for combat; instead, the CCRC was a “finishing school” for pilots already considered suitable for fighter duty.

Table 2 indicates 496th FTG students were approximately twice as likely to suffer accidents in the P-38 as the P-51 (6.2 versus 3.1 accidents/1,000 hours). Significantly higher P-38 aircraft loss, pilot fatality, and pilot injury rates suggested P-38 accidents were also more severe. All

these figures appeared to buttress the aircraft's dangerous reputation among student pilots. More detailed analysis of CCRC operations, including aircrew training and accidents, provides an opportunity for further research.

The Big Picture

The 496th FTG represented one small segment of a massive AAF training apparatus that produced more than 35,500 fighter pilots in the final two and one-half years of the war.[101] The group's precise contributions to Allied victory in the air over Europe were difficult to define. The major problem is a lack of similar units for comparison. The only other dedicated fighter CCRC in Europe, the 495th FTG, primarily flew the P-47 Thunderbolt.[102]

The period during which the 496th trained pilots provided an important context for this research paper. By the time the group began CCRC operations in January 1944, the desperate days of the early air war had passed. The Allies steadily gained advantages over the Luftwaffe in resources, equipment, and training. Graduate replacement and transition pilots entered a fight that was always deadly. But the later a new AAF fighter pilot entered combat, the greater his odds of enjoying numerical and tactical superiority over his opponent.

Luftwaffe training during 1944–45 offered a particularly relevant counterpoint. Historian Alfred Price explained that by May 1944, "under the severest pressure to produce replacements to fill the gaps in the ranks of the fighter force, the German fighter training schools were reaching a stage close to chaos."[103] In summer 1944 AAF replacement pilots reported for combat duty with an average of 360 hours total flying time; their German counterparts averaged 100 hours or less.[104] This disparity grew in the last year of the war. "The Luftwaffe," explained historian W. A. Jacobs, "was caught in an increasingly vicious circle. As its less qualified pilots entered the force, they were killed or injured at increasing rates because they had to fight fresh pilots who were better trained as well as the veterans whose experience made them more lethal adversaries with each passing day."[105] By 1945 German replacement pilots

faced tragically long odds. Hans-Ulrich Flade joined his Luftwaffe fighter unit in February 1945:

> Each morning we pilots had breakfast together, and the replacements would come in. The older pilots regarded the young newcomers as though they had only days to live—and with reason, for the standard of fighter conversion training was now so low that most of the new pilots flew only two or three missions before they were shot down. I remember many conversations along these lines—not exactly a cheerful subject for a young man who had just joined his first operational unit![106]

Aircrew training was a recognized factor in the success of AAF fighter forces against the Luftwaffe.[107] Senior Luftwaffe remarks offered perhaps the most meaningful evaluations of American aircrew skills. *Generalleutnant* Adolf Galland directed the Luftwaffe fighter force for approximately three years during the war.[108] In April 1944 Galland wrote that AAF pilots were "exceptionally well trained" and in another passage recorded, "the standard of the Americans is extraordinarily high."[109] A different German commander remarked, "it was primarily the high quality of their training which enabled American fighter pilots to execute their unparalleled and difficult . . . missions."[110] The 496th helped earn such acknowledgments by overcoming maintenance shortfalls, aircraft shortages, and persistent morale issues to train successfully more than 2,400 fighter pilots.

The true contributions of the 496th FTG transcend numbers. The intangibles that distinguished aces from the defeated did not lend themselves to precise measurement. The CCRC was responsible for imparting technical and manual proficiency, a team orientation and fighting spirit. The 496th represented a small but vital link in the complex chain of events that turned young men into air warriors.

Notes

1. History, 496th Fighter Training Group (FTG), January–February 1944, 1.

2. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations, January 1939 to August 1942* (l948–1958; new imprint, Washington, D.C.: Office of Air Force History, 1983), 616.

3. History, 496th FTG, December 1943 to 1 June 1944, 1; and Roger A. Freeman, *The Mighty Eighth: A History of the Units, Men, and Machines of the US 8th Air Force* (New York: Orion Books, 1970), 237. Freeman

explained such paper activations were not unusual at the time: “Units of the USAAF were first constituted—in simple language, a designation for a unit was put on the books. Activation was to bring a unit into physical existence by assigning personnel and equipment. However, because of shortages and the overloading of training facilities, many wartime activations were initially of a token nature with perhaps one officer and one enlisted man assigned. Sometimes it was purely a ‘paper’ activation, the order to activate was made but personnel were not assigned for some weeks. Many Eighth Air Force groups began life in this way and were often transferred ‘less personnel and equipment’ to another base before the first batches of men arrived to make it a physical entity. The original cadres frequently came from old established groups which performed an amoeba act.”

4. History, 496th FTG, January–February 1944, 1.

5. Roger A. Freeman, *Airfields of the Eighth—Then and Now* (London: Battle of Britain Prints International, 1978), 99.

6. Ibid., 99.

7. Freeman, *The Mighty Eighth*, 238–52. Freeman explained that “Goxhill . . . served as an interim station for newly arrived fighter units where personnel could be instructed in operational procedure etc. peculiar to the ETO.” These early groups made infrastructure improvements that would later benefit the 496th, including an enlisted recreation facility and improvements to the officers’ club and various work areas.

8. Len Dixon and Ronald Parker, eds., *Goxhill at War* (St. Paul, Minn.: Phalanx Publishing Co., 1994), 17.

9. Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 2, *Europe—Torch to Pointblank, August 1942 to December 1943* (l948–1958; new imprint, Washington, D.C.: Office of Air Force History, 1983), 608.

10. Maj William A. Sherwin, assistant adjutant general, Headquarters Eighth Fighter Command, to commanding officer, 67th Fighter Wing and commanding officer, AAF Station F-342, letter, subject: Designation of C.C.R.C., 26 December 1943.

11. History, 496th FTG, December 1943 to 1 June 1944, 1.

12. Ibid.

13. Ibid.

14. Freeman, *The Mighty Eighth*, 262.

15. History, 496th FTG, December 1943 to 1 June 1944, 2.

16. Ibid.

17. Ibid.

18. Craven and Cate, eds., *The Army Air Forces in World War II*, vol. 6, *Men and Planes* (l948–1958; new imprint, Washington, D.C.: Office of Air Force History, 1983), 394. The editors outlined “the concept of war-weary aircraft which came into use during the war to describe individual planes that had outlived their combat usefulness and were retired from combat service.”

19. History, 496th FTG, December 1943 to 1 June 1944, 2.

20. Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Center for Air Force History, 1996), 250.

21. Ibid., 316, 317, 360. Davis explained how, between January and March 1944, fighter commanders in the Eighth adopted an increasingly aggressive strategy to conduct offensive counterair attacks in the air and, eventually, on the ground. “By the end of January, the Eighth abandoned pure close escort, substituting a system based on the doctrine of ‘ultimate pursuit,’ which allowed U.S. fighters to follow the enemy, wherever he

might be, until they destroyed him in the air or on the ground." In addition, "strategic missions consisted of much more than simply flying the heavy bombers and escorts to their objectives and returning them. Punishing the Luftwaffe as well as destroying targets required large-scale assistance from the Ninth."

22. Col J. B. Gordon, assistant adjutant general, Headquarters US Strategic Air Forces in Europe, to commanding general, Eighth Air Force, and Ninth Air Force, Eighth AFRD, letter, subject: Assignment of Replacement Combat Crews, 26 February1944.

23. Ibid.

24. Lt Col Joseph F. Hunker, director of training, Training Memorandum 50-1, 8 May 1944.

25. *Combat Crew and Unit Training in the AAF 1939–1945*, Army Air Forces Historical Study 61 (Washington, D.C.: Air Historical Office, August 1949), 35. The stateside AAF Training Command performed transition training for all fighter types except the P-47 and P-51. Transition for these aircraft was normally accomplished in-theater.

26. Alfred Price, *Battle over the Reich* (New York: Scribner, 1973), 177. Bomber Scouts flew ahead of their bomb groups and relayed weather information back to their force commanders, who then decided between striking main or alternate targets.

27. Col H. G. Culton, adjutant general, Headquarters Eighth Air Force, to commanding general, Eighth Air Force Service Command et al., letter, subject: Combat Crew Replacement Training Responsibilities, 30 August 1943. Fighter Command had significant influence over the training materials used by Composite Command. In August 1943 Headquarters Eighth Air Force directed Fighter Command to furnish Composite Command "such training syllabi and pertinent training literature" necessary for CCRC fighter training. More pointedly, the Eighth decreed that "training standards for fighter replacement crews will conform to the wishes of the Commanding General, VIII Fighter Command."

28. *Combat Crew and Unit Training*, 35.

29. Maj Gen Carl Spaatz, commanding general, Eighth Air Force, to chief of the Army Air Forces, letter, subject: Combat Crew Replacements, 13 July 1942. Eighth Air Force policy recognized the importance of combat experience in CCRC instructors. "In the event that personnel for operating the CCRC stations are not available for dispatch to this theater," Spaatz reported, "it will be necessary to reduce the operating strength of the Eighth Air Force by diverting combat units for the purpose."

30. Martin Bowman, *8th Air Force at War—Memories and Missions, England 1942–45* (Sparkford, U.K.: Patrick Stephens, 1994), 99.

31. History, 496th FTG, December 1943 to 1 June 1944, 2.

32. History, 496th FTG, June 1944, 1.

33. History, 496th FTG, July 1944, 1.

34. History, 496th FTG, December 1943 to 1 June 1944, 3.

35. Ibid.

36. Hunker, Memorandum 50-1.

37. Ibid.

38. Craven and Cate, vol. 6, 215.

39. Dixon and Parker, 39.

40. John M. Gray, *The 55th Fighter Group versus the Luftwaffe* (North Branch, Minn.: Specialty Press, 1998), 17.

41. John D. Mullins, *An Escort of P-38s: The 1st Fighter Group in World War II* (St. Paul, Minn.: Phalanx Publishing Co., 1995), 25.

42. Ibid., 122.

43. Gray, 27–29.
44. Ibid., 17.
45. History, 496th FTG, October 1944.
46. Dixon and Parker, 41, 42.
47. Martin W. Bowman, *The USAAF Handbook 1939–1945* (Mechanicsburg, Pa.: Stackpole Books, 1997), 149.
48. Robert J. Goebel, *Mustang Ace: Memoirs of a P-51 Fighter Pilot* (Pacifica, Calif.: Pacifica Press, 1991), 210, 211.
49. Ron Parker, ed., *A Village at War: Goxhill* (St. Paul, Minn.: Phalanx Publishing Co., 1996), 125.
50. Goebel, 85. Mustang pilots had to balance the potential control problem posed by a full fuselage tank against the range benefits of selecting drop tanks for the initial phase of the mission to conserve fuselage and wing tank fuel. Once drop tanks were released, any remaining fuel in the drop tanks was lost.
51. Freeman, *The Mighty Eighth*,188.
52. Gray, 59.
53. Dixon and Parker, *70–72*.
54. Parker, 129, 130.
55. Craven and Cate, vol. 6, 388, 389, 630. Depots at other stations performed periodic overhauls, structural repairs, and other intensive functions under third and fourth echelon maintenance. AAF Regulation 65-1, 14 August 1942, defined and discussed the echelons of aircraft maintenance as follows:

1st Echelon:	That maintenance performed by the air echelon of the combat unit.
2d Echelon:	That maintenance performed by the ground echelon of the combat unit, air base squadrons, and airways detachments.
3d Echelon:	That maintenance performed by service groups and subdepots.
4th Echelon:	That maintenance performed by air depot groups and air depots.

First echelon maintenance will normally consist of servicing airplanes and airplane equipment, preflight and daily inspections, and minor repairs, adjustments, and replacements.

Second echelon maintenance will normally consist of servicing airplanes and airplane equipment, performance of the periodic preventative inspections and such adjustments, repairs, and replacements as may be accomplished by the use of hand tools and mobile equipment.

Third echelon maintenance embraces repairs and replacements requiring mobile machinery and other equipment of such weight and bulk that ground means of transportation is necessary. This echelon includes field repairs and salvage, removal and replacement of major unit assemblies, fabrication of minor parts and minor repairs.

Fourth echelon maintenance includes all operations necessary to completely restore worn or damaged aircraft to a condition of tactical serviceability and the periodic major overhaul of engines, unit assemblies, accessories, and auxiliary equipment; the fabrication of such parts as may be required in an emergency or as directed in technical instructions; the accomplishment of technical compliance changes as directed; replacement, repair, and service checking of auxiliary equipment; and the recovery, reclamation, or repair and return to service of aircraft incapable of flight.

56. Craven and Cate, vol. 1, 633. The official history reported, "no part of the problem of establishing an American air force in Britain was more fundamental, or entailed more difficulties, than that of providing adequate supply and maintenance."

57. History, 496th FTG, August 1944, 1.

58. History, 496th FTG, July 1944, 1. "Greater efficiency could be attained by the assignment of better conditioned aircraft" typified frequent entries citing the effects of war-weariness.

59. History, 496th FTG, September 1944, 1, 2.

60. Craven and Cate, vol. 6, 423, 449. A 1941 AAF appeal for recruits noted "that for every plane in the air from six to twenty-two maintenance men were required on the ground."

61. Ibid., 638. For example, radio operator-mechanics took an 18- to 26-week course that enabled them "to operate an aircraft radio station at a speed of sixteen words a minute [Morse code] and to perform first and second echelon maintenance of all equipment."

62. History, 496th FTG, August 1944, 1.

63. Ibid. In August the group also instituted a production line maintenance system for periodic inspections. Operating at night, the inspection section assigned mechanics and technicians to specific subsystems or inspection phases. Men were allowed to rotate through different stations to retain overall knowledge and reduce monotony. While the relatively small aircraft inventory at Goxhill limited the efficiency of this approach, the group retained production line inspections for the remainder of CCRC operations. Reports in 1945 did not indicate whether this practice continued after the CCRC mission terminated.

64. History, 554th Fighter Training Squadron, September 1944, 2.

65. Parker, 94.

66. Dixon and Parker, 97.

67. History, 496th FTG, October 1944, 1.

68. Craven and Cate, vol. 1, 651. Eaker recognized the British for their cooperation and fellowship in a June 1942 report to Spaatz, concluding, "We are extremely proud of the relations we have been able to establish between our British Allies and ourselves, and we are very hopeful that the present basis can be continued, and that all incoming staff and tactical commanders will take the same pains we have to nurture and maintain the excellent relations which now exist."

69. Dixon and Parker, 11–14.

70. Ibid., 151.

71. Ibid., 16.

72. Ibid., 98. Another Goxhill veteran remembered "the V-1 and V-2 onslaught very well. Quite often the V-1's would come right over our base sounding like heavy trucks trying to climb a hill. We would all hope and pray they would not run out of fuel and fall on us. . . . Sometimes, at night we could see the lights of the flames across the North Sea when the V-2's were launched."

73. Brig Gen Ira C. Eaker, chief, American Observer Group, Plan for Bomber Command and Constituent Units to arrive in U.K., staff study, 1942, 13, 14. Eaker's report to AAF headquarters paid considerable attention to the needs of Eighth Air Force soldiers destined for the United Kingdom: "It is earnestly recommended that the following principles be followed to insure a high morale:

1. In all our decisions and planning in all echelons insist on maintaining the food and shelter of our troops on a level with our normal field conditions at home. This means that the rations should be on the

normal American field scale and that housing air space, heating and comfort be at least equal to our normal field conditions. It is submitted that whereas the British standard is adequate for the British soldier because it is what he is accustomed to, it will be inadequate for the American soldier because he is accustomed to another standard.

2. The foregoing recommendations do not mean that I intend to coddle the U.S. soldier, show him special consideration, or emphasize the disparity between his standard of living or scale of pay than the British. It does mean that I recognize the paramount importance of morale for air combat and maintenance crews and appreciate some of the more important factors in keeping it high."

74. Dixon and Parker, 97. An armament officer described an additional factor affecting scores of men: "Many of the 496th personnel had been stationed in Iceland prior to assignment to Station 345. In fact they had believed they were returning to the U.S. when they left Iceland. Understandably, the morale was low for some time after their arrival at Goxhill."

75. History, 496th FTG, August 1944, 2.

76. Col Harry W. McGee, commanding officer, AAF Station F-345, to commanding general, Eighth Air Force Composite Command, letter, subject: Report of Defense Exercise, 31 May 1944.

77. History, 496th FTG, June 1944, 1.

78. History, 496th FTG, August 1944, 1.

79. Freeman, *The Mighty Eighth*, 190. The move also reflected Eighth Fighter Command's transition away from the Lightning: the command flew its final P-38 fighter sortie on 9 October 1944.

80. Ibid. This series of realignments was intended to link fighters and bombers more closely in a single command structure. Fighter wings were now assigned to bombardment divisions. Freeman outlined the rationale for these changes by explaining how "the 65th, 66th, and 67th Wings, now under the 2d, 3d, and 1st Divisions respectively, were a further step to making the divisions an air force within an air force. The chief advantage was a simplified chain of command and easier planning of fighter support for bomber operations, with each fighter wing supporting its respective Division. In practice, fighter groups often supported bombers from other Divisions. . . . The new move gave each division planning responsibility for its own fighter wing."

81. History, 496th FTG, October 1944, 1.

82. Freeman, *The Mighty Eighth*,191.

83. Freeman, *Airfields of the Eighth*, 111.

84. History, 496th FTG, November–December 1944, 2.

85. Freeman, *Airfields of the Eighth*, 99.

86. History, 496th FTG, January 1945, 1.

87. Ibid. The group also organized a new Information and Education Section to provide courses and educational outlets for assigned personnel. These opportunities were increasingly geared toward postwar civilian work (clerical, business, etc.) as the European war drew to a close.

88. History, Headquarters and Headquarters Squadron, 496th FTG, January 1945, 1.

89. Headquarters AAF Station-365, Special Order 29, 31 January 1945.

90. History, 5th Emergency Rescue Squadron, April 1945.

91. Freeman, *The Mighty Eighth*, 263.

92. History, 1st Gunnery and Tow Target Flight, January 1945, 1.

93. History, 496th FTG, February 1945.

94. Freeman, *Airfields of the Eighth*, 111.

95. History, 496th FTG, October 1944.

96. Ibid.

97. Ibid. No breakout of Eighth versus Ninth Air Force assignments was found during this research.

98. Ibid. Unfortunately, group and higher headquarters records reviewed in the Air Force Historical Research Agency (AFHRA) did not include explanatory notes regarding this table. It was unclear, for example, which classes included Bomber Scouting Force pilots and what aircraft they flew. Similarly, group records listed names, dates, and locations of student fatalities but not causes. Lack of explanatory material limited the opportunity to critically analyze this data.

99. Ibid.

100. Ibid. Group and higher headquarters records reviewed in the AFHRA did not include explanatory notes regarding this table. Assignment of Material Failure, Pilot Errors, or Other causes included decimal fractions. This practice would have allowed the group to attribute a single accident to multiple causes. In each row, the sum of the three causes exceeded the actual accident count by a small number; no explanation was provided. Lack of explanatory material limited the opportunity to critically analyze this data.

101. Craven and Cate, vol. 6, 608.

102. History, 495th FTG, January–April 1945. This research found no summary of 495th FTG class data, pilot graduates, or related data in a brief review of AFHRA materials and published literature. The official AAF history (Craven and Cate, eds.) provided a brief discussion of the CCRC concept but no concrete analysis of CCRC contributions. Other sources cited in this research were similarly barren.

103. Alfred Price, *Battle over the Reich* (New York: Scribner, 1973), 132. Deficiencies in the quality and quantity of instructors, suitable training aircraft, and aviation fuel all plagued German replacement pilot training late in the war.

104. W. A. Jacobs, "Operation OVERLORD," in *Case Studies in the Achievement of Air Superiority*, ed. Benjamin Franklin Cooling (Washington, D.C.: Center for Air Force History, 1991), 276. Comparative estimates in *The Army Air Forces in World War II* (Craven and Cate, eds.) and Price's *Battle over the Reich* closely agree with Jacobs's figures.

105. Jacobs, 276.

106. Price, 133, 173–75. Price offered further illustration by describing replacement training for the Messerschmidt 109G Gustav, a relatively powerful fighter: "The conversion course on to the 'Gustav' amounted to a mere thirty flying hours on the type, barely sufficient to enable a pilot to take off and land safely and carry out the simpler manouvres. To fly an aircraft in combat, especially against a well-equipped foe, a pilot must know and be able to operate his machine to the very limits of its performance envelope. Putting pilots with such a sketchy training into action against the Mustangs was to send them to near-certain death; yet this was what happened to the majority who were now posted straight to the German operational units."

107. Alfred Price, *The Last Year of the Luftwaffe—May 1944 to May 1945* (Osceola, Wis.: Motorbooks International, 1991), 49. Price's account is typical: "The arrival of the American long-range escort fighters in force over Germany, during the spring of 1944, sealed the fate of the Luftwaffe. The USAAF quickly established air superiority over the enemy homeland

and held it for the rest of the war. In a large measure this superiority was due to better pilot training and, later, superior numbers of fighters in operation."

108. Alfred Price, *Luftwaffe Handbook 1939–1945* (New York: Scribner, 1977), 99, 100.

109. Stephen L. McFarland and Wesley Phillips Newton, *To Command the Sky: The Battle for Air Superiority over Germany, 1942–1944* (Washington, D.C.: Smithsonian Institution Press, 1991), 235; and *Generalleutnant* Adolf Galland, *The First and the Last—The Rise and Fall of the German Fighter Forces, 1938–1945*, trans. Mervyn Savill (New York: Henry Holt and Co., 1954), 250.

110. McFarland and Newton, 79.

PART III

Glossary and Bibliography

Glossary

AAF	Army Air Forces
ABL	airborne lifeboat
ACSC	Air Command and Staff College
ACTS	Air Corps Tactical School
AFHRA	Air Force Historical Research Agency
AU	Air University
AWOL	absent without leave
CAS	close air support
CBO	Combined Bomber Offensive
CCRC	Combat Crew Replacement Center
ETO	European theater of operations
FTG	Fighter Training Group
FTS	Fighter Training Squadron
FW	Fighter Wing
HAPDB	high-altitude precision daylight bombing
HE	high explosive
Luftwaffe	German Air Force
MTU	mobile training unit
OTU	operational training unit
OVERLORD	code name for Allied invasion of occupied France
RAF	Royal Air Force
RTU	replacement training unit
USAF	United States Air Force

Bibliography

Primary Sources

Blake, Steve. *Adorimini ("Up and at 'Em!"): A History of the 82nd Fighter Group in World War II.* Marceline, Mo.: Walsworth Publishing Co., 1992.

Bowman, Martin W. *8th Air Force at War: Memories and Missions, England 1942–45.* Sparkford, U.K.: Patrick Stephens, 1994.

———. *The USAAF Handbook 1939–1945.* Mechanicsburg, Pa.: Stackpole Books, 1997.

Combat Crew and Unit Training in the AAF 1939–1945. Army Air Forces Historical Study 61, Washington, D.C.: Air Historical Office, August 1949.

Cooling, Benjamin Franklin, ed. *Case Studies in the Achievement of Air Superiority.* Washington, D.C.: Center for Air Force History, 1991.

Craven, Wesley Frank, and James Lea Cate, eds. *The Army Air Forces in World War II.* 7 vols. 1948–1958. New imprint. Washington, D.C.: Office of Air Force History, 1983.

Davis, Richard G. *Carl A. Spaatz and the Air War in Europe.* Washington, D.C.: Center for Air Force History, 1993.

Dixon, Len, and Ron Parker, eds. *Goxhill at War.* St. Paul, Minn.: Phalanx Publishing Co., 1994.

Freeman, Roger A. *Airfields of the Eighth—Then and Now.* London: Battle of Britain Prints International, 1978.

———. *The Mighty Eighth: A History of the Units, Men, and Machines of the US 8th Air Force.* New York: Orion, 1989.

Fry, Garry L. *Eagles of Duxford: The 78th Fighter Group in World War II.* St. Paul, Minn.: Phalanx Publishing Co., 1991.

Galland, *Generalleutnant* Adolf. *The First and the Last: The Rise and Fall of the German Fighter Forces, 1938–1945.* Translated by Mervyn Savill. New York: Henry Holt and Co., 1954.

Glenn, Tom. *P-47 Pilots: Fighter-Bomber Boys*. Osceola, Wis.: MBI Publishing, 1998.

Goebel, Robert J. *Mustang Ace: Memoirs of a P-51 Fighter Pilot*. Pacifica, Calif.: Pacifica Press, 1991.

Gray, John M. *The 55th Fighter Group versus the Luftwaffe*. North Branch, Minn.: Specialty Press, 1998.

Headquarters Eighth Air Force. *Eighth Air Force Policy File*. Historical Data, 520.164, in USAF collection, 1942–1945, Air Force Historical Research Agency (AFHRA), Maxwell AFB, Ala.

Headquarters 495th Fighter Training Group. Historical Data. GP-495-HI(F), in USAF collection, 1943–1945, AFHRA, Maxwell Air Force Base (AFB), Ala.

Headquarters 496th Fighter Training Group. Historical Data. GP-496-HI(F), in USAF collection, 1943–1945, AFHRA, Maxwell AFB, Ala..

Headquarters US Army Air Forces. *Combat Crew Replacement Center Training Program*. Historical Data, 519.7191, in USAF collection, 1942–1945, AFHRA, Maxwell AFB, Ala.

McFarland, Stephen L., and Wesley Phillips Newton. *To Command the Sky: The Battle for Air Superiority over Germany, 1942–1944*. Washington, D.C.: Smithsonian Institution Press, 1991.

Mullins, John D. *An Escort of P-38s: The 1st Fighter Group in World War II*. St. Paul, Minn.: Phalanx Publishing Co., 1995.

Parker, Ron, ed. *A Village at War: Goxhill*. St. Paul, Minn.: Phalanx Publishing Co., 1996.

Price, Alfred. *Battle over the Reich*. New York: Scribner, 1973.

———. *Luftwaffe Handbook 1939–1945*. New York: Scribner, 1977.

———. *The Last Year of the Luftwaffe: May 1944 to May 1945*. Osceola, Wis.: Motorbooks International, 1991.

Scutts, Jerry. *Mustang Aces of the Ninth & Fifteenth Air Forces & the RAF*. London: Osprey Publishing, 1995.

Stephens, Alan. “The True Believers: Air Power Between the Wars.” In *The War in the Air 1914–1994*. Royal

Australian Air Force Fairbairn, Australia: Air Power Studies Centre, 1994.

Secondary Sources

Bekker, Cajus. *The Luftwaffe War Diaries*. Edited and translated by Frank Ziegler. Garden City, N.Y.: Doubleday, 1968.

Freeman, Roger A. *The Mighty Eighth in Color*. Stillwater, Minn.: Specialty Press, 1992.

Girbig, Werner. *Six Months to Oblivion: The Defeat of the Luftwaffe Fighter Force over the Western Front, 1944–1945*. Translated by David Johnston and Richard Simpkin. West Chester, Pa.: Schiffer Publishing, 1991.

Murray, Williamson. *Luftwaffe*. Baltimore, Md.: Nautical and Aviation Publishing Co., 1985.

Saward, Dudley. *Victory Denied: The Rise of Air Power and the Defeat of Germany 1920–1945*. New York: Franklin Watts, 1987.