

RECEIVED 2280

OMB No. 1024-0018

Falcon Field Aviation Hangars
Name of Property

APR 08 2016

Maricopa, AZ
County and State

United States Department of the Interior
National Park Service

Nat. Register of Historic Places
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Falcon Field World War II Aviation Hangars

Other names/site number: West Hangar, East Hangar

Name of related multiple property listing:
N/A

(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & number: 4800 E Falcon Dr.

City or town: Mesa State: AZ County: Maricopa

Not For Publication: Vicinity:

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property X meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

 national statewide X local

Applicable National Register Criteria:

 X A B C D

<u>James W. Gorrison</u>	<u>4 APRIL 2016</u>
Signature of certifying official/Title:	Date
<u>Arizona State Parks/State Historic Preservation Office</u>	
State or Federal agency/bureau or Tribal Government	

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In my opinion, the property ___ meets ___ does not meet the National Register criteria.	
Signature of commenting official:	Date
Title :	State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

- entered in the National Register
- determined eligible for the National Register
- determined not eligible for the National Register
- removed from the National Register
- other (explain:)

John Ballant
Signature of the Keeper

5-19-2016
Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private:
- Public – Local
- Public – State
- Public – Federal

Category of Property

(Check only **one** box.)

- Building(s)
- District
- Site

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Structure
Object

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
<u>2</u>	<u> </u>	buildings
<u> </u>	<u> </u>	sites
<u> </u>	<u> </u>	structures
<u> </u>	<u> </u>	objects
<u>2</u>	<u> </u>	Total

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

DEFENSE/air facility

Current Functions

(Enter categories from instructions.)

TRANSPORTATION/air-related

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7. Description

Architectural Classification

(Enter categories from instructions.)

No style

Materials: (enter categories from instructions.)

Principal exterior materials of the property: Foundation: CONCRETE
Framing: WOOD—timber
Walls: SYNTHETICS—Fiberglass
Walls: METAL—Steel
Roof: METAL—Galvanized tin

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Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The West and East World War II Hangars at Falcon Field Municipal Airport are a set of wood-framed airplane hangars with barrel roofs. Both hangars feature a single, open interior space. Both the East and West Hangars are located in the southwest corner of the airport, and are surrounded to the north, east, and west by paved open space designed to allow for the taxi of airplanes. Falcon Field Park, the former location of the barracks, tower, swimming pool, and cadet lounge, sits directly to the south of the hangars. Although both hangars have some nonhistoric modifications, the interiors—the most historically significant element of each building—continue to convey the hangars' original use and visual character.

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Figure 1. Satellite image of Falcon Field, Mesa. Googlemaps.com. Image capture 2015. World War II aviation hangars are indicated by the red outline.

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Narrative Description

Falcon Field Airport presently occupies 784 acres of land at an elevation of 1,394 feet in Mesa, Arizona, approximately 5 miles northeast of the city's central business district. The Airport is composed of two runways, two helipads, an air traffic control tower, terminal building, several rental car and fueling facilities, the Commemorative Air Force Museum, and 36 conventional and executive airplane hangars.

West World War II Hangar

The West World War II Hangar is located in the southwest portion of the airport, directly north of the Falcon Field Park, and is mirrored by the East World War II Hangar to the east. The West Hangar was constructed in 1941. It is a single-bay, rectangular building measuring approximately 200 feet in length by 100 feet in width. The hangar is timber-framed and features a barrel roof. The primary interior of the West Hangar features a single, open space with poured concrete flooring. The space can be accessed through a single, standard-sized metal door on the eastern side of the south



Figure 2. Interior view of West Hangar illustrating the character-defining features, including the timber framing, bow-string trusses, and barrel roof. East Hangar is identical in design. Photo by Eric Vondy, State Historic Preservation Office, 2015.

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wall. Multileaved doors, set on a three-track rail system, provide access for aircraft on the west end of the building. The ceiling features an exposed, bolted timber bowstring truss roof system. This ceiling supports a barrel roof formed by sheets of 5V-crimp tin. A fire sprinkler system and fluorescent light fixtures have been installed among the roof trusses.

5V-crimp tin is used as the primary interior wall sheathing on both the north and south walls of the building, and extends to a 10-foot height. Above this sheathing, filtered light enters the space through the exterior fiberglass wall material, creating a ribbon of semitransparent clerestory windows. As a result of the application of wooden members creating the illusion of mullions and muntins, these windows appear to be, but are not truly, split into 6-pane sections. This window detail is original to the structure, as evidenced in a photo dating from 1944 (see page 44). A number of steel crossbeams visible from the interior support both the wall and roof structures, as well as panels of the multileaved sliding doors.

V-beam translucent fiberglass panels span between timber structural wall members; on the exterior of each building, some of this fiberglass is sheathed with v-beam corrugated metal. Both the roof and gable ends are constructed of 5V-crimp galvanized tin sheets. The West Hangar originally featured two sets of six-panel multileaved doors; however, a later addition to the east end of the building resulted in the second set of doors becoming fixed in-place. The remaining multileaved door allows



Figure 3. The Falcon emblem is mounted on the barrel gables over the bay doors on each hangar. The emblem and underlying galvanized tin sheathing are original material. Photo by Eric Vondy, State Historic Preservation Office, 2015.

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the west end of the building to open to two-thirds of the total hangar width. A rod-suspended wooden canopy with tin eaves delineates the top of the remaining set of doors from bow-shaped gable ends.

Originally, one-story, shed-roofed projections extended from the north and south sides of the building, which housed classrooms and offices. However, the southern wing had been removed from the hangar by 1979. By 1986, a gable-roof one-story outbuilding was placed immediately to the southwest of the West Hangar. At this point, the original control tower, located between the East and West Hangars, had been demolished and replaced with a flat-roofed auxiliary building. By 1993, this auxiliary building had been connected to the east side of the West Hangar, and by late 2006, the one-story building to the southwest of the hangar had also been connected via an enclosed passageway.

Another alteration to the West Hangar is the replacement of the original corrugated asbestos sheathing with the current fiberglass and metal sheathing. However, the most important character-defining feature, the interior space and its structure, retain a high degree of integrity. All auxiliary spaces and additions are accessed via standard metal doors from the main hangar space, leaving the essential quality of the interior space intact.

It is known that the West Hangar suffered from a fire occurring on February 21, 1943. Damage was limited to the instructors' locker room, crew room, and parachute locker. Cadets on hand rolled out aircraft and equipment, but the fire was contained and the main hangar structure was undamaged, though many parachutes were lost.

In general, primary character-defining features of the West Hangar have been preserved. These character-defining features, in relationship to the aspects of integrity outlined in the Secretary of the Interior's Standards for the Rehabilitation of Historic Buildings, include the building's location, materials, and feeling. The West Hangar is situated in its original location at Falcon Field Airport in Mesa, Arizona. Original materials, such as timber framing, steel members, and galvanized tin sheets, are still intact and visible. Replacement materials, such as corrugated fiberglass, convey the historic visual character and feeling of the original material. Retention of original massing and proportion, as well as the overall spatial quality of the historically significant interior, conveys the original use, visual qualities, and historic character of the hangar as a whole.

East World War II Hangar

The East World War II Hangar is located in the southwest portion of the airport, directly north of the Falcon Field Park. The East Hangar was constructed in 1941. It is a single-bay, rectangular building measuring approximately 200 feet in length by 100 feet in width. The hangar is timber-framed and features a barrel roof. The interior of the East Hangar features a single, open space with poured concrete flooring. The space can be accessed through a number of standard single and double doors.

Multileaved doors, set on a three-track rail system, provide access for aircraft on the east and west ends of the building. The ceiling features an exposed, bolted timber bowstring truss roof system. This ceiling supports a barrel roof formed by sheets of 5V-crimp tin. A fire sprinkler system, fluorescent light fixtures, and residential-grade ceiling fans have been installed among the roof trusses.

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Figure 4. Falcon Field East Hangar, view of east-facing bay doors and north wall. Photo by Eric Vondy, State Historic Preservation Office, 2015.

5V-crimp tin is used as the primary interior wall sheathing on both the north and south walls of the building, and extends to a 10-foot height. Above this sheathing, filtered light enters the space through the exterior fiberglass wall material, creating a ribbon of semitransparent clerestory windows. As a result of the application of wooden members creating the illusion of mullions and muntins, these windows appear to be, but are not truly, split into 6-pane sections. This window detail is original to the structure, as evidenced in a photo dating from 1944 (see page 44). A number of steel crossbeams visible from the interior support both the wall and roof structures, as well as panels of the multileaved sliding doors.

V-beam translucent fiberglass panels span between timber structural wall members; on the exterior of each building, some of this fiberglass is sheathed with v-beam corrugated metal. Both the roof and gable ends are constructed of 5V-crimp galvanized tin sheets. The West Hangar originally featured two sets of six-panel multileaved doors; however, a later addition to the east end of the building resulted in the second set of doors becoming fixed. The remaining multileaved door allows the west end of the building to open to two-thirds of the total hangar width. A rod-suspended wooden canopy with tin eaves delineates the top of the remaining set of doors from bow-shaped gable ends.

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Figure 5. Exterior view of East Hangar's south side and west-facing bay doors. Photo by Eric Vondy, State Historic Preservation Office, 2016.

Originally, this hangar featured one-story projections on the north and south sides of the building, which housed classrooms and offices. However, these projections had been removed by 1979. A small one-story addition to the east side of the north wall, currently used as the recreation room of the Falcon Warbirds Club, was built in 2014. Another notable alteration to the East Hangar is the replacement of the original corrugated asbestos sheathing with the current fiberglass and metal sheathing. The interior retains much of its historic integrity.

In general, primary character-defining features of the East Hangar have been preserved. There are no additions to the building and its interior space and framing structure (see Figure 6), which this nomination holds is the most important aspect of the building, is intact. These character-defining features, in relationship to the aspects of integrity outlined in the Secretary of the Interior's Standards for the Rehabilitation of Historic Buildings, include the building's location, materials, and feeling. The East Hangar is situated in its original location at Falcon Field Airport in Mesa, Arizona. Original materials, such as timber framing, steel members, and galvanized tin sheets, are still intact. Replacement materials, such as corrugated fiberglass, convey the historic visual character and

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Figure 6. Interior view of East Hangar showing the integrity of the building's primary features, including its bow string trusses, barrel vault and window placement. Photo by Eric Vondy, State Historic Preservation Office, 2016.

feeling of the original material. Retention of original massing and proportion, as well as the overall spatial quality of the historically significant interior, conveys the original use, visual qualities, and historic character of the hangar as a whole.

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

- A. Owned by a religious institution or used for religious purposes
- B. Removed from its original location
- C. A birthplace or grave
- D. A cemetery
- E. A reconstructed building, object, or structure
- F. A commemorative property
- G. Less than 50 years old or achieving significance within the past 50 years

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Areas of Significance

(Enter categories from instructions.)

MILITARY

Period of Significance

1941-1945

Significant Dates

1941

Significant Person

(Complete only if Criterion B is marked above.)

Cultural Affiliation

Architect/Builder

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Statement of Significance Summary Paragraph

Two aircraft hangars located at Falcon Field in Mesa, Arizona, are recommended eligible for listing in the National Register of Historic Places under Criterion A for their important association with the Military area of significance. The hangars were constructed in 1941 during World War II, though prior to American entry into the war. They were used as a pilot training facility for aviation cadets of the British Royal Air Force. The hangars are the last two World War II-era buildings remaining at Falcon Field and are important at the local level of significance as the properties symbolizing Mesa's role in the war effort. Falcon Field was one of several pilot training facilities constructed in the Salt River Valley in the early stages of the war. These fields provided training for hundreds of American and Allied pilots. Falcon Field is a noteworthy example of the total American war effort, the "Arsenal of Democracy," which provided materiel and, in this case, training for America's allies. The period of significance is from the opening of Falcon Field in 1941 through the period of pilot training ending in 1945. Since 1945, Falcon Field has been a general aviation facility and contributed to Mesa's economic growth. The World War II-era hangars were, for a time, used as an aviation museum, and though the air museum as since left the facility, the hangars continue to be used for their original purpose of small aircraft storage and maintenance.

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Narrative Statement of Significance

INTRODUCTION

Falcon Field is a general aviation airport owned by the City of Mesa. Two aircraft hangars constructed in 1941 are all that remain of Falcon Field's origin as a World War II-era military flight training school. Falcon Field was established and used to train pilot cadets of Great Britain's Royal Air Force between 1941 and 1945. The City of Mesa and Falcon Field's users are proud of their airport's role in the worldwide effort to defeat the Axis nations. In addition to serving as a general aviation airport, Falcon Field hosts a variety of community events, including displays and flights of vintage aircraft. These and a memorial to the young British pilots, some of whom died during their training, keep alive the memory of how a once small community contributed to Allied victory in the greatest military conflict in history.

The two hangars are recommended as eligible for the National Register of Historic Places under Criterion A at the local level under the Military area of significance. As the only tangible remains of the wartime facility, the two hangars continue to convey an important story of young English men traveling thousands of miles away from the thick of fighting in Europe to learn to fly in the Arizona desert, then returning to take the war to the enemy through difficult campaigns in which air power was a decisive factor.

The story of Falcon Field connects local historical figures and locations to larger trends affecting the war. Falcon Field was the product of a movement towards greater cooperation between the American and British governments during the critical period between the start of the war on September 1, 1939 and American entry into the conflict on December 7, 1941. The story connects pilot training programs developed in the British Commonwealth to American programs of military preparedness and pre-Pearl Harbor assistance to England. Falcon Field was also a product of private enterprise. Southwest Airways, which operated Falcon Field and two other flight schools in the Salt River Valley, was an investment group formed with some of Hollywood's most famous celebrities.

Falcon Field's significance was not limited to the number of pilots trained. As will be described in the narrative below, in the grand scheme of British pilot training Falcon Field's approximately 2,000 graduates were only a small fraction of the total drawn from the British Commonwealth. Of greater significance was that Falcon Field was an early and important thread in the web of connections spun by Prime Minister Winston Churchill and President Franklin Roosevelt tying Great Britain and the United States together in a common purpose and common fate in the conflict with Nazi Germany. The creation of Falcon Field and five other British flight training schools elsewhere in the United States was an early and precedent-setting non-neutral act.

The outline of the historical narrative below begins with a concise description of the strategic situation faced by American and British military air power planners between 1938 and 1941. Circumstances, events, and personalities shaped decisions on how air power might be used. Although a compelling and important story, only a few key points will be included here, those most relevant to the story of Falcon Field. American military officials, most especially the

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commander in chief, President Franklin Roosevelt, observed air power as a decisive feature of the war's early stages. In particular, the German *blitzkrieg* tactics demonstrated in Poland and the effectiveness of British strategy during the Battle of Britain overturned many prewar prejudices regarding the use of airpower among American army strategists. From strategy the narrative moves to implementation plans. Roosevelt placed great emphasis on aircraft quantity. This led to a vast expansion of American aircraft manufacturing capacity and the mass production of aircraft. More directly related to the story of Falcon Field, the president's strategic priorities also implied a concomitant expansion of training facilities to raise the necessary quantity of pilots and auxiliary air and ground crews. Both the Americans and British created air training programs whose combined output was well over three hundred thousand pilots and aircrew.

American and British air training programs were vast, complicated, evolving, and interconnected. The summary description of these programs below is divided into four parts. The first describes an American initiative begun in 1939 to create a large reserve of potential military pilots through a program of civilian pilot training. The Civilian Pilot Training Program was a late New Deal/early preparedness initiative also intended to benefit a segment of the economy, private aviation, still struggling with the effects of the Great Depression. The second part describes how major appropriation for military preparedness beginning in April 1939 initiated a large-scale program of air training by the U.S. Army Air Corps. Because the army tried to build up its forces methodically, creating an efficient balance of planes, bases, and personnel, these direct military training facilities were slow in development and not fully operational until 1942.

In the third part of this section, attention shifts to the multinational British Commonwealth Air Training Plan. During the Battle of Britain, the RAF relied on pilots largely trained in the United Kingdom, though its personnel included many from Commonwealth countries, as well volunteers from the United States and countries overrun by the Germans. For example, the RAF in 1939 included over 400 Canadians, or approximately twice the number of pilots in the small Royal Canadian Air Force.¹ In anticipation of taking the fight to Germany, the British negotiated with the major Dominions—Canada, Australia, and New Zealand—to create a worldwide pilot training scheme called the British Commonwealth Air Training Plan. The BCATP ultimately provided over 130,000 aircrew, including pilots, navigators, gunners, radiomen, and bombardiers. Most of this program's facilities were located in Canada but were closely linked to American manufacturing supply. The last part of this description describes the influence of American Lend-Lease, which provided direct aid to the British, indirect aid to the Canadians, and linked the British and American air training programs. A common aspect of these air-training programs (and those of France, Germany, and Italy as well) was reliance on civilian or ostensibly civilian aviation firms or clubs to provide elementary flight training.² This pattern began in the prewar years and reflected budgetary constraints as well as a means of avoiding an arms race, which effectively broke out after the Czechoslovakian crisis in 1938. In Arizona's Salt River Valley,

¹ Hatch, 5.

² Because the Treaty of Versailles restricted development of a German air force, pilot training depended initially on civilian programs. Even before Hitler came to power in 1933, the German military had evaded the treaty ban by convincing the head of the leading airline, *Deutsche Luft Hansa*, Erhard Milch, to found six pilot training schools. The military also subsidized the German Sports Aviation Association (*Deutschen Luftsportverband*) and founded a small number of Reich sport flying schools (*Reichssportfliegerschules*), which were critical in providing elementary flight training to supplement Luftwaffe flying schools. (Holland, *The Battle of Britain*, 523)

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location of the Phoenix metropolitan area, air training facilities associated with many aspects of these programs operated during the war.

Following this overview of the broad pattern of events guiding Allied air strategy and its air training component, the narrative moves to the specific history of Falcon Field. The training at Falcon Field followed the British curriculum, but under the operational management of a private American company and with funding associated with Lend-Lease. The story begins with Southwest Airways, which founded three flight training schools in the Salt River Valley. Construction of facilities, an overview of training activities, anecdotes of experiences of British cadets, and a summary of post-war developments rounds out the story of Falcon Field.

Falcon Field was part of a flight training program negotiated between the United States and Great Britain during 1940-41 when the Roosevelt administration was moving from neutrality towards overt assistance to the British and undeclared hostilities with Germany on the Atlantic Ocean. Training British pilots on American soil constituted an unequivocally non-neutral act and was initiated with some secrecy. Falcon Field and five other British Flight Training Schools in the United States trained only a few thousand pilots, a small number in comparison to the total Allied training effort. They were, however, a notable step towards the integration of American and British interests towards a common goal of victory over the Axis countries.

AMERICAN AIR POWER PLANNING, 1939-1942

The experience of military aviation during the First World War opened a more than two decade-long controversy over the strategic role of the airplane. American non-naval air power through the Second World War was organized under the U.S. Army. In broadest terms, on one side of the debate were aviation visionaries, symbolized by the iconoclastic General Billy Mitchell, who believed the airplane to be a revolutionary innovation in military technology. Aviation enthusiasts advocated an independent air force of equal status to the army and navy. Army traditionalists, impressed more by the limitations of contemporary aviation technology than by futuristic forecasts, denied airpower possessed a role independent of supporting ground troops. The Baker Report of 1934 resolved the question of an independent air force in favor of army traditionalists. The War Department did, however, accept the report's recommendation to organize aviation under a single command.³

In September 1938, Adolf Hitler sparked a diplomatic crisis by demanding the partition of Czechoslovakia and the annexation of territories with ethnic German populations. In the Munich Agreement, Great Britain and France agreed to the division of Czechoslovakia upon Hitler's

³ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II, Volume Six: Men and Planes*, (Office of Air Force History, Washington, D.C.: U.S. Government Printing Office, 1983), vi, 3-4. Organization of air forces in the U.S. Army evolved from the initial Aviation Section, Signal Corps during World War I, to the Army Air Service from 1920 to 1926, the Army Air Corps from 1926 to 1941, the Army Air Forces (June 20) 1941 to 1947, and the independent U.S. Air Force after 1947. For comparison, the British resolved the same question earlier in favor of an independent air organization, the Royal Air Force, which by 1939 was organized into separate commands for fighters, bombers, coast defense, and transport. While the Germans also organized an independent air force, their emphasis was on close support of ground forces, thus the early prominence of the Junker 87, the *Stuka*, a dive bomber of exaggerated precision.

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promise of no further territorial ambitions. Among the reasons underlying their acquiescence was fear of the German air force, the *Luftwaffe*. At the moment of the Czech crisis, the *Luftwaffe* held a significant advantage over the air forces of England and France in numbers of planes and pilots. The example of Guernica, the Spanish city destroyed by aerial bombing conducted by German and Italian airmen in service to General Franco's Nationalists, convinced many military planners that air power would be decisive in a future conflict—a conflict increasingly seen as inevitable and imminent. While criticized as appeasement, the Munich Agreement provided additional time for the Allies to prepare.⁴

President Roosevelt, observing the deteriorating peace in Europe, became convinced of two points critical to future American military aviation policy. First, he publicly expressed his belief that German dominance of Europe would gravely endanger the security of the Western Hemisphere. While limited by the strictures of America's Neutrality Act and by popular revulsion against the idea of sending American boys again to fight in a European conflict, Roosevelt over the course of three years slowly convinced Congress and the American people to provide for a stronger national defense and to aid French and British resistance to Hitler. Second, Roosevelt came to believe air power would be a decisive factor in a future conflict.⁵

As corollary of the president's convictions, the administration's preparedness program emphasized a massive expansion of aircraft production, with new American-built planes divided between the Allies' immediate needs and the long-term build-up of American forces. A second corollary would be the need for an equivalent expansion of training programs for pilots to fly the new planes. It is important to bear in mind that air technology of the period was only just shifting from wood and fabric biplanes into the era of metal-framed, mono-wing designs. Planes could yet only deliver small firepower or bomb loads. As a result, the air sector of World War II would be a battle of mass production of both aircraft and aircrews.⁶

The blitzkrieg initially reinforced the earlier presumption that airpower was most effective in support of ground troops. However, the defeat of France and the Battle of Britain altered the strategic situation facing Great Britain and, ultimately, the United States. After another demonstration of German air power in the Battle of Crete in May 1941, British ground forces were driven out of Europe almost entirely.⁷ Only RAF bombers could attack Germany and

⁴ Craven and Cate, vi, 8; Dominick Pisano, *To Fill the Skies with Pilots: The Civilian Pilot Training Program, 1939-1946*, (Urbana and Chicago: University of Illinois Press, 1993), 2.

⁵ Roosevelt, an Assistant Secretary of the Navy during World War I, had already acted to enhance America's naval strength. The Naval Act of 1938 authorized construction of new naval vessels outside the former strictures of the London Naval Treaty of 1930. Under this act, American naval air strength was to be raised to 3,000 planes. (Craven and Cate, 172)

⁶ On November 14, 1938, the president met with military advisors to form plans for the first major expansion of U.S. air power in response to developments in Europe. At that time the AAC operated under a congressionally approved program intended to raise air corps strength to 2,320 planes by mid-1940. Although the president's was already envisioning an air force numbering at least 10,000 planes, for political consumption, the program approved by Congress on April 3, 1939 established a goal of 6,000 aircraft. In comparison, the *Luftwaffe* had at the start of the war in September some 3,750 first-line planes with personnel strength of over 500,000, while the RAF had about 1,750 first-line planes and 100,000 pilots and groundcrew. Moreover, apart from the B-17 bomber, American combat planes were generally inferior to those of the *Luftwaffe* and RAF. (Craven and Cate, 171-175)

⁷ Craven and Cate, 18-20.

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Figure 7. President Roosevelt (center) speaks with Chief of the Army Air Forces, General Henry H. "Hap" Arnold (left foreground, in profile), December 1943 during the president's visit to Sicily shortly after the Tehran Conference. Website of Little Rock Air Force Base, <http://www.littlerock.af.mil/news/story.asp?id=123187270>, accessed August 28, 2015.

German forces on the continent directly. This circumstance in combination with Roosevelt's prior conviction of the importance of air power contributed to the great emphasis given strategic bombing as a fundamental platform to Allied war strategy. The major four-engine American bombers, the Boeing B-17 (Flying Fortress), Consolidated B-24 (Liberator), and Boeing B-29 (Superfortress), each manned by about ten men, would be manufactured in large numbers along with aircrews trained by the tens of thousands.

ALLIED AVIATION TRAINING PROGRAMS, 1938-1945

U.S. Civilian Pilot Training Program/War Training Service, 1938-1946

Even as worries over war intensified, the president's primary domestic policy concern remained the stagnant economy. Hopes that the Great Depression was nearing its end had contributed to Roosevelt's reelection in 1936. These hopes were dashed as the economy took a severe downturn in 1937. In response, the administration returned to the economic stimulus programs of the New Deal, restoring funding after a temporary reduction, which many believed contributed to the downturn.

The Civilian Pilot Training Program (CPTP) was a response to both the concerns over military preparedness and the desire to boost a depressed segment of the economy. The CPTP was, like many New Deal programs, an improvisation targeted at immediate needs. In this case, the private aviation sector composed of small airlines and aviation businesses operating out of local airfields, the so-called "fixed-based" operators, was stagnant compared to the commercial airlines operating

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on fixed schedules. Despite the optimism of aviation boosters, the United States had relatively few trained pilots compared to European countries, only about 3,800 commercial and 3,600 private pilots between the ages of eighteen and thirty in early 1939.⁸

Prior to 1938, the Roosevelt administration had done little for the private aviation sector.⁹ Although New Deal work relief programs included projects to improve local airports and navigational aids there was not, until the CPTP, a program specifically to assist private aviation.¹⁰ With air safety a growing concern, especially after a crash in 1935 killed New Mexico's Senator Bronson Cutting, Roosevelt approved the Civil Aeronautics Act on June 23, 1938. This act established a Civil Aeronautics Authority (CAA) to regulate such things as airmail rates and airline business practices; an administrator whose role was to foster civil aviation by establishing airways, improving navigational aids and regulating air traffic; and an independent Air Safety Board to investigate crashes.¹¹

The proposal for a civilian program to train pilots originated with Robert H. Hinckley, one of Roosevelt's initial appointees to the CAA. Hinckley was from Utah where he at one time served in the legislature and operated a small fixed-base aviation business. After 1933, he became a state and later regional administrator with the WPA, where he gained favorable notice from WPA administrator and presidential advisor Harry Hopkins. After passage of the Civil Aeronautics Act, Hopkins convinced Roosevelt to appoint Hinckley to one of the five positions on the CAA and his term began on August 8, 1938. In April 1939, Hinckley became chair of the authority.¹²

Hinckley proposed to offer pilot training at colleges and universities as vocational education, providing ground training as a practical extension of physics and other aeronautically related sciences. The schools would contract with local fixed-base operators and flight schools to provide flight training. The federal government could accomplish the dual goals of boosting private aviation and providing a reserve of potential military pilots by subsidizing students without creating its own infrastructure of training or expanding military appropriations. The plan had strong political appeal and quickly gained the president's assent.¹³

On December 27, 1938, Roosevelt announced he had authorized the CAA to undertake an experimental program in civilian flight training in cooperation with schools with established aeronautical programs. With an initial grant of \$100,000 from the National Youth Administration, a New Deal agency that had established precedents for federal aid to college students, the

⁸ Pisano, 29, 37.

⁹ The federal government spent about \$138 million on work relief project involving airport improvement between 1933 and 1939. Most work was done at small airfields and though helpful to civil aviation proved of little military value during the war. (Craven and Cate, 126)

¹⁰ An early New Deal attempt in 1933-34 to promote a \$700 Airplane for Everyman failed to arouse enthusiasm among small plane manufacturers. This quixotic proposal came at the same time a senatorial committee headed by Senator Hugo Black exposed improprieties in the awarding of airmail contracts during the Hoover administration. These hearings prompted Roosevelt to cancel existing contracts and assign airmail delivery temporarily to the Army Air Corps, a politically disastrous decision when between February and May 1934, twelve military airmen died and many more injured in sixty-six crashes. Approval of the Black-McKeller Act of June 12, 1934 reformed the system and restored civilian transport of the mail. (Pisano, 14-21)

¹¹ Pisano, 25-27.

¹² Pisano, 9-10.

¹³ Pisano, 10-13.

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president said 330 students could participate at thirteen colleges and universities across the country.¹⁴ On January 12, 1939, Roosevelt urged Congress to approve \$525 million for military preparedness, most of which would go to purchase aircraft. At the same time he asked for \$10 million to expand the CPTP, even though the initial NYA-funded experimental program had barely begun. “National defense,” the president said, “calls for the training of additional air pilots. This training should be primarily directed to the essential qualifications for civilian flying. In cooperation with educational institutions, it is believed that the expenditure of \$10,000,000 a year will give primary training to approximately 20,000 citizens.” The president’s statement linked the civilian program with military preparedness, a combination palatable across the political spectrum.¹⁵

Congressional debate on the president’s proposal occurred between March and June 1939. By this time, the initially hopefulness following the Munich Agreement had given way to renewed international tensions as Hitler completed his military takeover of Czechoslovakia by mid-March. With the failure of appeasement, Great Britain and France accelerated their efforts to prepare for war (including programs to train pilots, which will be described below). Roosevelt’s ignited a controversy by proposing to modify the Neutrality Act to renew cash-and-carry provisions, which would benefit the Allies, but Congress refused to do so until November 1939, after the start of the war. The heated debate between internationalists and noninterventionists did not spill over to the committee hearings and floor debates over the CPTP bills in the House and Senate. The civilian character of the program shielded it from controversy and its supporters turned back suggestions to make the program more explicitly militaristic, such as one proposal to require students to agree to enlist. At the same time, the value of creating a militarily valuable pool of trained pilots made the program appear more urgent and protected it from criticism of being another New Deal boondoggle. The CPTP was a finely balanced proposal suitable to the political conditions of its moment. Roosevelt signed the bill, Public Law No. 153, on June 27, 1939. Hinckley believed that the \$4 million appropriation approved by Congress could provide training for ten to eleven thousand men and women.¹⁶

On May 16, 1940, President Roosevelt requested Congress appropriate a billion dollars for defense and announced a goal of a 50,000-plane air force. To train the necessary manpower, Congress also approved a \$37 million appropriation for an expanded CPTP, a more than nine-fold increase over the previous fiscal year. Between July 1940 and June 1941, the CPTP trained 57,972 pilots. The number of participating schools rose from the initial thirteen during the demonstration program, to 435 institutions in virtually every state and in Alaska, Hawaii, and Puerto Rico. This decentralization was an important feature of the CPTP’s initial civilian phase. The wide dispersion of participating students ensured that the program’s economic benefits were not concentrated in a few regions. Later, as the program shifted explicitly to serve military needs,

¹⁴ Of the 330 students enrolled in the test program, 313 completed the course and received a pilot’s license. While one fatality occurred, the overall level of safety was sufficient for insurers to reduced their rates for life and disability insurance, which students were required to pay as a laboratory fee for the training. In 1940, ninety of the original group of students participated in an experimental advanced training course. (Pisano, 58-60, 62)

¹⁵ Pisano, 30.

¹⁶ A provision against racial discrimination was one of the most important aspects of the CPTP legislation, which allowed inclusion of historically black colleges to provide aviation training, a field previously largely closed to blacks. The Tuskegee Airmen would become the most famous CPTP alumni. (Pisano, 34-57)

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the army insisted on concentrating training at a smaller number of larger facilities, in line with its own methods of military pilot training.¹⁷

During 1941, the CPTP faced increasing criticism for its perceived failure to channel more of its trainees into the military. Roosevelt himself, on January 7, 1941, commented unfavorably on the CPTP's "30-some million"-dollar cost. "The army and the navy," he said, "don't think we are getting enough out of these schools in the way of military and naval pilots. That doesn't mean the abandonment of those schools; it may mean that the training in those schools will be greatly improved to meet the needs of the army and navy; and secondly, that all these people who go into these schools, largely at the expense of the Government, with thereby some obligations on their part to serve in the army or navy—which there never has been up to the present time." Congress responded by cutting the CPTP appropriation for fiscal year 1942 to \$25 million, which was still over six times the initial appropriation of two years previous.¹⁸

On December 12, 1941 President Roosevelt issued Executive Order 8974 directing the CPTP be "exclusively devoted to the procurement and training of men for ultimate service as military pilots, or for correlated non-military activities." To reflect this change, the program was renamed the War Training Service on December 7, 1942. The CPTP's fundamental dilemma was how make a civilian agency useful to the military in time of war without completely losing its potential value as an economic stimulus after the war. Beginning in September 1940, participants pledged to enter military aviation if they were qualified and necessary for national defense, but this was not a formal obligation. By the CPTP's own statistics of the 108,349 students in the program, between July 1939 through June 30, 1942 only 42,026 enlisted for further flight training. Whether this number qualified as a success or failure depended on shifting perspectives of its purpose. By the standards of 1939, when the program's civilian character was paramount, this might have seemed like an important contribution. By late 1941 and especially after Pearl Harbor, only its contribution to the war effort mattered and the same statistic could appear disappointing. Statistics on military aviation training suggest CPTP alumni gradually became more important, rising from 12.3 percent of entrants into air forces training in early 1941 to 29.7 percent in 1942. The value of the CPTP may also be read into the statistic that 88.2 percent of CPTP alumni completed their military aviation training compared to only 56.6 percent of those lacking CPTP experience.¹⁹

The CPTP had been created in part as an expedient to expand the number of potential military pilots while avoiding a political battle in Congress over an appropriation to expand direct pilot training by the army and navy. Both services had endorsed the proposal, but as their own appropriations rose and their training facilities expanded they were explicit in insisting on autonomy over military pilot training without the interference of a civilian organization, which they generally considered inferior. In this regard, the navy was more supportive of the CPTP/WTS and allowed its alumni to proceed directly to more advanced flight training. The army, however, was less cooperative. The CAA and the AAF agreed at mid-year 1942 that CPTP/WTS facilities would be used to training AAF enlisted reservists in noncombat pilot specialties. The CAA would also recruit for the AAF and the navy by examining candidates

¹⁷ Pisano, 77.

¹⁸ Pisano, 78-79.

¹⁹ Pisano, 79-82, 130.

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who would then move on to army and navy centers for voluntary enrollment in the enlisted reserves.²⁰

With increasing difficulty, the WTS tried to fulfill its defense role despite only partial cooperation from the AAF. The WTS failed to meet quotas of pilots assigned by the AAF, in part due to a lack of spare parts affecting the private flight schools. There were also controversies with the AAF over the pay and status of the trainees. Other factors, not directly related to the WTS, also had a detrimental effect, such as the president's Executive Order 9279, signed December 5, 1942, ending voluntary enlistments in the army and navy. This order effectively ended the WTS's role as a recruiter. In January 1943, the AAF severely altered the character of the WTS by cancelling a large number of contracts with small flight schools and consolidating the WTS training in a smaller number of larger facilities. The number of flight contractors declined from 441 nationwide in June 1942 to only 262 in April 1943. This centralization, while convenient for the AAF, ended one of the most characteristic aspects of the program during its prewar civilian phase.²¹

By early 1944, with Allied air power increasingly dominant over Europe and Japan, the AAF determined that it largely had the pilots it needed for the remainder of the conflict. With its own infrastructure of pilot training now in place and operating efficiently, the AAF no longer wished to cooperate with the WTS. The AAF abruptly ended all WTS secondary, cross-country, Link instrument, and flight instructor training. On June 30, 1944, the AAF ended its last WTS course, the college training program for aircrew indoctrination. From July 1, 1939 to June 30, 1944, the CPTP/WTS had been appropriated \$273,355,255 and trained 435,165 men (and a few women).²²

The original CPTP Act of 1939 set a termination date of June 30, 1944. A coalition of supporters, including universities and colleges and small flight school operators, lobbied the program's congressional supporters for an extension. Although Congress approved a two-year extension, it did not attach an appropriation. With the war reaching a climax (the D-Day Invasion of Normandy occurred June 6, 1944) it proved difficult to define the program's necessity. Advocates continued to emphasize the program's military contribution at a time when immediate war needs were rapidly changing. At the same time, old arguments that a revived CPTP would stimulate an important economic sector made the idea seem like a New Deal anachronism. Ultimately, Congress failed to appropriate any additional funds for the CPTP/WTS and the program formally ended on June 30, 1946.²³

In Arizona, the following educational institutions participated in the CPTP and the War Training Service between September 1939 and August 1944²⁴:

Arizona State Teachers College, Flagstaff
Arizona State Teachers College, Tempe

²⁰ Pisano, 84, 93.

²¹ Pisano, 99, 102, 104, 106-107.

²² Pisano, 110, 131.

²³ Pisano, 112-119.

²⁴ Patricia Strickland, *The Putt-Putt Air Force: The Story of The Civilian Pilot Training Program and The War Training Service (1939-1944)*, Federal Aviation Administration [1971], 99.

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Douglas High School, Douglas
Gila Junior College, Thatcher
Globe High School, Globe
Globe Junior College, Globe
Nogales High School, Nogales
Phoenix Junior College, Phoenix
Prescott High School, Prescott
St. Johns High School, St. Johns
Tucson Chamber of Commerce, Tucson
University of Arizona, Tucson
Yuma Union High School, Yuma

Among the CPTP alumni from Arizona were a small number of women. Evelyn Jackson had been part of the second CPTP class in Globe in 1940 and she later recalled her excitement at the prospect of flying. "I was going to do it or pop!" she said. "I knew I would regret it my whole life if I didn't go.... My husband didn't like the idea, but when I passed the physical test, and was in the ground school, I couldn't stop." Jackson later joined the WASPs (Women Airforce Service Pilots) and flew numerous non-combat flights. "When the WASP program ended before the war was over, we were all so mad because we would have flown for nothing. I just packed up my things and took the train to Phoenix and returned to Globe, I never piloted again, but married, and lived happily on a ranch." Other Arizona women in the CPTP included Ina Barkey, who took flying lessons while attending Arizona State Teachers College in Tempe where she majored in physical education. Barkely also served in the WASPs. Future Arizona historian Byrd Howell Granger and Ruth Reinhold, who would later become personal pilot for Barry Goldwater during his presidential campaign, were also CPTP alumni.²⁵

U.S. Army Air Corps / Army Air Forces Training Programs, 1939-1945

Establishment of the CPTP temporarily satisfied the president's desire to act in response to ominous developments in Europe. However, developing an effective air force required unstinting mobilization of financial resources by Congress and the exertion of every effort by the Army Air Corps' small pre-war personnel to building up an organization and facilities capable of raising, training, and fielding what would be the world's largest air force. This occurred by steps in response to successive German successes between 1939 and 1941, with Roosevelt calling for additional appropriations and the AAC systematically expanding its plans as resources became available and as conditions on the war front shifted. Chief of the AAC, General Henry Arnold believed air force effectiveness depended on "a balanced compound of three essential ingredients—airplanes, combat and maintenance crews, and air bases."²⁶ Prior to 1939, the AAC's main training facility at Randolph Field, Texas graduated only 246 pilots in its largest

²⁵ Melton and Smith, *Arizona Goes to War: The Home Front and the Front Lines During World War II*, (Tucson: The University of Arizona Press, 2003), 62-64. Although Goldwater's poor vision prevented him from serving as a combat pilot, he served as a gunnery instructor for a time at Yuma Army Air Field, where he helped develop the gunnery range that today bears his name. (Melton and Smith, *Arizona Goes to War*, 103)

²⁶ Craven and Cate, 119.

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Figure 8. Thunderbird Field #2, undated. This field north of Scottsdale, Arizona operated by Southwest Airways trained cadets under contract with the Army Air Forces. From <http://www.city-data.com/forum/phoenix-area/192459-how-do-you-remember-phoenix-stories-338.html>, accessed, August 26, 2015.

class, and there were not enough officer commissions available for even this small number. Over the next five years, the AAC/AAF grew in personnel strength from 20,196 to a peak of 2,372,293 in June 1944. To accommodate this expansion, the AAC/AAF spent billions of dollars building facilities to train pilots, gunners, bombardiers, navigators, and other ground crew technicians. The focus of this section is the development of training facilities and programs, the type particularly relevant to Arizona.²⁷

On April 3, 1939, Congress approved the president's request for \$300 million to begin an air force buildup to 6,000 planes organized into 24 groups and to train 1,200 pilots and some 30,000 technicians a year. In May 1940, the president expanded the goal to 50,000 planes a year, which became the basis for the AAC's First Aviation Objective of 54 groups and 12,500 pilots. In March 1941, the AAC's Second Aviation Objective raised its anticipated force to 84 groups and 30,000 pilots. Eventually, the goal expanded to 273 groups, with production of 120,000 planes manufactured in 1944. The AAF ultimately achieved peak strength of 243 fully equipped groups. As the air power goals expanded, new facilities had to be funded, located, planned, and constructed. At the start of the buildup, the AAC had seventeen air bases, four air depots, and six bombing and gunnery ranges. At its completion it had 783 main and subbases and auxiliary fields,

²⁷ Craven and Cate, xxv. The peak of the AAF's aircraft inventory was 79,908 planes in July 1944. (Craven and Cate, 197)

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twelve air depots, and 68 specialized depots, and 480 bombing and gunnery ranges. At its peak in December 1943, the AAF had 2,252 installations of all kinds, built at a cost of about \$3,152,000,000.²⁸

Prior to 1939, Arizona was conspicuously absent from the list of AAC facilities and during the initial stages of the air force buildup local boosters advertised the advantages of the state's relatively fine weather. Weather, however, was not the decisive factor and Arizona had several disadvantages overcome largely by the lack of available space in more favored locations. Negative factors affecting Arizona included extreme summer heat, dust, and the lack of adequate utilities and housing in surrounding areas. Also, the state's vast areas of open space were not immediately available as active mining claims and livestock leases, which had to be extinguished, frequently tied down public land. For example, not until December 1941 did the federal government complete condemnation of grazing leases on the training range for Luke Field on public lands in the Ajo/Gila Bend region. From the prewar military perspective, Arizona lacked strategic significance. Bases were located not merely for considerations of weather, but for their potential role in an active defense of the continental U.S. and western hemisphere.²⁹

Competition was quite important as a locational factor and cities often offered incentives to gain a new military facility for the local economy. For example, Denver, Colorado in 1938 donated 64,000 acres southwest of Lowry Field for use as the AAC's then-largest bombing range. Such donations would come into play in the siting of important training facilities in Arizona as well. Announcement of the first AAC facility in the Salt River Valley, Luke Field, in January 1941 followed the efforts by the Phoenix Chamber of Commerce to arrange purchase options and financing for 1,440 acres, which the city purchased for \$40,000 and leased to the army for \$1 a year.³⁰ The City of Mesa performed a similar role in the development of Falcon Field.

In June-July 1940, the AAC reorganized to accommodate the First Aviation Objective's 12,000 pilots per year goal by establishing three training headquarters, designated the Southeast, Gulf Coast, and West Coast Air Corps Training Centers. The West Coast Training Center was located at Moffett Field, California and would oversee development of facilities in the southwestern states. With funds appropriated on September 24, 1940, the AAC located sites for seven new flying training fields, three in California, two in Georgia, and one each in Texas and Arizona. The Arizona facility was located in the western Salt River Valley and named after the state's World War I aviation hero, Frank Luke, Jr.³¹ Under the expanded Second Aviation Objective it was becoming increasingly difficult to find space for new air training facilities and so the West Coast Training Center looked further inland to sites in more rainy northerly regions and to the desert southwest, with its heat, dust, and insufficient civilian housing. A site east of the Phoenix-Mesa area was selected for this expansion and became Williams Army Air Force Base. More

²⁸ Craven and Cate, xv-xvi, 120.

²⁹ Craven and Cate, 143. The primacy of strategic concerns over weather justified placing more critical air force facilities in, for example, Florida, where they could guard the Caribbean approaches to the Panama Canal.

³⁰ Philip VanderMeer, *Desert Visions and the Making of Phoenix, 1860-2009*, (Albuquerque, University of New Mexico Press, 2010), 100-101.

³¹ Craven and Cate, 131-132, 137. Simultaneous with the siting of a training facility in the Salt River Valley, the AAC also was organizing bases for new tactical groups. Many of these were located in municipal fields improved by the CAA to make the accommodating for military use. One of these tactical groups, a bombing force, was located at the Tucson Municipal Airport, which became Davis-Monthan Army Air Base. (Craven and Cate, 135)

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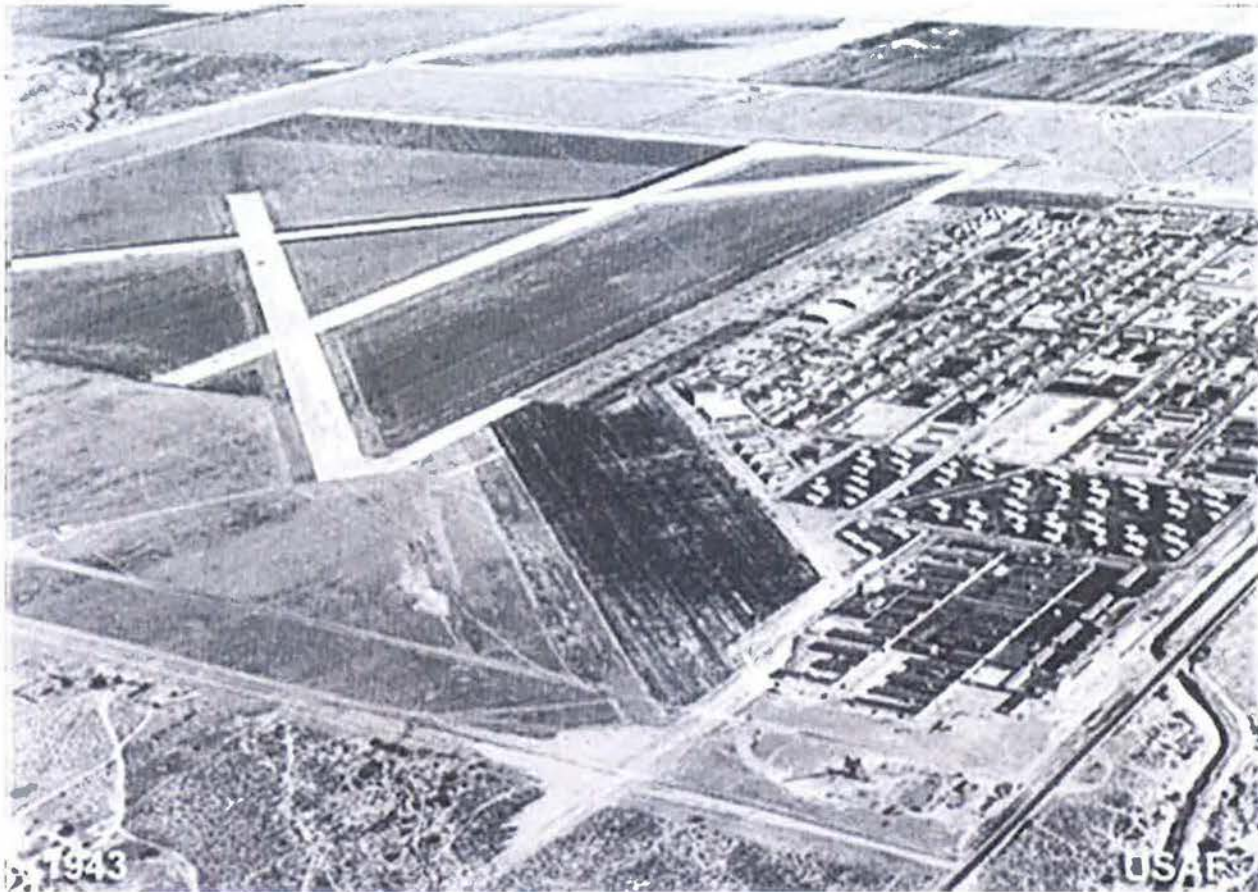


Figure 9. Luke Army Air Field, 1943. From *Military Airfields in WW2*,
<http://www.airfieldsdatabase.com/WW2/WW2.htm>, accessed, August 26, 2015.

ambitions training plans initiated in the months after Pearl Harbor resulted in more facilities located in Arizona. Under the 50,000-pilot program, a training facility opened at Marana, north of Tucson. When the goal was expanded to 70,000 pilots per year, new facilities were located at Douglas, Kingman, and Yuma.³²

The Army Air Corps divided pilot training into stages of progressive achievement. These stages were referred to as primary, basic, advanced, and transition (or operational). During primary training, students learned to fly simple aircraft of low power. In basic and advanced training, students progressed to larger and more complex planes and more complex tasks, such as night flying and long-distance flying. The transition phase introduced new pilots to the final stage of familiarity with combat aircraft prior to actual action. The curriculum at each stage evolved throughout the course of the war, but especially during the early years when military planners struggled to shape a mobilization plan capable of meeting the challenges presented by German

³² Craven and Cate, 139, 151.

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successes. For example, efficiency improved by separating many topics to a pre-primary stage of ground school, which helped the early identification of cadets unlikely to complete the program.³³

To meet rising personnel goals, General Arnold turned to civilian flight schools to provide training at the primary level. Starting with nine civilian schools in 1939, the AAC expanded its partnerships to forty-one by Pearl Harbor, and to a peak of fifty-six in May 1943. An example was at Ryan Field, west of Tucson, opened in 1942 and operated by the Ryan School of Aeronautics, a San Diego firm. The greatest difficulty with the AAC/AAF's civilian schools, as with those of the CPTP, was the supply of instructors, who were in heavy demand. Civilian firms also conducted some technical training for personnel such as bombardiers, navigators, and flexible gunners, seven in 1939 and fifteen by the end of 1941.³⁴ By the time of U.S. entry into the war, there were about four students in Army Air Forces technical schools for one in a civilian school. As more AAF schools opened, reliance on civilians declined. While this arrangement appeared similar to the CPTP, the army consistently asserted the superiority of its own training, even when conducted by private flight schools. This preference, understandable in terms of the air force's long-term vision of independent status, hardened as the AAF drew towards full strength and it closed out its arrangements with private contractors as quickly as its own facilities could manage the load.³⁵

Prior to the war, the AAC had required at least two years of college for potential air officers and recruited actively from the nation's colleges. After passage of the Selective Service Act in September 1940, the AAC had to compete with the navy and marines for eligible pilots, but was skimming the cream of army recruits based on the Army General Classification Test. Over time, certain requirements were amended, such as waivers from the strict physical qualifications, use of a limited number of enlisted men as pilots, favorable treatment by draft boards, and higher pay, to meet the recruitment goals.³⁶

To stabilize its recruitment, the AAF formed the Air Corps Enlisted Reserve in April 1942. This reserve was made up of recruits who were allowed to remain in college or in civilian jobs until needed. When voluntary enlistment was ended in December 1942, the AAF was supposed to receive recruits based on a quota, but was soon in arrears. The existence of the enlisted reserve helped maintain training levels over periods of uneven recruitment. After October 1943, when the war was clearly moving in the Allies' favor, the training program began to be scaled back. After V-E Day, May 8, 1945, the AAF reduced training to only 1,000 per year.³⁷

After the initiation of the draft, recruits were introduced to army life at the AAC's reception center at Jefferson Barracks, Missouri. There an initial training orientation program of eight weeks was worked out, which was duplicated at the seven basic training centers later opened. At the reception centers, recruits were tested and assigned to a particular job or to a school for further

³³ Craven and Cate, 454.

³⁴ To counter a naïve belief that a sort of weather determinism directed the air force to place flight training facilities in Arizona, it can be pointed out that two flexible gunnery schools located in Yuma and Kingman were not established until sites in more favored locations—Nevada, Texas, and Florida—were exhausted, and not until after Pearl Harbor. (Craven and Cate, 472.)

³⁵ Craven and Cate, xxvii-xxviii, 456-64; Brad Melton and Dean Smith (eds.), *Arizona Goes to War*, 90-92.

³⁶ Craven and Cate, xxv-xxvi.

³⁷ Craven and Cate, xxix-xxxi.

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training. Aptitude testing for potential aircrew had begun in 1941 and three classification centers were established in the spring of 1942 to process, classify, and house new cadets. After 1941, a qualifying test was administered for those lacking college credits. Further psychological and psychomotor tests were designed to weed out those unfit and to separate those most likely to succeed as pilots from those directed to other aircrew positions.³⁸ Separate training for pilots and nonpilots was the rule until 1944, when all preflight work was moved to the San Antonio Aviation Cadet Center. It required over a year for a new recruit to become a fully qualified combat pilot. Efficiency improved as training was standardized through the establishment of central instructors schools and by developing uniform manuals and training aids. From the careful, individualistic training prior to the war, the AAF developed an assembly line-like process comparable to the manufacturers' expanded output of aircraft. By the end of the war, the AAF advanced flying schools had graduated 193,440 pilots. Training programs for bombardiers, navigators, gunners, and other aircrew graduated another 297,000 airmen.³⁹

The final stage of pilot training conditioned cadets to front-line combat aircraft as part of operational units. The AAF adopted a system similar to the Royal Air Force's operational training unit in which new flight school graduates were attached to a "satellite group" associated with an oversized combat group. Pilots would be transferred into combat units as replacements became necessary. These were first given an intensive 30-day course at the AAF School of Applied Tactics at Orlando, Florida. Typically, it required six months between assignment and readiness for combat. The operational training units helped to mold a combat team from an otherwise random selection of recruits. By the end of 1943, when the AAF had organized most of the groups it would during the war, the OTU was replaced by the replacement training unit. The RTU was formed as an overstrength group from which replacements were constantly transferred while new school graduates came in. The RTUs eventually were merged with their air base complements to form combat crew training stations, which provided a more realistic training for overseas assignments.⁴⁰

The synopsis of AAF pilot training above only outlines how the United States mobilized the largest air force in history. In detail, the training effort included the resolution of dire problems, such as the supply of training planes and spare parts, and the working out of innumerable problems of recruitment, funding, interagency politics, international cooperation, and finally actual combat. The AAC/AAF was reorganized repeatedly to improve efficiency and to maintain air force autonomy. Then there was the whole premise of the value of strategic bombing as a viable military strategy, which would be argued indefinitely after the war. Whole books have been published on these topics as well as notable associated themes such as the integration of black airmen into the AAF and the use of women pilots in the Women Airforce Service Pilots program, in which women pilots were used for noncombat flying. The last point that may be mentioned is the success of the program as demonstrated in the results of combat. At the start of the war, the Luftwaffe was the most powerful air force in the world. Luftwaffe pilots (and Japanese as well) typically had more flying hours and initially had more combat experience. By

³⁸ Craven and Cate, xxxii-xxxiii, 528-529.

³⁹ Craven and Cate, xxxiii-xxxiv. Some 124,000 cadets were cut from the pilot training program, usually at the primary level. Many of these were diverted to other aircrew positions and training programs. (Craven and Cate, xxxv)

⁴⁰ Crave and Cate, xxxv-xxxvi.

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the war's last year the average American pilot had about 360 flying hours in training compared to only about 110 for the Germans. The Japanese *kamikaze* pilots received as little as 70 hours. The difference was demonstrated in combat results and the virtually complete air superiority attained over both enemies by late 1944.

The British Commonwealth Air Training Plan, 1939-1945

To understand the significance of Falcon Field to the Allied aviation buildup, it will be useful to digress with a summary description of the programs begun in 1939 by the British government to train pilots and aircrews for the Royal Air Force. Early in the war, the British government decided to remove most air training away from the home islands to safer and more conducive locations in British Commonwealth countries and empire territories. This became known as the British Commonwealth Air Training Plan, also referred to as the Empire Air Training Plan, or by contemporaries simply as "The Plan." At the same time they negotiated with the American government, then still formally neutral, to establish training facilities in the United States. Specific provisions of BCATP varied according to the political relationship between the U.K. and host territory, though in all cases the programs involved shared funding and management of the training facilities. Training guidelines followed standards set by the RAF and were applied throughout the program, including in British training facilities in the United States.

The French and British both initiated flight training programs in 1938 directed towards civilians. The French established over 150 flight training centers with 20,000 members to take preliminary flight instruction. In 1939, they appropriated some 80 million francs to encourage civil flight training. The British established the Civil Air Guard in the summer of 1939 to subsidize flying clubs and flight training schools throughout the country. The government even paid fees to encourage pilots to renew their private licenses.⁴¹

World War II began when Great Britain and France declared war two days following Germany's invasion of Poland on September 1, 1939. The rapid collapse of Polish resistance demonstrated to Allied military planners that coordination of infantry, armored, and air forces—the *blitzkrieg*—may have restored the factor of mobility to warfare that had so tragically lapsed during the static trench fighting of the Great War (soon to be renamed World War I). Both the U.K. and French governments accelerated their programs to train pilots and procure new aircraft. For the French, the effort came too late. Caught by surprise by the German campaign through the Ardennes Forest in May 1940, the French army was cut in two and, unable to recover, France surrendered on June 22, 1940.

Through the remainder of the summer of 1940, the Battle of Britain was decided largely between the German Luftwaffe and the British RAF. Hitler's military goal was to gain air superiority, which, in coordination with U-boats and other forces, was to weaken England to the point that an invasion could be carried out as a *coup de grâce*. By October, Hitler concluded Great Britain

⁴¹ Pisano, 44. The American public and political leadership was served exaggerated reports of German and Soviet air training programs based on political propaganda. As one example, readers of an Associated Press story in early 1937 would have learned of Luftwaffe chief Göring's announcement of Nazi plans to train 60,000 pilots that year. The Soviets, already claiming to have 100,000 pilots, countered it would add another 50,000 in 1937. The Soviet plan imagined training the proletariat to fly at aviation schools established near factories and "without abandoning their work at the factories or in the fields." (*The Arizona Republic*, January 2, 1937, 2:4)

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could not be defeated through direct assault and although night bombing over England continued, he redirected his forces towards the invasion of the Soviet Union.

Though one of the most decisive battles of the twentieth century, the Battle of Britain was fought with only a few thousand men and airplanes.⁴² While the battle raged, the demand for new pilots forced the RAF to slash training time for new pilots. Elementary Flying Training was reduced from eight to seven weeks in summer and ten in winter. Later intermediate and advanced stages of training were also cut by a week. Critically, the time spent training in Spitfires and Hurricanes was reduced from a month to two weeks. While this unfortunately placed relatively novice pilots in the thick of battle, the result in numbers was substantial. The number of new aircrew trained increased from 1,632 in June to 2,108 in September.⁴³ But that battle had only meant the U.K. would survive the opening German onslaught and as the invasion of the Soviet Union in June 1941 demonstrated, Hitler still retained the initiative. Counterattack and defeat of Germany would require many thousands of airplanes and a much expanded Allied pilot training program to eventually secure air superiority over German and Japan.

Given the number of pilots and aircrews needed, the government of Prime Minister Neville Chamberlain negotiated with the British Dominions—Canada, Australia, and New Zealand—to develop an air training program. This appealed to these countries as means to assist England while avoiding for the time being the cost of raising large ground forces. An initial Air Training Agreement was signed on December 17, 1939 between these governments creating what became known as the British Commonwealth Air Training Plan (BCATP). Under the initial agreement, a goal of 50,000 aircrews was set and plans made for establishing training facilities. The training program was modeled on that of the RAF and the cadets, once trained, would be divided among the participating countries.⁴⁴

To implement the BCATP, Canada drew on its own civilian flying schools to provide elementary flight training. In 1928 and 1929, Canada began subsidizing twenty-two flying clubs to promote civilian and military aviation. These clubs trained pilots, organized flying exhibitions, and contributed to the development of numerous municipal airfields during the 1930s. The RAF, which also utilized civilian instructors in its training, encouraged the Royal Canadian Air Force

⁴² While the number of aircraft and pilots available to both sides during the Battle of Britain changed daily, throughout the battle the Germans held a numerical advantage. A count of forces available in early August just prior to the most intense phase of the battle gave the Germans 2,422 aircraft ready and serviceable, of which 949 were bombers, 336 dive bombers, and 1,137 Messerschmitt fighters. The RAF's Fighter Command had available on August 16, 1940, 643 Hurricanes and Spitfires. Despite the German numerical advantage, the course of the battle demonstrated two critical points contributing to British victory. First, the English were producing and repairing a greater number of aircraft than the Germans. In August 1940, the British added 476 new fighter planes to the German's 309 fighters. Second, the number of pilots lost was significantly tilted in the British favor by the simple fact that many British pilots shot down over England survived to fly again, even the same day, while surviving German pilots became prisoners of war. That August, the British lost 104 pilots killed to the German's 623 dead and nearly the same number captured. By the beginning of the most intense phase of the battle in September, the British Fighter Command had around 1,100 pilots to the Luftwaffe's 735 fighter pilots (Holland, *The Battle of Britain*, 444, 477, 487-488, 522).

⁴³ Holland, *The Battle of Britain*, 463-464.

⁴⁴ Peter C. Conrad, *Training for Victory: The British Commonwealth Air Training Plan in the West*, (Saskatoon, Saskatchewan: Western Producer Prairie Books, 1989) 4-7.

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Figure 10. The international character of the British Commonwealth Air Training Plan is illustrated in this photo of airmen from the United States, New Zealand, and the United Kingdom receiving a new kit of clothing. Prior to U.S. entry into the war, several hundred Americans crossed the border to join the RAF's Eagle Squadron. Original photo from Canadian Department of National Defense (PL 5288), reproduced in Conrad, 12.

to adopt the same practice for the BCATP in 1939. Civilian aviation firms also operated air observers schools and repair and maintenance functions for training aircraft.⁴⁵

The first cadets began their training at the No. 1 Initial Training School in North Toronto on April 29, 1940. These graduated on November 5, but in order to build up the program, most were retained in Canada as future BCATP instructors.⁴⁶ One of the most important hindrances to BCATP was lack of training planes and spare parts, factors important to the story of American air training facilities such as Falcon Field as well. One of the reasons for placing air-training schools in Canada in the first place had been to facilitate the supply of planes and parts, much of which came from the United States. Later movement of RAF training schools to the U.S. followed the same imperative. Getting spare parts and keeping planes flying at schools run by contractor flying clubs was a particular difficulty, one also faced by the RAF at Falcon Field.

⁴⁵ F.J. Hatch, *Aerodrome of Democracy: Canada and the British Commonwealth Air Training Plan, 1939-1945*, (Ottawa: Canadian Government Publishing Centre, Minister of Supply and Services Canada, 1983), 11.

⁴⁶ Hatch, 47, 55.

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To clarify, the BCATP was intended as a means by which Dominion countries could contribute to the war effort. Although there was some thought of moving RAF training facilities out of the U.K., most British war planners thought this action undesirable until the war turned dramatically against the Allies in May 1940. As the war advanced into the skies over England both the need for new personnel and the danger of mixing training and combat in the same area convinced planners to seek new training venues outside the danger zone. The movement of RAF schools to Canada began in September 1940 simultaneous with the fiercest days of the Battle of Britain. Five RAF training schools transferred to Canada in the final months of 1940 and another twelve in 1941. There were eventually 26 RAF air training schools in Canada during the war. In all, 47,406 British airmen were trained in Canada. Despite expanding cost, the Canadian government accepted the burden in part because of fear the British might seek to place training facilities in the United States. This evolution in responsibility for the air training programs played a critical part in the development of the RCAF into an effective wartime and post-war national air force.⁴⁷

The transfer of British air training facilities to Canada was not related, initially, to the BCATP, although all such training bases fell under the formal jurisdiction of the RCAF (even when largely manned by RAF personnel). The BCATP, under great pressure, was at the same time making great strides in accelerating the construction of new facilities and expanding the number of trainees far in advance of initial expectation. Some of these were placed at the disposal of the RAF and there was much mixing of facilities and personnel between the BCATP and the RAF schools. Initially distinct, the RAF schools were finally absorbed into the BCATP in July 1942.⁴⁸

Canada would make the most substantial contribution to the BCATP, providing both the largest number of training facilities and personnel. Of the 131,533 Allied aircrew personnel trained in Canada, 72,835 were Canadians. At its height, Canada maintained 107 flight schools and 184 supporting facilities at 231 locations. Although not available for the Battle of Britain, these pilots would provide Britain the personnel needed to shift from a defensive stance to the offensive.⁴⁹

By 1944, the Allies had achieved air superiority over Europe. The BCATP, the air training programs of the United States, and the combined Allied manufacturing were filling the skies over Germany and Japan with overwhelming numbers of warplanes. The horrific casualty rate among aircrews in the early bombing campaigns over the continent abated and with the end of the war in view, the Allies began to phase out training of new pilots and aircrews. The BCATP ended on March 31, 1945. In Canada, out of 159,340 trainees introduced into the program, 131,553, including 49,507 pilots, completed the courses. Elsewhere, the program produced smaller, though still substantial number of pilots and aircrews, including 33,347 in South Africa and over 37,500 in Australia. Nearly ten thousand received training in both New Zealand and the colony of Rhodesia, with many trainees transferring to Canada for more advanced training.⁵⁰

⁴⁷ Hatch 63, 65, 69-70.

⁴⁸ Hatch 63, 71.

⁴⁹ "Canada in the Second World War: British Commonwealth Air Training Plan."

⁵⁰ "British Commonwealth Air Training Plan," Wikipedia, accessed June 16, 2015.

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British Air Training Programs in the United States, 1941-1945

On January 1, 1943, President Roosevelt sent a message to Canadian Prime Minister Mackenzie King lauding the BCATP's success and referring to Canada as the "Aerodrome of Democracy," a play on his reference to the United States as the "Arsenal of Democracy."⁵¹ In fact, the proximity of American manufacturing was an important reason for using Canada for pilot training facilities. The same factor eventually drew the British directly into the U.S. once the Americans arranged a means for financing the idea. The critical factor was passage of the Lend-Lease Act, which provided the U.K. with a range of military supplies, supposedly on loan, but eventually largely a gift to preserve the U.K. from bankruptcy.

After the outbreak of war, President Roosevelt convinced Congress to modify the Neutrality Act⁵² to allow sale of military materiel for cash with goods carried away in the purchasing country's own ships. In no small part because of the purchase of American aircraft, Great Britain by early 1941 was desperately short of cash. The Lend-Lease Act overcame this difficulty for England and was eventually extended to other allies and became the primary means by which the U.S. provided material support for its allies during the war. Canada also suffered a severe imbalance of trade with the U.S. in large part due to the purchase of planes and parts for the BCATP. The Canadian government, however, refused Lend-Lease aid initially on the principle of national sovereignty. Under the term of the Hyde Park Declaration of April 20, 1941, Canada accepted Lend-Lease assistance for the benefit of the U.K. This provision was crucial in providing planes and parts for the BCATP. By war's end, Lend-Lease had provided \$283,500,363 in aid to the BCATP, approximately one tenth of the program's cost.⁵³

President Roosevelt was explicit in his belief that a German victory in Europe would be disastrous for the United States, but was restricted by the Neutrality Act, which limited American aid to the U.K. during the early part of the war. By early 1941 it was clear that while England could fend off an invasion, the British and their Commonwealth allies could not alone bring about Germany's defeat. In his Arsenal of Democracy speech of December 29, 1940, the president stated, "If Great Britain goes down, the Axis powers will control the continents of Europe, Asia, Africa, Australasia, and the high seas—and they will be in a position to bring enormous military and naval resources against this hemisphere." Congress agreed and on March 11, 1941 enacted the

⁵¹ Hatch, 83.

⁵² Congress passed four major Neutrality Acts between 1935 and 1939. These laws restricted trade, credit, and travel to countries at war, including civil war, without regard to which side might be judged an aggressor. The Neutrality Act of 1937 included a "cash-and-carry" provision for continuing trade with belligerents who could pay for American goods without credit and in their own shipping. This provision was recognized as favorable to Great Britain. The Lend-Lease Act of 1941 began the movement to repeal the Neutrality Acts, which were revised in favor of the Allies as unofficial naval warfare between Germany and the United States intensified and were finally repealed after Pearl Harbor.

⁵³ Hatch, 84-85. Prior to December 8, 1941, several thousand American citizens traveled to Canada and joined either the RAF or the RCAF. Many were enrolled in the BCATP. By the time of American entry into the war there were some 6,129 Americans in the RCAF. This was the result of an active policy of recruitment by the Canadian government, a violation of American neutrality the Roosevelt administration chose to ignore. Many of these veteran Americans flyers eventually transferred to the American air force. (Hatch, 92-93)

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Lend-Lease Act.⁵⁴ It was through provisions of the Lend-Lease Act that the United States was able to supply planes, parts, and fuel for the training of British cadets.

The idea of training British pilots in the United States was first considered in the spring of 1940 when it was feared the disruption in the supply of British planes and spare parts would hinder the progress of the nascent BCATP. The British and Canadians brought up the issue at the time, but Roosevelt withheld support because the president, seeking a third term, was carefully balancing his program of preparedness so as not to appear to be driving the U.S. towards war. The British, however, persisted, seeing it a chance to “strengthen the ties of friendship and goodwill which exist between the United States and the British Commonwealth.”⁵⁵

With reelection secured in November 1940, Roosevelt directed the War Department to pursue an agreement with the British to provide facilities and materiel through the proposed Lend-Lease program under consideration by Congress. Roosevelt on June 4, 1941 directed Secretary of War Henry Stimson to “enter into commitments at this time for the purpose of carrying out the program for the training of 4,000 British pilots.”⁵⁶ The plan involved two programs. The first, devised by General Henry H. Arnold, Chief of the Army Air Corps (Army Air Forces, after June 20, 1941), made facilities of the Air Training Command available to the RAF. Referred to as the “Arnold Plan,” this arrangement placed British cadets alongside Americans at regular army schools. At the same time, another program of elementary flight training was initiated by civilian-operated flying training schools. Falcon Field was one of six such civilian-operated schools established in the United States. According to a report of the RAF delegation in Washington after the war, 6,602 pilots graduated from the BFTS program and another 4,670 pilots graduated under the Arnold Scheme.⁵⁷ Under these and three other minor training programs, about 5,000 British aircrew were training in the U.S. at any one time, with a total wartime output of 12,561.⁵⁸

The British government maintained a delegation of the Royal Air Force in Washington, D.C. to facilitate cooperation with the American government. RAF Squadron Leader (Major) Robert Stuart Mills, a veteran of the Norwegian campaign of 1940, had the task of identifying potential

⁵⁴ Lend-Lease aid was eventually provided to other allied countries, including the Republic of China, Free France, and the Soviet Union. Lend-Lease aid through September 1941 amounted to \$50.1 billion, or about 17 percent of U.S. war expenditures. Great Britain received \$31.4 billion of the total [Wikipedia, “Lend-Lease,” accessed June 17, 2015].

⁵⁵ Dawson, Jim, *The RAF in Arizona: Falcon Field, 1941-1945*, (Newnan, Georgia: Stenger-Scott Publishing, 2002), 12; Hatch, 94-95. Quote is from Malcolm MacDonal, British High Commissioner in Ottawa, in a letter to Prime Minister King (Hatch, 99, footnote 43).

⁵⁶ Simmons, 14.

⁵⁷ Air Marshal Douglas Colyer, C.B., D.F.C., “Report on the Work of the Royal Air Force Delegation (RAFDEL), Washington, From June 1941 to March 1946,” cited in Simmons, 15.

⁵⁸ Hatch, 95-96. Three other training plans were begun in 1941. One provided refresher training at three civilian schools for American pilots recruited to serve in the RAF. Most of these graduates went to the Eagle squadron, three squadrons of the RAF, No. 71, 121, and 133 made up of American pilots. This was in keeping with RAF policy of allowing allies to serve in the RAF while maintaining their national identity. Another plan, referred to as the “Towers scheme” after Rear Admiral John H. Towers, trained British naval pilots. The third program enrolled British observers in courses conducted by Pan American Airways for the U.S. AAF.

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sites for pilot training in the United States. Mills selected six British Flying Training School sites in five states.⁵⁹

British Flight Training Schools (BFTS)⁶⁰

<u>BFTS</u>	<u>Location</u>	<u>Contract School</u>
No. 1	Terrell, Texas	Terrell Aviation School
No. 2	Lancaster California	Polaris Flight Academy
No. 3	Miami, Oklahoma	Spartan School
No. 4	Mesa, Arizona	Southwest Airways
No. 5	Clewiston, Florida	Riddle-McKay Aero School
No. 6	Ponca City, Oklahoma	Darr School

Mills initially selected another site in the Salt River Valley near Mesa, but on the Pima Indian Reservation just north of the Salt River. Complications with negotiating use of the land, however, led to its relocation to a 720-acre site approximately seven miles northeast of Mesa. The reservation property eventually became an auxiliary landing site for Falcon Field.⁶¹

The first cadets came clandestinely to the U.S. through Moncton, New Brunswick, Canada in mid 1941, arriving at the schools at Miami, Oklahoma and Terrell, Texas, and soon after to the other schools. There were 89 fatalities among cadets in the BFTS program. Falcon Field tied with No. 5 school in Clewiston, Florida for the most fatalities at 23 each.⁶²

After the U.S. entered the war some of this training was transferred to Canada as part of the BCATP. Early in 1943, the RAF gave up its training spaces at the AAF schools. While three of the civilian schools had been transferred to the army in 1942, the rest, including Falcon Field, continued to train RAF cadets for the remainder of the war.⁶³

AVIATION TRAINING AT FALCON FIELD, 1941-1945

Arizona supported America's World War II effort in many ways. There were, of course, Arizonans recruited for the military and tax and war bond revenues, but with a relatively small population, these were not large. At that time, mining, copper in particular, dominated the Arizona economy, providing much needed raw materials for military production. Cotton and cattle, other major sectors of the Arizona economy also contributed. Industrial production, however, was underdeveloped and it was largely through federal policies of decentralizing war manufacturing that Phoenix and Tucson received notable investments in war plants. As important as these manufacturing plants were to the local economy, they were marginal in their overall contribution to the war effort and largely tied to the aircraft industries of California.

⁵⁹ A seventh site in Sweetwater, Texas served the British for only about two months, before being turned over to the Army Air Corps for use as by the "WASP" (Women Air Service Pilots) program. No RAF pilots completed training at that location. (Simmons, 17)

⁶⁰ Hatch, 95.

⁶¹ Simmons, 17.

⁶² Simmons, 15-16.

⁶³ Hatch, 96-97.

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Because Arizona was large in undeveloped area and small in population, it offered ample space for military training, which became the state's most important contribution to the war effort. In 1942, in anticipation of a major campaign in North Africa, the vast deserts of southern California and western Arizona were transformed into the Desert Training Center for General Patton's armored forces. At Fort Huachuca in southern Arizona, black soldiers of the segregated 92nd and 93rd Divisions trained for service in Italy and the South Pacific. Arizona proved especially amenable to pilot training with its relatively mild, dry weather, which made conditions for basic aviation training as good as could be found anywhere. The state became an important focal point for both aspects of American military aviation training—direct training at one of the new Army Air Forces bases or at a civilian flight school under the Civilian Pilot Training Program, later War Training Service. Many of these places retain remnants of World War II-era facilities and are important as symbols of Arizona's contribution to the Allied war effort.

Southwest Airways

A common feature of Allied military aviation training programs was their reliance on private aviation schools to provide elementary flight training. This section describes Southwest Airways, a private company that operated four flight schools in the Salt River Valley, Sky Harbor, Thunderbird Fields I and II, and Falcon Field. The company had been formed for the purpose of taking advantage of government contracts and between 1939 and 1945. The school at Phoenix's Sky Harbor Airport was operated under contracts with the CPTP/WTS. The Thunderbird fields were built under contract with the AAF to train American cadets. Falcon Field was operated



Figure 11. Southwest Airways founders John H. Connelly and Leland Hayward. Reproduced from “‘Well Done’...,” *The Thunderbird*. Vol. 1, No. 1, March 1943, 1.

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largely, though not exclusively for training of RAF cadets, and was financed partly through the Lend-Lease program.

The CPTP opened opportunities for aviation entrepreneurs to form private flying schools. Two such entrepreneurs were Jack Connelly and Leland Hayward, the founders of Southwest Airways. Connelly was a 40-year-old New York-born ex-army pilot and engineering inspector for the Civil Aeronautics Administration from 1937 to 1939. Connelly met Hayward during in the 1930s while working as an aircraft salesman at Roosevelt Field in New York. He was reputed to be a meticulous organizer and would serve as president of Southwest Airways and its successor company Pacific Airlines. Hayward had an entirely different background, being a top Hollywood producer and talent agent with connections to Hollywood celebrities with money to invest. Both men shared a common passion for aviation. Following their first meeting, where aircraft salesman Connelly talked Hayward out of buying a particular plane he had demonstrated, the two became friends and eventual business partners.⁶⁴

The founding of Southwest Airways began with Connelly and Hayward discussing the potential investment opportunities of the CPTP over dinner at a posh Hollywood restaurant. Connelly later identified a small aviation school run by Carl "Pappy" Knier at Sky Harbor Airport east of Phoenix, and with Hayward's enthusiastic support bought out Knier's school for \$15,000, which at the time had three planes and three instructors. More importantly, it already possessed a CPTP certificate from the federal government. This was important because neither partner had experience with flight training and would likely have not been able to participate in the CPTP had they attempted to found a school from scratch.⁶⁵

Hayward organized funding for the undertaking, tapping his network of Hollywood connections. Original investors in the venture included Jimmy Stewart, Henry Fonda, Cary Grant, Hoagy Carmichael, Brian Aherne, and producer William Goetz. Continued sale of stock in the company added many more Hollywood names, such as Charles Laughton, Dashiell Hammett, and Gregory Peck. In addition, a number of employees at Falcon Field also became investors.⁶⁶

Connelly and Hayward purchased Knier's school in October 1940. The following February, they founded the Phoenix-based Southwest Airways (SWA) as a holding company with six divisions operating under four different company names. These were Southwest Airways Company, Southwest Aircraft Corporation, Southwest Airways Inc., and Hayward and Connelly, a co-partnership. Falcon Field would be managed under the Southwest Airways Company. While the partners would eventually found three flight schools in the Salt River Valley, only Falcon Field was intended for British use.⁶⁷

⁶⁴ Simmons, 18.

⁶⁵ Simmons, 19.

⁶⁶ Simmons, 22. Southwest Airways' corporate records for the World War II period were destroyed in a hangar fire in San Francisco in the 1950s, leaving only ephemera such as newspaper articles, the company's magazine *The Thunderbird* (published between March 1943 and July 1944), a few employee records, and remembrances of former employees. (Dawson, 16)

⁶⁷ Philip VanderMeer, *Desert Visions and the Making of Phoenix, 1860-2009*, (Albuquerque: University of New Mexico Press, 2010), 100.

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Before Falcon, the company previously won a contract to construct and operate a new primary school at a site near Glendale, Arizona, which they named Thunderbird. Construction at the site began on January 2, 1941 and was in operation by March 22, 1941 after an initial investment of over \$600,000. Thunderbird was an Army Air Corps Primary Training school, though most workers were civilian employees of SWA. A small number of American military officers supervised the training program.

The contract for Falcon Field came after arrangements for the construction of Thunderbird were completed. SWA opened a third flight training school near Scottsdale on June 22, 1942, which was named Thunderbird II. In addition to these three schools, SWA operated a facility at Sky Harbor to repair aircraft engines and airframes for the schools' planes. Named the Sky Harbor Maintenance and Overhaul Division and opening on July 1, 1942, the facility at its peak was turning out ten rebuilt engines and one airframe every day. During this process airframes were completely disassembled and every piece cleaned and repaired or replaced before being reassembled and reinstalled.⁶⁸

Negotiations with the British led to a proposed contract dated March 29, 1941 specifying terms of management and finances. Training at Falcon Field would effectively be under the control of RAF officers and would follow a program similar to RAF facilities at other sites under the BCATP. The British undertook many of the program's expenses, although funding was at least partially accomplished under the Roosevelt administration's Lend-Lease program. The final contract was signed on April 1, 1941. The British agreed to pay for flight training for 50 cadets per class at the hourly rate of \$17.50 for primary training, \$25.80 for basic and advanced, and \$5.00 for link training. These rates would be renegotiated several times over the course of the war. A year later, the U.S. Army Air Forces took over the contract although still for the purpose of training RAF pilots.⁶⁹

Contractual provisions continued to be modified for the remainder of Falcon Field's wartime use. In September 1942, class sizes were increased to 60 cadets and then to 100 the following November. The Defense Plant Corporation added \$152,000 in improvements, such as two new barracks, in May 1943. The Army Air Corps provided spare parts for training planes, which they owned, but fuel and oil were supplied by SWA. At one point Hayward noted that "over a million bucks" were owed for fuel, while SWA awaited payments from its British and American partners. After July 1, 1943, the federal government began paying for gasoline and oil and other maintenance supplies under the terms of Lend-Lease.⁷⁰

⁶⁸ Simmons, 22.

⁶⁹ Simmons, 20-21.

⁷⁰ Simmons, 21.

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FALCON FIELD OBSERVES SECOND ANNIVERSARY

On September 25, 1943, TAF cadets were busy marking their flight history at Thunderbird base, observing the anniversary of their own Falcon Field. Now two years old, the field is rapidly approaching the status of one of the most beautiful airfields in this area.



Three flight instructors (back row) helped open Falcon. From left: John A. East, Herman Subway and Marvin Miller. Back row: Donald Brown, Richard Keverl, Bernard Miller, Gus Ferguson, and Jack Smith.



Al dotted up to his new instructor system in Fred Barber, advanced pilot at Falcon Field. The United States is a proud instructor.



All of the flight instructors who worked on Falcon's opening day couldn't be in this picture but here are some of the early birds: L. L. Peckham, Dan E. Donnell, Ray Ginn and Bob Jones. On the wing: Gus Ferguson and Wood Miller.



Funny, Marty Barber's dog at Thunderbird base is probably the only dog in the country who wears an identification badge permitting him to enter a restricted area. The dog, who makes his headquarters in the instructor's private sleeping room, is friendly with everyone on the post. Here he is being greeted by Guard Post 2, Burns.



A contrast to the brightness of his unadorned field at Falcon's opening in this scene showing some cadets, in a cool, shady place, as it appears now. Photo on right shows Edward E. Peckham, advanced pilot instructor and receiving a salute in salute.

Photo on left



Photo on right

Figure 12. Collage of photographs illustrate activities at Falcon Field. "Falcon Field Observes Second Anniversary," *The Thunderbird*, Vol. 1, No. 7, September 1943, 8.

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Construction of Falcon Field

To facilitate locating the field nearby, the City of Mesa purchased 720 acres from local rancher Ellias Habeeb for \$28,740. Mesa leased the land to SWA for two dollars an acre per year. While SWA held an option to purchase the land, the city ultimately retained title, which eventually allowed for its later development as a city general aviation airport. In 1941, McKellips Road was the main route to the property and was unpaved at the time Falcon Field opened. Pavement was extended from Higley Road west to the field entrance only. The British then signed a contract with SWA for construction and operation of the school.⁷¹

Descriptions of the site vary. According to Air Commodore D.V. Carnegie, Air Attache of the British embassy in Washington, it was “entirely leveled, cleared and finished and has a 3,000 gallon permanent well installed and concrete irrigation ditches around the field.”⁷² Mills, who visited the site and remained for the next year during construction and initial operation of the school, noted that while the site was desert land, to the west was a large orange grove with a rise in the ground level on that side.⁷³

The CAA approved the site on June 12, 1941, and construction began on July 16. Construction was handled by Stover and Younger, a California firm that had also built Thunderbird Field in Glendale for SWA as well as military facilities in California and Texas. The Stover company hired architect Millard Sheets to design the facility. The initial cost was to be \$350,000. A water main was installed to augment the existing well and a three-inch gas line in late July. Sewer and electricity connections were also made. Southwest Airway’s John Swope was the first to land at Falcon’s still unpaved runway.⁷⁴

The East Hangar, or hangar number one, and four barracks were among the first buildings constructed. The main hangar design was of wooden truss construction with steel sway brace reinforcements, concrete floor, and galvanized tin roof. Other buildings and structures included a tower, clinic, mess hall, and cadet lounge. A large parking lot surrounded the tower. The main gate, with a guard station, and white wooden board fence around the parking lot completed the field. Buildings and structure were surrounded by a paved road in the shape of an oval, 432 x 685 feet. This was about 600 feet north of the county highway, now McKellips Road. A central walkway ran south from the tower to the main gate and two reflecting pools were laid out on each side of the walk immediately south of the tower. The main runway, ramps, and taxiway were to the north of the hangars. Operational planes were tied down on the ramps while the hangars were used for maintenance work.⁷⁵

⁷¹ Simmons, 16, 30; Dawson, 16.

⁷² Simmons, 30.

⁷³ Charles Hyer, “Falcon Field Beginnings,” *American Aviation Historical Society Journal*, Vol. 30, No. 3, Fall 1985, p. 175.

⁷⁴ Dawson, 16.

⁷⁵ Simmons, 31-32.

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Figure 13. Overview of Falcon Field, facing north. Photo City of Mesa.
<http://www.arizonawrecks.com/rafoverarizonawwii.html>, Accessed December 28, 2015.

The original paved asphalt runway was 300 ft. wide and about 3,500 ft. long. A parallel grass runway ran just north of the paved runway. To enhance crosswind safety, three intersecting runways were added in 1943. Additions to Falcon Field after 1943 also included two more barracks and a swimming pool, which may have served as an emergency source of water for fire control. A weather room was added to the administration building at the request of Commander Rogers in 1945. The last known construction at Falcon Field during the war was two tennis courts, paid for by SWA and some unidentified residents of the San Marcos Hotel in Chandler.⁷⁶

On July 18, 1941, the Mesa Chamber of Commerce announced a name-the-field contest in the local paper, the *Mesa Journal Tribune*. The winning name, Falcon Field, was approved by the British and announced on August 1, 1941. The contest winner E.B. Tucker, a Mesa city engineer, received an airplane tour of the Salt River Valley, courtesy of Southwest Airways.⁷⁷

On June 30, 1942, the federal government acted to provide funding for Falcon Field. The Defense Plant Corporation purchased the buildings and permanent equipment at Falcon Field, paid off the mortgage with the United Kingdom, and paid off the outstanding construction debts owned by

⁷⁶ Simmons, 34, 45, 52.

⁷⁷ Simmons, 40; Dawson, 17.

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SWA. At that time, the total investment at Falcon Field amounted to \$175,000 for buildings, \$105,000 for improvements, and \$50,000 for equipment. This had initially been financed by SWA and the British government, the latter furnishing 60 percent of the capital required to construct the hangars and barracks, and they took a mortgage on the property, which the Defense Plant Corporation later retired.⁷⁸

Pilot Training Programs at Falcon Field, 1941-1945

While Mills remained at Falcon Field as chief flying training officer for all six BFTSs, command of Falcon Field went first to Squadron Leader William T. Holloway, who arrived in July and remained for a year. Wing Commander John F. McKenna replaced him in July 1942, at about the same time Mills returned to England. Wing Commander Alan V. Rogers replaced McKenna in 1943, remaining until the school closed in September 1945. Falcon Field operated under an RAF commanding officer throughout the war. By 1943, the facility had developed an effective command organization including two assistant flying officers, ground training supervisor, two navigation training officers, chief ground instructor, administration and navigation flying officer, and a number of enlisted flight sergeants and corporals assigned as administration officers,



Figure 14. Using a portable transmitter and receiver to control flight traffic during night training at Falcon Field. Reproduced from A.L. Storrs, "Falcon Offers Night Flying Suggestions," *The Thunderbird*, Vol. 1, No. 4, June 1943, 2.

⁷⁸ Simmons, 21; Dawson, 33.

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armament sergeant, weather training sergeant, physical training sergeant, and accounts corporal. While Falcon Field had housing for the initial 200 cadets, these officers, instructors, and other ground personnel had to find accommodations nearby.⁷⁹

While the education of RAF cadets at Falcon Field varied in detail, this document focuses on the general training program and the experiences common to all.⁸⁰ Potential pilots were assigned to an Initial Training Wing at an elementary flying training school in Great Britain. Those passing several weeks of ground school topics like meteorology, air navigation, mathematics, and theory of flight were selected for further pilot training while others were shifted to less demanding aircrew positions. The young British men selected for flight training in America travelled by ship in escorted convoys across the Atlantic. Most landed at Halifax, Nova Scotia, though others arrived in New York and other harbors. From Canada, the cadets traveled by train to their final destination, one of the six British Flying Training Schools. Those travelling to Arizona arrived in Mesa where they boarded buses for Falcon Field. Tom Austin, a cadet in any early class (called "course" by the British) in the fall of 1941 later recalled, "We started out in Canada when it was their first snow fall of the year, but when we arrived in Mesa the temperature was way up in the 80's. My first impression of Arizona was the small of the orange blossoms."⁸¹

The first course of cadets arrived in Arizona in June 1941 and began their training at Thunderbird Field. Contrary to images of perfect flying weather, these first cadets found temperature well over 100 degrees with flight restricted in the afternoons due to heat thermals and "dust devils."⁸² By September, construction was sufficiently advanced to allow transfer of British cadets to the new Falcon Field.

Employees of Southwest Airways provided most training at Falcon Field. Royal Air Force officers staffed the facility to provide oversight and supervision of cadets and maintenance of records. RAF staff also taught some courses and frequent visitation by experienced veterans of the air war in Europe kept the education inspiring and focused. The standard plan for BFTSs authorized a dozen RAF staff officers at each school: a commanding officer, a ground training supervisor, an administrative officer, two assistant flying supervisors, two navigation instructors, two armament instructors, one wireless operator/air gunner instructor, one physical training instructor, and one accounts. In addition, Falcon Field after February 1943 always had one or two RAF gunnery instructors.⁸³ Former Squadron Leader Ted Irwin, of the Canadian Armed

⁷⁹ Simmons, 40-41.

⁸⁰ Readers interested in the training process will find a fascinating description in John Steinbeck's non-fiction *Bombs Away: The Story of a Bomber Team* (1942). The army commissioned Steinbeck and sent him on a tour of AAF bomber team training facilities to gather material. Accompanying him as photographer was John Swope, son of General Electric president Gerald Swope. In addition to being a photographer, Swope was also an aviation enthusiast with a personal friendship with Hollywood notables Henry Fonda and James Stewart, who were partners in the Southwest Airways venture. Swope was also a flight instructor at Thunderbird Field.

⁸¹ Dawson, 20-22. The first four courses of British cadets traveled through the still-neutral U.S. in identical government-issued civilian suits and luggage so as not to give the appearance of a British troop train. By November, with the U.S. engaged in sporadic conflict in the North Atlantic, the fifth course of cadets was able to travel openly in uniform. (Dawson, 26)

⁸² Dawson, 27.

⁸³ Dawson, 32.

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Figure 15. Lord Halifax (center), Great Britain's ambassador to the United States, speaks with a cadet within one of the Falcon Field hangars while on tour during April 1944. Reproduced from "Lord and Lady Halifax Visit," *The Thunderbird*, Vol. 2, No. 3, May 1944, 4.

Forces, who served as a navigation officer at Falcon Field from June 1944 to August 1945, succinctly stated the role of the RAF staff:

The RAF aircrew staff all had to be qualified instructors. If a specialty was taught by Southwest, the RAF specialists' job was to supervise the work of the Southwest instructor and sometimes add his own input if the need should arise. Some courses were not taught by Southwest (e.g. armament, gunnery, and signals) and RAF instructors handled these. All were instructors, but some supervised and some instructed.⁸⁴

In addition to these British personnel, Southwest Airways maintained close coordination with evolving RAF training standards through regular visits by high officials, such as Air Commodore D.V. Carnegie, director of all RAF training, who visited in July 1943. Alvin L. Storrs, director of training at Falcon, travelled to England in mid 1943 to learn first hand the latest lessons in air training hard won by three years of battle against the Luftwaffe. Combat aces, such as Group Captain T. Donaldson, who visited Falcon on February 1943 impressed the young cadets with a dazzling display of aerobatics in his Curtiss P-40 fighter-bomber. Few doubted the skill of RAF pilots after another aerobatics display in February 1943 by Squadron Leader J.A.F. MacLachlan,

⁸⁴ Dawson, 32.

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who, the cadets saw after he landed his Curtis P-36 Hawk, had lost an arm in the Battle of Malta.⁸⁵

The first three courses of cadets training at Thunderbird transferred to the still incomplete Falcon Field on September 25, 1941, with the fourth course arriving from Canada the following day. Full time training began on September 29.⁸⁶ Navigation instructor H. Dean Page described conditions in those first days:

Any enthusiasm we had for Falcon, when we first saw it, was all negative. It certainly wasn't impressive—a few semi-finished buildings, a few foundations being laid, and carpenters, painters, plumbers, and electricians dashing wildly around looking efficient. But then who could work up any enthusiasm when the temperature was one hundred and twenty degrees and the nearest shade was seven miles away, in Mesa.⁸⁷

Initially, British flight training, like American, was divided into primary (or elementary), basic, and advanced levels. But unlike the AAF, where trainees were transferred from one base to the next at each level, the British at Falcon Field adopted an "All-Through" schedule with each level taught in succession at the same field. Later, the British modified the syllabus by combining primary with basic training with about seventy hours of primary and up to 140 hours of advanced training. The number of training hours varied throughout the 1941-45 period in response to pressing war needs. British methods differed those in the AAF in other details, such as emphasis on night training, which the Americans reserved for special training. The RAF also stressed the importance of aerobatics and formation flying.⁸⁸

The training program included about seventy hours of dual training and another seventy flying solo, although these varied somewhat over time and between cadets. Initial flights were simply around the base, but as the cadet progress, he roamed further afield, to as many as three locations, including into nearby states. The final cross country exercise took cadets to three bases, including an overnight stay. Requirements included a 350-miles night solo flight and a 2,000-mile daylight solo flight. To simulate the disorientation common to inexperienced pilots, cadets spent at least five hours in the Link trainer, an early flight simulator used to help trainees become comfortable flying by instruments alone. Royal Air Force staff kept meticulous records of each cadet's progress. The cadet's log book records hours of flight and maneuvers practiced. Instructors signed log books daily to maintain accuracy.⁸⁹

The thirty-nine graduates of the first course, whose training began at Thunderbird on June 18, celebrated earning their RAF wings at a ceremony held in the newly finished east hangar on October 31, 1941. They were soon placed on board a train to take them back to Canada for final training in operational aircraft and eventually deployment in Europe.⁹⁰

⁸⁵ "Falcon Visitors," *The Thunderbird*, Vol. 1, No. 6, August 1943, 6; "Storrs Ends English Trip," *The Thunderbird*, Vol. 1, No. 7, September 1943, 6; Dawson, 35-36.

⁸⁶ Dawson, 42.

⁸⁷ Dawson, 44.

⁸⁸ Dawson, 27; Simmons 55, 111, 114.

⁸⁹ Simmons, 114, 116, 121. The fire that broke out in the West Hangar on February 21, 1943 (see p. 7 above), destroyed the log books and records of an entire course of cadets. (Simmons, 200)

⁹⁰ Dawson, 46, 48.

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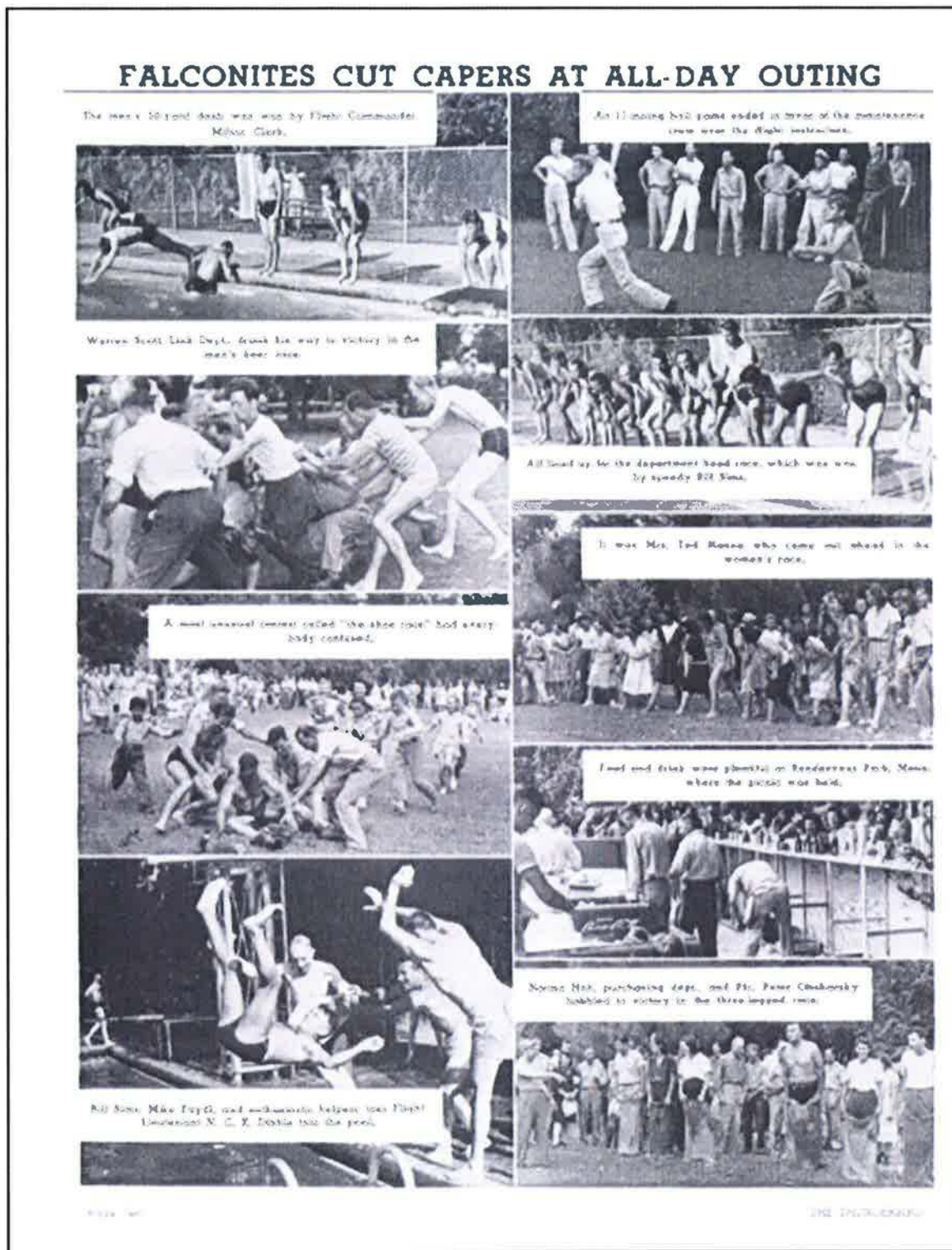


Figure 16. Illustration of recreational activities by Falcon Field cadets and staff. Reproduced from *The Thunderbird*, Vol. 1, No. 6, August 1943, 10.

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Since Southwest Airways was organized as an investment for Hollywood celebrities, Falcon Field occasionally welcomed a touring star, such as actor Jimmy Stewart, himself a military pilot during the war. The Hollywood connection was instrumental in the selection of Falcon fields as a location for filming Twentieth Century-Fox's *Thunder Birds*, *Soldiers of the Air* (1942). As a token of appreciation, Twentieth Century-Fox donated a much-welcomed swimming pool to Falcon Field. It quickly became a Falcon tradition to dunk cadets in the pool after their first solo flight. The Royal Air Force itself produced *Journey Together* (1945), starring Edward G. Robinson shot partially at Falcon.⁹¹

After American entry into the war, the American government began to play a greater role at Falcon Field. The AAF loaned the planes used at Falcon and in 1942 the Defense Plants Corporation purchased the facility from Southwest Airways and provided funding for additional construction. A lone American officer, Lieutenant Parberry was at Falcon in 1941 and 1942, perhaps as custodian for the army's planes. The medical unit came under army jurisdiction after Southwest Airway's contract surgeon, Dr. Bayard L. Neff, received an army commission.⁹²

The AAF's presence at Falcon expanded in November 1942 when seventeen American cadets, along with a captain and two sergeants, arrived to join Course 13 and train along side the British. More American followed this initial group leading to the activation of the 15th AAF Flying



Figure 17. Southwest Airways' magazine, *The Thunderbird*, reported on distinguished visitors to Falcon Field. Reproduced from *The Thunderbird*, Vol. 1, No. 4, June 1943, inside back cover.

⁹¹ Dawson, 50-51. The Falcon Field swimming pool has since been removed.

⁹² Dawson, 55.

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Training Detachment on March 25, 1943, redesignated the 3044th AAF Base Unit, Falcon Field, Mesa, Arizona on May 1, 1944. Falcon Field took on a second identity as an AAF installation, with its own American commanding officer functioning parallel to the British commander. Americans trained at Falcon Field until mid-1944, when the last class to include American cadets, Course 19, graduated on June 17, 1944. Unlike the American training program, as given at the Thunderbird fields, American cadets selected for training at Falcon had some previous flight training, including in the Civilian Pilot Training Program. Termination of American training coincided with the general reduction in the overall American training plan as mobilization reached its peak. The American cadets, one hundred sixteen total, trained using the British syllabus and upon graduation earned the distinction of wearing both AAF and RAF wings.⁹³

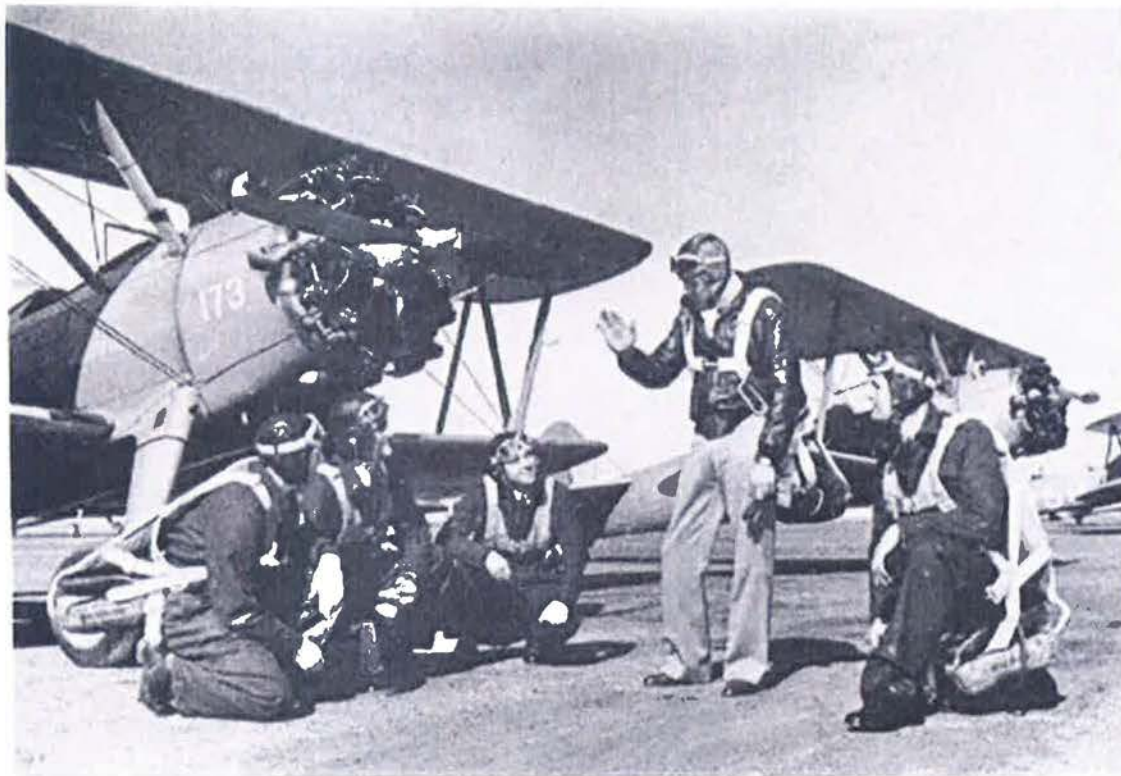


Figure 18. British cadets listen to instructions in front of Stearman PT-17 aircraft, the standard elementary flight trainer at Falcon Field. Reproduced from H. Dean Page, "Falcon is Founded," *The Thunderbird*, Vol. 1, No. 3, May 1943, 4.

⁹³ Dawson, 55-57, 59. The other British Flying Training Schools also began training small numbers of Americans and organized dual commands. The AAF apparently came to believe the British schools were underutilized and suggested reducing their number. In response, the British enlarged their classes, which had been smaller than their American counterpart, and invited a small number of Americans to join both to fill available space and to discourage the AAF from further considering school closures. Another explanation assigns the decision to General Arnold, who, according to Southwest's chief pilot Al Storrs, had wanted to see how the British program compared to the American one. (Dawson, 57)

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Accidents were a common at Falcon, occurring, on average, at least once a day during 1943. Most accidents were minor and caused more damage to aircraft than to the trainees. Fortunately for the cadets, the center-seated Stearman PT-17 was a relatively forgiving airplane and many cadets walked away from crashes severely damaging to their machine. Fatalities, however, proved unavoidable. Twenty-eight fatalities occurred between 1941 and 1944, with no fatalities in 1945. These included twenty-three British and one American cadet and four instructors. The first fatality was Leading Aircraftman Alexander Thomas Brooks of Course 1, who died of injuries sustained in a crash of his AT-6A during a night training exercise on October 16, 1941.⁹⁴

The worst year for fatal accident was 1943 when eleven cadets and two instructors were lost. One of the worst accidents occurred on January 18, 1943. Flight instructor Bob Hammond and his student Robert Lawther of Course 11 were killed following a mid-air collision with an AT-6A piloted by Sergeant N.I. Ballance. Ballance, though injured, was able to parachute to safety. The following description drawn from the accident report provides details:

Formation of three aircraft at 14,000 feet in starboard echelon. No. 3 left behind in a turn, opened throttle to catch up—at this moment leader was ordered to throttle back by Instructor in No. 2. No. 3 overshot No. 2 just as leader turned toward the right, thus putting No. 3 in a position which he could not see No. 2, and in the close vicinity of a large cumulus cloud. No. 3 commenced to turn away to dive through this cloud and at that moment felt a heavy impact. No. 3 tested aircraft controls—found no response—then baled out. No. 2 went straight down.... The conclusions of the school were that the accident was due... to a combination of circumstances beyond the capabilities of a cadet to handle at that stage of training. The accident may be classified as “avoidable”... and [schools should] stress the need for immediate break-away from the formation of any member who loses sight of the aircraft ahead. The breakaway should be rapid and should normally be upward and outward in relation to the formation. There is apparent need for further instruction of cadets and instructors in the best methods of obtaining power to keep up. The instructor is considered to have been at fault somewhat in ordering the leader to ‘throttle back.’ Any such order which is capable of interpretation in varying degrees must be issued with caution.⁹⁵

Apart from fatalities, the worst event at Falcon Field occurred on August 1, 1945, only days before the atomic bombing of Japan brought the war to a climax. At about 6:00 p.m., the field was struck by a severe dust and rain storm. Captain Marvin Grant later described how the storm turned Falcon Field into a “disaster area:”

The AT-6 airplanes were parked on the mat with their tails to the east. Tail down, the wind passed over them with not a great deal of damage. The PT-17s, however, were headed into the wind. As best I remember, the aircraft became airborne at about 60 mph.... these planes tried to fly. Every man on the base was out on the flight line, trying to hold the planes down. Many of those tied down were actually flying—in tethered flight. But one after another peeled up

⁹⁴ Dawson, 133, 135; Simmons, 247. One American cadet and an instructor died of natural causes.

⁹⁵ Dawson, 137.

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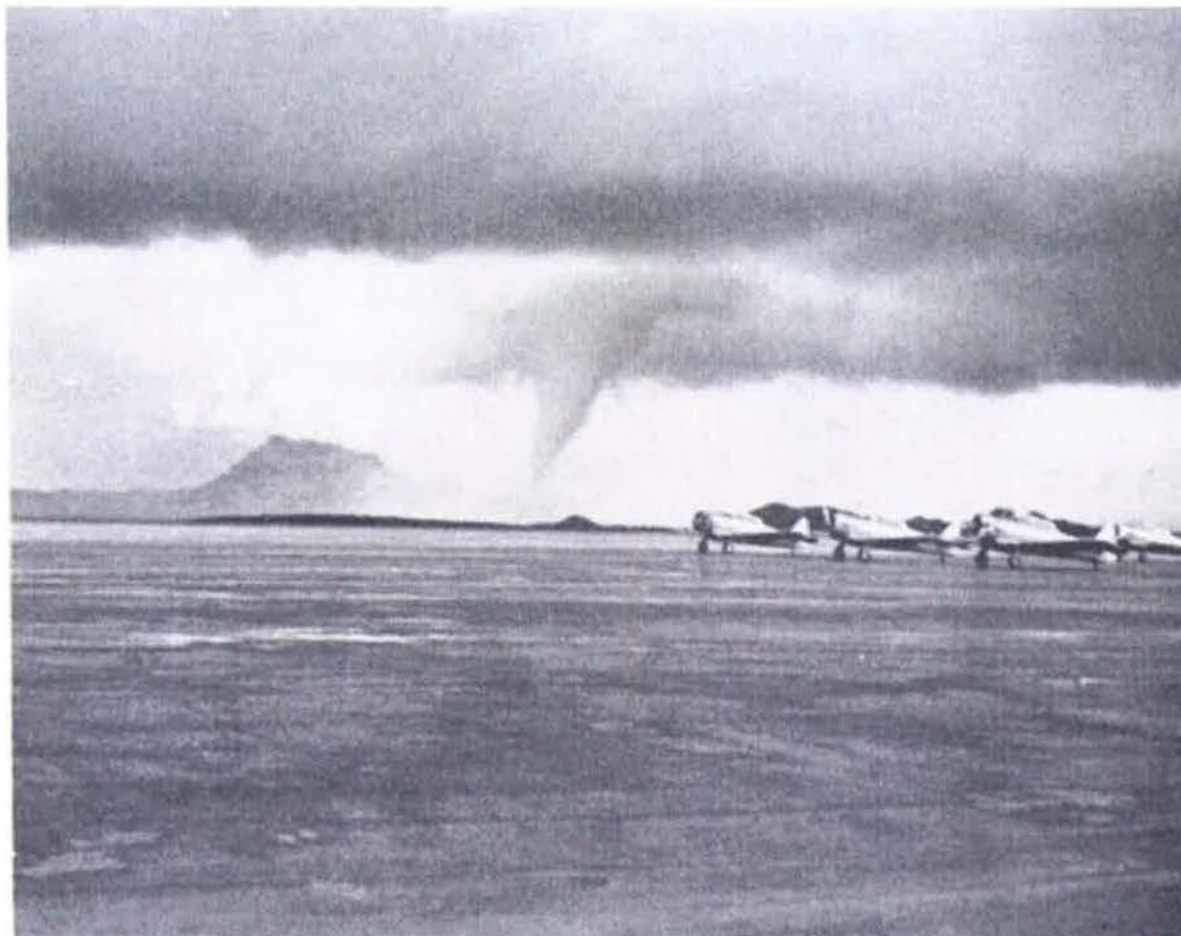


Figure 19. The tornado captured in this photograph taken in 1943 by RAF Cadet R. Roberts at Falcon Field illustrates that weather in Arizona was not as perfect as boosters sometimes claimed. Reproduced from *The Thunderbird*, Vol. 1, No. 4, June 1943, 8.

and over. They were stacked like Jack Straws across the field and into the citrus grove bordering the west fence line.⁹⁶

Thirty-seven PT-17s were destroyed by the storm. Not realizing the war was soon to end, training was restarted a few days later using some PT-13s flown in from California.

Although primarily a school for British cadets, beginning in 1943 with Course 13, the AAF sent a small number of American cadets to Falcon Field to train under the RAF syllabus. Graduates of these courses earned both AAF and RAF wings.⁹⁷

⁹⁶ Dawson, 146.

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Aircraft maintenance and repair was one of the greatest challenges facing Falcon Field. This was true of pilot training programs generally and was especially difficult for the fields operated by civilian flight schools. SWA hired Joseph Wischler, a licensed mechanic from Chicago, to oversee maintenance at Falcon Field. Wischler later remembered of Falcon Field's early days: "Those were hectic times. Lots of overtime was being worked as Falcon's complement of 40 PT-17s, 40 BT-13s and 40 AT-6s were made ready. Everyone believed war was coming. The British appreciated good maintenance and we worked hard to give them a good, clean airplane."⁹⁸

About sixty percent of Falcon Field's maintenance workers were women. Despite their lack of experience as mechanics, these workers could be trained to perform specific tasks, which they would repeat day after day, or rather night after night as most maintenance was performed after 5:00 pm. One worker would clean and grease all the tail wheel bearings and tail gear throw-out clutches, while another would go from one plane to the next removing, cleaning, and replacing air filters. By subdividing maintenance into simple repetitive tasks, these local "Rosie the Riveters" kept the training planes flying.⁹⁹

With sufficient numbers of pilots and aircrew trained, the AAF curtailed most of its pilot training program during 1945. Likewise, with the war in Europe over in May, the British ended the British Commonwealth Air Training Program. They continued, however, to send new cadets to the British Flying Training Schools in America as the Allied war effort shifted towards a final confrontation with Japan, presumably in 1946. Japan's sudden capitulation in August left three



Figure 20. Images of Southwest Airways civilian employees at Falcon Field. From left to right, John C. Whittemore, tower operator; Ann Campbell at the Falcon Field canteen; Joseph Farr, security guard; Norma Holt, record keeper. Reproduced from *The Thunderbird*, Vol. 1, No. 1, March 1943; Vol. 3, 8-9, No. 3, May 1943, 8; Vol. 1, No. 6, August 1943, 12.

⁹⁷ "Falcon Doubles," *The Thunderbird*, Vol. 1, No. 4, June 1943, 4.

⁹⁸ Hyer, 175.

⁹⁹ Hyer, 175.

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courses in progress at Falcon Field. Course 25 was the last to graduate on August 25, 1945. Courses 26 and 27 completed only primary training before returning to England. The last training flight at Falcon occurred on September 7, five days after the Japanese surrender. Commander Rogers hosted a farewell dance for the last cadets on September 8 at Phoenix's Hotel Westward Ho. On September 10, 1945, 171 cadets of the unfinished training courses, along with several officers, boarded trains for their return to England. The next several days were spent transferring planes to other facilities and within a short time Falcon Field was abandoned.¹⁰⁰

Falcon Field after World War II

In 1946, SWA was renamed Southwest Airlines and became Pacific Airlines twelve years later in 1958. Hayward and Connelly ended their interest in the company in 1963 when they sold out to an executive of West Coast Airlines, who later sold it to three other businessmen. In 1968, Pacific Air Lines, West Coast Airlines, and Bonanza Air Lines were merged into Air West. This company was bought in 1970 by Howard Hughes and the name changed again to Hughes Air West. Ten years later Hughes Air West would become part of Republic Airlines.¹⁰¹

Following closure, in 1946 the Defense Plant Corporation sold the physical assets remaining at Falcon Field to the City of Mesa for one dollar. For some twenty years thereafter, Falcon Field was nearly abandoned. A few small businesses operated from the facility, such as Roslan Engineering, which leased two acres in 1962 for a test facility for Motorola, Inc. But for the first sixteen years, the city undertook no improvements. It was during this period of neglect that the old barracks were broken into and everything of value stolen, leading to the eventual demolition of the barracks. The cadet lounge was demolished leaving only a chimney. The pool remained in use for many years. Not until 1962 did the city undertake an important improvement project, undertaking a \$157,000 project to replace two runways and later adding a parallel taxiway for Runway 4.¹⁰²

Between 1957 and 1965, Mesa leased Falcon Field to defense contractor Franz Talley whose company, Talco, manufactured rocket motors. After selling Talco to Rocket Power Inc., Talley went on to found Talley Industries, an aerospace engineering firm to develop solid-propellant devices and safety equipment to help pilots and crews make emergency escapes from military aircraft. Rocket Power Inc. remained at Falcon Field until the city bought out its lease in 1965. By that time Mesa had come to appreciate the economic development value of an airfield and so began a series of improvements, such as repaving of the ramps and adding more tie down spaces. The city formed the City Airport Division to operate Falcon Field as a general aviation airport and with a combination of city funds and federal grants, began the transformation of Falcon Field into an important engine of economic growth. Construction of a police and fire department facility in 1979 and a new control tower in 1986, were important new facilities. Today, with two parallel,

¹⁰⁰ Dawson, 147; Simmons, 52.

¹⁰¹ Simmons, 23.

¹⁰² Simmons, 52, 249.

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lighted runways of 3800 feet and 5100 feet length, Falcon Field is one of the busiest general aviation fields in the United States.¹⁰³

Falcon Field has had a strong connection to owners of vintage aircraft. In 1978, the Confederate Air Force (now Commemorative Air Force), a non-profit group that preserves historic aircraft for display and education, formed an "Arizona Wing" at Falcon Field, which remains active. To accommodate expansion, the CAA recently built a new hangar, conference area, and gift shop to accommodate visitors to its expanding collection. In 1981, the Champlin Fighter Aircraft Museum, opened a second aircraft museum in Falcon Field's Hangar 1. The Champlin Museum operated at Falcon Field until 2003 when it relocated to Seattle, Washington.¹⁰⁴

SUMMARY

The two World War II-era aviation hangars at Falcon Field represent the local manifestation of a national, indeed international, historic context. As described in the historical narrative, the training of British aviators in the United States occurred as the result of careful diplomacy between the two countries as the U.S., formally a neutral prior to December 7, 1941, expanded its support for the Allied cause. The hangars are nominated at the local level of significance because of the historic and emotional attachment between the broader story of the war effort and the cooperation of locals, like the City of Mesa, who made the site available and who welcomed and assisted the cadets throughout its operation. The city has since maintained the hangars as part of an active airport and supported the use of the hangars by groups dedicated to the preservation of historic aircraft. In addition, the airport sponsors events like air shows, which publicize the history of the airport and its historic connection to the war. Although the hangars have had alterations since the war, this document has emphasized the preservation of the interior space and structure as their most important character-defining features. The purpose of a hangar, after all, was to provide a large space for the storage and maintenance of aircraft. Visitors today entering the hangars see, essentially, what the trainers and cadets from 1941 to 1945 saw. For their ability to convey an important story of how Allied cooperation actually worked, from the cooperation of nations to the support of local citizens, the hangars are recommended as meeting the criteria of the National Register, specifically, Criterion A in the military area of significance.

¹⁰³ VanderMeer, *Desert Visions and the Making of Phoenix*, 223; Simmons, 53, 249; "Talley Industries, Inc. History," Funding Universe, <http://www.fundinguniverse.com/company-histories/talley-industries-inc-history/>, (accessed June 1, 2015).

¹⁰⁴ Simmons, 249, 259.

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Figure 21. Back cover of *The Thunderbird*, Vol. 1, No. 3, May 1943.

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8. Major Bibliographical References

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Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____
- recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other
- Name of repository: _____

Historic Resources Survey Number (if assigned): _____

9. Geographical Data

Acreage of Property 2.42

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates (decimal degrees)

Datum if other than WGS84: _____

(enter coordinates to 6 decimal places)

- | | |
|------------------------|-----------------------|
| A. Latitude: 33.455300 | Longitude: 111.731713 |
| B. Latitude: 33.455300 | Longitude: 111.729385 |
| C. Latitude: 33.454940 | Longitude: 111.731713 |
| D. Latitude: 33.454940 | Longitude: 111.729385 |

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Verbal Boundary Description (Describe the boundaries of the property.)

The boundary of the nominated property is the approximately 2.42 acres enclosed by a rectangle bounding the two World War II aviation hangars as depicted in Figure 21.

Boundary Justification (Explain why the boundaries were selected.)

The boundary includes the two World War II aviation hangars and the open space between them. The hangars are the only building remaining from the property's period of significance. No other portion of Falcon Field Airport is included.

10. Form Prepared By

name/title: William S. Collins and Paula Scott
organization: State Historic Preservation Office
street & number: 1300 W. Washington St.
city or town: Phoenix state: AZ zip code: 85007
e-mail: wcollins@azstateparks.gov
telephone: (602) 542-7159
date: _____

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

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Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Falcon Field

City or Vicinity: Mesa

County: Maricopa State: AZ

Photographer: Eric Vondy

Date Photographed: February 10, 2015 (Photographs 2, 8 and 10); January 26, 2016 (all others)

Description of Photograph(s) and number, include description of view indicating direction of camera (See Figure 21):

Photo #	Facing	Description
1 of 10	W	East Hangar, east facade
2 of 10	W	East Hangar, east facade, detail
3 of 10	S	East Hangar, north facade
4 of 10	E	East Hangar, west facade
5 of 10	NE	East Hangar, west and south facades
6 of 10	SE	East Hangar, interior
7 of 10	E	West Hangar, west facade
8 of 10	SE	West Hangar, west facade, detail
9 of 10	S	West Hangar, north facade and addition
10 of 10	E	West Hangar, interior

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State

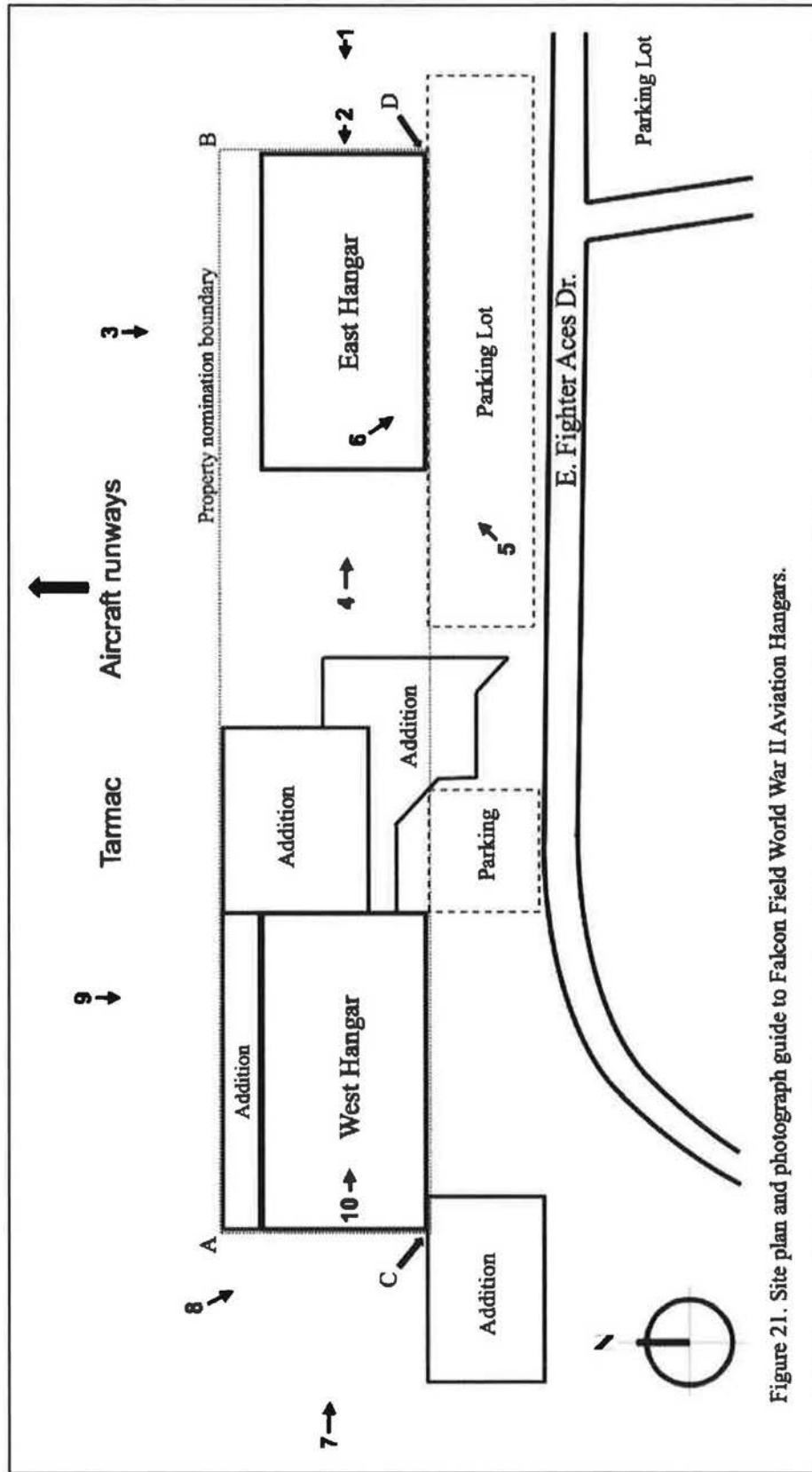


Figure 21. Site plan and photograph guide to Falcon Field World War II Aviation Hangars.

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Figure 23. Location map for Falcon Field World War II Aviation Hangars.

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Photograph 1. East Hangar, east façade.



Photograph 2. East Hangar, east façade, detail

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Photograph 3. East Hangar, north facade



Photograph 4. East Hangar, west facade

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Photograph 5. East Hangar, west and south facades



Photograph 6. East Hangar. Interior

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Photograph 7. West Hangar, west facade



Photograph 8. West Hangar, west facade

Falcon Field Aviation Hangars
Name of Property

Maricopa, AZ
County and State



Photograph 9. West Hangar, north façade and addition



Photograph 10. West Hangar, interior



TRANSONIC
AVIATION STORAGE & FLYING CLUB
← AIRCRAFT MAINTENANCE & PARTS DEPARTMENT









Wings of Night Foundation
WARRIOR RIDES



WARRIOR RIDER



746



EXIT





FALCON



WARDEN

COMPTON CAT

FALCON



WARBIRDS







UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Falcon Field World War II Aviation Hangers

MULTIPLE
NAME:

STATE & COUNTY: ARIZONA, Maricopa

DATE RECEIVED: 4/08/16 DATE OF PENDING LIST: 4/29/16
DATE OF 16TH DAY: 5/16/16 DATE OF 45TH DAY: 5/24/16
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 16000266

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: Y PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: N SAMPLE: N SLR DRAFT: N NATIONAL: N

COMMENT WAIVER: N

ACCEPT RETURN REJECT 5-19-2016 DATE

ABSTRACT/SUMMARY COMMENTS:

Although one hangar has had two additions, they are adjacent in a way that the original hangar is clearly distinguishable. The other hangar is intact, with cosmetic changes to materials.
one is a few training facilities for IAF pilots

RECOM./CRITERIA Accept A

REVIEWER J. Hubbard DISCIPLINE _____

TELEPHONE _____ DATE _____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N see attached

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.

RECEIVED 2280

APR 08 2016

Nat. Register of Historic Places
National Park Service

**ARIZONA STATE HISTORIC PRESERVATION OFFICE (SHPO)
NATIONAL REGISTER NOMINATION
TRANSMITTAL FORM
FEDERAL EXPRESS**

DATE: APRIL 5, 2016

TO:

**J. Paul Loether, Deputy Keeper and Chief
National Register and National Historic Landmark Programs
National Register of Historic Places
1201 Eye St. NW, 8th Fl.
Washington D.C. 20005-5905**

FROM:

**Vivia Strang, CPM
AZ State Parks
National Register Coordinator
State Historic Preservation Office
1100 West Washington Street
Phoenix AZ 85007**

National Register Nomination property/resource:

FALCON FIELD WORLD WAR II AVIATION HANGARS

Location: Mesa, Maricopa, AZ

Criterion: A B C D

Level of significance: Local State National

Status: New nomination Resubmittal Review of nomination

Accompanying documentation is enclosed, as required. Should you have any questions or concerns please contact me at vstrang@azstateparks.gov or 602.542.4662.