Boeing B-29 bomber in flight, 1945.
On October 30, 1943, Gove County resident Everett J. Montgomery wrote a letter to Senator Arthur Capper, then representing Kansas in Washington, D.C. Montgomery was troubled by aircraft from the United States Army Air Forces (USAAF), which were then engaged in air-to-air gunnery training on a massive range that covered 218,880 acres of Gove, Lane, Scott, and Logan Counties in west-central Kansas, including the famous Monument Rocks formation in the valley of the Smoky Hill River. The thirty-nine-year-old Montgomery had been born in Lake Charles, Louisiana, but currently lived with his pregnant wife, the former Vera Schwartz of Gorham, Kansas, and their eight-year-old daughter, Norma, on a farm they rented roughly ten miles southeast of Oakley. Concerned for his family’s welfare, Montgomery wrote, “Just a line in regard to this aerial target range in Gove County. The planes do not stay in their range, the bullets pass over my place and I live four miles north of the range. I have been up to their Office at Oakley, and it doesn’t do any good. It is not safe for the school children.” For this survivor of the Dust Bowl—one of the worst ecological disasters in the nation’s history—bullets fired at towed targets from aircraft was just the latest threat to his livelihood, but the one that currently occupied his time and attention.

Many in the local community, however, largely brushed off Montgomery’s concerns, especially those living farther from the range or lacking valuable wheat crops currently ripening on the windswept prairie. A May 1943 editorial in the Oakley newspaper titled “Going Ahead with Flying Target Range” suggested that “developing and perfecting the marksmanship of Army pilots is more important to the war effort than the saving of planted crops. It is unpleasant that many people will be temporarily ejected from their homes, especially after the struggle of the dust years to regain Kansas Bomber: An Environmental History of the B-29 and the Sunflower State

by Chris Rein

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financial independence, but such conditions exist when a nation is at war. 2 Though far from the scene of the fighting then raging in the Pacific and Mediterranean theaters (and unlikely to be affected directly by it), the local community rationalized that some must suffer for the greater benefit of all. This perspective continues to dominate the historiography of the war and the region. Plainsmen and -women are portrayed as readily accepting of the idea that the war would require some disruption to their lives, even as it presented opportunities—either through increased commodity prices or the potential for high-paying employment in distant factories—to recoup fortunes lost in the swirling dust of the 1930s.

The War Department had established the bombing range over Gove County in early 1943—temporarily displacing over 150 families—primarily to support aircrew training then occurring at a number of new air bases in Kansas, including Walker Army Air Field (AAF), located between Russell and Hays. Walker AAF’s mission was to train aircrew for the B-29 Superfortress, a new, “very heavy bomber” with four massive radial engines destined to deliver devastating firebombing raids on the islands of Japan and to employ nuclear weapons for the first time at Hiroshima and Nagasaki. The B-29 has a special relationship with the state of Kansas, as the Boeing factory near Wichita produced more B-29s than any other facility. Airfields near Salina, Pratt, Great Bend, and Hays also hosted most of the aircrew training, while additional fields at Herington and Topeka processed crews for overseas shipment. Although the scope of the program eventually required expansion into airfields in Nebraska, Kansas still built more bombers and trained more groups than any other state in the nation. Indeed, a frenetic effort in early 1944 to modify aircraft and meet a deadline for shipment overseas became known as the “Battle of Kansas.” 3 While many studies have explored the significant technological, economic, and social effects of the B-29 and Kansas, few have acknowledged the environmental aspects of the decision to locate aircraft production and training in the state and the legacy of that decision on Kansas’s air, land, and water. 4 Kansas became home to B-29 production and training largely due to a variety of environmental factors and how both Kansans and War Department officials perceived these factors. Remoteness, flatness, windiness, and aridity—all factors that hurt the state and its economy in the 1930s—suddenly became virtues in the 1940s. The aviation industry’s attraction to Kansas revolved around its location far from the coasts, its low population density, and its generally favorable flying climate. Producing the most sophisticated aircraft in the world in turn gave Kansans a sense of connectedness to distant events and pride in their place in the nation and the world. When asked how the state could compete with industries located on the coasts, one booster responded, “The native Kansan can give you a logical answer. One answer is topography. A second is geography. A third is climate. A fourth is ‘air-mindedness’; mentally, physically and financially.” The air itself, and the way it enabled Kansans to conquer their sense of isolation, played a significant, if heretofore unacknowledged, role in the state’s history. 5

On the surface, Kansas and the B-29 is a celebratory tale of Midwestern hard work and ingenuity, producing a wonder weapon crafted by the hands of hardworking Americans and employed in decisive fashion against the nation’s enemies. This interpretation of the war and the region, which could be labeled the “Greatest Generation” view, has had an enduring legacy. 6 In the prevailing narrative, members of that generation—whether in the military, the factories, or the fields—tempered by the hardships of the Great Depression, endured even more hardship in guaranteeing a victory over the racial ideologies of Japanese imperialism and German fascism. Kansans readily accepted the burdens the war placed upon them and even profited, as war industries offered significant, if fleeting, opportunities to support the war effort and perhaps make a little money at the same time.

2. Undated and unidentified newspaper clipping (presumably Oakley from advertising on reverse), folder “Gove County Gunny Range,” box 11, Capper Papers.
But more recently, scholars have challenged this interpretation. In his seminal book, *The Great Plains during World War II*, Kansas native R. Douglas Hurt examines the war’s lasting impact on the region and questions the motives of many who became caught up in it. He suggests that initially, support for the war did not run very deep in a region with strong isolationist roots. Residents resented, and even bypassed, many restrictions and rationing, arguing that a few gallons of gasoline and four new tires meant far more to an isolated farmer on the Plains than they did to city-dwellers on the coasts and that the war’s effects on the region as a whole were not as transformational or enduring as they were elsewhere. This image, according to Hurt, was reinforced by the “Little Dust Bowl” of the early 1950s, which suggested that things had largely returned to where they had been before the war. This sentiment was particularly true in remote areas such as Gove County, where scant evidence of the aerial gunnery range remains. Urban centers in Kansas, however—especially those associated with the B-29 program—did experience significant and long-lasting effects, especially in regard to the environment. Analyzing the state’s efforts and role through a more nuanced lens enables a more thorough critique of the war and its effects on the Great Plains, not least in terms of environmental mobilization in support of the B-29 program.7

To understand why Kansas came to be so closely associated with the B-29 program, one must begin with the industry and economy of Wichita. Now the largest city in Kansas, Wichita is also an exporter of commodities and manufactured products, as well as the origin of well-known family businesses highly skilled in organizing and directing these efforts to markets across the nation and the world. At the turn of the twentieth century, however, Wichita was a town of only 25,000 inhabitants, trailing both Kansas City and Topeka as well as regional competitors such as Oklahoma City to the south. Environmental factors, however, would soon shift Wichita’s—and the nation’s—history and make the city the self-designated “Air Capital” of America.

The link between Wichita and the airplane originates with the physical geography itself and the way in which humans harnessed these geographic attributes during settlement. The Great Plains and Kansas in particular, witnessed an explosion of railroad construction in the second half of the nineteenth century. Following the construction of the first transcontinental railroad across Nebraska in the 1860s, the Union Pacific, Eastern Division (called the Kansas Pacific from 1869 to 1880) and its competitors began racing across the Plains to tap lucrative markets on the West Coast and bind the nation together. With few obstacles in the form of rugged mountains or wide rivers, the Plains witnessed new companies vying for trade in an agricultural region lacking good road or canal connections to their markets. Eventually, east-west railroads including the Chicago, Burlington and Quincy; the Chicago, Rock Island and Pacific; the Missouri Pacific; and the Atchison, Topeka and Santa Fe spanned the state. North-south lines, such as the Missouri-Kansas-Texas and the St. Louis and Southwestern, linked slaughterhouses in Kansas City with cattle ranges in Texas and Indian Territory (modern-day Oklahoma). Kansas’s flatness and central location thus facilitated a robust transportation network that could easily support wartime industries.8

By 1940 Wichita sported a perfect eight-spoke rail network with direct connections to both small-town grain elevators and major markets. When the War Department sought sites for expansion, it invariably required rail connections, as this would not only facilitate the movement of troops into and out of the bases but also provide an efficient supply network for the shipment of spare parts and major components, such as fully assembled replacement aircraft engines. Every single army air field established in Kansas during World War II had a rail connection, and the cities that hosted B-29 training fields all had a direct rail connection to Wichita, facilitating the shipping of spare parts and aircraft components from the factory to maintenance establishments at each field. Sheet aluminum, primarily from the Alcoa facility in the appropriately named Bauxite, Arkansas, arrived by rail, and in one fifteen-month period late in the war, Boeing-Wichita shipped 600 train carloads of spare parts and required twenty carloads of lumber per month just to box and crate these components.9

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Shortly after the turn of the twentieth century, two events would profoundly alter Wichita’s history. In 1903 the Wright brothers successfully flew an airplane powered by an internal combustion engine at Kill Devil Hills, North Carolina. Just over a decade later, oil wells at the appropriately named city of El Dorado, just twenty-five miles northeast of Wichita, began producing barrels of black gold for local investors and entrepreneurs. For millennia, what would become the grassy plains of central Kansas had been a vast inland sea depositing large quantities of organic material on its floor. Eventually covered by sediments and compressed into shale, the resulting oil pooled above impermeable strata and patiently waited the geologist’s prediction and the oilman’s drill. Despite profitable wells farther east near Neodesha, successful production closer to Wichita had eluded wildcatters and early prospectors until the Wichita Gas Company struck oil with its Stapleton #1 well in the fall of 1915. Benefiting from elevated commodity prices during World War I, the El Dorado field was producing almost 10 percent of the country’s oil and more than a few new millionaires by 1925. City boosters later used the oil industry in their recruiting pitches to secure war plants. One wrote, “Wichita is also the center of the petroleum refining industry in Kansas and all local and area refineries maintain commercial research laboratories that would be of assistance in the development of aircraft engine fuels.”

One early beneficiary of the oil boom was Jacob Melvin Moellendick, an Ohio native who finally struck it rich in the El Dorado oil field. Moellendick’s interest in aviation is difficult to pinpoint but may have originated in 1919 with an unauthorized incentive ride provided by army lieutenant and Wichita native Earl Schafer, who would later become the wartime manager of the Boeing-Wichita B-29 plant. According to Walter Burnham, an early aviation pioneer, “Perhaps the most significant event—one that was to shape the entire future of aviation and the Air Capital was the landing of an army Lt at the race track south of town. This young flying lieutenant was Earl Schafer. Matty Laird and Buck Weaver met him and persuaded him to bring his Hesso Army plane over to their flying field as an attraction for their weekend air show.”11 Over the course of the air show, Schafer gave rides to several dignitaries, including Moellendick and Wichita Eagle editor Marcellus Murdock, allegedly inspiring them to invest in the struggling aviation industry. Of course, this version of the story ignores Laird and Weaver’s presence in Wichita and their establishment of a factory and flying school, to which other sources have attributed Moellendick’s even earlier involvement with the aviation enterprise. One legend has it that Matty Laird flew Moellendick to El Dorado after news of the strike, allowing him to purchase land before his competitors arrived and cementing, in his mind, the airplane’s ability to conquer time and distance.12 Regardless of how

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10. J. Ward Gates to Dr. Joseph S. Ames, June 12, 1939, folder 5, box 37, Wichita Chamber of Commerce Archives.
11. Notebook, folder 19, Walter Burnham Papers, Special Collections and University Archives, Wichita State University Libraries.
Moellendick came to champion the aviation industry, the area’s oil and the wealth it created fueled Wichita’s nascent aircraft industry, which gave rise to such men as Walter Beech, Clyde Cessna, and Lloyd Stearman, whose products became household names in the business.

Alongside this emerging industry, the American Great Plains became an attractive locale for government and defense officials charged with expanding the USAAF’s production and training infrastructure. Kansas particularly appealed to wartime planners, as it claimed the geographic center of the United States (then just forty-eight states) and was thus farthest from the Atlantic, Pacific, and Gulf Coasts as well as potential enemy aircraft routes over the Arctic. While the continental United States was never attacked by enemy aircraft during World War II (other than by several Japanese incendiary balloons, one of which landed near Bigelow, Kansas, in February 1945), German U-boats did land spies on the east coast, and Japanese submarines briefly shelled the Pacific Coast.

In a glossy mailer sent to all members of Congress, the Wichita Chamber of Commerce highlighted the city’s remoteness as a virtue for locating war industry. Beneath an image of a towering mountain range, the front page boasted (somewhat obviously), “Behind the Mountain Ranges and away from the Seacoasts—IS WICHITA.” On the inside, alongside a relief map of the United States with a bull’s-eye on Wichita and under the heading “Nature’s Own Answer—WICHITA,” the mailer continued:

Nature made Wichita the nearest-to perfect setting for aircraft manufacturing, for all aviation activities. ... Paramount to all other considerations comes geographic location. “Get behind the mountain ranges and away from the seacoast” is the dictum of the highest ranking army, navy and aviation authorities. Let the official government map visualize how Wichita meets that requirement!

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13. Richard White noted that factors that had initially stalled development in the American West—remoteness, aridity, and low populations—all worked in the West’s favor to attract defense activities during the war. Richard White, *It’s Your Misfortune and None of My Own* (Norman: University of Oklahoma Press, 1993), 497.


15. “Behind the Mountain Ranges and Away from the Seacoasts—Is Wichita!” Mailer included in Wichita Magazine, June 29, 1939, file folder 1, box 46, Archives of the Wichita Area Chamber of Commerce, Special Collections and University Archives, Wichita State University Libraries.


17. Even today, over half of the air force’s undergraduate pilot training (UPT) bases are located on the Plains. UPT bases include Vance Air Force Base near Enid, Oklahoma, and Laughlin Air Force Base near Del Rio, Texas.
gallons per month (for which it paid the city a water bill of $26,487), but, as late as 1954, used less than 5 percent of the city’s production.18

Thus, the region’s weather, which had brought drought and dust storms in the 1930s, was used as a selling point in the 1940s. The Wichita Chamber of Commerce asserted that “climate never interrupts business in Wichita” and that “by official record on the Wichita Municipal Airport there were 356 flying days of active operations during 1938, with only nine days of limited operation, a typical showing.” Frequent sunny days would provide ideal flying weather for aircrew training, allowing sorties to launch whenever needed and bombardiers to sight their targets far below. Even Kansas’s incessant wind was listed as a virtue, providing additional lift to push the heavily laden bombers into flight, thereby allowing them to operate from shorter runways and sparing additional construction costs. In some respects,

however, this provided negative training, as the USAAF developed a doctrine of high-altitude, precision daylight bombardment based largely on the climate surrounding the training bases. Unfortunately, the weather in Europe— with its persistent clouds, rain, and fog—and Japan— with a 200-miles-per-hour jet stream rocketing off the Asian landmass—confounded airmen and their attempts to locate and accurately bomb their enemies.

Of course, boasts of ample sunshine, gentle cooling breezes, and light precipitation belied Kansas’s true nature of powerful windstorms, stifling summer heat, and harsh winters—as aircrews learned to their chagrin in their tar-paper barracks. When 23.5 inches of snow fell during the Battle of Kansas in March 1944, maintenance and modification crews had to construct special shelters around sections of the aircraft they were working on to prevent mechanics’ hands from freezing, and snow-removal crews had to fight unending battles to keep runways and taxiways clear of drifting snow. Conditions improved slightly in April, with reports showing only 7.5 inches, though there was an average wind velocity of fifteen miles per hour. All of this contradicted the Chamber of Commerce’s promises of mild winters with “few snows of light duration” and “summers tempered with constant breezes.” During the winter of 1944–1945, aircrews from Pratt and Walker fields sent training detachments to bases in Puerto Rico to take advantage of the better flying weather there.

Kansas’s climate even played a role in providing the labor that attracted industry to Wichita. In the wake of the Dust Bowl, many farmers and their families left the land for urban centers, looking for either work or relief programs. Others remained on their farms but had grown disenchanted with their prospects and so were quick to embrace other opportunities when they arrived. By 1940 the Plains held an underutilized pool of labor that could be quickly employed in the new armaments and aircraft production facilities. A 1942 survey found that 50 percent of the workers at Boeing-Wichita had farm backgrounds, and many local farmers used war work to supplement their farming income, allowing them to hold on to their land. Further, a rural upbringing often translated well into work in war industries. Courtesy of Wichita State University Libraries, Special Collections and University Archives, Wichita, Kansas.

factory in Wichita, who believed that “persons from modern farm backgrounds did especially well in aircraft manufacturing jobs.... Nearly all Kansas farms are highly mechanized and Kansas farmers have learned the use of power machinery as well as hand tools.”

Salina, home to the future Smoky Hill AAF and headquarters for B-29 training, boasted qualifications similar to those of Wichita. As the Salina Journal stated, “Army and Navy officials like the strategic location of the state, its accessibility to both coasts as well as its transportation facilities. That Salina, with its fine rail facilities, located also at the crossing of US-40 and US-81

should be among the earliest sites chosen appears logical to city officials.”

Salina was glad to have the base close to town, but not too close. On June 2, 1942, the county commission passed a moratorium on construction within two miles of the base in order to “keep it ‘pure’ and free of honky-tongs.” While the attempt could be viewed as an early effort to contain development and sprawl associated with the base, it was, according to one author, motivated more by a desire to keep Salina from turning into “another Junction City,” a reference to the rough-and-tumble town outside the main gate of Fort Riley, fifty miles to the east.

Similar sentiments emerged at Pratt AAF, just seventy-five miles west of Wichita on the Wichita and Western Railroad. Here, local farmers opposed the establishment of an airfield, as Nile H. Nichols telegraphed Senator Capper: “A great many of the farmers and others are against locating airport in vicinity of Pratt, Kans. Petitions are being signed and will follow by mail.”

Part of the opposition stemmed from concerns over the destabilizing effects large numbers of young, single men would have on quiet farm towns and how employment opportunities on base might disrupt the local labor market. Farmers were far more concerned, however, that they might be the unlucky “winners” in a condemnation proceeding, thus losing their farms just as wheat prices recovered and real estate prices rose. They might then face a situation where, even if reimbursed at what the government determined to be a “fair value” (always an iffy proposition), they might not be able to find comparable land at that price and would have to relocate away from friends and family.

Once established in Wichita and other airfields scattered across the state, the B-29 production and training effort had a direct effect on Kansas’s environment. While immediate effects—such as prairie fires—may have been fleeting, the legacy of growth, pollution, and contamination in many areas can be traced to the B-29 program and the expansion of aviation infrastructure during the war years. Cities such as Wichita owed much of their remarkable wartime growth to a combination of these factors. Often the limiting factor was not available labor but a shortage of housing and other public utilities to shelter the new employees, and the cramped, hastily built quarters led directly to several environmental problems.

Boeing-Wichita consumed enormous resources to sustain its labor force, numbering over 25,000 workers and producing 1,644 B-29s by 1944—a pace of over four per day. To accommodate B-29 production, the U.S. Defense Plant Corporation built “Plant II” at Boeing-Wichita, a 1.7-million-square-foot facility that cost over $26 million and was so well-built that it was still in use for aircraft production seventy-five years later. The facility consumed 36 million gallons of water and 20,000 gallons of oil per day, and paid a monthly electric bill of $426,313. The site cafeteria became the biggest restaurant in Kansas, serving 15,000 meals per day, requiring 5,000 pounds of meat daily.

But the factory itself was only part of the war’s increased environmental cost. Wichita’s population exploded from 114,634 in 1940 to 176,316 in 1944, sparking a housing crisis and straining the city’s resources and its residents’ ability to accommodate the influx of newcomers. The most critical shortage was housing for the new workers; after mobilizing all of the excess inventory, spare rooms, basements, and garages, the city still lacked space for hopeful employees who arrived daily by the hundreds.

As a result, the federal government stepped in to provide subsidized housing, building three new subdivisions on Wichita’s southeast side, near the plant. As historian Julie Courtwright documented in her article, “Want to Build a Miracle City? War Housing in Wichita,” “the aircraft industry, destined to become responsible for the nickname Air Capital of the World, was, during the Great Depression, struggling to survive in Wichita. The onset of war, however, almost overnight transformed aviation into high-dollar industry and its host into a boomtown. The war housing developments of Planeview, Hilltop Manor, and Beechwood were simultaneously a result and a cause of that boom.” In the three developments, the Federal Housing Administration eventually built over 5,000 new housing units on what had been empty fields a year before.

25. Kansans Build the Boeing B-29 and the Boeing Kaydet, 14; Rowe and Miner, Borne on the South Wind, 133.
The runways built for Boeing-Wichita also served a small USAAF detachment during the war and became the foundation for McConnell Air Force Base (completed in 1954), providing another aviation-related economic engine for Wichita. Despite being struck by a powerful tornado in 1991, the base still hosts an active air-refueling wing comprising Boeing KC-135 Stratotankers that deliver Kansas oil, refined into aviation fuel, to aircraft across the country. Too often, however, haste led contractors to cut corners, especially regarding waste disposal. One newly constructed housing area near Wichita discharged untreated sewage directly into the Arkansas River, presenting a public health hazard for area residents as well as those farther downstream. Meanwhile, houses in Planeview contained asbestos siding; though the manufacturers knew asbestos was a lethal carcinogen, they continued to produce the siding in large quantities to fulfill wartime contracts.

The federally subsidized housing projects were the most visible manifestation of the housing boom that erupted in postwar Wichita, especially when the Boeing plant received contracts for the B-47 and B-52 bombers as a result of the B-29 program’s success. Wichita’s population continued to rise throughout the Cold War, largely to support its largest employer and most identifiable industry. The influx of workers created additional demands (and capacity) for schools, retail establishments, and recreation, spurring related growth. This growth allowed Wichita to sprawl uninhibited over several additional square miles of prairie, with no natural obstacles other than the easily bridged Arkansas River. The booming population in turn placed additional strains on Sedgwick County’s resources; it required more water, largely extracted from underground wells, and electricity, generated primarily by coal-fired plants. Thus, while the post-war period had a substantial impact on Wichita’s growth, it was B-29 production during the war that served as the impetus. One chronicler found that “of all the planes built in Wichita …, the B-29 Superfortress had the greatest impact.”

The Wichita Boeing plant received contracts for the B-47 and B-52 bombers, based largely on the success of the B-29 program. The article reproduced here, from the March 1945 edition of Boeing Magazine, boasts of Boeing’s completion of its one-thousandth B-29 Superfortress in Wichita. One chronicler found, “Of all the planes built in Wichita… the B-29 Superfortress had the greatest impact.”

Environmental issues also emerged at the training bases, where transient aircrews and maintenance workers likely felt little attachment to their immediate surroundings, instead focusing only on completing their assigned tasks...
tasks as efficiently as possible. The foremost task—for all crew members other than the pilots—involved placing ordnance in specific locations. Weapon shortages and costs precluded dropping live bombs, and the prairie’s flammability, especially in winter and late spring, increased the susceptibility to fire. Most air-to-ground ranges used only practice bombs, but the air-to-air gunnery ranges involved live fire at towed targets. Each base usually operated three ranges to permit multiple aircraft to train simultaneously. Near Walker AAF, for example, the army established three gunnery ranges in Ellis, Ness, and Gove Counties and three bomb ranges in Trego and Graham Counties, with the Gove County range alone covering 218,880 acres. Smoky Hill AAF, near Salina, hosted ranges in Pottawatomie, Waubansee, and Osage Counties, including one range near Alma that was still being inspected for live ordnance as late as 2009.33

The fire risk and loss of productive agricultural and grazing lands may have been responsible for the appropriation of an area that did not require anyone to relocate. Farmers near Great Bend petitioned the army to use the Cheyenne Bottoms—a nearby 41,000-acre wetland as a bombing and gunnery range during

The B-29, the most powerful U.S. bomber during World War II, put Wichita on the map, providing the city with a tremendous influx of money and people. As a result, Wichita’s population exploded from 114,634 in 1940 to 176,316 in 1944. Pictured here is the Wichita B-29 factory, Plant II.

the war. Cheyenne Bottoms has been described as the single most important wetland for migrating waterfowl and shorebirds between the Arctic tundra and the Gulf of Mexico. Aside from the direct losses due to inert practice bombs and machine gun bullets, the USAAF’s use appears to have had little long-term negative effect. Despite the presence of spent projectiles and shell casings, a comprehensive survey of the wetlands completed in 1984 found no excessive levels of heavy metals. The few areas with noticeable concentrations of lead in the surface water had been heavily used by waterfowl hunters for years, and the appreciably lower levels in adjacent areas closed to hunting suggests that spent shotgun pellets were a far likelier source of contamination. However, the experience at Cheyenne Bottoms demonstrates a rationalization for using sensitive areas as bombing ranges, and the lack of long-term damage in this particular case can likely be attributed to the sites’ relatively brief use in that capacity.

But operating training ranges could also have positive environmental effects. After World War II, the newly independent U.S. Air Force sought to maintain bombing and gunnery ranges in Kansas to support the bases that remained open. One example is Camp Phillips, an infantry training camp located on 42,000 acres just west of Salina and the Smoky Hill Air Base. Recognizing the site’s potential as a military training area after the war, the army retained control rather than return it to the original landowners. When the air force separated from the army in 1947, it took control of the range and continued to use it for aerial gunnery and bombing training. After Smoky Hill (later Schilling) Air Force Base closed in the 1960s, the Kansas Air National Guard assumed control of the range, operating it as the Great Plains Joint Regional Training Center. Today, the range is covered by large expanses of native prairie grasses that are carefully managed by the range operators. Spraying for invasive species and controlled burns makes it one of the most intensely managed tracts of native tallgrass in the state. A 2007 study found that “the size and generally good condition of this largely unfragmented tallgrass prairie makes it a valuable reservoir of biological diversity for the Great Plains.” While the threat for contamination from unexploded ordnance remains, the intensive management demonstrates the potential for military personnel to be good stewards of environmental resources. Had the military not retained control of Smoky Hill after World War II, it likely would have returned to agricultural use and, if employed in the monoculture production typical of the area, might have become significantly less useful to many species of wildlife.

Most bases, however, were returned to civil use. They either became municipal or regional airports—as at Salina and Great Bend—or simply returned to agricultural use—as at Pratt and Walker. One runway at Pratt remains open as an airfield, while the other two now host a massive feedlot due to the “excellent underground drainage and eight to fourteen-inch concrete runways.” While feedlots do exist across Kansas without the benefit of World War II airfield construction, they also provide some of the most offensive air pollution. Air bases in particular may be slightly more susceptible to contamination than other facilities for several reasons. First, airfields require large quantities of potentially toxic liquids—most notably jet fuels—to accomplish their missions. Often these compounds are stored in underground storage tanks (USTs) so as to protect them from fragmenting explosives in case of attack and to reduce vertical obstructions in the airfield environment. Aboveground storage tanks could not only potentially intrude into the flight paths of landing and departing aircraft but could also block instrument landing signals. Unfortunately, the burial of storage tanks makes detection of leakage and structural failure difficult, exacerbating the release of toxic substances into the soil and groundwater. The air force removed many USTs at wartime bases, including those at Garden City and Great Bend, and moved them to other active facilities. But those that remained—even when converted to civilian use—continued to represent potential environmental

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34. Roy J. McMullen to Capper, telegram, November 13, 1941, folder “Air Bases–Hays,” box 1, Capper Papers.
40. O’ Brien, “Kansas at War,” 25; author’s experience of being downwind of a feedlot in summer.
hazards, especially when considering the prevalence of less-stringent wartime standards of production and maintenance.

After serving as a B-29 training, processing, and staging base during World War II, Smoky Hill AAF remained in service, except for a brief period in standby status from 1950 to 1951. In 1957, the air force renamed it Schilling Air Force Base. As a part of the air force’s Strategic Air Command, the base hosted two bomb wings composed of B-47 bombers and KC-97 tankers. In 1960 a wing of Atlas F missiles arrived and was headquartered at the base, with the actual missiles located at twelve dispersed sites across central Kansas. Only four years later, however, air force officials elected to close the base, surprising local officials, who scrambled to find new occupants for the facility. Today, the airfield is operated as a municipal field by the Salina Airport Authority, while a number of commercial and education enterprises occupy the former site. These include the Salina Area Technical School (operated by Unified School District 305) and Kansas State Polytechnic.

At Schilling, workers released sufficient quantities of chemicals into the ground over the years to seriously threaten the water supplies of nearby residents. The ramifications of military installations’ environmental impact were realized and acted upon decades later as the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), passed by Congress in December 1980, later amended by the Superfund Amendments and Reauthorization Act (SARA) of 1981, required the Department of Defense to comply with all EPA guidelines, even at sites already transferred to the private sector. Pictured here are three pilots near a B-47 bomber at Schilling AFB in 1958.

Forbes Field, near Topeka—established to support B-29 training and deployment processing during the war—also hosted a missile wing during the Cold War. One such silo near Eskridge, in rural Wabaunsee County, has even been repurposed as a private residence, but other demilitarized sites remain scattered across the Kansas countryside in various states of disuse.

At Schilling, workers released sufficient quantities of chemicals into the ground over the years to seriously threaten the water supply of nearby residents. The most common pollutant is a persistent chemical known as trichloroethylene (TCE). When first introduced as an industrial solvent, TCE quickly gained favor among maintenance specialists for its highly effective degreasing properties. TCE was especially prevalent at bases that hosted missile systems with liquid oxygen propulsion systems. Unfortunately, TCE is also highly persistent in the environment and is a known carcinogen. Even as early as 1942, the USAF’s Field Service Section reminded users that “the toxicity of this material and of all halogenated hydrocarbons generally is well known.”

Schilling and other Kansas bases—including the army airfield near Herington—discharged sufficient quantities of TCE into the ground to pollute local aquifers, thereby threatening drinking water supplies for both on- and off-base residents. While current regulations prohibit the reckless discharge of TCE and other chemicals into the environment, decades of abuse have left a toxic legacy.


When Schilling closed, local officials focused on preparing the site for occupancy by the new entities. The thought of potential contamination was evidently not a major consideration, despite a provision in the deed that absolved the government of any liability for restoration or other damages. Fortunately for Salina, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—passed by Congress in December 1980 and later amended by the Superfund Amendments and Reauthorization Act (SARA) of 1981—required the Department of Defense to comply with the Environmental Protection Agency’s (EPA’s) guidelines, even at sites already transferred to the private sector. In 1986 the Department of Defense established the Formerly-Used Defense Sites program (FUDS) to assess environmental damage and engage in remediation activities. Placed under the authority of the Army Corps of Engineers, FUDS cost the corps $3.9 billion by 2006; further estimates argued that it would take a total of $18.7 billion to complete remediation at over 4,600 sites enrolled thus far in the program. Later estimates raised this total as high as $35 billion.

One of the main problems faced by the Corps of Engineers is the number of new sites that continue to be added to the list. This was the case when authorities first discovered the contamination at Schilling in the early 1990s. In 1993 the corps hired a contractor to complete a formal “Site Investigation,” and subsequently agreed to “remove or abandon in place” 107 underground storage tanks. This action required the Salina Airport Authority’s cooperation, but the corps dug in its heels, stating, since “non-DoD parties used petroleum products at the former Air Force Base property following DoD ownership, the Corps does not intend to clean up petroleum in soils or groundwater as a separate contaminant unless it imposes imminent and substantial risk and has been identified as the sole responsibility of DoD.”

Discoveries of contaminated areas outside those originally tested in 1993 resulted in the corps conducting a second Site Investigation in 1998. The city of Salina disputed some of the corps’s findings in the second survey, only to be told that they “had no formal role in the process.” At this point, the city contacted the EPA, which conducted an “Expanded Site Investigation” that firmly tied source areas to Department of Defense activities. In January 2006 the corps released a study of a plume of groundwater contaminated with TCE emanating from under the base but determined that it would not reach the city’s wells for another seventy-five years. Four months later, the corps was forced to admit it had made a mistake in its calculations; the plume would actually reach the wells serving the town’s 45,679 residents in less than ten years. Although subsequent investigations revealed that the plumes were neither as close nor advancing as quickly as originally thought, the government nonetheless agreed to fund 90 percent of the cost of remediation, currently scheduled to begin in 2018.

Similar issues emerged at the B-29 staging base near Herington, now known as the Tri-County Public Airport. Beginning in 1944, Herington Army Airfield was a major modification center for preparing B-29s for overseas shipment, and base personnel used a variety of toxic substances in their work—often against the backdrop of preparing aircraft in short timelines under increasing pressure—which led to callous disposal procedures. In 1948 the air force turned the base over to the city of Herington, which repurposed it as both a light industrial park and a feedlot, complicating accountability for disposal of toxic substances. By the time the EPA identified significant contamination in the 1990s, the list of contaminants had grown to include TCE (used by the government during the war) as well as other substances, resulting in the base’s listing on the National Priority (Superfund) List. This made the federal government, the organization with the deepest pockets available for remediation, partly responsible for the cleanup, thus absolving Raytheon (a later user of the site) from shouldering sole responsibility. Disputes over responsibility between public and private entities necessitated lengthy legal battles and delayed relief for the facility’s neighbors. Residents in nearby communities have also struggled with groundwater contamination.

46. “Fact Sheet,” November 8, 2005, correspondence box, Schilling AFB File, KDHE.
47. “Executive Summary,” Schilling Air Force Base Project, p. 2, KDHE.
contamination, including aviation fuel leaked from an aboveground storage tank, and have continuing concerns about their health and safety.\textsuperscript{50} Whether the contaminants stem from the base’s use as a military facility or later occupants, it is unlikely that industry would have located there without the existing infrastructure provided by the army. Industrial activities during the war were notoriously lax in their environmental protections, justifying expediency in the name of victory. It should be noted, however, that the environmental philosophy that permeated the military during this period was not unique. Many private industries followed equally callous disposal policies during this time, and many of them have not been as engaged as the Department of Defense in remediation efforts. As J. R. McNeill and David Painter have observed, “in the heat of the Cold War tensions the issue of waste management was left for future generations to resolve.” But in any final analysis, the heavy environmental costs must be weighed alongside the perceived benefits. McNeill and Painter argue that “future historians will face a daunting task when they seek to explain to generations yet unborn the mentality that led authorities in the United States, and elsewhere, to create this burden.”\textsuperscript{51}

Kansans may have been willing to justify the effort expended and accept the environmental damage that occurred, due to their belief that the B-29 program was essential to winning the war. The use of two B-29s dropping atomic bombs on the Japanese cities of Hiroshima (August 6, 1945) and Nagasaki (August 9, 1945), followed by the Japanese surrender on August 15, certainly lends credibility to these claims. But this interpretation ignores


another factor: the Soviet entry into the Pacific War and the subsequent collapse of Japanese positions on the Asian mainland, including the loss of over half of Manchuria in the week before the cease-fire went into effect. By the time Japanese representatives signed the peace treaty in September, Soviet forces had advanced as far south as Korea, establishing a puppet state in the northern half of the country.

It is with this second factor in mind that revisionist scholars as well as contemporary figures such as B-29 commander Curtis LeMay have argued that the Japanese Empire would have collapsed in 1945, or early 1946 at the latest, even without the atomic bombs.52 Beginning in early March 1945, B-29s bombed Japanese cities extensively, using incendiary bombs in low-altitude nighttime raids, but were unable to induce surrender. These attacks, which did not require gunners, or even guns, because the Japanese air force had poor nighttime interception capabilities, did not require precision, as aircrews dispersed their bombs over a wide area, starting conflagrations that killed tens of thousands of civilians. At one point, while experiencing a shortage of incendiary bombs, LeMay’s airmen joined the navy in mining the western Pacific.53 Thus, while many Americans, including a large number of veterans, continue to believe the firebombing and atomic attacks were fully justified, both by the treachery at Pearl Harbor and by the enormous effort expended in producing the atomic weapons, scholars are less certain, seeing elements of racism, revenge, and a desire to intimidate the Soviet Union all playing a prominent role. Americans, and Kansans in particular, made tremendous sacrifices to employ the B-29 against Japan, but those efforts not only contributed to the end of the war but also brought horrific death and destruction upon Japan.

Despite this ambiguous legacy, Kansans undoubtedly still have a great deal of affection for the B-29. In a sense, it has become a cultural artifact, representing both success and modernity in the minds of Kansans. This is clearly evident in the many museums and historic markers across the state dedicated to memorializing the B-29 program. The former airfield at Pratt hosts several markers celebrating the Battle of Kansas, and Barton County residents erected a memorial plaza at the former army airfield at Great Bend. In 2001 Smoky Hills Public Television (based in Bunker Hill), produced a documentary titled Bombers on the Prairie: The B-29 in Kansas. Funded largely by Boeing, it featured interviews with many of the aircrew and Kansans involved with and affected by the program while portraying everything in the most positive light possible. One group in Wichita is even restoring a B-29 named Doc, after the leader of the Seven Dwarfs, to flying condition. In contrast to this lovable cartoon character, and in keeping with the bomber’s close ties to Kansas and its destructive legacy, perhaps the name of Guy Dobbs’s plane, the Wichita Witch, would be more appropriate.

None of these efforts, however, have been marked with the controversy that surrounded the Smithsonian’s Air and Space Museum’s efforts to display the Enola Gay, the plane responsible for dropping the atomic bomb on Hiroshima, in 1995 in commemoration of the event’s fiftieth anniversary. Veterans’ groups clashed with peace activists, both of whom had very different interpretations of the artifact’s still-contested history.54 The aircraft was indeed a technological marvel, but the costs and consequences of developing that aircraft and sustaining it through the Cold War are all too often erased from popular accounts. If Kansans are to continue to devote a significant effort to preserving the B-29’s legacy (especially when much of that effort is supported financially by the aircraft industry), it should provide a full and balanced accounting of the aircraft’s significance, both positive and negative, and its enduring impact on the state itself.55

52. The most recent example of the revisionists’ argument, suggesting that the United States dropped atomic bombs primarily to intimidate the Soviet Union, can be found in Tsuyoshi Hasegawa’s Racing the Enemy: Stalin, Truman, and the Surrender of Japan (Cambridge, MA: Harvard University Press, 2005). LeMay believed the conventional bombing had been so effective that Japan would have eventually collapsed without atomic weapons. See Curtis LeMay and Bill Yenne, Superfortress (New York: Berkeley, 1989). Richard Frank argues persuasively in Downfall (New York: Random House, 1989) that the bomb did end the war, though he leaves open the possibility of a Japanese collapse without it. The fact that the debate still rages almost seventy-five years later suggests that there might have been other outcomes.
