



B-25J bombers in final assembly at the Kansas City plant, 1944.



“WE ALL HAD A CAUSE”

Kansas City’s Bomber Plant, 1941–1945

by Richard Macias

The B-25 bomber played a critical role in America’s World War II arsenal, serving in several theaters of the war, from North African deserts to Pacific Ocean expanses. Although a conventional bomber, this versatile aircraft also was utilized for airborne artillery and as a low altitude strafing aircraft. Many of these B-25s were produced in North American Aviation’s Kansas City, Kansas, facility, and this article describes the origin and development of that defense plant, as well as the principal achievements of its employees, who made vital contributions to the war effort.

The Second World War began in Europe in September 1939 when Adolf Hitler’s Germany attacked Poland. The attacker’s superiority in both numbers of men and quality of materiel resulted in a swift victory. In the spring of 1940 Hitler’s forces occupied Denmark; Norway was next to fall, primarily due to German control of the air over the fighting zone. Then on May 10, 1940, Germany launched its biggest offensive yet by striking at France and the Low Countries of Holland, Belgium, and Luxembourg. The German land forces advanced swiftly, utilizing tanks and other motorized elements, and striking with its main weight from the Ardennes Forest, which the Allies least expected. The German air force (Luftwaffe) attacked forward Allied airfields, destroying aircraft on the ground and putting bases out of service. In one instance, on

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the second day of the offensive, an entire British bomber squadron near Rheims, France, was wiped out before its first mission could be flown.¹ The Luftwaffe swept the skies of opposing planes; on May 14 alone eighty-nine Allied fighters and bombers were shot down. The German air arm also provided close support to the army, as demonstrated near Sedan, France, when the French posts on the Meuse River were subjected to a terrible pounding by bombers and dive-bombers.² Within days seven panzer divisions had broken through the Ardennes sector and were closing on the English Channel ports, effectively cutting off the better part of the Allied armies. In little over three weeks from the first German attack on May 10, the Low Countries were overrun, the British Expeditionary Force and other Allied soldiers were leaving the continent from Dunkirk port, and France was headed toward certain defeat.

President Franklin D. Roosevelt watched the events in Europe, as he did the ominous developments in the Far East where Japan moved against China. Cognizant of America's low level of military preparedness, in light of these threatening events, the president believed the nation must modernize and expand its armed forces. And events in Europe had demonstrated that air power had to be a primary component. FDR knew the Luftwaffe had played a decisive role in the Allied defeat in Norway and that its superiority in both numbers and technology was having a profound impact on the combat in continental Europe.³ On May 16, 1940, the president asked Congress for an increase in defense spending. He also said he would "like to see this nation geared up to the ability to turn out at least 50,000 planes a year." To appreciate the scope of the proposed program, it must be noted that in 1939 a total of 5,856 aircraft had been produced in the United States. President Roosevelt envisaged an airplane industry that would meet American defense needs and fill future orders expected to come from the Allied powers.⁴

1. Cajus Bekker, *The Luftwaffe War Diaries: The German Air Force in World War II* (New York: DaCapo Press, 1994), 114–15.

2. *Ibid.*, 117–19.

3. Warren F. Kimball, ed., *Churchill and Roosevelt: The Complete Correspondence: I Alliance Emerging* (Princeton, NJ: Princeton University Press, 1984), 37; Orville H. Bullitt, ed., *For the President: Personal and Secret Correspondence Between Franklin D. Roosevelt and William C. Bullitt* (Boston: Houghton Mifflin Co., 1972), 419; "British Had To Retreat," *Kansas City Times*, May 9, 1940.

4. "To Meet Brutal Force," *Kansas City Star*, May 16, 1940; John B. Rae, *Climb to Greatness: The American Aircraft Industry, 1920–1960* (Cambridge: MIT Press, 1968), 81.

In the summer of 1940 Congress passed large army and navy appropriation bills, a supplemental defense bill, and a tax law to help pay for it all. Concurrently, the Airplane Division of the National Defense Advisory Committee (NDAC) reported the expansion that would be necessary to accomplish the president's plane production goal. A 200 percent increase in factory floor space and a 400 percent rise in the labor force was needed.⁵ Private and foreign investment accounted for a modicum of expansion. But manufacturers, uncertain of the emergency's length, were hesitant to borrow money to cover large construction costs. To facilitate the necessary expansion, the government ultimately provided most of the needed capital. Several aircraft companies received federal money to enlarge or build new facilities. In addition, War Department and NDAC officials proposed that the government's Defense Plant Corporation finance all new construction to further increase capacity. These government-owned facilities would then be rented to private manufacturers. Another approach suggested that the government build and own plants, stock them with machines and tools, and engage a contractor to operate the plant. Such facilities were to become known as government-owned, contractor-operated (GOCO) plants.⁶

U.S. Army Air Corps (AAC) administration developed a plan to build two such GOCO plants. The target production goals were two hundred medium bombers per month in one factory and one hundred heavy bombers per month in the other. The AAC chief, General Henry H. Arnold, and NDAC commissioner, William S. Knudsen, decided these plants should be built in the interior of the country. Increased security was the primary reason for this decision. The second was the government's desire to distribute the economic benefits of plant construction and operation as widely as possible. Since the majority of the nation's aircraft plants were on the coasts, locating new capacity in the interior could draw upon new sources of labor, power, transportation, and the like.⁷

A Plant Site Board traveled to several locations in the Midwest. In the autumn of 1940 the board finished its sur-

5. Irving Brinton Holley Jr., *United States Army in World War II, Special Studies: Buying Aircraft: Materiel Procurement for the Army Air Forces* (Washington, D.C.: Government Printing Office, 1989), 293.

6. *Ibid.*, 294–301.

7. Wesley F. Craven and James L. Cate, eds., *The Army Air Forces in World War II: VI. Men and Planes* (Washington, D.C.: Office of Air Force History, 1983), 311.

BIG BOMBER PLANT FOR CITY

The Army Air Corps Approves the Construction of Assembly Units Here
and in Omaha to Speed Up the Defense
Program.

MAY HIRE UP TO 12,000

Government Will Build Facilities Costing 9 to 10 Million for Use of North American Aviation, Inc.

GREAT BRITAIN TO SHARE IN OUTPUT

Million a Year for Planes.

The program to put the middle West into military aircraft production on a big scale was started definitely on its way yesterday with approval of Kansas City and Omaha as sites for the first two of the four projected plants.

As an indication of the magnitude of the plan, the Associated Press reported persons concerned in the negotiations said the four new western assembly plants would turn out planes costing approxi-

UP IN 110 DAYS

Factory to Assemble Warplanes Can Be Built Quickly, It Is Said.

ON SITE ADJOINING AIRPORT

Officials of North American Aviation Have Inspected Fairfax

The December 7, 1940, Kansas City Times, announces that Kansas City will be home to one of the government's warplane assembly plants.

veys and forwarded them to General Arnold, who then conferred with Commissioner Knudsen. They selected Omaha, Nebraska, as the location to build the Martin B-26 two-engine plane; the Consolidated B-24 four-engine assembly was to take place in Tulsa, Oklahoma. Upon further study and reflection, however, officials decided more sites were needed. The demand "threatened to impose an impossible strain on the local resources" of Omaha and Tulsa alone, so AAC and NDAC officials recommended two more GOCO plants.⁸ Fort Worth, Texas, would help make the B-24, and Kansas City, Kansas, would produce the B-25 two-engine bomber. A front-page headline in the *Kansas City Times* of December 7, 1940, read "BIG BOMBER PLANT FOR CITY." The plant was to be operated by North American Aviation.⁹

The AAC's chosen plant site was in the extreme northeast part of Kansas City. The area, known as Fairfax Industrial District, comprised light industrial and agricultural manufacturing. The specific construction site was a seventy-five-acre alfalfa field adjoining Fairfax Airport, a privately owned airport with two asphalt runways. North American's president, James H. Kindelberger, noted in a

telegram: "Have inspected Fairfax site and it is okay. Airport small but suitable for immediate needs with improvements."¹⁰ Prompt action allowed survey work to begin in December 1940, and in January 1941 the War Department and North American signed the necessary contracts. Muskogee Iron Works of Muskogee, Oklahoma, won the bid to supply approximately five thousand tons of structural steel. In February the Kansas City, Kansas, government purchased Fairfax Airport, which satisfied an AAC requirement for free use of the airport to test the completed bombers. The federal government subsequently financed airport improvements to accommodate such testing.¹¹ From its Inglewood, California, headquarters and home plant, North American submitted a preliminary list of needed equipment and machinery for Kansas City. Federal officials bought just over eighty-five acres from the Kansas City Industrial Land Company, which constituted the land for the plant and the right-of-way between the site and the airport.¹²

The groundbreaking ceremony occurred on March 8, 1941. Kindelberger and Kansas governor Payne Ratner were among more than five thousand participants and

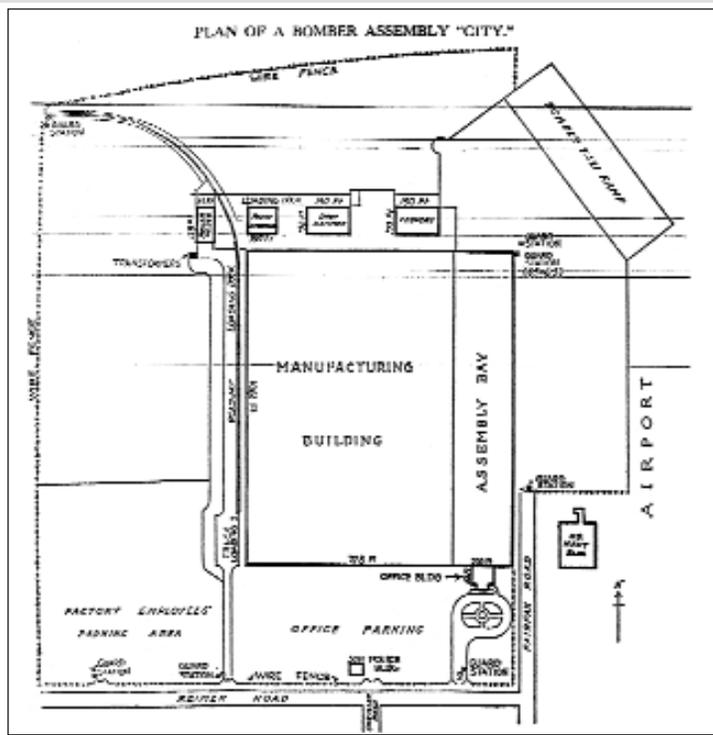
8. Holley, *United States Army in World War II*, 306-8.

9. General Arnold to Assistant Secretary of War Patterson, November 27, 1940, Materiel Division, Colonel A. J. Lyon Project Files 1939-1941, Book 48, Government Owned Factories, RG 18, National Archives, Washington, D.C.; "Big Bomber Plant For City," *Kansas City Times*, December 7, 1940.

10. James H. Kindelberger telegram to unidentified, December 2, 1940, Lyon Project Files.

11. General Brett to Don C. McCombs, February 6, 1941, *ibid.*; "Vote For Fairfax," *Kansas City Times*, February 12, 1941.

12. "Fairfax Acres To US," *Kansas City Star*, February 27, 1941.



**GREATER KANSAS CITY
WELCOMES
NORTH AMERICAN AVIATION**

**MAMMOTH PUBLIC CELEBRATION
AND GROUND-BREAKING CEREMONY
TOMORROW AT 2:30 P. M. AT
FAIRFAX AIRPORT**

spectators in attendance.¹³ Within days the first graders, tractors, and pile drivers arrived on site, and fifty men started work. The firm of McDonald, Tarleton, and Patti of Saint Louis and Kansas City won the general contractor bid and shared responsibility for the construction with the U. S. Army Corps of Engineers. A Pittsburgh, Pennsylvania, firm was awarded the contract for sheet steel for the roof and sidewalls. By the end of March the initial foundation piles were driven and being filled with concrete, and the first structural steel began to arrive.

Washington approved the list of machines and production equipment and assigned a high priority to the procurement.¹⁴ By April workmen were using five pile drivers; they poured concrete caps atop the piling clusters, which set the foundation lines, and started the concrete walls. They laid the floor with sand, then gravel, and finished with a top layer of reinforced concrete. At this time approximately four hundred men were on the job constructing the plant.

The factory superstructure would comprise fourteen single-story bays of 50-foot width and 1,050-foot length, along with a final assembly bay 32 feet high, 200 feet wide, and 750 feet in length. On April 7, 1941, the crew erected the first structural steel, and within a week they had assembled two bays and part of a third. By month's end the

skeleton of ten bays was complete, and sheet steel workers began to deck the roof.¹⁵ In May construction of the last of the fourteen standard-width bays and the final assembly bay began.

That same month Kindelberger stated that the first aircraft parts from California, where B-25 assembly was already under way, were being prepared for shipment. H. V. Schwalenberg, the newly appointed Kansas plant manager, announced that a dozen key men from North American in California would arrive soon to facilitate the start of operations. An additional 140 skilled men were training as supervisors and also were slated to join the Kansas City staff. At the end of June 1941 the plant was approximately 70 percent complete, and the awaited parts began to arrive. The AAC and North American signed contract W535 AC 19341 for the purchase of 1,200 B-25D aircraft. The D suffix denoted planes to be built in Kansas City.¹⁶

In early July North American employees began constructing jigs—frames into which individual pieces are joined together to make a plane's component parts in a prompt, consistent manner. Also in July plant construction crews completed the structural steel erection, and began to

13. "Hail Air Place," *ibid.*, March 8, 1941.

14. "Speed Up Plant Tools," *ibid.*, March 29, 1941.

15. "Bomber Steel Up," *ibid.*, April 7, 1941; "Speed Up On Big Plant," *ibid.*, April 22, 1941; "Air Plant Tempo Gains," *ibid.*, April 30, 1941.

16. W. F. Volandt to General Echols, June 28, 1941, 452.1 Airplanes: Bombers, Central Decimal Files 1939-1942, RG 18, National Archives; "Bomber Parts In," *Kansas City Star*, June 26, 1941.

(Left) Plans for the “Bomber Assembly ‘City’” appeared in a February 1941 issue of the *Kansas City Star*, and a groundbreaking ceremony for the Kansas City plant was held March 8, 1941.

(Right) By the summer of 1941, with the plant 70 percent completed, the first B-25D aircraft were under construction. Pictured here is ongoing production in the final assembly bay, ca. 1942.



fit large sliding doors in the north end and east wall of the final assembly bay.¹⁷ The completed aircraft could be rolled out these doors in preparation for initial flight tests. The AAC now controlled Fairfax Airport under a fifty-year lease with the local government; construction crews were enlarging and improving the airport. When the work was finished, the field contained four concrete runways, each 150 feet wide with a mean length of 5,725 feet.¹⁸

Construction workers, now numbering nearly five hundred, completed the sheet steel siding and connected underground electrical service. In September they hung fluorescent lighting and completed the first major jig. Sub-contractors gradually installed equipment and machinery in the large plant.¹⁹ Auto companies joined the airplane industry by making some parts and sub-assemblies; Fisher Body of General Motors, primarily the Memphis, Tennessee, division, supplied the Kansas City plant. In mid-October 1941 the plant was 91 percent complete, and AAF representatives moved into their offices.²⁰ Three B-25s were

in production in November, the principal assemblies for which had been shipped from Inglewood. Employees of North American’s Kansas division then numbered about six hundred and were expected to increase to ten thousand when production reached its peak.²¹

Built as a “blackout” building, the plant had no windows, and steel canopies and a one-foot-thick concrete wall sheltered its doors. One-foot-thick concrete formed the curtain walls as well. The exterior paint, roof treatment, and concrete apron color were designed to blend into the landscape. Floor space was more than one million square feet, and unlike most buildings of the time, it was air-conditioned. The complex also comprised five small ancillary structures, such as a power house and police quarters. The government’s cost for the materials, labor, equipment, and machinery totaled well over eleven million dollars.²²

In August 1941 Kindelberger had announced that the plant dedication would take place when the first bomber was completed, which he had expected to occur at the end of the year. Officials planned an elaborate three-day dedication to start on January 9, 1942, including an open house where thousands were expected to attend. But these plans

17. “In Bomber Plant,” *Kansas City Star*, July 7, 1941; “Big Plant’s Doors Up,” *ibid.*, July 13, 1941.

18. “Fairfax To Army,” *Kansas City Times*, June 7, 1941; “Rush Big Fairfax,” *Kansas City Star*, June 18, 1941; “Runways at Fairfax Almost Done,” *Kansas City Kansan*, May 24, 1942; *North Ameri-Kansan*, April 28, 1944.

19. “Move Plane Tools In,” *Kansas City Star*, September 25, 1941.

20. “A Bomber Part Start,” *Kansas City Times*, October 16, 1941; Aircraft Expansion Program: Recap of Essential Facilities Data, October 15, 1941, 004.4, Firms and Factories, box 65, Central Decimal Files 1939–1942. In June 1941 the Army Air Corps reorganized as the Army Air Forces.

21. “Bomber Tide Near,” *Kansas City Star*, November 14, 1941.

22. *North American Skyline 2* (October 1941): 9, 35; Aircraft Expansion Program: Recap of Essential Facilities Data, January 1, 1942, 004.4, Firms and Factories, box 65, Central Decimal Files 1939–1942.



On December 8, 1941, the day following the attack on Pearl Harbor, hundreds of local residents lined up to join the work force at the Kansas City plant. By the autumn of 1943 employment had reached 23,500.

changed soon after the Japanese attack on Pearl Harbor, December 7, 1941, and U.S. entry into the war. Officials thought it best to focus on production, so a conservative ceremony was held on December 23, 1941, to mark completion of the first bomber to roll from the plant.²³ The first test flight occurred on January 3, 1942.

At the beginning of 1942 the plant had 1,358 employees.²⁴ A number of these were skilled workers who had been transferred from the North American plant in California, and another small group had attended private aviation schools, but the majority of the employees were local and had just received training. The school districts of Kansas City, Kansas, and Kansas City, Missouri, already had been offering national defense training courses on a small scale before the area was granted the bomber plant. Following the announcement, the districts asked the company how to prepare people for employment. The employment and personnel directors from Inglewood outlined equipment needs for training, and both school boards requested and received funds to purchase the necessary machinery. Training to prepare men for employment at the bomber plant began at two schools in May 1941. In Missouri students met at the then Manual

High and Vocational School; the Kansas classes utilized the old Sumner High School building at Ninth and Washington, later known as the National Defense Training School.²⁵

The local school districts offered training classes in basic aircraft sheet metal work. Funded by the federal government, the classes were free to students except for the purchase of a small toolkit. Men wanting to take the class had first to apply to their state employment office. If they passed a battery of tests, the candidates went on for an interview. Satisfactory interviews allowed them to enroll in the twelve-week course, and those who successfully completed the course were referred to North American. Classes in other areas of aircraft production were added later. In July 1941 eight experienced men had come from North American to join the instructor staff and to guide curriculum at the two training schools. By August five hundred men were being instructed in the Kansas school and about two hundred at the Missouri site.²⁶ The graduates of this early training took their place among the ranks of those who first staffed the plant. In those early days only men eighteen to thirty-five years of age were considered for employment in aircraft construction, but employment policies

23. "Hail Bomber No. 1," *Kansas City Times*, December 24, 1941.

24. *North American Aviation, Inc.: A Brief History of the B-25 Mitchell Bomber* (Dayton, Ohio: U.S. Air Force Museum), 29.

25. "To Assist in Starting Plane Class," *Kansas City Kansan*, May 22, 1941; "A Bomber School Start," *Kansas City Times*, May 26, 1941. Sumner High School and its African American students moved into a new facility at 1610 North Eighth (Eighth and Oakland) in 1940.

26. "Get Ready For Machine Tool Classes," *Kansas City Kansan*, August 21, 1941; "Air Skill Spurt," *Kansas City Star*, July 7, 1941.

The first completed B-25D bomber prepares for its test flight, January 3, 1942. Note the plant employees gathered to witness the event.



changed as the war called more and more men into the armed forces.

As the first of Kansas City's B-25s emerged from the Fairfax plant, the North American B-25 bomber appeared in headlines worldwide, as a result of an intrepid mission. A number of AAF crews, led by Lieutenant Colonel James H. Doolittle, had trained with B-25s in short takeoffs and low level flying. On April 18, 1942, Doolittle's unit took off from the carrier USS *Hornet*, attacked targets in Tokyo and three other Japanese cities, and continued its flight west. They barely reached the Asian mainland; several crewmembers were injured, killed, or captured; and all sixteen B-25s were lost. Although the daring raid inflicted only minor physical damage on the enemy, the direct strike on the Japanese empire demonstrated that the enemy's homeland was vulnerable, and it lifted American morale.²⁷

Meanwhile, back in the Midwest, the B-25 earned a new name—the Mitchell, for aviation proponent General William "Billy" Mitchell. But production moved slowly. During the first four months of 1942, the AAF accepted eleven planes from the Kansas plant.²⁸ It took time to coa-

lesce a new work force and to receive the remainder of the machinery orders. In addition, assemblers encountered early Fisher Body parts that did not fit and thus required rework. These teething issues delayed aircraft production and acceptances.²⁹ Nonetheless the Fairfax flight line was teeming with B-25s undergoing alterations. Early operational reports necessitated the modification of some Mitchells to meet the special circumstances and needs of their end-users. Certain equipment or armament was added, removed, or exchanged, and special preparations for specific weather destinations were accomplished. Other changes prepared aircraft bound for service with allies, such as the British and Russians. Because such alterations could not reasonably be effected in the just-started assembly process, they were performed on a select number of aircraft after their initial test flights. Many planes on the flight line had been built in Inglewood and flown to Kansas City for these modifications.³⁰

In May 1942 work started on the foundation of a modification center—a dual hangar to be built on the southeast edge of Fairfax Airport expressly for facilitating aircraft alterations. Because construction workers needed steel for military items, timber frames were largely used in the con-

27. Wesley F. Craven and James L. Cate, eds., *The Army Air Forces in World War II: I. Plans and Early Operations, January 1939 to August 1942* (Washington, D.C.: Office of Air Force History, 1983), 438–44.

28. Tom Lilley, et al., *Problems of Accelerating Aircraft Production During World War II* (Boston: Harvard University, 1947), 97. James Kindelberger suggested the new name, which was widely adopted.

29. Robert Gibler, interview by author, June 20, 1989; Don Calkins, interview by author, September 22, 1989.

30. "Army Air Forces Historical Study 62: The Modification of Army A/C in the United States," Reference Collection 1090, 20–26, National Archives.



The initial final assembly bay at the Kansas City plant can be seen here stretching out behind the central entrance. The high bay, completed in March 1943, is just visible at the top right.

struction of the center. By October workers completed the modification center, but the ever increasing volume of work meant that some alterations continued to be performed outdoors on the airport apron.³¹ Subsequently a west extension and several outbuildings were added to the modification center.

Yet another significant plan involving North American's Kansas City facility commenced in 1942. The Boeing B-29—a new, long-range, heavy bomber—was destined to be an important weapon in the Pacific theater. A consortium, which included Boeing Aircraft Company, set up a committee to plan for the new plane's production, and several companies contracted to build the B-29. In addition to North American Aviation; Boeing of Wichita; Bell Aircraft of Marietta, Georgia; and Glenn L. Martin in Omaha, Nebraska, received such contracts. Charged with building two hundred planes, North American decided that the Kansas City plant could produce the B-29 in conjunction with the Mitchell. In July an addition for this purpose was begun on the east side of the bomber plant. Because the new bomber was appreciably larger than the B-25, the addition needed to be expansive. The "high bay," as it was known, added 370,000 square feet of floor space. It measured 350 feet wide and 1,060 feet in length; the height was twice that of the existing, final assembly bay.

31. *North American Aviation, Inc.: A Brief History of the B-25 Mitchell Bomber*, 30–31.

With the high bay construction under way, and much of the B-29 engineering and equipment procurement in progress, the AAF reversed its earlier decision. A memo from Major General Oliver P. Echols to General Henry H. Arnold read in part: "Since the B-25 has apparently become a more useful plane than was anticipated, in that it not only seems to be a reasonably good medium bomber, but also, with gunnery modifications, will lend itself to support of ground troops. It is believed that circumstances will require the maximum number of these planes that we can build."³² As a result the AAF cancelled North American's B-29 contract but continued the plant addition and tool orders, with the plan to increase B-25 production. The plant addition was completed in March 1943, and by that summer the high bay was incorporated into the assembly process.³³

Meanwhile, B-29 production shifted to the Boeing plant in Renton, Washington, but the bombers also were built in three other locations, including Wichita, which produced the largest number. The AAF accepted its first B-29 in July 1943, and in total accepted 1,634 pre-series and pro-

32. *Ibid.*, 28; Major General Echols to General Arnold, June 26, 1942, Series II, box 163, Central Decimal Files 1939–1942. The navy also had requested nine hundred B-25s.

33. *Skyline 4* (July–August 1943): 10–11. See also <http://www.boeing.com/history/boeing/b29.html>.

duction planes combined. Kansas historian Craig Miner called the wartime statistics for Boeing-Wichita “staggering.” The company’s Plant II, where B-29s were manufactured,

originally estimated to cost \$17.5 million, eventually absorbed nearly \$27 million of taxpayers’ money. Tools and fixtures inside were worth \$20 million. By the end of the war Boeing-Wichita had 3,000,000 square feet of production and storage space . . . and the largest steel trusses ever fabricated (300 ft. long, 128 tons each) spanning the final assembly bays.

The plant’s utility usage and costs were phenomenal, and its

cafeteria was the biggest restaurant in Kansas. . . . Peak employment in December 1943 at Boeing–Wichita was 29,795. . . . The company had a golf course, a baseball league, bowling alleys, a private lake, shopping centers and a housing development. Truly it was a city within a city, and by itself ranked as one of the major population centers of the region.³⁴

As previously noted, the first six B-25s completed at the Kansas City plant had come from Inglewood in major assembly form. The next ninety-four planes were in various stages of assembly and were shipped to the Kansas City plant or to Fisher Body, but the completed assemblies were finalized at Kansas City. Starting with shipment 101, workers performed approximately 45 percent of the manufacture at Kansas City, with Fisher Body and other subcontractors completing the remainder. Problems in receiving machined parts of sufficient quality and quantity caused North American to shift more of the fabrication to the Kansas division. As it evolved, the bomber plant undertook approximately 62 percent of the manufacture. Fisher Body’s contribution would average 29 percent, including such parts as outer wing panels and fuselage side panels. The remaining content was composed of government furnished equipment, such as engines, propellers, wheels, tires, and instruments. What had started as a sim-

34. Craig Miner, “The War Years in Wichita,” in Paul K. Stuewe, ed., *Kansas Revisited: Historical Images and Perspectives* (Lawrence: Division of Continuing Education, University of Kansas, 1990), 269; www.boeing.com/history/boeing/b29.html. Boeing–Renton built more than 1,100 B-29 bombers, Bell Aircraft Co. (Georgia) built 668, and Glenn L. Martin Co. (Nebraska) built 536.

ple assembly plant had grown into a veritable manufacturing facility.³⁵

In November 1942 eighty-five B-25s rolled out of the Kansas City facility. By this time plant workers were no longer only young men, as the draft and voluntary enlistments had depleted this demographic. Employment opportunities had opened for older men and women, once officials recognized they would be needed to fill the many vacated positions. Women first entered bomber plant jobs in the offices and storerooms, but production classes opened to them as early as March 1942. Classes were offered at the two principal training schools, along with several other sites, such as then Argentine High School in Kansas City, Kansas, and Lathrop Defense Training Center in Kansas City, Missouri. Among the subjects offered were basic aircraft sheet metal work, blueprint reading, and shop math. By autumn 1942 women held 27 percent of the jobs at the Kansas City plant.³⁶ They could be found preparing electrical cables, installing fuel lines and carburetors, testing propeller governors, and assembling and cleaning machine guns, among other assignments. A November newspaper item noted that thirty-nine grandmothers worked in the plant, office, or cafeteria. By the end of the year women also were working at the modification center, and the bomber plant’s already nontraditional work force was being augmented by deaf and blind individuals, whom supervisors often placed in electrical assembly or sheet metal work.³⁷

In 1941 blues artist Josh White recorded the following lyrics in the song “Defense Factory Blues.”

“Went to the De-fense factory
Trying to find some work to do,
Had the nerve to tell me,
‘Black boy, Nothing here for you.’”

35. “History of North American Aviation Inc. of Kansas: (Government Assembly Plant No. 2) Kansas City Kansas, June 1941 to 31 October 1943,” appendix to *Army Air Forces Material Command: History of the Mid-western Procurement District, 1943, 6–9, 204.4–2*, U.S. Air Force Collection, U.S.A.F. Historical Research Center, Maxwell Air Force Base, Alabama; *North American Aviation, Inc.: A Brief History of the B-25 Mitchell Bomber*, 27, 28.

36. Lilley, *Problems of Accelerating Aircraft Production During World War II*, 97; *North Ameri-Kansan*, March 20, 1942; “Women In Draft Wake,” *Kansas City Star*, October 11, 1942.

37. *North Ameri-Kansan*, November 27, 1942; *ibid.*, October 2, 1942; *ibid.*, October 23, 1942; *ibid.*, November 27, 1942.

The song's racial message was all too familiar throughout the nation. African American laborers, to say the least, were underutilized at the Kansas City plant, as elsewhere. Before the first training began, Kindelberger had announced that "Negroes will be considered only as janitors and in other similar capacities."³⁸ Management provided no plan for their employment as aircraft production workers. In fact, according to the *Kansas City Star*, Kindelberger "emphasized that under no circumstances would Negroes be employed as aircraft workers or mechanics in the plant." Ironically, the building being used to train white aircraft workers at Ninth and Washington was the former home of the city's African American high school. Kindelberger's position, of course, drew criticism. The mayor of Kansas City, Kansas, wrote to ask Kindelberger to reconsider his policy. In Congress Representative U. S. Guyer and Senator Arthur Capper, both from Kansas, protested North American's employment plan. Approximately thirty-five hundred African Americans met in Kansas City, Kansas's, Memorial Hall to protest and to discuss a course of action. One of the meeting's principal speakers, *Kansas City Call* editor C. A. Franklin, stated, "The Kindelberger attitude is at cross purposes with the democracy we are all seeking to defend."³⁹

The Kansas City situation was a reflection of a national scene. African American labor organizer A. Philip Randolph was determined to confront defense industry discrimination and to do so he called for a march on Washington. The plan was to gather ten thousand demonstrators in the nation's capital to call attention to unfair labor practice and to specifically appeal for defense jobs, since they were under federal contracts. Randolph set July 1, 1941, as the march date. Concerned about a revised estimate that put the number at one hundred thousand demonstrators and that the march would expose American injustice to the world, President Roosevelt met with the activist leaders on June 18; they maintained that only a concrete measure could cause cancellation of the march. The president appointed a committee to find a solution, and its recommendations resulted in Executive Order 8802, issued on June 25, 1941. It established "that there shall be no dis-

38. Joshua White, "Best Of Blues: 1936-1941," Wolf Records, Marr Sound Archives, University of Missouri-Kansas City; "Limit Negro Air Jobs," *Kansas City Star*, March 17, 1941.

39. "Capper and Guyer Hit Bomber Plant Policy on Negroes," *Kansas City Kansan*, March 21, 1941; "3,500 At Negro Meeting," *Kansas City Times*, March 31, 1941.

crimination in the employment of workers in defense industries or government because of race, creed, color, or national origin." The order also set up the Fair Employment Practices Committee to investigate discrimination complaints.⁴⁰

Subsequently, so as not to risk the loss of their lucrative federal contract, North American's Kansas management agreed to hire "non-white" workers in accordance to their percentage of the population, or 10 percent in the Kansas City metropolitan area. Accordingly, some African Americans were allowed to train for and assume production jobs over the course of the bomber plant's operation. In October 1943 a War Manpower Commission survey reported that African Americans constituted 5.5 percent of North American's Kansas division's labor force; almost half had jobs in Department 47—Service and Janitors. Although the survey acknowledged that North American "employs a high percentage of non-white workers compared to many employers in the Greater Kansas City area," it went on to state that North American's hiring performance "is inconsistent with the extent of such workers' availability in the immediate labor market area and indicates failure to comply with fair employment standards."⁴¹ As late as March 1944 African Americans constituted only 6 percent of the Kansas division's labor force. But 1940s America was still a largely segregated society, and faced with ever increasing production needs, the government did not enforce full compliance in all industries and geographic regions. At best, the government measures tempered defense work discrimination. "Regardless of the state of supply, an industry which before the war had employed few Negroes . . . was not likely to increase to any great extent its proportion of Negro workers or to train them for better jobs."⁴²

40. Bryan Fairchild and Jonathan Grossman, *U. S. Army In World War II: The War Department, The Army, and Industrial Manpower* (Washington, D.C.: Office of the Chief of Military History, 1959), 156-59; Andrew E. Kersten, *Race, Jobs, and the War: The FEPC in the Midwest, 1941-46* (Chicago: University of Illinois Press, 2000), 9-20. For text of Executive Order 8802, see "Presidential Executive Orders, Executive Order 8802," <http://www.eeoc.gov/abouteeoc/35th/thelaw/eo-8802.html>.

41. Plant Composition and Manpower Utilization Survey, North American Aviation Inc. of Kansas, October 1943, Office of the Regional Director, Kansas City, Missouri, Manpower Utilization Surveys and Case Histories, 1943-1945, 535.2, box 119, RG 211, National Archives, Central Plains Region, Kansas City, Mo.

42. Kansas City Regional Office memo 3/30/44, Eva C. Vaughn file, Regional Files, Kansas City Closed Cases, box 18, RG 228, National Archives, Central Plains Region; Fairchild and Grossman, *The Army and Industrial Manpower*, 168.

Production classes opened to women in March 1942, but when operations accelerated in 1943, women were especially encouraged to join the work force. By autumn of that year females on the payroll numbered 9,125, which was 39 percent of total employment at the Kansas City plant.



Although North American remained reticent in the hiring of minorities, its production schedules were slated to accelerate in 1943, and the company welcomed other non-traditional laborers. It especially invited women to its training centers. Course lengths were shortened to six weeks. Eighteen had been considered the minimum age for a bomber plant job, but now boys aged sixteen and seventeen became eligible for work there. An added incentive to all, men and women, was that now trainees were paid while they learned, sixty cents per hour, which was the starting pay at the plant.

Women also received general encouragement to work in defense plants through a popular icon. Redd Evans and John J. Loeb's song "Rosie the Riveter" described the valuable contribution a woman could make to the war effort. J. Howard Miller further emphasized the message with his depiction of Rosie, with the slogan "We Can Do It!" Whether the effective appeal came from the War Manpower Commission, a song, a poster, or a simple determination to contribute to the war effort, they responded. Women, of course, had begun to perform production jobs at the Fairfax plant in early 1942. By the autumn of 1943 females on the payroll numbered 9,125, which was 39 percent of total division employment; they were working in ninety-eight of the one hundred departments. At peak employment women constituted 40 percent of the work force at Martin-Omaha and actually reached 50 percent at Boeing-Wichita. This mobilization mirrored the national trend. At the end of 1941

approximately 4,000 women worked in America's aircraft plants, excluding office and nonfactory jobs; by the middle of 1943 the number had risen to more than 310,000, which equaled 39 percent of the airframe industry labor force.⁴³

Other factors also affected production. In January 1943 absenteeism averaged 8.2 percent, resulting in lost productivity. North American started a program offering free war bonds to employees in departments with best attendance. This program soon gave way to periodic slogan contests; cash prizes were awarded for the best patriotic slogans that stressed the importance of being on the job. A gradual decrease of the absentee rate seems to have been the result: it fell to 5.2 percent in June. A greater problem, perhaps, were the ten-hour shifts, six-days per week, which caused worker fatigue, left little time for personal matters, and exacerbated transportation difficulties. In October 1943 North American management responded by introducing a new work schedule. Two shifts worked five days per week, ten hours per day, with a periodic weekday off. B-25 production kept to schedule, and the absentee rate continued to drop; by early 1945, it averaged 3.2 percent.⁴⁴

43. Fairchild and Grossman, *The Army and Industrial Manpower*, 173; Plant Composition and Manpower Utilization Survey, RG 211. For more on Wichita, see Judith Johnson, "Uncle Sam Wanted Them Too! Women Aircraft Workers in Wichita During World War II," *Kansas History: A Journal of the Central Plains* 17 (Spring 1994): 38-49; Miner, "The War Years in Wichita," 269.

44. *North Ameri-Kansan*, January 15, 1943; *ibid.*, February 26, 1943; *ibid.*, October 1, 1943; *ibid.*, February 2, 1945.

Conserving resources also became critical at the Kansas City plant. Workers substituted wood for stainless steel in making pilots' and co-pilots' seats. Stamped scraps of aluminum sheet took the place of smaller needed pieces. Stray rivets and other fasteners that had been simply discarded were now collected from the floor and reused or recycled. Supervisors encouraged employees to submit suggestions that would expedite production or save materials. By war's end, division management had accepted 2,307 ideas, improving plant and modification center operations, and netting the suggestors various amounts in war bonds and stamps.⁴⁵

Shop safety, a point of vital importance, appeared in such poster slogans as "The Eyes Have It! Goggles Keep 'em That Way." During approximately four years of operations, only one production-related death occurred in the Fairfax plant and modification center: an electric lamp was thrust into a fuel tank rich with coating vapors, and the tank exploded, killing a female worker.⁴⁶

In the autumn of 1943 employment reached its highest point with approximately 23,500 workers in both the plant and modification center. The higher employment and the additional machinery originally procured for the B-29 plant increased the productive capacity. In 1943 B-25 production started with January's output of 90, increased steadily each month for the most part, and ended with the manufacture of 190 in December. For the year the Kansas plant's total of 1,701 eclipsed Inglewood's production. Besides the planes for the AAF, British, and Russians, the staff at the modification center also prepared B-25s for the U. S. Navy (issued primarily to the U.S. Marines) and the Dutch. A number of the AAF planes were even fitted with a seventy-five millimeter cannon in the nose. A flight hangar was built north of the high bay, where planes received gun and turret installations, and two concrete enclosures were built along the Missouri River levee for test firing machine guns.⁴⁷

North American employees received some perhaps unexpected benefits. Early in the war the Japanese gained control of vast oil and rubber resources, thereby affecting American supply and compelling the federal government to ration items such as gasoline and automobile tires. Since

those involved in defense work were accorded a certain priority, North American was able to assist employees in obtaining necessary fuel and tires. But the company also asked employees to do more for the war effort than make airplanes. Workers were encouraged to buy war bonds, give blood to the Red Cross, and donate money and clothing for relief organizations serving those in war-ravaged countries.

North American issued two employee publications. The *North Ameri-Kansan*, a weekly plant newspaper, reported general employee news, training opportunities, social events, and sports activities. The news, however, was not always good.

Sympathy is felt for Jasper J. Griffin (Dept. 37, nights) who has taken a leave of absence until February 10. Two of his sons were recently killed in Italy.

This week Ruby Kullman (Dept. 34) received a memorial tribute and a Purple Heart certificate for her husband, Pfc. Victor W. Kullman, an infantryman, who was killed in France.

Pvt. Jack Layton of the 4th Marine Division, 18-year-old son of Mrs. Florence Layton (Dept. 70) was killed on Iwo Jima Feb. 20. He was a former employee of Dept. 17.⁴⁸

The second, bi-monthly publication, *Skyline*, centered on North American's big picture. It contained major company news, described business and operational procedures, and offered articles concerning the three plants (the third plant operated in Dallas, Texas). The antics of cartoon character Willie Wingflap and his friend Poindexter provided humor.

The year 1944 brought the beginning of the end for the Axis powers, but the B-25 work continued. The AAF's 345th Bombardment Group, then equipped solely with B-25Ds, was proving the model's effectiveness. At that time the unit operated over New Guinea and surrounding areas. Its attacks on Japanese airfields forced the enemy to vacate one base after another, limiting in stages enemy air presence in the fighting zone.⁴⁹

In November 1943 Harold R. Raynor became the Kansas division's new plant manager. He oversaw the

45. *Ibid.*, August 10, 1945.

46. "War Plant Blast Fatal," *Kansas City Times*, December 3, 1943.

47. *North American Aviation, Inc.: A Brief History of the B-25 Mitchell Bomber*, 25; Lilley, *Problems of Accelerating Aircraft Production During World War II*, 97. Sand filled the enclosures to absorb the bullets, and periodically it had to be replaced because the firing pulverized the sand into a fine powder.

48. *North Ameri-Kansan*, January 14, 1944; *ibid.*, January 5, 1945; *ibid.*, April 13, 1945.

49. Lawrence J. Hickey, *Warpath Across the Pacific: The Illustrated History of the 345th Bombardment Group during World War II* (Boulder, Colo.: International Research and Publishing, 1984), 118-21.

In March 1944 the last B-25D was built, and production began on a new model. On this final B-25D, photographed here, employees taped money and paychecks to the plane, raising more than nine thousand dollars, which was given to Army and Navy Relief.



largest production achievement of the plant's existence. In 1944 the Kansas City plant produced 3,012 B-25s, an average of 251 per month.⁵⁰

Under Raynor's leadership North American implemented several methods to reach these impressive production rates. Engineers applied sub-assemblies, an assembled unit designed to be incorporated with other units, to the Mitchell. Five sections—front, center, rear fuselage, wings, and empennage—were broken down into assemblies, split into sub-assemblies, and further divided into component parts. The employees, therefore, built the planes from the simplest level to the complex whole. The progressive sequence of operations increased production. Since much of the work force was new, with little training or experience, North American put much effort into work simplification. Each task was broken down into a number of jobs, and each employee or crew was trained to perform a specific job or jobs. Thus, workers learned their jobs more quickly and were more promptly effective. Throughout the production process inspectors verified the suitability of the work before passing it to the next stage; at times the deficiency was marked and a rework crew corrected it in the following stage. This quality control was two-tiered, North American, then AAF. During the war American aircraft

firms utilized these and associated methods to attain the production records.⁵¹

In March 1944 the last of the B-25D models moved down the assembly line, and production began on a new model. The B-25J incorporated several improvements. Armor protection was added for the cockpit, and the bottom turret was no longer installed, for it had proven too slow and awkward to operate in combat. The top turret was moved forward to give more front firepower. Package machine guns were added below the cockpit, four on each side. Some J models received a solid nose instead of the glass enclosure nose; in this solid nose eight machine guns were placed, making a possible total of eighteen machine guns per plane.

Effective July 7, 1944, North American ceased production of the B-25 at the Inglewood plant and focused on building the P-51 fighter. Its Dallas facility also was primarily involved in the production of the P-51 as well as the AT-6 trainer. Thus, from mid-1944 the Kansas City plant was the sole source of B-25s.⁵² Since the plant operation was running at such a high pitch, modifications were incorporated into the assembly process. As a result, the modification center was closed in October, and thereafter it was used as an adjunct to the final assembly line.

50. Lilley, *Problems of Accelerating Aircraft Production During World War II*, 97.

51. *Skyline 4* (July-August 1943): 10, 11; Lilley, *Problems of Accelerating Aircraft Production During World War II*, 40, 41.

52. "Leads In Bomber," *Kansas City Times*, July 7, 1944.



Employees gather at the Kansas City plant to receive the Army–Navy E Award, given to them on October 6, 1944, for excellence in production.

On October 6, 1944, the Kansas City plant received the Army–Navy E award for excellence in production. The plant’s success was emblematic of the American aircraft industry’s achievement during World War II. President Roosevelt had appealed for 50,000 planes per year; in 1944 U.S. production totaled 96,318 warplanes.⁵³ A 1947 study of World War II aircraft production observed the following about the work force building these planes:

Many were housewives, farmers, and employees in service industries ranging from automobile salesmen to beauty parlor operators. Particularly in the new plants constructed in the Middle West, a high percentage of the employees had had no previous experience in factory work of any kind. The success of the production program is attributable in considerable measure to the ability which these inexperienced men and women displayed in mastering their completely new wartime jobs.⁵⁴

When a completed aircraft left the final assembly doors, it was ready for flight testing. Considering the volume of flight line activity and number of test flights, the safety record was excellent—only five significant flying accidents occurred, one of which resulted in

five deaths; one flight line fatality resulted when a ground worker walked into a whirling propeller.⁵⁵

Completed planes were assigned to one of a number of crew chiefs. Each chief had three aircraft in his charge at most times and three to five mechanics in his crew. They checked lubricant levels, replaced the engines’ dehydrator plugs with spark plugs, and inspected principal fasteners. The engines were then started, and mechanics inspected carburetor settings, fuel and oil pressures, manifold pressure, engine temperature, and propeller functions. Crews made adjustments or repairs and monitored engines for gasoline and oil leaks. Flight line inspectors worked with the crew to double-check each detail. When all was satisfactory, the flight line foreman was advised, and the test pilot and crew chief verified correct operation of all control surfaces—ailerons, elevators, rudders, and trim tabs—and inspected the landing gear. With engines running, instruments were checked, and the aircraft proceeded to take-off.

A maiden flight lasted about an hour, during which time the engines, propellers, instruments, controls, and automatic pilot were tested for proper operation. Upon the plane’s return, the assigned mechanics addressed any problems, or “squawks,” as they were termed. A second flight was made with the addition of a radio operator. Several maneuvers and operations were conducted, including flight on

53. “E For War Work,” *ibid.*, October 7, 1944; Holley, *United States Army in World War I*, 548.

54. Lilley, *Problems of Accelerating Aircraft Production During World War II*, 75.

55. “Five Die In Crash,” *Kansas City Times*, April 27, 1942; “Killed By A Propeller,” *Kansas City Star*, February 22, 1943.

Every completed aircraft underwent a series of checks and inspections before and during its test flight. All problems were addressed and repaired before it went up again for its acceptance flight. This B-25J bomber, with a standard bombardier nose, was built at the Kansas City plant in 1944–1945.



one engine. One out of every fifty B-25s was flown to the Cheyenne Bottoms Gunnery and Bombing Range near Great Bend to test fire the machine guns in flight. Sometimes an aircraft would go through a five-hour, high altitude test. Throughout the flight, “squawks” were recorded and addressed by the responsible crew upon return. Once satisfied, North American notified the AAF test pilot office. A service pilot and crew chief then took the plane up for its acceptance flight before the government actually “bought” it. The plane was then ready to receive any additional equipment and to be flown by the ferry command to its destination.⁵⁶

In January 1945 the Kansas City plant set a production record: the AAF accepted 315 aircraft, along with 20 spare-part equivalents. For the next three months production remained high while a new venture began. The Lockheed P-80 was America’s first operational jet fighter. North American offered its Kansas City plant to augment Lockheed’s production, and the War Department approved. In February 1945 two Lockheed representatives came to Kansas City to liaison with North American engineering and production staff, and in April Lockheed shipped a P-80 to the bomber plant for study. While work began on building jigs for the new plane, workmen cleared space for P-80 production in the high bay, and the B-25 assembly line was

shortened. The test flight office scheduled four pilots to fly to Lockheed in California to check out on the jet.⁵⁷

War news overtook the schedule, however. The Germans capitulated on May 7, 1945, and at the end of the month, the AAF made large cuts in plane production, particularly in short-range types not suited to the Pacific theater. Kansas management received its P-80 cancellation order and released fifteen hundred employees. The B-25 schedule was expected to be complete in December, therefore average monthly employment gradually dropped for the first six months of the year. War news again changed the plans. The Japanese surrendered on August 14, 1945, and the next day the B-25 contract was terminated.⁵⁸

In his farewell message to the employees, Harold R. Raynor said, “Men and women of North American Aviation. The day we have been fighting for since December 7, 1941 has come at last. The world is finally freed of the fear of aggression and we can now go back to our peacetime pursuits.”⁵⁹ At that time North American’s Kansas division had approximately 7,600 employees. In little more than a week the firm laid off 4,680. The remaining workers dealt with paperwork, finished special projects and spare parts for the AAF, completed work on the planes ready to leave

56. *North Ameri-Kansan*, April 14, 1944; *Skyline* (May–June 1943): 2, 3; *ibid.* (September–October 1944): 18-19.

57. *North Ameri-Kansan*, August 17, 1945.

58. *North American Aviation, Inc.: A Brief History of the B-25 Mitchell Bomber*, 29.

59. *North Ameri-Kansan*, August 17, 1945.



Following the end of the war General Motors leased Kansas City's former bomber plant and began manufacturing Buicks, Oldsmobiles, and Pontiacs. Automobile production continued at this site until 1987.

final assembly and those on the flight line, and began the job of preparing the machines, tools, materials, and parts for disposition.⁶⁰

The federal government's Reconstruction Finance Corporation (RFC) set up a depot in the Fairfax district to sell machinery, tools, and similar material to peacetime industries and the public and thereby partially recoup the government's war costs. Some of the bomber plant items were sent to the depot, while others were transferred for government use elsewhere. Such materials as aluminum sheet and steel goods went to reclamation centers, and spare airplane parts were dispatched to maintenance depots. Seventy-two incomplete but flyable B-25s were accepted under the contract and flown elsewhere for sale to the public.

During this demobilization the federal government classified the plant, modification center, and associated properties as available for lease. Transcontinental and Western Air leased the modification center, whose first use would be in servicing its airliners. On November 7, 1945, it was announced that General Motors had signed a five-year lease for the former bomber plant.⁶¹ By December 1 the

60. Telegram of War Manpower Commission, August 25, 1945, Office of the Regional Director, Kansas City, Missouri, Regional Central Files 1943-1945, 533.05/03, Entry 269, box 19, RG 211; "Speed Bomber Wind-Up," *Kansas City Star*, August 24, 1945; "B-25 Tools Out," *Kansas City Times*, September 28, 1945.

61. "TWA to Center," *Kansas City Star*, October 24, 1945; "Rush Car Plant," *ibid.*, November 7, 1945.

plant was essentially cleared of all aircraft production matter, and automobile industry personnel began setting up shop. In October 1949 the U.S. Air Force terminated its lease on Fairfax Airport, and the city of Kansas City, Kansas, regained control of the facility.

The reconverted factory finished its first automobile in June 1946, and for the next forty or so years it produced Buicks, Oldsmobiles, and Pontiacs. During the Korean War the factory was utilized in the dual role of manufacturing automobiles and F-84 Thunderstreak aircraft.⁶² In 1960 General Motors purchased the plant. In 1985 the company announced its plans to build a new auto assembly plant on the Fairfax Airport property and closed the former airport. Soon after, the modification center was razed, and automobile production at the former bomber plant ceased in May 1987. In less than two years the building that had been a setting of such importance during World War II was gone.⁶³ Now only an empty lot remains, although the street sign nearby stands as a faint reminder, despite its misspelled designation: Kindleberger Road.

62. George R. Bauer, *A Century of Kansas City Aviation History: The Dreamers and the Doers* (N.p.: Historic Preservation Press, 1999), 85.

63. "Fairfax Decision Based on Economics," *Kansas City Times*, July 16, 1988; "GM's Old Fairfax Plant Burns," *Kansas City Star*, January 19, 1989.

At the start of the war the Axis position of strength, which had been built from years of rearmament, resulted in a string of victories. Airpower played a major role, as evidenced by the Japanese attack on Pearl Harbor and the sinking of the British warships *Prince of Wales* and *Repulse*; the Luftwaffe's tactical support of the German army proved markedly effective in the 1940 blitzkrieg in western Europe. The tide turned as Allied rearmament and manpower steadily drew near and then eclipsed that of the adversaries. Pilot and crew training and the production of more and improved types of aircraft facilitated Allied victories, which culminated in the triumph over the Axis. The B-25 played an important role. It was flown in every major front of the war and was a vital weapon of U.S. forces and several of its allies.

When Mitchell production ended in August 1945, 6,608 B-25s had been built in the Kansas City plant, along with 947 spare part equivalents. It is truly a remarkable accomplishment when one considers that "the B-25 contains 165,000 separate parts, not counting 150,000 rivets or the engines, instruments, and other equipment."⁶⁴ Besides the production total, by war's end 3,985 airplanes had been serviced at the Fairfax modification center. This work saved field maintenance personnel, resources, and time, resulting in the Mitchell's prompt and effective use against the enemy.⁶⁵

Interviews with many Kansas division defense plant workers reveal two common threads defining their approach to the bomber plant experience: work ethic and patriotism. The employees were "really dedicated to what they were doing" and "did their best." Their common goal was "to beat the Axis." "We all had a cause to work for," and that purpose was simply, "Let's build these planes and win this war!"⁶⁶

North American employees helped accomplish this and more. After the war most women returned to their more traditional roles, but the war experience laid the foundation for women's later advancement into diverse jobs that previously had been closed to them. African American gains were incremental, but throughout the nation the civil

rights movement gathered momentum and built upon wartime changes to realize better the promise of America. The physically challenged also were given an opportunity to demonstrate their abilities in the workplace. During the war the bomber plant was one of the largest production employers in the Kansas City area; it invigorated the local economy with more than \$160 million in payroll. The employees earned good pay, which was much appreciated in an America still suffering from the effects of the Great Depression. Of 59,337 total employees, approximately 55,000 had trained for and then garnered valuable work experience at the Fairfax facility.⁶⁷ These workers gained knowledge and skills that prepared them for many peacetime occupations. The conversion of the Fairfax defense plant to peacetime use as an automobile manufacturing facility provided a more prosperous life to thousands of workers, and, of course, benefited the entire metropolitan area.

Finally, North American Aviation, along with Boeing, Beech Aircraft, and Cessna Aircraft of Wichita, the Kansas Ordnance Works near Parsons, and Sunflower Ordnance near Lawrence, had a profound impact on the Kansas economy, labor force, and industrial complex. Together they remade the Sunflower State, giving it a truly mixed economy. Not only were record numbers of Kansas workers—some 74,500—involved in aircraft manufacture (up from 1,480 in February 1940), but they were making high wages for the time. In 1940 such workers averaged \$25.01 per week; in 1945 the figure had increased to \$55.68. In the state "virtually no one was employed in manufacturing ordnance in 1941; by early 1945 the two plants employed more than eighteen thousand workers." In January 1940 Kansas was home to 447,000 square feet of airframe plants; four years later it had 6,155,000 square feet.⁶⁸ North American's facilities, of course, were converted to different peacetime uses, but others, such as Wichita's Cessna and Boeing, remained major players in America's aircraft industry. North American's Kansas division was but part of our state and national history, but it was an important one. North American and its employees worked together for a common cause and helped win the war. 

64. *North Ameri-Kansan*, August 17, 1945; Lilley, *Problems of Accelerating Aircraft Production During World War II*, 37.

65. AAF Historical Study 62, Statistics.

66. Concha Macias, interview by author, July 26, 1988; Ralph Marshall, interview by author, May 1, 1989; Roy Corrison, interview by author, October 15, 1988; Lillian Shaver, interview by author, September 18, 1989; Edward Roebuck, interview by author, July 15, 1988.

67. "Contribution to Peace," *Kansas City Star*, August 19, 1945.

68. Peter Fearon, "Ploughshares into Airplanes: Manufacturing Industry and Workers in Kansas During World War II," *Kansas History: A Journal of the Central Plains* 22 (Winter 1999/2000): 300-2; William Glenn Cunningham, *The Aircraft Industry: A Study in Industrial Location* (Los Angeles: Lorrin L. Morrison, 1951), 203-9, 213.