

Chapter One

BIRTHPLACE OF AVIATION

HOMECOMING

The dreaded day arrived. The shrill shriek of factory whistles, the clanging of every church bell in town announced to the proprietors of the bicycle shop at 1127 West Third Street, Dayton, Ohio, the interruption of their work day.¹ They had been at it since early that morning, feverishly preparing the packing of the last components of their machine. The first crates had already been loaded on the train and sent to Washington for a product demonstration for the U.S. Army later in the month. The deadline had already been extended, from the end of June to the end of July; no more extensions could reasonably be expected from the War Department.² Now this! At 9:00 a.m., they emerged, dismayed and annoyed, from the inner sanctum of their workshop. For a full 10 minutes, the racket continued. When it subsided, they could hear, from the sidewalk in front of their store, the muffled drumming and tooting of several marching

bands off in the distance toward town.³ As the music grew louder and clearer, they could make out a large, closed carriage coming their way. The carriage finally drew up in front of the store and, at 10:00 sharp, Messrs. Wilbur and Orville Wright stepped aboard. Time to go, they sighed. Go and get it over with.

The day was June 17, 1909. *Five and a half years before*, the brothers Wright had telegraphed from Kitty Hawk, North Carolina, to their father in Dayton the news that they had, that day, December 17, 1903, done what no one had ever accomplished in human history:

SUCCESS FOUR FLIGHTS
THURSDAY MORNING ALL
AGAINST TWENTY-ONE-MILE
WIND STARTED FROM LEVEL
WITH ENGINE POWER ALONE
AVERAGE SPEED THROUGH AIR
THIRTY-ONE MILES LONGEST 57
[sic] SECONDS INFORM PRESS
HOME CHRISTMAS ORVILLE.⁴

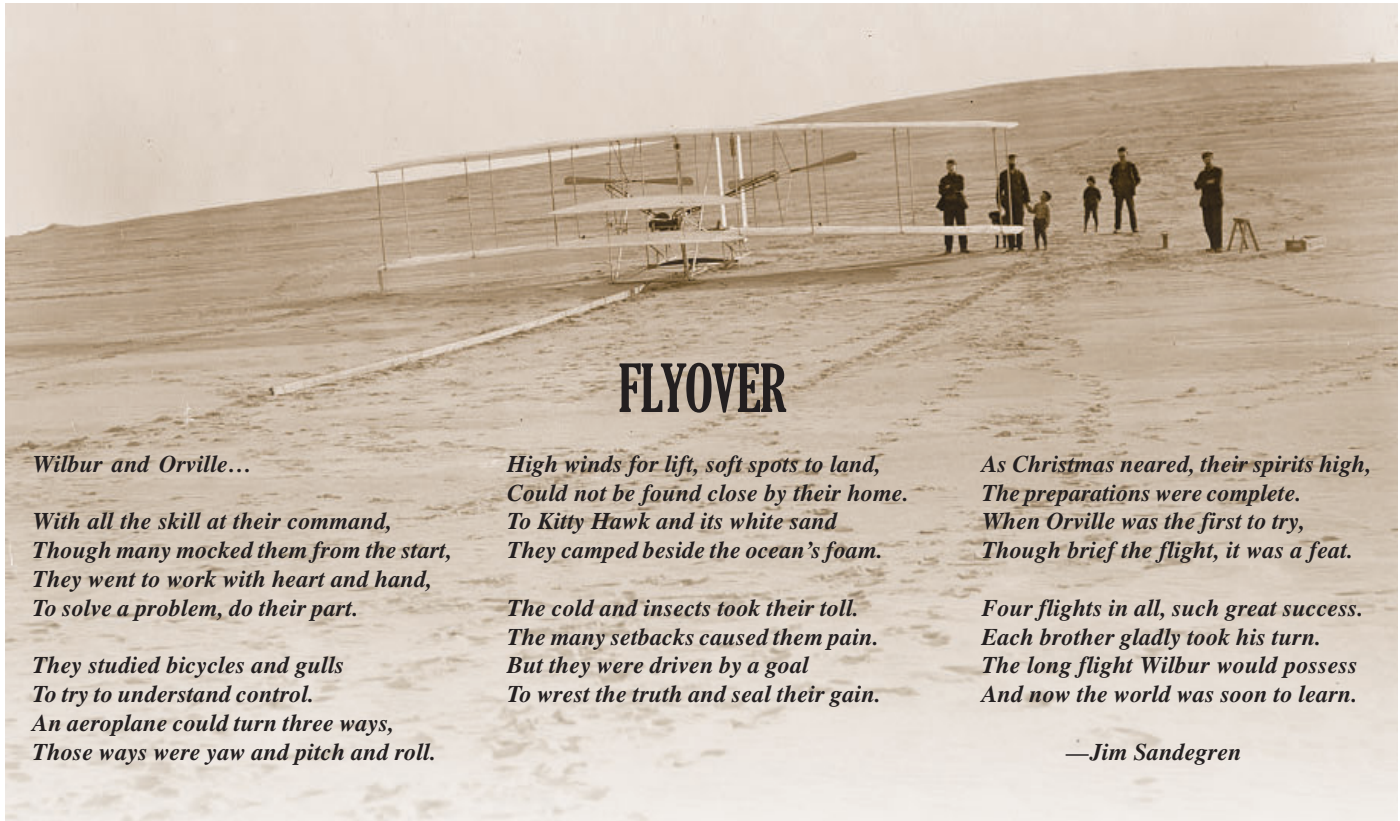
Brother Lorin took the cable from his father and dropped by the local newspaper office. The Associated Press representative at the *Dayton Journal*, without glancing up from his copy, read over the message. "Fifty-seven seconds, hey? If it had been fifty-seven minutes then it might have been a news item."⁵ No headline or story appeared in the next day's *Journal*.⁶

The following year, the brothers transferred their flight experiments from the coast of North Carolina to Huffman's prairie, a 20-minute trip on the Dayton-to-Springfield line of the interurban from their shop on Dayton's west side. Over the next two years, 1904 and 1905, they gradually extended the capabilities of their machine and their experience as aeronauts. By the autumn of 1904, they were making large circles about the field.⁷ The longest flight the following year lasted 38 minutes 3 seconds.⁸

Interurban passengers, if they looked up from their newspapers when they passed

The city of Dayton turns out in fine style for the June 1909 celebration honoring the Wright brothers.





FLYOVER

Wilbur and Orville...

*With all the skill at their command,
Though many mocked them from the start,
They went to work with heart and hand,
To solve a problem, do their part.*

*They studied bicycles and gulls
To try to understand control.
An aeroplane could turn three ways,
Those ways were yaw and pitch and roll.*

*High winds for lift, soft spots to land,
Could not be found close by their home.
To Kitty Hawk and its white sand
They camped beside the ocean's foam.*

*The cold and insects took their toll.
The many setbacks caused them pain.
But they were driven by a goal
To wrest the truth and seal their gain.*

*As Christmas neared, their spirits high,
The preparations were complete.
When Orville was the first to try,
Though brief the flight, it was a feat.*

*Four flights in all, such great success.
Each brother gladly took his turn.
The long flight Wilbur would possess
And now the world was soon to learn.*

—Jim Sandegren



Kill Devil Hill, North Carolina, 1903. The Wright Flyer sits in front of its temporary home. The smaller building to the right served as a workshop and sleeping quarters for the two brothers. (Library of Congress, Papers of Wilbur and Orville Wright)



Wilbur and Orville Wright prepare their airplane for flight over Huffman Prairie. Note the American flag on the elevator at the front of the aircraft

by the prairie, might occasionally have seen what was going on. “Done anything of special interest lately?” Luther Beard, the managing editor of the *Dayton Journal* and regular rider on the interurban, politely asked Orville one day.⁹ When newspapermen and journalists *did* report on the Wrights’ flying machine experiments, they as often as not got the story wrong.¹⁰ Indeed, only one amateur journalist and part-time beekeeper, Amos Root from Urbana, took the trouble to stick around the prairie and see what the Wrights were doing for himself.¹¹ His account, accurate and enthusiastic, appeared in his home-spun rag, *Gleanings in Bee Culture*.¹²

As sons of a bishop of the United Brethren Church, Wilbur and Orville would have been familiar with the scripture: *A prophet has no honor in his own country* (John 4:44).¹³ Dismayingly, there were skeptics and naysayers in foreign parts as well. *Bluffeurs* was the common verdict in the lingua franca.¹⁴ And all the rest of the world seemed to hail from Missouri.

Show me! So show them they did. In 1908, Wilbur and Orville took their flying machine on the road and across the sea. First near Le Mans and then Pau, Wilbur wowed the French.¹⁵ The road led to Rome the following spring.¹⁶ The U.S. War Department had, meanwhile, evinced interest. Under contract with the Army, Orville began a series of demonstration flights at Fort Myer, Virginia, just outside Washington, D.C.¹⁷

Grown men cried;¹⁸ women swooned as the Wrights’ Flyer lifted from the ground and, like some magic carpet out of the Arabian Nights,¹⁹ swooshed through the thin air before their very eyes. Hats, caps, and *kepis* filled the sky above reviewing stands. Kerchiefs fluttered in salute to the knights of the air. Man had at last conquered the third dimension. Honors—and contracts—followed.

This was *news*—and opportunity! Back home, the management of the *Dayton Herald* conferred and began drumming up enthusiasm for a grand, local celebration of the Wrights’ historic achievement.²⁰

But Europe got them first. During the spring of 1909, the brothers and their sister Katharine toured the old continent, where they



Katharine Wright accompanied Orville and Wilbur on their many travels to promote their airplane.



Wright Flyer and the catapult built by the Wright brothers for launches at Huffman Prairie, shown here in Pau, France, 1909. The Wrights traveled extensively to demonstrate their airplane and its flying qualities.

SIMMS STATION

Simms Station, located about eight miles east of Dayton, was a stop on the Dayton, Springfield & Urbana Electric Railway, and was located in an area where first the “post-rider” (mounted mail carrier) and later the stagecoach ran their routes.

The 1855 Greene County Atlas listed the area as Kneisly Station and, that same year, the railroad replaced the stagecoach route. Mr. John Kneisly owned over 1,200 acres of land in the fertile valley, and a depot one mile to the west on the banks of the Mad River carried his name. Mr. W. A. Simms later purchased this land, upon which two Simms Stations came into being: one was the old Kneisly depot on the Mad River & Lake Erie Railroad; the other was a stop on the interurban Dayton, Springfield & Urbana Railway. The land passed down to Charles H.

Simms who, along with his wife Buda, founded the Dayton Country Club in 1897. They lived in a house in Dayton, in an area now occupied by the Masonic Temple. (W. A. Simms lived in a 20-room mansion on Valley Pike.) The Simms owned *The Evening News*, which James M. Cox bought in 1898 and turned into the *Dayton Daily News*.

The interurban track to Simms Station ran parallel to Dayton-Springfield Pike; Simms Station was located at the crossroads of Yellow Spring’s Pike (now Dayton-Yellow Springs Road) and Dayton-Springfield Pike. The track ran from Dayton and continued on to Fairfield, old Osborn (in the approximate location of the Skyborn Drive-In Theater on State Route 235), Medway, and Springfield. The Wright brothers took the interurban from Dayton to Simms

Station to get to Huffman Prairie flying field, and groups of curious spectators soon began arriving at Simms Station in the hope of seeing a genuine flying machine. A celery farmer who lived nearby rented campstools to the crowds.

The construction of Huffman Dam in the years following the 1913 flood forced the relocation of the area’s railroad and interurban lines to higher ground. The thousand-acre farm that the Simms owned, which had given the interurban station its name, eventually became part of Wright-Patterson Air Force Base.

Sources: “Mrs. Buda Simms Dies; Country Club Founder,” *Dayton Daily News*, January 17, 1978, p 22; “Simms Station is Topic at Aero Chapter 536 Meeting,” *Fairborn Daily Herald*, March 15, 1984, p 12; *Wright Brothers Huffman Prairie Location* folder, Aeronautical Systems Center History Office Archives.



Flight at the Wright School of Aviation near Simms Station, 1910 (*Library of Congress, Papers of Wilbur and Orville Wright*)



Large crowd of spectators gathered at the edge of a field at Simms Station, Dayton, Ohio, where a series of flights were conducted from May through July 1910, just after the opening of the Wright School of Aviation. An interurban car is visible in the background. (*Library of Congress, Papers of Wilbur and Orville Wright*)

received a series of accolades and awards. The Aero Club of the Sarthe presented them with a bronze sculpture.²¹ Across the channel in England, the Aeronautical Society of Great Britain and the Aero Club of the United Kingdom wined and dined them and presented them with gold medals.²² Back in the United States, the Aero Club of America invited them to a luncheon in New York City. The Club voted them gold medals that President William Howard Taft later formally presented at the White House.²³

On May 13, the Wrights steamed into Dayton where the *Herald's* boosterism had succeeded beyond expectation.²⁴ They were greeted at the train depot by a coach drawn by four white horses.²⁵ As several thousand people crowded about to shout their huzzahs, the coach—Wilbur, Orville, and Katharine aboard—accompanied by 10 other carriages crossed town to the Third Street bridge over the Great Miami River where a marching band serenaded them all the way to the Wright homestead at 7 Hawthorne Street. The house was bedecked with toy balloons, American flags, and patriotic bunting. Chinese lanterns were strung between the trees along the street front.²⁶ It was vintage American Midwest brouhaha of a kind later celebrated in such films as *The Music Man* and *The Wizard of Oz*.

And that was not all, folks. A month later came the *real* celebration: a two-day extravaganza when all Dayton turned out in garish display to honor her heroes.

Wilbur was not fooled or amused. In a letter to Octave Chanute in early June, he wrote glumly:

We have been very busy on a machine for Ft. Myer and as we are interrupted very much the work goes slower than we would wish but we hope to be flying before this month ends. About a week of time will be consumed in traveling back and forth between Dayton and Washington to receive medals [from the president of the United States]. *The Dayton presentation has been made the excuse for an elaborate carnival and advertisement of the city under the guise of being an honor to us.* As it was done in spite of our known wishes, we are not as appreciative as we might be.²⁷ [Emphasis added.]

The boys got their revenge—sort of. When the Wrights boarded the coach on the morning of June 17, they sank far back

SUSAN KOERNER WRIGHT—MOTHER OF INGENUITY



Susan Wright in later years (*Wright State University Archives, Wright Brothers Collection*)

Orville and Wilbur Wright might not have invented the airplane if they had not inherited their mother's hankering for tinkering. Milton Wright, the boys' father, purportedly could not even hammer a nail straight; their mother Susan, however, liked to make things, and she built simple appliances to make her household chores easier and toys to entertain her children.

Susan Koerner Wright, the daughter of a German carriage-maker and a Swiss-American mother, was born in Loudon County, Virginia, on April 30, 1831. Soon after her birth, the Koerners moved to Indiana, where Susan's father continued his trade of making carriages. Susan spent a considerable amount of time with him as he practiced his craft, so she grew up in an atmosphere of design and construction.

Susan was also very interested in religion, and at age 14 she became a member of the Church of the United Brethren. She was extremely shy (a trait that Orville would inherit from her), yet she did well in school. Against the expectations for a girl of Susan's time and social class, her father sent her to

Hartsville College in Huntington, Indiana, for nearly four years. While there, she became friends with Milton Wright, an ardent supporter of equality for women and a fellow student preparing for the United Brethren ministry. A year after Milton was ordained, he received a mission assignment to Oregon. He asked Susan to accompany him there as his wife, and although she agreed to marry him, she had no desire to go to Oregon. Instead, she waited two years for Milton to return and, on November 24, 1859, they married.

The couple moved many times throughout their marriage, due to Milton's vocation as a minister, and finally settled in Dayton, Ohio. Susan created a loving and supportive home environment for her husband and raised children who grew up devout, healthy, and productive. Susan had seven children—Reuchlin, Lorin, Wilbur, twins Otis and Ida (who died in infancy), Orville, and Katharine. Susan always encouraged her children's natural curiosity, and she enjoyed making things for them and with them. Katharine called her mother a genius who could make anything, and she remembered with special fondness the sleds her mother built for Reuchlin and Lorin when their father could not afford to buy them from a store.

Unfortunately, Susan was ill many times throughout her life. In 1883, she contracted tuberculosis, leaving her, three years later, permanently bedridden. At age 19, Wilbur became her primary caregiver, and Milton marveled at his son's tender devotion to his mother. Susan Wright passed away on July 4, 1889, and was buried in Woodland Cemetery. Although Susan Wright did not live to see her sons design and build the world's first airplane, her creative spirit undoubtedly inspired them.

Sources: Tom Crouch, *The Bishop's Boys: A Life of Wilbur and Orville Wright* (New York, 1989); Richard Maurer, *The Wright Sister* (Brookfield, Connecticut, 2003).

KATHARINE WRIGHT—THIRD MEMBER OF THE TEAM

Katharine Wright was born on her brother Orville's third birthday, August 19, 1874, in Dayton, Ohio. She was the Wright brothers' youngest sibling and only sister. Katharine and Orville were especially close during their childhood years; Orville insisted to his playmates that his little sister be allowed to tag along on all their excursions.

Katharine's mother died when Katharine was 15 years old, and Katharine assumed her duties as woman of the house, making a peaceful and supportive environment in which the Wright men could do their work. Katharine still found time to pursue her education and, in June 1898, she graduated from Oberlin College. Later, as one of the first women to be elected to Oberlin's board of trustees, she championed the cause of equal pay for equal work for female faculty members.

After graduation, Katharine taught Latin and English at Steele High School in Dayton, but she eventually gave up teaching to support the aviation work of her brothers. Katharine often accompanied Orville and Wilbur on trips that publicized and marketed their airplanes, and some Europeans thought Katharine was the real brain behind the invention of the airplane, since she was a college graduate and neither Wilbur nor Orville had graduated from high school, let alone attended a university.

For many years, Katharine sacrificed her personal life so that her brothers had the stable home life they needed to devote themselves without distraction to aviation matters. At age 52, however, she decided to marry former college classmate Henry J. Haskell. In response, Orville disowned her and denied her permission to be married in the Wright family home. Katharine moved to Kansas with her new husband but their marital bliss was cut tragically short when Katharine developed pneumonia. Katharine's brother Lorin convinced Orville to accompany him to Kansas to reconcile with his little sister before she died.

Katharine Wright Haskell passed away on March 3, 1929, at age 54. Orville took her body back to Dayton and buried her next to Wilbur in Woodland Cemetery. During the funeral service, three airplanes dropped roses on Katharine's grave in recognition of her contribution to aviation.

Sources: Tom Crouch, *The Bishop's Boys: A Life of Wilbur and Orville Wright* (New York, 1989); Richard Maurer, *The Wright Sister* (Brookfield, Connecticut, 2003).



Katharine Wright as a child



Katharine Wright as a young woman



Katharine canoeing in Canada,



and flying with Orville.



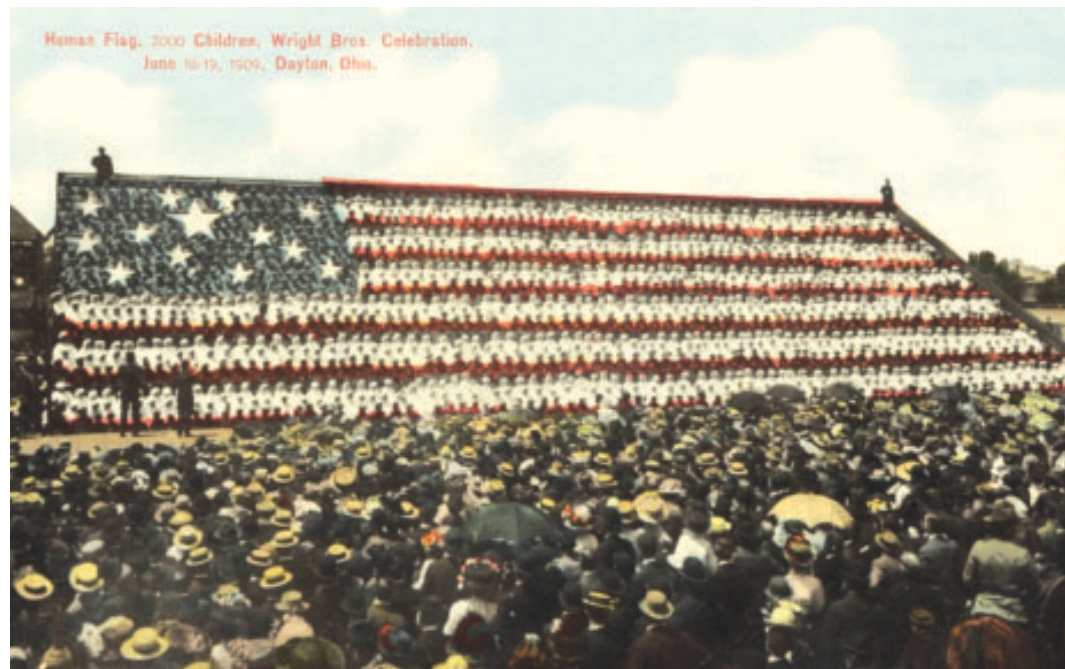
The June 18, 1909, celebration honored the Wright brothers and their accomplishments. Here, Orville Wright takes a moment to smile, a rare sight in photographs of him as a young man.



Wilbur and Orville Wright, dressed in top hats and tails for their 1909 homecoming celebration in Dayton



Crowds surround the Court of Honor to celebrate the homecoming of the Wright brothers, June 1909.



At the Montgomery County Fairgrounds, 2,500 schoolchildren wearing red, white, and blue formed an immense American flag, June 1909. (Dayton Metro Library)

in their seats while two friends and long-time associates riding with them, Ed Sines and Ed Ellis, waved to the crowds and received the plaudits of the cheering multitude along the parade route.²⁸ This was a pre-television age and instant recognition of celebrity was a thing of the future. It was the sort of prank that Orville found immensely entertaining.²⁹

No one knew the difference and no one cared, really. Kids got out of school and doing chores, and tellers of the Winters Bank and floorwalkers of the Rike-Kumler department store had the day off to swell the cheering masses along Main Street.³⁰ As cash registers all over the city fell silent, cannons boomed a salute from Van Cleve Park. Dayton could offer no finer tribute.

Over the next two days, Wilbur and Orville gamely joined other members of the

Wright clan in receiving tributes from their fellow citizens. When their presence wasn't absolutely necessary, they gave the slip and returned to their shop to finalize preparations for the Army trials of the Flyer.³¹

The festivities peaked in two events. The first night, a spectacular fireworks display took place on the riverfront. At the conclusion of the show, two giant figures of the brothers wrapped in an American flag lit up the evening sky.³² On the afternoon of the second day was the presentation of medals to the "fathers of aviation" at the Montgomery County Fairgrounds. Standing stiffly in formal attire—looking dapper in top hats and tails³³—Wilbur and Orville each received a gold Congressional Medal from General James Allen of the Army Signal Corps, a

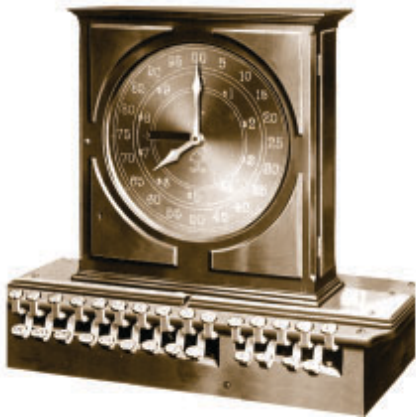
gold medal from the governor of Ohio, and a gaudy, diamond-studded medal from the mayor of Dayton.³⁴ In the background, 2,500 schoolchildren dressed in red, white, and blue formed an immense, singing American flag.³⁵ The celebration concluded with a parade up Main Street featuring progress in transportation, culminating in a float bearing an imaginative rendering of the Wright Flyer circling the globe.³⁶

Next morning as street sweepers cleaned up the previous day's trash and confetti and workers returned to their offices and counters in the city's downtown, Dayton's two most illustrious sons boarded the 10:00 train to Washington.³⁷

Neither Dayton nor the nation nor the world would ever be quite the same again.

DAYTON: CITY OF INVENTION AND PROGRESS

The city that turned out in style—albeit half a decade late—to celebrate the Wrights' invention of the airplane was, at the outset of the twentieth century, the center of invention and industry. Indeed, in 1900, Dayton, Ohio, listed more inventions than any other city in the United States. Only a community of inventors could, perhaps, for so long regard with such complete insouciance, the quiet tinkering of a couple of hometown bicycle mechanics. Invention in Dayton was big business and the Wrights were, at the time, small fry. The city already boasted a half-dozen automobile manufacturers. In the early twentieth century, large companies also specialized in agricultural equipment, sewing machines, and bicycles.³⁸ However, the granddaddy of them all, a veritable



Daytonian James Ritty's great invention—the cash register (Dayton Metro Library)



Charles F. Kettering, inventor of the automobile self-starter and other automotive and aeronautical technologies (Dayton Metro Library)

patent factory, was John H. Patterson's National Cash Register Company (NCR), known to all and sundry around town simply as "The Cash."

Along with big business went big egos—and sharp elbows—as the captains of industry jockeyed with one another for pride of place. Patterson was, hands down, the leading egoist of the lot.³⁹ Not far behind were a number of his subordinates, whom he regularly fired as they threatened to outgrow their NCR britches.⁴⁰ One such clever country boy who got his start at The Cash—and was ultimately cashiered by John H.⁴¹—was Edward Deeds.⁴² Another was Charles Kettering, who was admittedly less an egoist than *sui generis*, a man whom Patterson could not and would not understand—but who, while in his employ, literally electrified the cash register business.⁴³ Every time Patterson fired Kettering, Deeds hired him back.⁴⁴ Before Deeds and Kettering left NCR, they formed the Dayton Engineering Laboratories Company, or Delco for short, to manufacture their latest better ideas, electric ignitions and self-starters for automobiles.⁴⁵

For Kettering, leaving NCR was the beginning of his career-long association with the automobile industry. For many years he headed up the General Motors (GM) Research Corporation in Dayton. When GM later moved the division to Detroit, Kettering commuted regularly from his home in Dayton.⁴⁶

Deeds soon moved on. In the 'teens, he was the driving force behind the Miami

Conservancy District.⁴⁷ During World War I, he managed the nation's aircraft production and brought the Air Service's research and development operation to Dayton.⁴⁸ During the 1920s, he made a fortune reorganizing ailing corporations and managing other men's money on Wall Street.⁴⁹ In the 1930s, he returned to Dayton to steer NCR through the shoals of the Great Depression.⁵⁰ Save for John Patterson—and the Wright brothers—no other man did so much for Dayton, Ohio, in the first half of the twentieth century.

Across town, the man who brought journalism into the modern business world and who ultimately created a media empire sat perched in his office at the *Dayton Daily News* and surveyed events around him—as they were and as he would have them. James Middleton Cox⁵¹ squinted through rimless glasses at his city, state, and country and saw boundless opportunity for progress—for his fellow citizens and for James Middleton Cox. By his late thirties, Cox had progressed from plowboy to schoolteacher to newspaperman to congressman.⁵² He would soon be governor of Ohio⁵³ and, later, Democratic candidate for president of the United States.⁵⁴ He was not to be trifled with, as John H. Patterson and the Montgomery County Republican political machine discovered time and again.

Cox was what was called a Progressive. When a congressman, in addition to obtaining a splendid new post office for Dayton⁵⁵ and benefits for Civil War veterans at the Dayton Soldiers' Home



Edward Deeds, right, and John H. Patterson on First Street between Main and Ludlow streets in downtown Dayton, about March 1913 (Dayton Metro Library)

8 Chapter One Birthplace of Aviation

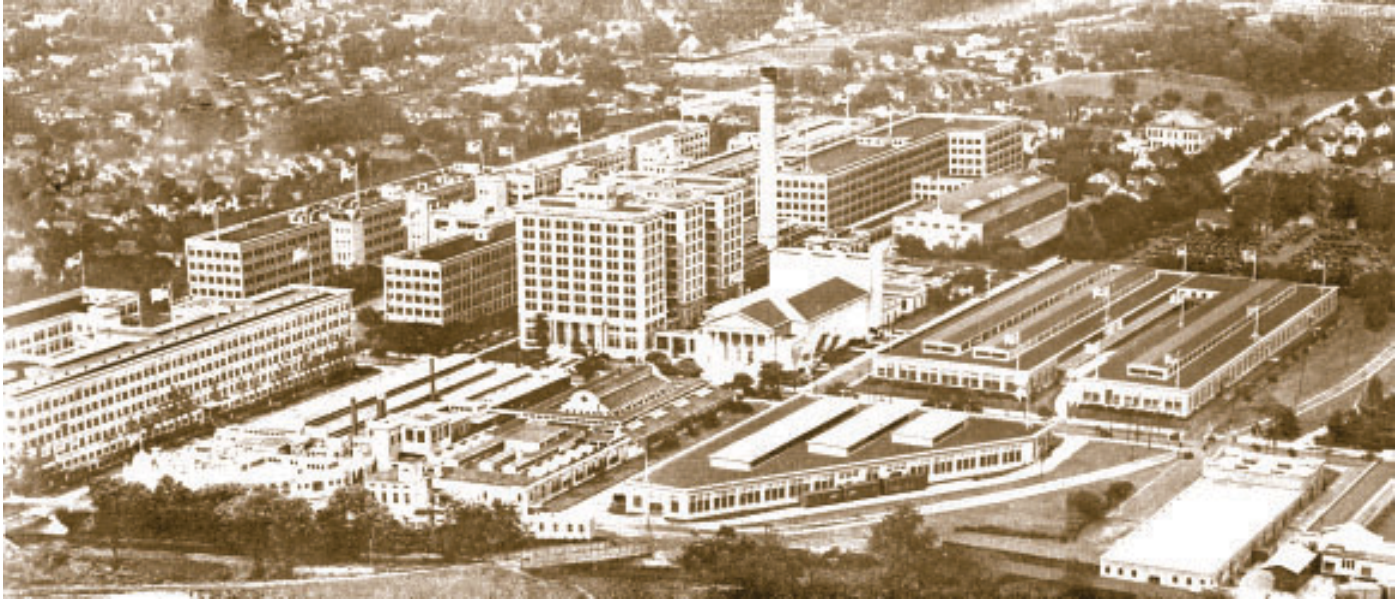
(Republican by affiliation, they thereafter voted in the majority for Cox),⁵⁶ he also supported lower tariffs, railroad regulation, and public utilities regulation.⁵⁷ He opposed the overweening power of industrial trusts and corruption in government, particularly that alleged in the Interior Department.⁵⁸ As governor, he campaigned for and signed into law much Progressive legislation.⁵⁹

John H. Patterson was also a Progressive—if in his own peculiar way. An innovator in advertising and marketing products, Patterson also pioneered various

industrial welfare schemes—paying and treating his employees exceptionally well—thereby effectively shutting out the unions. When Dayton's city council continually stymied his reformist proposals, Patterson engineered the reform of city government itself, introducing the commission-city manager form of government that soon became a model, known as the "Dayton Plan," for other cities across the nation.⁶⁰

Dayton, then, was a progressive town. It had much to be proud of (and even more to look forward to) when it pulled out all the stops to celebrate the Wright brothers'

achievement—and it could be pardoned for patting itself on the back in the process. It was a city of wide, paved streets; tall, modern buildings; excellent water purification and sewage systems; and a population of ambitious, energetic, and competitive men and women. Compared with larger towns, like Cincinnati or even Cleveland, it glistened like a rare jewel in the southwest Ohio countryside. And, in fact, it had long regarded itself as Ohio's "Gem City."⁶¹



NCR complex in the mid-1930s (Dayton Metro Library)



Dayton Daily News headquarters, Fourth and Ludlow streets (Dayton Metro Library)

JOHN HENRY PATTERSON—*AVE ATQUE VALE!*



John H. Patterson turned the cash register into big business through his National Cash Register Company. (Dayton Metro Library)

John Henry Patterson had been away from Dayton, off and on, for nearly five years. He had briefly attended Miami University down the pike in Oxford, Ohio. When the Civil War interrupted his studies, he donned Union blue. When the war concluded, he entered Dartmouth, graduating in 1867. He taught grade school briefly. It was the first thing he decided that he never wanted to do again. Armed with his bachelor of arts degree, he returned home to Dayton only to find that local businessmen had no use for a restless young fellow with a college degree—too good to work, they thought. Frustrated, he got a job as toll collector at the Dayton station of the Miami-Erie Canal. Bored by the long, languid days sitting in the tollbooth, he went into business delivering coal. Initially, the business prospered, due in large part to John Henry's fastidious and precise nature: he made sure that his coalmen delivered their loads promptly; he made sure that the coal was exactly what the customer ordered (he delivered no "dirty" coal!); and he made sure that neither coalman nor customer cheated him of the payment due. He kept precise accounts, using a mechanical device invented by Daytonian James Ritty—what Ritty called a "cash register."

But ambition got the better of John Henry. He entered into a partnership with

Boston moneymen to expand his business. Over time, he lost more money than he made. Finally, he gave up and sold out.

Like many a young man of his day, he took Horace Greeley's advice and headed west to try his hand at ranching. But prospects were bleak, and he was really not cut out to ranch. Discouraged, he returned home. Then one day, he espied a "for sale" ad of a local company that made cash registers. Knowing first hand the value of the device, he bought the business—only to be laughed to scorn by all and sundry. He tried to sell the business. He even tried to *give* the business back to the former owner, but without result.

The year was 1885 and John Henry was staring in the face his 41st birthday. What to do? He knew he had a useful product. The challenge was to make the rest of the world know its value too—and to buy it. He initiated a campaign to market and improve the cash register, a campaign that ceased only with his dying breath 37 years later.

It was there and then that John Henry Patterson discovered his talent as a *teacher* that had lain dormant since he turned his back on his adolescent charges 18 years earlier. It was there and then that he discovered the value of the seemingly worthless *liberal arts* training at Miami and Dartmouth. He recalled especially Professor Bishop at Miami: how he got his students to *learn by teaching one another*. John Henry set out on a similar mission to educate the business world, starting with his own salesmen and workmen. He drilled them; he instructed them; he held conventions and pep rallies. He published manuals that employees had to memorize. He invented the "flip chart" for lecturing and made extensive use of the stereopticon, motion pictures, and other "audio-visual" devices as they became available. In the midst of the National Cash Register factory complex, he built an auditorium; he called it the "Schoolhouse." It remained an NCR and Dayton institution for nearly three quarters of a century.

In later years, he traveled extensively around the United States and Europe. Initially, his trips were to preach the gospel of marketing and salesmanship—and to inspect his burgeoning empire; later they served his peripatetic restlessness and growing hypochondriacal obsessions. As he broadened his horizons, he wanted his

employees to broaden theirs, too, and sponsored excursions for deserving workers and their families to New York, Chicago, and even European points of interest. Back home in Dayton, he worked for civic improvements by badgering municipal officialdom and propagandizing from the NCR Schoolhouse. His record was mixed. He succeeded in pushing for city government reform, but he failed to "bury" the Miami-Erie Canal, which he considered both an eyesore and menace to public health—and perhaps the source of painful early memories. (When the canal, several years after his death, was finally covered over and paved, the city named the resulting highway Patterson Boulevard in his honor.)

Patterson died a millionaire—many times over. He made money, not by cutting costs and obsessing on the "bottom line," but by improving his product and aggressively expanding sales. For a wealthy man, he was relatively indifferent to money. He was the most generous employer in Dayton in wages, salaries, and worker welfare (which he pioneered). When the great flood struck Dayton in 1913, Patterson absorbed the cost of flood relief—several millions of dollars—as a routine operating expense for the year. Before he died, he turned much of his landed estate over to the city of Dayton as a recreational area.

It is said that when traveling abroad, Patterson, restless as ever, would seek evening entertainment by going from one theater and show to the next, rarely staying to see an entire performance. Sometimes he would visit several theaters in a single evening. Did he like Shakespeare? His biographer does not say. But one can imagine him slipping out of a performance of *Julius Caesar*, topcoat, walking stick, and bowler in hand, before Mark Antony had quite finished his famous oration over the great man's corpse:

*Moreover, he hath left you all his walks,
His private arbors, and new-planted orchards,
On this side Tiber; he hath left them you,
And to your heirs for ever—common pleasures,
To walk abroad and recreate yourselves.
Here was a Caesar! When comes such another?*

Sources: Samuel Crowther, *John H. Patterson: Pioneer in Industrial Welfare* (Garden City, New York, 1924); Ron Rollins, ed., *For the Love of Dayton: Life in the Miami Valley, 1796-1996* (Dayton, 1996).

DAYTON SOLDIERS' HOME AND VETERANS AFFAIRS MEDICAL CENTER

President Abraham Lincoln signed legislation establishing the National Home for Disabled Volunteer Soldiers on March 3, 1863. The law provided for the establishment of government-operated facilities to treat, rehabilitate and, if necessary, house the veterans of the Civil War. It represented the first time in American history that the government assumed responsibility for the welfare of a portion of its citizenry. As years passed, the soldiers' homes became a complex social service program, providing housing, community services, medical care, and lifetime support to men whose lives were forever changed by war.

The Dayton Soldiers' Home opened its doors in 1867, as the Central Branch of the National Home for Disabled Volunteer Soldiers, to provide comprehensive care to the war's veterans. Eligible veterans were all disabled soldiers honorably separated from U.S. military service, thus excluding men who had fought for the Confederacy. (Southern state governments did establish

homes for Confederate veterans, but the treatment did not approach the comprehensive care provided by the National Soldiers' Home system.) The Dayton Soldiers' Home became the largest facility of its kind. The Home Hospital was completed in 1870 with 300 beds and an operating room. It was regarded as one of the best in the nation and, by 1900, several additions brought the capacity to 840 acute-care beds. During the Civil War, primary treatment for severe limb wounds was amputation with the more fortunate soldiers admitted to soldiers' homes for extensive physical and mental follow-up treatment. A barracks at the Dayton Soldiers' Home provided an additional 6,000 beds for disabled veterans in the latter category.

A military governor originally managed the Dayton Soldiers' Home. Residents, as many as 7,000 at one time, wore military uniforms and lived the regimented life of soldiers. Physical exercise and hard work were emphasized. The residents maintained the grounds and buildings, many of which

were constructed by veterans, including the Home Chapel (the first permanent church built by the United States government) and the conservatories. Hundreds of thousands of people visited yearly to see relatives in residence and some just to vacation in the Home hotel, eat in the restaurant, stroll the lush gardens and grottos, and enjoy nightly entertainment in the theater. Some brought loved ones who had served in the Union army and needed treatment or visited the grave of a loved one who was buried in the impressive cemetery that, much like Arlington National Cemetery, featured long neat rows and columns of stately white grave markers standing in silent order. Many Dayton families, including that of Bishop Wright, took the trolley to the Soldiers' Home for picnics during the summer months. Visitors wandered through the grotto and a seemingly endless series of greenhouses and gardens and visited the wildlife preserve that housed alligators, deer, and bears. Concerts,



An 1885 lithograph showing an aerial view of the Dayton Soldiers' Home. The expansive grounds included the main hospital and barracks, a chapel, bandstand, store, Memorial Hall, landscaped gardens, several lakes, and a hotel. (Dayton VA Archive)

lectures, and theatrical performances in the Memorial Hall were well attended by the local community, as well as the residents. The Home Band entertained nightly. From the grounds, visitors could look across Gettysburg Avenue and view the Cyclorama, a life-sized, painted diorama depicting several scenes from the battle of Gettysburg.

After World War I, the National Soldiers' Home system was inundated with soldiers returning from Europe, while still caring for an aging population of Civil War veterans. Fifty new homes were built nationwide and operated by several federal agencies before the various hospitals, homes, and services combined into the Veterans Administration (VA) in 1930. At that time, the Dayton Soldiers' Home became known as the Dayton VA Medical Center (VAMC). (The Veterans Administration later became Veterans Affairs.)

The returning World War I veterans desired to recover from their wounds and quickly rejoin society. This was made possible with advances in healthcare, shifting the focus from simply relieving pain and symptoms toward repairing injured bodies, healing physical and mental diseases, and rehabilitating men for return to society and the workplace. The Dayton

VAMC remained one of the largest field stations through the 1970s with a total bed capacity of 2,153. Hospital stays became more infrequent and outpatient care more common in the 1980s. At the turn of the twenty-first century, the Dayton VAMC continued to provide a complete range of inpatient and outpatient services, including medicine, surgery, primary care, rehabilitation, mental-health programs, and geriatric and extended care. In 2003, the total capacity was 500 beds and included a nine-story patient tower that opened in 1992.

In the 1970s, the Department of Veterans Affairs (VA) and Department of Defense (DOD) Health Resources Management and Emergency Operations Act (Public Law 97-174) passed, establishing cooperative agreements and the sharing of resources between DOD and VA medical facilities. This was augmented in 1983 with a memorandum of understanding that established VA healthcare facilities as emergency hospital sites during crises. During the Persian Gulf War (Operation Desert Storm), the Dayton VAMC readied itself to serve as an emergency treatment site capable of handling thousands of potential victims of chemical and biological weapons attacks by Iraqi forces. Today,

the VAMC and Wright-Patterson Medical Center share treatment capabilities that are highly specialized but in relatively low demand. All gynecological services are provided at Wright-Patterson, while patients at the base that need inpatient psychiatric or sleep-disorder treatments are referred to the VAMC. The sharing of resources provides savings for both institutions.

Today, many of the original Victorian-era buildings remain from the days of the Dayton Soldiers' Home, and they have been listed on the National Register of Historic Places. Many, once so full of activity, now sit empty and in need of preservation. The campus of the Dayton VAMC, where medical and social medicine was pioneered in the decades following the Civil War, now stands as one more example of the progressive and innovative spirit commonly found in the Dayton area.

Sources: "Saving History," *Government Executive*, July 2003, pp 45-52; Jeff Hull, VAMC, personal communication with Diana Cornelisse, July 14, 2003 and September 15, 2003; "Monuments to Times Past," *Dayton Daily News*, August 14, 2003, p A15; "National Military Home, Dayton, Ohio: Virtual Tour and Exhibits," viewed online September 25, 2003, at <http://www.dayton.med.va.gov/museum>.



Veterans in residence at the Dayton Soldiers' Home relax in the grotto. The grotto included a waterfall, drinking spring, stone archway and steps, and lush foliage. (Dayton VA Archive)



An alligator pond was one of many attractions that enticed Daytonians to visit the Soldiers' Home. The Home also maintained an indoor nursery for baby alligators, as well as habitats for deer, elk, bears, antelope, foxes, raccoons, a wolf, and a variety of birds. (Dayton VA Archive)

PIONEER SETTLEMENT

It had not always been so. A little more than a century before, the site of Dayton, Ohio, was hardly more than a forested lowland area filled with tangled underbrush along a lazy bend in a wide, slow-moving stream shown on maps of the Ohio country of the Northwest Territory as the Great Miami River.

Thus, it caught the attention of a group of New Jersey land speculators in the mid-1790s. Several of their number had already reconnoitered the area a decade before and found it filled with wild game, a few white squatters and somewhat more Indians, believed friendly. They approached their friend and local congressman, a Revolutionary War hero, General Jonathan Dayton. Would he be interested in obtaining Congressional approval to purchase the land and resell it to



Jonathan Dayton, namesake of the city of Dayton. General Dayton never visited the city. (Dayton Metro Library)



Daniel C. Cooper, Dayton founder and philanthropist (Dayton Metro Library)

prospective settlers? Indeed he would! Within a year, three small bands of pioneers set out from Cincinnati, two by land, one by water, to the site of the new settlement. On April 1, 1796, the group traveling up the Great Miami River, including Benjamin Van Cleve, came ashore near the present intersection of St. Clair Street and Monument Avenue.⁶² A few days later, they were joined by the overland parties led by George Newcom and Samuel Thompson.⁶³ The previous year, one Daniel C. Cooper—by prearrangement with the New Jersey syndicate—had already platted the land, named several streets (St. Clair, Jefferson, Ludlow), and christened the soon-to-be settlement in honor of General Dayton.⁶⁴

Dayton, in fact, never laid eyes on Dayton. Indeed, a few years later he probably wished he had never heard of the place. As events transpired, John Cleve Symmes, one of the group who approached General Dayton, had failed to secure proper title to the land that he then proceeded to sell to his partners and unsuspecting homesteaders. He purchased his share of the land, moreover, at 67 cents an acre—well under the government's going rate of two dollars an acre. Congress got wind of what had happened and insisted on restitution of the full amount to the Treasury of the United States from those then holding the properties. Most homesteaders, then as later, were bargain-hunters and could ill afford the government rate. Many pulled up stakes and left. Others threatened to do so. Dayton, Ohio, was threatened with becoming a ghost town less than a decade after its founding.⁶⁵



Benjamin Van Cleve, one of Dayton's earliest settlers, served as Dayton's first postmaster, librarian, and schoolmaster. (Dayton Metro Library)

It was the first great crisis in Dayton's history, and it was resolved, as at least one other crisis in Dayton nearly a century later, by a single individual of considerable wealth, exceptional philanthropy, and civic patriotism. That man was the selfsame Daniel Cooper. Cooper bought up all the bad shares, paid off the Treasury, and then resold the land to those willing to stay in town at prices that each was able to pay. It stopped the stampede out of Dayton and saved the day—and Cooper's own already considerable investment in the area.⁶⁶ On his death, Cooper donated land for a public park, which today bears his name⁶⁷ and houses a statue of President William McKinley. There is no statue of Cooper anywhere in Dayton, a fact that local historian Charlotte Reeve Conover thought unfortunate. But then, in the words of an eminent Englishman, "if you seek his monument, look about you."⁶⁸

Cooper also sold Robert Patterson, newly arrived from Kentucky,⁶⁹ land south of town at the foot of the "far hills" and a stream called the Rubicon. There Patterson established a wide-ranging farmstead—after shooing Cooper's men off the land, where they continued, following the sale, to poach for trees, shrubs, and foodstuffs.⁷⁰ Patterson arrived in Dayton in 1804, a year before James Steele, Joseph Peirce, Jonathan Harshman, and Dayton's first lawyer, Joseph Crane (another immigrant from the Garden State).⁷¹ When he came to Dayton, Patterson was already a co-founder of Lexington, Kentucky.⁷² Many years later, when Patterson's grandson, John H., heard that the Kentucky locals wanted to pull down Robert's dilapidated lean-to, he moved it to Dayton and preserved it on the family homestead.⁷³ (John H. also saved George Newcom's rather more commodious cabin *cum* tavern from turn-of-the-century Daytonians all gung-ho for progress at any price.)⁷⁴

Life in early Dayton was, in the words of another Englishman, "nasty, brutish, and short."⁷⁵ Daniel Cooper died in 1818 at the age of 45, the result of overstrain from transporting a large bell in a wheelbarrow to the Presbyterian church.⁷⁶ In those pioneering days, even the well-heeled literally put their shoulder to the wheel. Natural disaster, war, and disease carried off many more. Daytonians had been hearing of fire, brimstone, and the last days ever since the first itinerant preacher—a Methodist—passed through town in 1798.⁷⁷ Since that time, they had built three taverns and one (Presbyterian) church. Their comeuppance came in 1811. An earthquake shook the entire Miami Valley

and aftershocks lasted a month. Then, in June, a late frost blighted many crops; a mass migration of squirrels carried off much of the rest.⁷⁸ While not quite the plagues of Egypt, it made serious men think. Then, the following year, America locked horns with the nasty and brutish British in the War of 1812.

As during the Revolution, the British allied with Indian tribes alarmed at white migration throughout the Old Northwest. (By 1805, more than 30,000 immigrants of European descent were pouring yearly into Ohio alone.⁷⁹) Dayton was the mustering place for the First Division of the Ohio Militia—some 2,500 men under the command of General William Hull.⁸⁰ To keep idle hands occupied during the militia's sojourn in his fair city, Daniel Cooper set the soldiers to work building a levee around the town to protect it from catastrophic flooding.⁸¹ (In 1805, Dayton had already experienced a foretaste of its later bitter cup, when in 1913 the Great Miami overflowed its banks and put much of the town under eight feet of water.⁸²) Although successfully overseeing his men in this task of circumvallation, General Hull—alas, no Caesar!—led them to utter defeat in their encounter with hostiles up the Old Troy Pike. This was in August. In September, a man of sterner stuff, General William Henry Harrison raised a second army that likewise passed through Dayton and led it to victory in the Battle of Missisnewa.⁸³ The following year, he defeated the Indian chief, Tecumseh, at the Battle of the Thames.⁸⁴ Of these encounters, only 200 men returned to Dayton to tell the tale.⁸⁵ However, everyone loves a hero. Many years later, in 1840, when General Harrison ran for president on the Whig ticket, his Dayton campaign rally—which “Old Tippecanoe” himself attended—exceeded every local civic celebration until Dayton honored the Wright brothers.⁸⁶

EARLY NINETEENTH-CENTURY DAYTON

War concluded (by the Treaty of Ghent in 1814), Dayton got on to the pursuits of peace. The first order of business was to find better ways to get in and out of town. Both overland and water routes were full of obstacles. Consider first the water route. When Benjamin Van Cleve's party navigated up river to found Dayton a decade and a half earlier, spring rains had swelled the Great Miami. However, as soon



Newcom's Tavern, built in 1796 on the corner of Main and Water (now Monument) streets. This home of Colonel George Newcom and his family is Dayton's oldest extant structure. It has been moved to Carillon Historical Park and preserved as part of their outdoor exhibits. (Dayton Metro Library)



East side of Main Street, from Third to Second streets, looking north, 1850 (Dayton Metro Library)



The Miami-Erie Canal reached Dayton in 1829. It was up to 40 feet wide at water level and approximately 4 feet deep. Horses and mules towed heavily laden flat-bottomed boats down the canal. In 1877, the state of Ohio abandoned the canal. Fifty years later, Dayton filled in the bed and replaced it with Patterson Boulevard, named in honor of John H. Patterson, founder of NCR. (Dayton Metro Library)

14 Chapter One Birthplace of Aviation

became apparent, the river was never as high during the remainder of the year, except for occasional flash floods. In addition to low water, narrow and irregular channels, and sand bars, man-made obstacles existed as well. Farmers dammed portions of the river along the banks to drive their gristmills, and other “factories” were dependent on waterpower, too. Indeed, the area that later became the posh suburb



Robert W. Steele, Dayton business leader and philanthropist. In 1894, Steele High School (razed in the 1950s) was named in his honor. (Dayton Metro Library)



Robert C. Schenck, Dayton lawyer, member of the United States House of Representatives, a general in the Union Army during the Civil War, and United States ambassador to Great Britain. Schenck is buried in Woodland Cemetery, Dayton. (Dayton Metro Library)

“Lower Dayton View” accommodated several mills and other light industry throughout the nineteenth century. Fishermen also established weirs along the river to catch fish driven in the downstream current. Alas, flatboat commerce during the first three decades of Dayton’s history depended upon the regular viability of the river with which the mill dams and fish weirs often interfered. To regulate the placement of mills and weirs and to maintain a viable river channel at times of low water, Dayton established a Navigation Board around 1815.⁸⁷

Overland routes were, if anything, even worse. Indeed, just getting around Dayton’s streets, mired in mud and muck, could be an unpleasant chore during rainy season—and remained so throughout most of the century. Huge logs, arrayed in “corduroy” fashion, served to pave Dayton’s main thoroughfares, thus limiting the depth to which man, wagon, and beast sank into the mud. (Workers laying

Dayton’s first modern pavements a century later unearthed a number of these enormous tree trunks that lay buried beneath Dayton’s streets like the bones of a long extinct prehistoric beast.) Roads also began to radiate out of Dayton. The Dixie Highway was one of the first.⁸⁸ The first bridge also was thrown across the Great Miami River around this time. A schedule of tolls for foot, horse, or carriage traffic kept the bridge in repair well into the 1870s.⁸⁹ In 1818, the first weekly coach service was established between Dayton and Cincinnati by way of Franklin, Middletown, and Hamilton. Even so, travel remained ponderous. It took two full days to make the trip by stage between Dayton and Cincinnati, much to the profit of Hamilton’s innkeepers.⁹⁰

Canal! In 1821, the word seemed to city fathers the solution to all of Dayton’s transportation problems. Dayton got on board the “bandwagon” of canal construction early, enlisting Ohio’s



Huge logs were laid over early Dayton streets to prevent wagons and carriages from sinking in the mud. Here, some of the old “corduroy” paving is uncovered, 1890s. (Dayton Metro Library)

governor and key legislators to push through legislation in 1825 that ran the Miami-Erie Canal right past Dayton's downtown and on to Cincinnati.⁹¹ Much like the later I-75 interstate highway, which similarly bisected the city (and could, at times, be as slow-moving), the canal was both opportunity and eyesore. However, in its heyday, the canal maintained Dayton's commercial fortunes until the railroad finally came to town in the late 1840s.⁹²

If all this sounds primitive—it was. However, it would be fallacious to conclude that lack of physical comforts, not to say amenities, meant that Dayton's citizens were uncultured or crude. Quite the contrary. From the very beginning, Dayton (for whatever reason) attracted men and women of uncommonly high caliber. Take, for instance, the multifaceted Benjamin Van Cleve. After accompanying the first party of settlers to Dayton, Van Cleve established Dayton's first post office,⁹³ school, and later library, all in his log house. His was also the first registered marriage in Dayton, to Miss Mary Whitten.⁹⁴ Their son, John, was, by all accounts, a child prodigy and, over time, polymath. Large of both mind and body, John Van Cleve graduated from

Oxford University but returned to his hometown to serve Dayton in a variety of capacities that included city engineer and editor and publisher of the *Dayton Journal*. At 16, he was teaching Latin and Greek and translated stories and plays from French and German. Organist and choirmaster of Christ Church in town, he was also a founder of the Dayton Library Association and contributed collections of plant life, geological specimens, and fossils to Dayton's first natural history museum. He also helped found Woodland Cemetery, where he lies buried. Sensitive of his appearance—he reportedly weighed more than 300 pounds—he never married nor sat for a portrait or photograph.⁹⁵ He is remembered in a short *life* written by another remarkable nineteenth-century Daytonian, the intellectual and life-long invalid Miss Mary Steele,⁹⁶ whose father Robert, an educator and businessman *extraordinaire*, lent his name to Steele High School, built in the 1890s.⁹⁷

Judge Joseph Crane (Dayton's first attorney, see above) recruited another Oxford grad, Robert Schenck, to Dayton's citizenry, in 1831. Schenck established a Mechanics Institute in Dayton for the self-

improvement of working men before his election to the Ohio legislature and then Congress. In later years, he served as United States ambassador to Brazil and a brigadier general in the Union Army during the Civil War, and closed out his career in America's plum diplomatic posting, as ambassador to the Court of St. James.⁹⁸

The Mechanics Institute had a library, as did the hotel built by Horatio G. Phillips at the corner of Third and Main streets in 1852.⁹⁹ Indeed, Mr. Phillips outfitted the hotel's vast reading room with gilt chandeliers, globes, tables, and bookshelves along the walls amidst Corinthian columns. The library certainly impressed Dayton physician Dr. John C. Reeve's little girl, Charlotte. Years afterwards, Charlotte recalled that she had never seen so many books in one room in her life.

The Mechanics Institute was preceded by the Dayton Lyceum Association, established in 1833 for "the diffusion of knowledge and the promotion of sociability." Its weekly lecture series wisely steered clear of politics and religion, but featured a full spectrum of other topics of interest to Dayton's citizens.¹⁰⁰



Mid-nineteenth-century Dayton (Dayton Metro Library)



Phillips House Hotel, located on Third and Main streets in downtown Dayton. It was built in 1852 and demolished in 1926. (Dayton Metro Library)



Dayton's second courthouse, built on the northwest corner of Third and Main streets in 1850 for \$100,000. Now called the "Old Courthouse," it once housed the Montgomery County Historical Society. It was listed on the National Register of Historic Places in 1970. (Dayton Metro Library)



The "New Courthouse" was built in 1881 adjacent to the Old Courthouse. It was razed in 1972 to give way to "Courthouse Square." (Dayton Metro Library)

One topic that had begun to stir Dayton along with the rest of the nation in the 1830s was slavery and the question of its abolition. The first meeting of the Dayton Abolition Society was held in 1832. That year Federal agents arrested a fugitive slave living in Dayton called "Black Ben." Ben was well liked by several Dayton citizens, who offered to buy him from his master. When their offer was refused, Ben flung himself from a tall building, killing himself, rather than return "down river."¹⁰¹

In the 1830s, abolition was still a relatively remote issue. By the 1850s, however, two decades had been allowed to stir the pot of national debate, and the passions of men and women both north and south frequently boiled over, with occasional explosions around the country. One of the earliest outbreaks of *anti*-abolition sentiment occurred in Dayton. Dayton, located in southwest Ohio, was in very much a "border region" containing those arguing both sides of the slavery and abolition issues, right through the Civil War. Its citizens were drawn from both the New England and Mid-Atlantic states as well as southern and border states like Kentucky. A more potentially explosive combination of sectional sectarianism could hardly be imagined.



Clement Vallandigham, a Dayton lawyer, became a member of the State House of Representatives in 1845 and was elected to Congress in 1858. Vallandigham was a strong supporter of state's rights and slavery, and was imprisoned in 1863 for being a Peace Democrat. (Dayton Metro Library)

WOODLAND CEMETERY

Woodland Cemetery & Arboretum south of Dayton contains the graves of many men and women who advanced military and civilian aviation in the greater Miami Valley.

Woodland Cemetery opened in June 1843, on a 40-acre plot with roads sized for carriages, making it one of only five rural cemeteries in the country. The first burial there occurred on July 11, 1843, and soon thereafter 19 Revolutionary War veterans and soldiers killed in the War of 1812 were reinterred at the cemetery. By 1850, burials from a “downtown” cemetery (being encroached on by the growing city of Dayton) had been moved to either Woodland or Catholic Calvary Cemetery farther south. Woodland also contains the burials of Union soldiers from the Civil War, because the Dayton Soldiers’ Home and cemetery had not yet been established. Hundreds of military members killed in action during twentieth-century wars also are buried in Woodland. The grave of Dale White, Sr., who was instrumental in the creation of the acclaimed 332nd Fighter Group, popularly called the Tuskegee Airmen of World War II, is located in the newer section of the cemetery. White also held the honor of being the first black mechanic hired at Wright-Patterson Air Force Base, where he completed a 30-year career.

Additional tombstones in Woodland trace early local aviation history. The Huffman family mausoleum stands atop one of many hills in Woodland. It was on Torrence Huffman’s property east of

Dayton that Wilbur and Orville Wright learned to fly in 1904 and 1905, and on which they opened their flying school in 1910. Perhaps the most famous burials in Woodland, however, are those of the ingenious brothers who “invented the airplane.” Wilbur died on May 30, 1912, of typhoid; Orville on January 30, 1948, of a heart attack. The family plot near them also contains the graves of their sister Katharine; their parents, Bishop Milton Wright and his wife Susan; and the remains of their twin siblings who died as infants.

Dayton native and poet Paul Laurence Dunbar, some of whose writings Orville and Wilbur had published as printers before they became bicycle repairmen and salesmen, rests in Woodland near the Wright plot. His monument is engraved with his verse:

*Lay me down beneaf de willers in de grass,
Whah de branch'll go a-singin' as it pass.
An, w'en I's a-layin' low,
I kin hyeah it as it go
Singin', "Sleep, my honey, tek yo' res' at las."*

Patterson Knoll in Woodland holds the remains of Lieutenant Frank Stuart Patterson, a descendent of one of Dayton’s founding families. Lieutenant Patterson died tragically at Wilbur Wright Field on June 19, 1918, while flight testing a machine-gun synchronizer on the DH-4 biplane. It is in honor of Lieutenant Patterson that the section of Wright-Patterson Air Force Base east of Huffman Dam is named.

Other notable individuals buried at Woodland Cemetery include Colonel Edward Deeds, who localized early aircraft production in Dayton and was instrumental in land purchases for Wilbur Wright Field and McCook Field; Adam Schantz, one of the men who led the fund raising to build five flood-prevention dams throughout the Miami Valley following the disastrous 1913 flood; and, on the highest hill in the cemetery, George and Mary Newcom, earliest residents of Dayton.

Woodland Arboretum contains nearly 200 species of trees, including the state’s largest and oldest Birdnest Spruce and Magnolia trees. The Wright Iris Garden is filled with iris plants donated from the extensive garden of Susan and Horace Wright (Horace was a nephew of Wilbur and Orville Wright) of nearby Bellbrook, Ohio.

On Sunday, July 20, 2003, the Woodland Cemetery Foundation hosted a special memorial and wreath-laying ceremony at the Wright family plot. Participants included Wright descendants Stephen Wright and Amanda Wright Lane; astronaut Neil Armstrong, whose moonwalk occurred exactly 34 years earlier; astronaut John Glenn; and the commander of Aeronautical Systems Center, Lieutenant General Richard V. Reynolds. The ceremony was marked by a flyover of the Wright “B” Flyer.

Sources: “‘Bodily remains buried, but spirit lives on.’” *Dayton Daily News*, July 21, 2003, p. A1; personal tour by Jim Sandegren, Woodland historian, fall 2002.



The Wright family memorial stone. Wilbur and Orville, their sister Katharine, and their parents Milton and Susan Wright are buried in the family plot.



The Patterson family knoll is marked by a large memorial stone inscribed with the names of those interred.



Poet Paul Laurence Dunbar’s final resting place lies under a willow tree.

In the 1840s, an abolitionist speaking in front of Dayton's original courthouse was pelted with rotten eggs by a dissenting crowd. During the same period, anti-abolitionists attacked a church hosting an abolitionist speaker. The mob invaded the church, drove the speaker from the pulpit, hacked the pulpit, and even tore the Bible to pieces.¹⁰² When Abraham Lincoln addressed the issue of slavery from the "new" courthouse (i.e., the present "old" courthouse) steps in 1859, Dayton's *Empire* newspaper observed that while "Mr. Lincoln is a seductive reasoner...his speech was a network of fallacies and false assumptions."¹⁰³ One of Dayton's most prominent citizens and one-time congressman, Clement Vallandigham, would have agreed. But not all his fellow citizens agreed with him. During the war, Vallandigham's home was invaded by Union soldiers, who took him into custody and deported him to the Confederacy.¹⁰⁴ Another anti-war Democrat was Dr. Reeve. Charlotte Reeve Conover recalled years later how she and her sisters listened in hushed silence from their bedroom window as local pro-Union toughs debated whether to fire the Reeve's home. They did not,¹⁰⁵ but others were not so lucky. In retribution for the Vallandigham affair, a mob attacked the pro-Unionist Dayton *Journal's* offices and set them ablaze.¹⁰⁶ Shortly afterwards, the editor of the rival *Empire* newspaper was shot dead in broad daylight. Dr. Reeve could do nothing for him.¹⁰⁷

Charlotte Reeve Conover remembered many other things about the Civil War: the initial hoopla that accompanied Lincoln's

call for troops following the attack on Fort Sumter; the handwritten lists of battle casualties posted at the courthouse on the corner of Third and Main streets; military funeral processions down Brown Street, flags at half staff, drums muffled, to the new city cemetery; the increasing number of older women and young ladies dressed in mourning black; the jubilation at news of General Robert E. Lee's surrender; the profound mourning and return to black crepe following Lincoln's assassination.¹⁰⁸

LAYING THE FOUNDATIONS OF MODERN DAYTON

The Civil War brought down the curtain on the first half of nineteenth-century America. Dayton was no exception. The founding generation of Daytonians, moreover, had largely passed from the scene, leaving little trace save in the fading memories of their aging progeny and on tombstones in the Fifth Street cemetery. Even there they did not long rest in peace. The expanding city needed the space—now prime real estate—and the graves were dug up—with little show of ceremony or sentiment (local schoolboys watched the lugubrious procedure while perched buzzard-like atop the surrounding palisade fence)—and transferred wholesale to the new Woodland Cemetery located on a hillside overlooking town. Meanwhile, forces were set afoot following the Civil War that transformed, in a single lifetime,

the way ordinary men and women lived and dressed and thought about themselves.

Survivors of the twentieth century often like to brag about all the changes that have occurred in the 100 years since 1900—the automobile, the airplane, and spaceflight. However, from the standpoint of how ordinary people live their lives, there could be no more dramatic period of change than the nineteenth century. To take but one example: Milton Wright was born in 1832 in a log cabin in Indiana.¹⁰⁹ During his lifetime, he moved his family to several different domiciles, the last a modest-sized, wood-frame house at 7 Hawthorne Street in Dayton.¹¹⁰ When his sons, flush with success and riches from the marketing of their flying machine, planned a new home, Wilbur insisted that his bedroom have a private bathroom—and a large one at that.¹¹¹ This was thought neither extraordinary nor extravagant by the two buttoned-down bachelors. Although the Wrights were building a mansion, any reasonably commodious home in Lower Dayton View at that time had a bathroom off each of three or four bedrooms.

Indoor bathrooms meant indoor plumbing and central heating. All this had begun to invade living spaces of upper class Daytonians as early as the 1870s and 1880s. Well before Louis Pasteur and Joseph Lister's research into germ theory were published and widely disseminated, people associated bad water—or the malodorous "vapors" that wafted above it—with illness and disease.¹¹² Dayton had suffered recurrent bouts of typhoid, malaria, and cholera since the 1820s. Joseph Peirce and Benjamin Van Cleve succumbed to malaria in 1821.¹¹³ Cholera epidemics were particularly devastating. In 1833, a Dayton minister buried his entire congregation of 42 souls after an outbreak of the disease.¹¹⁴ The mayor and city council called for fasting and prayer—no better solution than that available to their medieval European ancestors centuries before. Perhaps at the instigation of returning Civil War veterans, who learned the hard way to secure potable water when encamped, Daytonians voted, in 1869, to engage the Holly Water Company to build water purification works to secure safe drinking water.¹¹⁵

About the same time, Daytonians decided to begin "enclosing" livestock that hitherto had been allowed to wander around town in search of fodder.¹¹⁶ Up to that time, "a mother pig with her brood could nestle comfortably in a puddle on the corner of Jefferson and Fourth streets without menace from her human neighbors. Geese



Hawthorn Hill, where Orville Wright lived from 1914 until his death in 1948 (*Library of Congress, Papers of Wilbur and Orville Wright*)



Dayton skyline, about 1930. Visible are (left to right) Steele High School, Biltmore Hotel, Dayton YMCA, Rike-Kumler Department Store, Miami Hotel, and the United Brethren Building (later known as City Centre). (Dayton Metro Library)

squawked their way across our principal thoroughfares without molestation.”¹¹⁷ Cows going to and from pasture regularly got “high” on the mash left over from the local brewery. An elderly Charlotte Reeve Conover remembered Dayton in those days as “a mud-bespattered, garbage-ridden, rubbish-littered little town.”¹¹⁸

But more than the stench of pig, horse, and cow manure—and swarms of flies—was wafting in the air. *Change*—rapid change—was about to descend on Dayton, as it did over towns and cities throughout the entire North American continent in the last quarter of the nineteenth century.

Daytonians had become used to communicating with their fellow countrymen near and far, *at the speed of light*, with the introduction of the telegraph. The first wire for this purpose was strung in Dayton, probably in the 1850s.¹¹⁹ However, by the late 1880s, the skies overhead would darken with a veritable cat’s cradle of wires, as first the telephone and then electric power penetrated the Miami Valley. This all began in 1878, when the enterprising George Phillips read about the telephone, traveled to Boston to see a demo, and returned to Dayton with the glad tidings. In less than three years, Dayton had a phone directory and long-distance

connections with West Milton, Piqua, Troy, Xenia, and Miamisburg. Electric lighting was not far behind.¹²⁰ In 1882, a demonstration, *à la* Menlo Park, illuminated Dayton’s commons. By the end of the decade, the little urchins who lit Dayton’s gas street lamps every evening, ladder and torch in hand, were permanently out of a job: the price of progress.¹²¹

While welcoming potable water, the telephone, and electric lighting—much of which was paid for by personal subscription—Daytonians were in a rut when it came to street and sidewalk improvement and the installation of sewers, and the rut was getting deeper year by year. Stone sidewalks had been installed before mid-century in the center of town, but radiated only a couple of blocks in each direction.¹²² No sewers existed; backyard cesspools were common. If humanity itself had bathed more often in the nineteenth century, the stench might have been more noticeable. City streets remained, as late as the 1880s, as they had been in the 1790s, dusty or muddy, depending on the season. This had been tolerable for much of the first half of the nineteenth century, when Dayton numbered under 10,000 souls. Except for an occasional buggy or dray, there was not much traffic at high noon,

even in the center of town. However, by the 1890s, Dayton’s populace had swelled to more than 60,000.¹²³ Civic leaders and local businessmen began to fret over Dayton’s backwardness.

That backwardness embarrassed city worthies in 1884, when Dayton hosted a reunion for Civil War veterans of the Grand Army of the Republic. The highlight of the occasion was the unveiling of the soldiers’ monument at the intersection of Main and Water streets (subsequently renamed Monument Avenue). As the veterans, their families, politicians, brass band, and citizens assembled and gazed upon the lofty column, the heavens opened up with a torrent of rain that, over the course of the next several hours, turned the streets into a muddy quagmire.¹²⁴ Dayton and her veterans deserved better.

However, building sewers and paving miles of city streets was an expensive proposition, one that needed the support of the entire community. Unlike bridge traffic, moreover, it could not be restricted and paid for by tolls. The standpatters held their own until 1889. In that year, William Huffman (whose son, Torrence, a dozen years later put his pasture at the disposal of pioneering aviation¹²⁵) headed up a committee of three commissioners who



Horse and trolley car for the Southern Ohio Lunatic Asylum located on Wayne Avenue. The asylum later became the Dayton State Hospital. (Dayton Metro Library)



Steele High School and the soldiers' monument in downtown Dayton, early 1900s (Library of Congress, Detroit Publishing Company Photograph Collection)

promoted street paving and covered sewers. Subsequently, a committee of 100 concerned citizens approved a paving scheme. The following year, a system of storm and sanitary sewers was also undertaken.¹²⁶ Over the next decade, Dayton began to emerge from the medieval mire and muck that had characterized it since the first settlers clambered up the slippery banks of the Great Miami River during the spring rains of 1796.

During the last quarter of the century, Dayton also faced up to other problems of urban life. In the 1870s, the battle with demon rum was joined as the militant Temperance Movement hit Dayton and hit it hard. Ladies who otherwise subscribed to the nineteenth-century German housewives' dictum of "Kinder, Kirche, Küche" ("children, church, and kitchen") marched down to Sixth Street, invaded places of masculine refreshment there, and emptied bottles and barrels of spirits into the gutter.¹²⁷ That same decade, Dayton established its first professional police force of 35 men to maintain law and order.¹²⁸ (Lest readers infer a connection between these events, let them be assured by the chronology: the police force was established in 1873; the women marched in 1874. The efficiency—or *prudence*—of the police force was another matter.)

Twenty years later, in 1890, Dayton finally established a full-time, professional fire department. Fire fighting in Dayton had come a long way since the city organized the first volunteer force in the 1820s.¹²⁹ Volunteer crews had long contributed through their inefficiency—sometimes malicious—to urban clearance. Many a public eyesore was consumed beyond saving by the time the fire engine showed up! The first steam engine was introduced in the 1860s. In 1905, the fire

department acquired its first gasoline-powered engine,¹³⁰ and put its last two horses out to pasture in 1917.¹³¹

But not all improvements in urban life were of a strictly public nature or introduced by local government initiative. During the 1870s, Dayton also got its first full-time hospital when the Sisters of the Poor of St. Francis established what became St. Elizabeth's Hospital. Dr. Reeve survived his wartime politics to become the new institution's first chief of staff.¹³² In 1870, Dayton formed the Young Men's Christian Association (YMCA), with a young David Sinclair as recording secretary.¹³³ Sometime later, Dayton's young ladies formed the Women's Christian Association, the forerunner of the Young Women's Christian Association (YWCA).¹³⁴

In the following decade, the public library moved from its lodgings on the third floor of the city building to a home of its own, a grand Romanesque-revival structure that presided in turreted majesty over Cooper Park for the next 70 years.¹³⁵ On the third floor of the library, a natural history museum contained assorted stuffed birds and animals whose feathers and pelts would save the library staff from the wet and cold 15 years later during the Great Flood (see below).

INDUSTRIAL GIANT

Local entrepreneurs also introduced a bevy of commercial and civic improvements. The leader of the pack was John H. Patterson. By the end of the century, Patterson's National Cash Register Company dominated Dayton's cityscape south of town on the land that

his grandfather had purchased from Daniel Cooper nearly a century earlier.¹³⁶ More significantly, the manufacture and retailing of the cash register provided a *point départ* for one of the greatest innovators—and humanitarians—in civic, commercial, and industrial history. Patterson pioneered product marketing, advertising, and modern salesmanship. After building an industrial giant in Dayton's backyard, he also pioneered schemes for industrial welfare, many of which were adopted by other companies. He did not stop there. When he huffed and puffed, all Dayton took notice. He spearheaded the drive for city-manager government; managed flood relief during the 1913 deluge; and led the drive for flood control in its aftermath.¹³⁷ He died in 1922, at the outset of a campaign that he personally instigated to keep the Air Service's research and development work in his hometown.¹³⁸

But Patterson was not the only Dayton entrepreneur with outsized plans and ego to match. Take, for instance, the leaders of the transportation industry, of which Dayton had a surfeit. As the nineteenth gave way to the twentieth century, America was on the move. The drive for the western frontier may have ended in 1890, but the *pace* of transportation picked up in a hurry. Had the 1913 flood not swept away much of Dayton's equine population, there would, in a few years, have been a mass final exit to the glue factory as the horse gave way to other, more efficient means of transportation. The bicycle and the automobile both got transportation in Dayton rolling at the turn of the century and gave birth to dozens of new manufacturing enterprises.

The advent of the modern, two-wheeled "safety" bicycle hastened the rate of change, not only in transportation, but in

IF WALLS COULD TALK

Dayton is the birthplace of aviation, but few Daytonians are aware of the aviation milestones that involved two of its oldest downtown buildings: the Reibold Building at 117 South Main Street, and the Centre City Building at 40 South Main.

On May 1, 1923, Dayton inventor Luzern Custer (who created the first, powered wheelchair) took off from the top of the Reibold Building in a “jumping” balloon and landed 22 miles away, one mile west of Middletown, setting a record for the most distance covered in an hour’s time by a balloon of its type. On the following day, Custer made another memorable balloon trip from the top of the Reibold Building, when he tried to welcome two McCook Field test pilots as they flew over Dayton on the first successful, coast-to-coast, nonstop flight. Custer took off from Reibold with a “Dayton” sign streaming from his balloon. Unfortunately, Custer miscalculated the wind’s direction and hit some wires and a smokestack before narrowly missing an outhouse on Fourth Street. After getting clear, he got caught in a downdraft and almost crashed into a speeding locomotive in north Dayton. Custer eventually came to earth in a cornfield, but the two history-making McCook pilots—Oakley G. Kelly and John A. Macready—never did see his sign because they flew over Dayton two hours later than anticipated.

The United Brethren Building—now known as the Centre City Building—was the site of another aviation milestone: In September 1918, McCook Field contractor Lawrence Sperry, Sr., of Long Island, New York, wanted to demonstrate his new self-contained parachute design. The typical parachute of this period was stored in the plane until the airman needed to bail out, and it often failed to open; Sperry designed

his parachute to be worn by the airman and manually opened. Eager to try out his new invention, Sperry jumped out of a plane over McCook Field. He had no problem opening his parachute, but a gust of wind took control of his chute and carried him over the Great Miami River through downtown Dayton. Crowds of people looked on helplessly as his chute snagged on a corner of the United Brethren Building, 11 floors above the earth. Sperry pulled himself up onto a ledge, straightened out his chute, and then floated down into the net of the firemen below.

So the next time you’re walking around downtown Dayton, give the grand old buildings at the corners of Fourth and Main a second look—and a closer listen.

Sources: Mary Ann Johnson, *A Field Guide to Flight: On the Aviation Trail in Dayton, Ohio*, revised edition (Dayton, 1996); “Reibold Building” and “United Brethren Building” viewed online September 25, 2003, at <http://www.skyscrapers.com>; James Custer Collection.



Intrigued spectators gather on top of the Reibold Building on May 2, 1923, as Luzern Custer’s balloon is inflated with 40 cylinders of hydrogen in preparation for a failed but thrill-filled voyage to greet John A. Macready and Oakley G. Kelly as they flew over Dayton on the first nonstop, intercontinental flight in history. (James Custer)



All systems are “go” for Luzern Custer, center, as he prepares to lift off from the Reibold Building. The man on the left is holding the statoscope that Custer designed to determine if his balloon was ascending or descending, especially helpful to know when passing through a cloud. (James Custer)



General Billy Mitchell called Lawrence Sperry, Sr., one of the greatest minds in the history of aviation development. In addition to designing an improved, self-contained parachute, which he tested over Dayton, Sperry developed the first amphibious flying boat, a three-way gyro-stabilizer to steer bombing planes, a wing hook to enable aerial refueling, retractable landing gear, aircraft lights for night flying, the gyroscopic bank and turn indicator, radio-controlled aerial torpedoes, and the Sperry Messenger biplane. (United States Air Force Museum)



The Centre City Building (formerly known as the United Brethren Building) stood 14 stories tall when Sperry’s chute got snagged on the eleventh-story ledge, but the addition of a tower in 1924 made it one of the tallest concrete structures in the world. Its Room 1310 was once the office of the Wright Company Exhibition Team. (Dayton Metro Library)



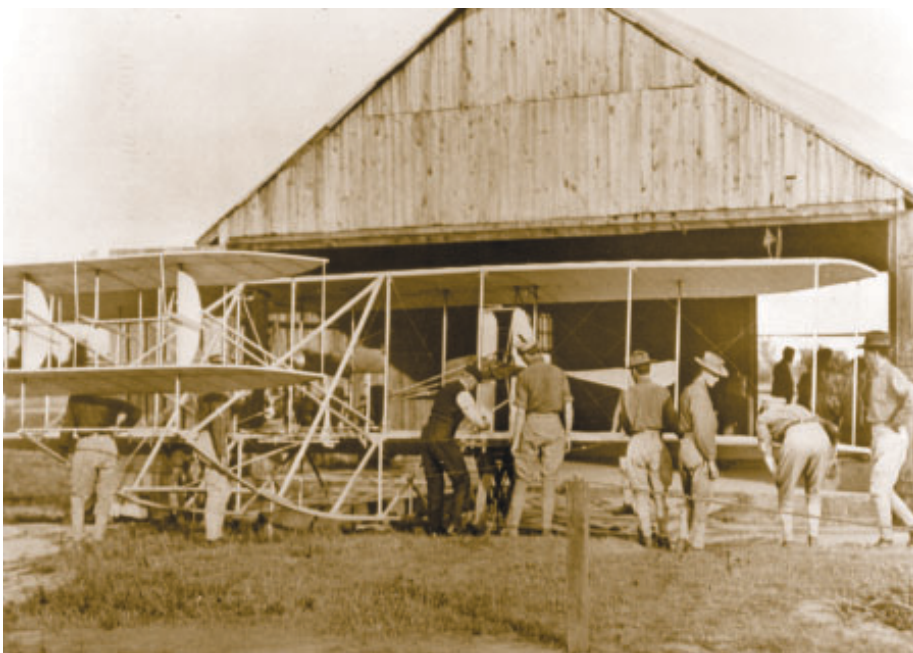
The Reibold Building before its south and north annexes were built (Dayton Metro Library)



The Women's Bicycle Club was one of numerous bicycle clubs that sprang up in the Dayton area at the turn of the twentieth century. (Dayton Metro Library)



The Stoddard Manufacturing Company on Third and Bainbridge streets built farm machinery until 1905, when it turned to the production of automobiles. At that time, the name changed to the Dayton Motor Car Company. (Dayton Metro Library)



Preparing the Military Flyer for its tests at Fort Myer, Virginia, 1909

other, less obvious areas, too. Horses required constant care and feeding. For those living in town without the wherewithal to maintain a horse, there was the daily necessity of walking to the local livery to hire out an animal to ride or pull one's carriage. The bicycle could be parked anywhere near or even in one's home. Aside from occasional lubrication, a bicycle needed little maintenance. Bicycles were altogether cheaper to own and operate than horses and thus opened up to a whole segment of the population opportunities for rapid transport that hitherto had been available only to the well-off. The bicycle, moreover, emancipated women and even spawned new styles in clothing for young ladies that were less restrictive than late Victorian attire.¹³⁹ Bicycle clubs for men and women soon sprang up, Dayton's Bicycle Club being one of the oldest and most exclusive.¹⁴⁰ Finally, the bicycle encouraged the development of a whole industry of small-time manufacturers and proved, for one Dayton firm in particular, to be the spring-board to a higher plane of achievement.

If the bicycle provided rapid transportation for the masses, the automobile, since its advent in Germany in the 1880s and 1890s,¹⁴¹ afforded the comforts of the carriage—without the inconvenience of the horse—for the well-to-do. In the first two decades of the twentieth century, Dayton sprouted a number of automobile companies. In 1905, the Stoddards, father and son, who had made their fortune in agricultural equipment, turned to making automobiles after the younger Stoddard returned from Europe, where he toured continental auto manufacturers.¹⁴² The Stoddards competed in those years with such other companies in town as the Barney & Smith Car Company, the Speedwell Motor Car Company,¹⁴³ the Courier Car Company,¹⁴⁴ the Dayton Electric Car Company,¹⁴⁵ the Darling Motor Car Company, the Apple Automobile Company, and the Custer Specialty Company.¹⁴⁶ The Jitney Transportation Company began manufacturing 12-passenger gasoline buses in 1915 that gave the trolleys a run for the public's money.¹⁴⁷ Automobile manufacturers, in turn, spawned the start-up of other companies, such as the Dayton Steel Foundry that made small steel castings for cars,¹⁴⁸ and the Dayton Engineering Laboratories Company (Delco), which transformed the better ideas of Messrs. Deeds and Kettering into real mass-market money-makers.¹⁴⁹

THE FLYING STINSONS

Next to the Wright brothers, the Stinsons—Katherine, Marjorie, Edward, and Jack—are among the most influential siblings in American aviation history. Although they were from the southern United States, all of them had connections to Dayton, Ohio.

A decade before Amelia Earhart began setting aviation records, Katherine Stinson was thrilling crowds with her aviatrix skills. Katherine earned her wings in 1912 at age 21, making her the fourth woman in the United States to have a pilot's license. She was one of the first pilots to skywrite in the night and to loop-the-loop. When the United States entered World War I, Katherine tried to enlist as a military pilot but was turned down because she was a woman. Determined to serve, she became an ambulance driver in war-torn France. The long days and nights of ambulance duty in miserable weather wrecked Katherine's health, and she had to give up flying. After the war, she became an architect and managed her mother's Dayton property.

Inspired by her older sister's example, Marjorie Stinson decided at age 17 to become a flier and came to Dayton to attend the Wright School of Aviation. When Marjorie soloed on August 5, 1914, she became the youngest female in the United States to qualify for a pilot's license. She and sister Katherine opened their own flying school in San Antonio in 1916, and Marjorie trained over 80 men headed for air service in World War I. Marjorie was the first woman to be accepted into the U.S. Aviation Reserve Corps, and she later became a draftsman in the Aeronautical Division of the Navy.

Jack Stinson's extensive career in aviation began in 1916, when he became a mechanic's assistant at his sisters' flying school in San Antonio. In 1920, Katherine encouraged Jack and brother Edward to form the Stinson Aeroplane Company in Dayton. Out of a myriad of airplane parts, the Stinson brothers built a plane called the *Greyhound*, which had a mahogany-lined cockpit and an electric starter. After Edward crash-landed the plane, the business folded, and Jack worked in a variety of aviation jobs. He invented the push-pull elevator control used in early commercial airplanes. He also founded the Stinson School of Aviation in Long Island, New York, which provided hundreds of people with aviation training during World War II.

After his sisters became pilots, Edward Stinson wanted to fly, too, but they refused to teach him because of his recklessness and love of liquor. Undaunted, Eddie scraped up enough money to go to Dayton and took flying lessons at Huffman Prairie. After his sisters saw his determination to fly, they helped him get his pilot's license. Eddie became a top-notch aviator and served as a flight instructor at Kelly Field during World War I. In December 1921, he broke the world's record for airplane endurance when he flew for over 26 hours in an open cockpit in the dead of winter.

In 1920, Eddie returned to Dayton to join brother Jack in founding the Stinson Aeroplane Company. After the company closed its doors, Eddie refused to give up on his idea of Cadillac-style aircraft. In 1925, he and his friend Bill Mara went to Detroit to design and manufacture airplanes. There they built the SM-1 *Detroit*, the first airplane with a heated, soundproof cabin.

Stinson airplanes also caught the attention of carmaker Errett L. Cord, who had ventured into the aviation field when he and a colleague founded the Cord Corporation, incorporated in Dayton, Ohio, with the goal of developing a tri-motor airplane. In 1929, desiring to put radial air-cooled engines into Stinson's stylish and sturdy fuselages, Cord's corporation acquired the Stinson Aircraft Corporation (the Stinson Aeroplane Company incorporated in 1926), and Stinson soon became a very prosperous division. Although Eddie died in a plane crash in 1932 and the last Stinson aircraft rolled out in 1949, many Stinson airplanes are still in use today—a fitting tribute to the Stinson family's dedication to aviation excellence.

Sources: "Stinson," *Aerofiles*, viewed online September 23, 2003, at http://www.aerofiles.com/_stin.html; John A. Bluth, *Stinson Aircraft Company* (Chicago, 2002); *The Early Birds*, viewed online September 23, 2003, at <http://www.earlybirds.org/>; *Genealogy of the Flying Stinsons*, viewed online September 23, 2003, at <http://www.natchezbelle.org/oldtime/stinson.htm#jack>; Nancy Brown Martinez, Reference Coordinator, Center for Southwest Research, email to Robin Smith, June 9, 2003; *Otero-Stinson Family Papers*, University of New Mexico, Center for Southwest Research, Box 4, Folder 5, Letters between Katherine Stinson Otero and Emma Stinson, re: Dayton, OH property, 1923-25; Jerry Slade, personal communication with Robin Smith, July 10, 2003; *Stinson Aircraft Corporation*, viewed online September 23, 2003, at http://www.centennialofflight.gov/essay/GENERAL_AVIATION/stinson/GA2.htm; *Stinson School of Aviation* brochure, 1943; Debra L. Winegarten, *Katherine Stinson: The Flying Schoolgirl* (Austin, Texas, 2002).



Katherine Stinson was dubbed "Queen of the Air" by her many fans. She inspired three younger siblings to follow her into aviation. (*The Early Birds, Carroll Gray Aeronautical Collection*)



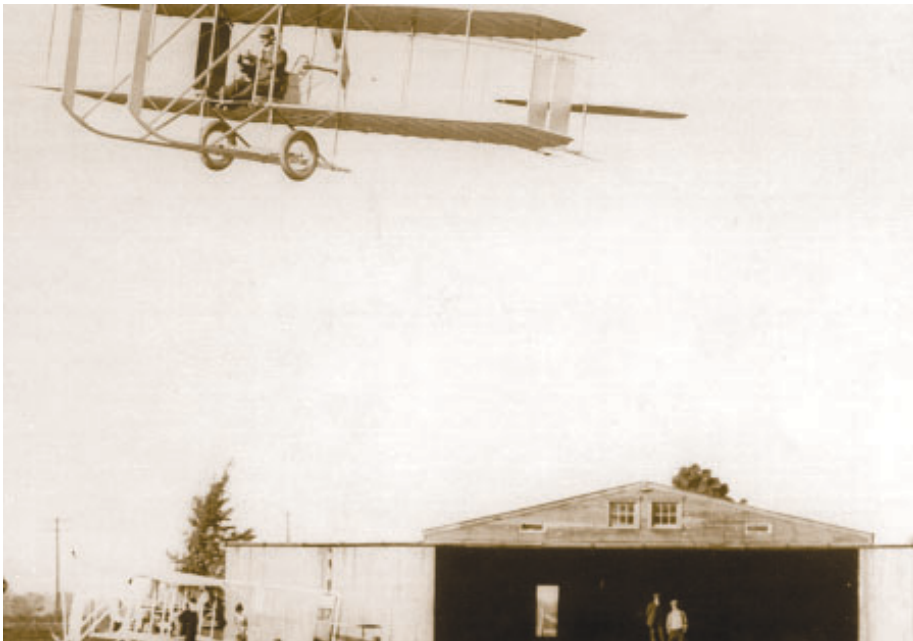
When 17-year-old Marjorie Stinson arrived in Dayton to take flying lessons, Orville Wright had her telegraph home to confirm she had parental permission. She is shown here with Katharine Wright, left, at Huffman Prairie, waiting for her turn to fly.



A rare shot of all four Stinson siblings: Jack and Marjorie are in the car, while Edward and Katherine sit in Katherine's plane. (*Center for Southwest Research, University of New Mexico*)



Wright Company factory, about 1911. The Wright Company was incorporated in 1909 and the first factory building was completed in 1910. A second building was added the following year. Orville sold the Wright Company in 1915. (*Library of Congress, Papers of Wilbur and Orville Wright*)



Taking wing at the Wright School of Aviation, Simms Station



Students at the Wright School of Aviation on Huffman Prairie, 1910. Left to right: Duval La Chapelle, A. L. Welsh, Orville Wright, James Davis, Ralph Johnstone, and Frank Coffyn

Despite its down-to-earth industrial successes, however, Dayton's future, in fact, was, by the end of the first decade of the twentieth century, literally up in the air. After escaping the hoopla back home, Wilbur and Orville Wright detrained in Washington on June 19, 1909,¹⁵⁰ uncrated and assembled their flying machine at Fort Myer, and resumed the Army-sponsored flight trials that had been interrupted the previous September when the Flyer had crashed and Lieutenant Thomas Selfridge became the first military airplane fatality in history.¹⁵¹ Orville, who had been severely injured in the accident, was back in the pilot seat. The final flight occurred on July 30. Orville and Lieutenant Benjamin Foulois took off around 5:30 p.m. When they landed, the Army staff and a large crowd of onlookers, including President Taft, broke out into cheers. Even Wilbur cracked a smile.¹⁵² The Army, which had put the brothers off for nearly five years, enthusiastically shelled out the contract price of \$25,000 plus a bonus of \$5,000 for beating the specified speed.¹⁵³ The Army had just got into the aviation business. Dayton, too.

On returning to their hometown, Wilbur and Orville established a company to build more airplanes for the Army and all other comers. The Wright Airplane Company, while headquartered in New York City, built its manufacturing facility in Dayton.¹⁵⁴ The Wrights also set up a flying school on Huffman Prairie¹⁵⁵ and began licensing exhibition fliers to drum up business.¹⁵⁶ At the same time, they also set out to defend their interests against the competition. The result was a decade-long patent war with the Curtiss Aeroplane Company.¹⁵⁷

Dayton was thus, in the first years of the twentieth century, an industrial and commercial center that based its wealth on state-of-the-art products, whether bicycles, automobiles, airplanes—or electric cash registers. The city counted more than 1,200 manufacturing enterprises, valued at more than \$45 million, in these years.¹⁵⁸ Not all of its industry was heavy. The Gem City was also a center for publishing: more than 51 different periodicals rolled off Dayton's printing presses every year, reaching more than one million subscribers nationwide.¹⁵⁹ The dry-goods trade achieved new heights when the Rike-Kumler company built a seven-story department store in the center of town, complete with elevator, restaurant, and its own power plant.¹⁶⁰ This was vertical integration of a kind that would have made John H. Patterson proud. NCR also had its own power plant, laundry, library, cafeteria, recreational facilities—

and more than 95 percent of the cash register business in the nation.

The inflow of wealth that these enterprises generated, moreover, was not wholly immured in mansions and estates of top executives, board members, and stockholders—there was much of this, too, of course—but was generously diffused throughout the community by company owners who, despite the exigencies of cutthroat capitalism, had still been reared on the Beatitudes and the Golden Rule. Patterson regularly began community meetings that he was wont to summon to the NCR Schoolhouse with hymn-singing and patriotic aires. This was not hypocrisy. Patterson possessed what Europeans called *noblesse oblige*, what Americans called good-neighborliness, but what Patterson himself would probably have simply considered good business. He kept the unions out of NCR by paying some of the highest wages in town. (When Kettering started work at NCR, he tried to return his second week's \$50 paycheck,

thinking that he had been engaged on a monthly basis!)¹⁶¹ Patterson *listened* to his workers and their complaints and redressed their grievances with better working conditions, including side benefits like company trips out-of-town and even abroad for workers and their families at cut-rate prices. He could, on occasion, also be ruthless. He regularly fired his most successful executives. Some theorized that this was to prevent rivals in the company. Perhaps nearer the truth was Patterson's sixth sense of the workings of the Peter Principle—more than 50 years before it was formulated. In any case, NCR's loss was the national business community's gain. As NCR cast off the successful before they reached their level of incompetence, other companies swallowed them up, hoping perhaps to imbibe a modicum of Patterson's success.¹⁶²

The diffusion of wealth among the high and low resulted in an unprecedented degree of home building and ownership

among Daytonians, making Dayton known nationwide as the “city of homes.”¹⁶³ The townhouses and mansions of the wealthy sat side-by-side the more modest, but still substantial, homes of the middle class, many built in close proximity to the downtown business district. Others perched, castle-like (the Stoddard mansion comes to mind), across the river in Dayton View. Still others clustered in wooded splendor among the far hills to the south. The latter would incorporate as the city of Oakwood—the first of Dayton's suburbs and an early harbinger of the upper and middle-class exodus from urban to suburban living of the post-World War II years.

During these years, Dayton also began to loom larger on the political map of Ohio and the nation. In 1912, James M. Cox, congressman and publisher of the *Dayton Daily News*, was elected governor of Ohio.¹⁶⁴ Eight years later, his track record as a reformer and proven ability to garner votes landed him the top spot on the Democratic ticket for president of the United States (see below).

But there were also clouds on the horizon nearing Dayton. In February 1912, John H. Patterson, together with 29 of his top executives at NCR, was indicted by a federal grand jury for restraint of trade in the cash register business.¹⁶⁵ Then, at the end of May, Wilbur Wright, returning from a trip to Boston, one of numerous and exhausting legal forays in the Wrights' patent war with Curtiss, succumbed to typhoid fever and was buried, in a *private graveside ceremony*, in Woodland Cemetery.¹⁶⁶

THE GREAT FLOOD

As 1912 passed to 1913, other clouds—no metaphor!—approached Dayton. The winter had been long with ice and snow still on the ground in many places in late March. As the snow slowly melted, heavy spring rains began to fall. The combination of frozen ground and abundant rainfall led to a rapid rising of the Great Miami and its tributaries.¹⁶⁷ Cities all along the watercourse, Piqua, Troy, but especially Dayton, were threatened with major flooding for the first time in more than a decade.

Dayton was not unused to floods. The first major inundation occurred in 1805, just nine years after Dayton's founding. Others followed in 1814, 1828, 1832, 1847, 1866, 1883, 1897, and 1898.¹⁶⁸ And these were



The Stoddard mansion, Lower Dayton View. Charles Stoddard built the Stoddard Manufacturing Company in the late 1880s to produce farm machinery. (*Dayton Metro Library*)



View of West Third Street looking east during the 1913 flood (Dayton Metro Library)

the *big* floods. There were numerous smaller inundations. The first attempt at flood control was undertaken with the building of the levee in 1812 with the assistance of Ohio's militia as it awaited its fate at the hands of the incompetent General Hull (see above). Over the years, as Dayton expanded, so too did the network of levees surrounding the city's riverside. These were not, of course, wholly water tight. The 1847 flood occurred largely because those living near the river had inadvertently weakened the levee by carrying off its dirt to fill potholes in the streets, thus undermining the structure.¹⁶⁹

But the flood of 1913 was different—far worse—than anything previously experienced. The approach of danger was

evident on March 24 as the Great Miami surged close to the top of the city's levees. Still the rain did not stop. Early on the morning of March 25, John H. Patterson, having inspected the levee with several of his entourage, immediately called a meeting back at NCR and began firing orders: prepare food, medicine, drinking water, warm clothing, bedding—and boats, lots of boats.¹⁷⁰ Within the hour, the Great Miami broke past the levee at two points and water cascaded in a six to 10-foot wall through Dayton's streets, smashing railroad cars against buildings, raising frame houses off their foundations, demolishing one entire tower of Steele High School and carrying off the institution's bronze lion. Raging water coursed rapidly along the old canal bisecting the city, then submerged it entirely. Horses drowned in stables and at hitching posts; a number

could be seen wildly attempting to hold their heads above water in the swirling current. A few found refuge on porch roofs and other high points of buildings—only to be shot by their owners when the waters subsided and they were left “high and dry” but with no means of climbing down.

Meanwhile, Dayton's citizens clambered as best they could to the upper floors, attics, and roofs of houses and buildings as the floodwaters invaded interior spaces. Old Dr. Reeve and his wife were among those trapped in their downtown home. “[The water] came so fast I had to hustle to get Mother [an invalid] to the stairs,” he wrote his daughter Charlotte. “Outside a raging torrent pours down Wilkinson Street, a mighty river down Third Street towards the west. No human being in sight, no sign of life—silent as the grave.”¹⁷¹ Afterwards he called it “a great calamity,

Panoramic view of the 1913 flood in Dayton (Library of Congress)





Aftermath of the 1913 flood in downtown Dayton. The flood caused more than \$100 million in damages. (Dayton Metro Library)

second, perhaps, to the Titanic, but to none other.” Governor Cox, quickly learning of the extent of the disaster through his grapevine at the *Daily News*,¹⁷² called it “the worst calamity since the Civil War.” The governor declared a state of emergency and called out the National Guard for Dayton and other affected communities.¹⁷³

The *Titanic* had gone to the bottom of the North Atlantic carrying about 1,500 of her passengers to their deaths the previous April¹⁷⁴ and was fresh in everyone’s minds. However, the loss of life (if not property) as a result of the 1913 flood was nowhere near as extensive as in the case of the ill-starred liner. Altogether around 123 persons succumbed to the flood in Dayton, through drowning or exposure. Another 155 perished in Hamilton and Piqua.¹⁷⁵ Around 1,450 horses drowned.¹⁷⁶ But Dr. Reeve and Governor Cox can be pardoned historical hyperbole. In fact, the tragedy might have been much worse without the prompt action of Patterson’s NCR, which produced more than 275 flat-bottom rowboats to carry stranded victims to warmth and safety and nourishment at The Cash.¹⁷⁷ It helped, too, to have a favorite son high and dry—if just barely¹⁷⁸—in the governor’s mansion in Columbus.

Water, moreover, was not the only cause of death and devastation. Fire broke out the night of March 25, as gas mains ruptured and exploded in several downtown locations. Soon, whole blocks of downtown real estate were ablaze, sending weary flood survivors scurrying from building to building through windows, along ledges, and over rooftops ahead of the flames. Then it began to snow. As the temperature dropped, the staff of the Dayton Public Library, ensconced in the library’s third floor natural history museum, reached out for anything to keep warm, including the furred pelts of long-dead, desiccated, display specimens. Someone thought another exhibit piece—an ancient Indian canoe—might be set afloat for help. Alas, it sank—a permanent loss to the museum though no loss of life.

All the ancient elements—fire, water, earth, and air—seemed to rise up against humanity and its twentieth-century hubris. *Nemesis*, as in olden times, seemed bent on taking her full measure. Then, as suddenly, she relented. The water crested on March 25 and was at 10 feet at the Main Street Bridge on April 5.¹⁷⁹

“Remember the promises you made in the attic!”¹⁸⁰ As Dayton’s *hoi polloi* set about shoveling the thick black muck once



James M. Cox served two terms as governor of Ohio, 1913 to 1915 and 1917 to 1921. He also unsuccessfully ran for president of the United States in 1920. Cox became owner and publisher of the *Dayton Daily News* in 1898. (Dayton Metro Library)

the flood waters subsided, the city’s high and mighty furrowed their brows as they considered how to ward off a similar catastrophe in the future. Property damage had been assessed at more than \$100 million (about \$1 billion in today’s currency).¹⁸¹ The loss of 45,000 books at the Dayton Public Library¹⁸² was deplorable; damage and destruction of banking records and business merchandise downtown was another matter altogether. The flood made national headlines due in no small part to Governor Cox’s news service; Dayton’s awful secret was out. If the Gem City were to continue to attract business and investment, something more would have to be done than cowering seasonally behind ever-higher dykes.

It was a turning point in Dayton’s history—indeed, a watershed. And, individually and collectively, her citizens rose to the occasion. Patterson, as usual, stood in the forefront of efforts to prevent future catastrophic flooding. He presided over the Dayton Flood Prevention Committee that set about raising money for the implementation of flood-prevention measures.¹⁸³ Mawkish when required,



ARTHUR MORGAN—THAT DAM ENGINEER



Arthur E. Morgan

The Miami Valley was long plagued with flooding caused by the confluence of the Great Miami, Mad, and Stillwater rivers, and Twin and Loramie creeks. Following a disastrous flood in 1913, Dayton businessmen united to create a valley-wide flood control system. The Miami Conservancy District was established and a young engineer, Arthur Morgan, hired to devise a regional flood control system. Although Morgan lacked a formal engineering degree, he had received practical engineering training while apprenticed to his father. At age 17, he began a three-year trip throughout the American northwest, where he observed the mechanics of water flow and developed an intense interest in hydraulic engineering. He read all available literature on hydraulics and soon came to specialize in the field, eventually founding the Morgan Engineering Company. At age 35, he designed and constructed what became a remarkably simple, but highly effective, flood control system for the Miami Valley. He built five large, passive dams over the five major waterways in the area and backed them with huge, dry reservoirs that collected water during rainstorms and gradually released it into the waterways downstream. Some engineers questioned his qualifications for designing and implementing such a large project, but Morgan's fundamental understanding of hydraulic engineering principles continues to be validated yearly as spring rains flood communities along the nation's waterways, with the exception of the Miami Valley, which has not experienced serious flooding since the completion of the Miami Conservancy project.

After completion of the project, Morgan served as president of Antioch College in Yellow Springs, Ohio, where he instituted a program to develop well-rounded individuals with technical skill and a strong interest in humanitarianism. His plan for "industrial education" at Antioch included a 10-week work-study program to promote self-discipline and provide students with the kind of practical, hands-on, real life experience that Morgan himself had received from his father. During his 15 years at the "New Antioch," the college evolved from an obscure school of little note to one of the most innovative and respected liberal arts institutions in the country. The climate of creativity at Antioch drew research activities, such as the Fels Institute for the Study of Human Development, to Yellow Springs. Morgan encouraged Antioch graduates to remain in the area, establish businesses, and serve the local community.

In 1931, President Franklin D. Roosevelt selected Morgan to initiate and design the vast development project known as the Tennessee Valley Authority (TVA), which was, at the time, the largest effort at regional development of natural resources ever attempted. During his tenure with the TVA, Morgan published a biography of a man he had long respected, the nineteenth-century Utopian, Edward Bellamy. Morgan was inspired by the thought of revitalizing America's small communities into vibrant villages that were "...such live, interesting adequate places to live in that young people of quality will prefer to stay there." Morgan envisioned the TVA as an agency

of social planning, working cooperatively with local communities and the existing power producers in order to maximize resources and improve the rural living standards in the area. His attempt to fulfill this vision was doomed by politics. Morgan's idealistic notion of using government to promote social welfare was opposed by those who saw the TVA as an economic engine. After six increasingly contentious years, President Roosevelt dismissed Morgan from his post.

Morgan returned to Yellow Springs, his faith in the viability of a Utopian society still strong. He founded Community Service, Inc., to promote recognition and development of small communities and devoted the remainder of his life to social change. Arthur Morgan remained in Yellow Springs until his death in 1975, at age 97. In many ways, the village of Yellow Springs is still influenced by Arthur Morgan's ideal of a Utopian community.

Today, the Miami Conservancy District's photographic archive is located at the Wright State University Special Collections Division and the Arthur Morgan papers are part of the Antioch College Antiochiana Collection.

Sources: Diana G. Cornelisse, *The Foulis House, Its Place in the History of the Miami Valley and American Aviation* (Aeronautical Systems Division History Office, Wright-Patterson Air Force Base, 1991); Arthur E. Morgan, "The Christian Register, May, 1945;" "Arthur Morgan," viewed online July 8, 2003, at http://www.phd.antioch.edu/Pages/APhDWeb_Prospectors/arthurmorgan.



Construction of one of five earthen flood dams in Arthur Morgan's flood control system, 1919. Cost of the construction amounted to more than \$30 million.

Patterson urged his fellow citizens “for the love of Dayton” to donate generously. To record the accumulation of treasure, he erected a gigantic cash register at the corner of Third and Main streets, beside the old courthouse, that displayed the rising total as the dollars rolled in.¹⁸⁴ When the initial haul fell short of the goal by nearly half a million, Patterson summoned his fellow citizens, high and low, to a patriotic pep rally at The Cash, followed by a parade up Main Street replete with fireworks and marching band to the center of town. It worked.¹⁸⁵

Tipped off by a local Democratic politico that the Dayton city council was about to appoint its own engineering firm, Patterson dispatched Edward Deeds to Memphis, Tennessee, where he contacted Arthur Morgan, an expert in dam construction and flood control.¹⁸⁶ Morgan came, saw, and consulted. His recommendation was a region-wide series of dry dams up and down the Miami Valley and its tributaries. Such a program was unprecedented in its scope. To fully implement it required moving hundreds of farmsteads and even a whole town—house by house. More dirt would be moved during its excavation than stone required for the Great Pyramid. Pharaoh at NCR loved it. Once more, he sent forth his grand vizier to drum up public support and cooperation. Deeds did his best, despite often raucous town meetings and even an occasional death threat from a soon-to-be uprooted farmer.¹⁸⁷

One hurdle had still to be cleared: the plan, because of its length and breadth trespassing so many different municipalities, county lines, and other jurisdictions, required special enabling legislation. Governor Cox guided a bill to this effect through the Ohio Legislature¹⁸⁸ and, on February 18, 1914, signed the Conservancy Act of Ohio into law. Its constitutionality was almost immediately challenged by those threatened with dispossession and other inconvenience by its implementation. An additional year of court fights followed before these challenges were beaten back and the court established the Conservancy District in June 1915,¹⁸⁹ and still another year before the court approved the district’s conservancy plan in November 1916.¹⁹⁰ Ground was finally broken on January 27, 1918,¹⁹¹ and the last hose full of earth fill piped into position in 1922.¹⁹² Nothing in government happens overnight—even with a push and shove from the private sector!



Miami Conservancy District’s steamboat, *Dorothy Jean*, named for John H. Patterson’s daughter, 1919. The steamboat pushed barges used for dredging the Miami River during construction of the flood control system.



CRADLE OF AVIATION

Fortunately, Mother Nature smiled benevolently on the enterprise throughout and stayed the worst of her storm clouds and thunderbolts. Not so the gods of war. Before Arthur Morgan had excavated one cubic foot of dirt, the crowned heads of Europe shook the very earth with repercussions felt all the way, in time, to Dayton and every city, town, and farmstead in America.

War broke out in Europe in August 1914. The “guns of August”¹⁹³ were not stilled until the 11th hour of the 11th day of the 11th month, 1918. The Great War, as it was called at the time—the First World War, since the end of the *Second World War* (1939-1945)—ended nearly a century of armed peace in Europe and baptized, in blood, the most violent century in human history.

President Woodrow Wilson “kept us out of war” for nearly three years, but when Germany resumed the indiscriminate sinking of neutral shipping early in 1917, the United States had had enough. On April 2, the president called upon Congress for a declaration of war on the *Reich*.¹⁹⁴ Four days later, Congress obliged. The United States at last entered the Great War and thereby stepped ever so reluctantly into



Edward Deeds did much for his beloved hometown. Once employees of Patterson’s at NCR, Deeds and Charles Kettering left to form Delco. Later Deeds returned to NCR to steer it through the Depression. He also played a large role in establishing and keeping military aeronautical research and development in Dayton. (*Moraine Farm*)

the limelight of the world stage.

Saul hath slain his thousands, and David his tens of thousands (1 Samuel 29: 5) would have been an appropriate text for a sermonizing pacifist at the time, for the Molech of world war had already claimed his *tens of hundreds of thousands*, nay, *millions*. America’s new allies, the French and British, preparing for the next massive German onslaught, came hat in hand requesting men and materiel, including thousands of the latest weapon of war—the airplane.¹⁹⁵

Of the latter item, however, the arsenal of democracy was nearly bare. When America entered the war, the U.S. Army had 55 airplanes, none of combat calibre.¹⁹⁶ While Europe had honed the aerial weapon during the previous three years of warfare, the United States government had frittered

away precious time in intricate legal and moral posturing that left it nearly paralyzed when the moment for action arrived. Since 1912, two years before the outbreak of hostilities, the Aero Club of America had been calling for the establishment of a national *aerodynamical laboratory* to benefit both the government and industry.¹⁹⁷ The most Congress would do, in 1915, was to establish a National *Advisory Committee* for Aeronautics (NACA)—and this on a last minute rider to the year’s naval appropriation.¹⁹⁸

Back in Dayton, sharp observers of the world scene viewed the situation with alarm and dismay. Charlotte Reeve Conover was one of these. It is not surprising that this local chronicler should have so wide ranging a vision. After marrying and raising a family, she decided to complete her



Research facilities at McCook Field, Dayton’s first military, aeronautical research and development site, 1922



Aerial view of McCook Field with Dayton in the background, 1921

COLONEL EDWARD A. DEEDS

Edward A. Deeds (1874-1960) was a key participant in the industrial heritage of the Dayton area. Along with Charles F. Kettering, he co-founded the Dayton Engineering Laboratories Company (known as Delco), the Dayton Metal Products Company, and the Domestic Engineering Company (later Delco-Light). Over the years, he also served as president of the National Cash Register Company (NCR), formed in 1884 by John H. Patterson, and was one of the founders of the Miami Conservancy District, created after the disastrous flood of the Miami River in 1913.

Deeds was also a prominent member of the Aircraft Production Board, a body created in April 1917 to coordinate all activities of the nation's aircraft manufacturers during the massive buildup for World War I. He served on this board until August 2, 1917, when he was appointed acting chief of the newly created Equipment Division of the Signal Corps. Three weeks later, he was commissioned as a colonel in the Signal Corps Reserve and was officially promoted to the position of chief of the Equipment Division, responsible for development and supply of all Army aircraft.

Deeds was a primary influence in the establishment of military aviation in the Dayton area. Not only did he suggest the site for Wilbur Wright Field, he also pushed for the construction of a temporary facility for the centralization of aviation research and development in the Dayton area. The latter facility became McCook Field, the direct predecessor to the research and development function at Wright Field, now part of Wright-Patterson Air Force Base.

Deeds' legacy to his community persists in many ways. His estate, Moraine Farm, which had one of the first private flying fields in the United States, currently serves as a retreat and guesthouse for distinguished visitors to NCR. In 1941, Deeds and his wife, Edith, presented a carillon tower to the city of Dayton. The tower became the focal point of the Carillon Historical Park, which opened to the public in 1950 and serves to educate the public on Dayton's heritage of inventiveness and pioneering spirit.

Source: Isaac F. Marcossan, *Colonel Deeds, Industrial Builder* (New York, 1947).



Edward Deeds, college age (*Moraine Farm*)

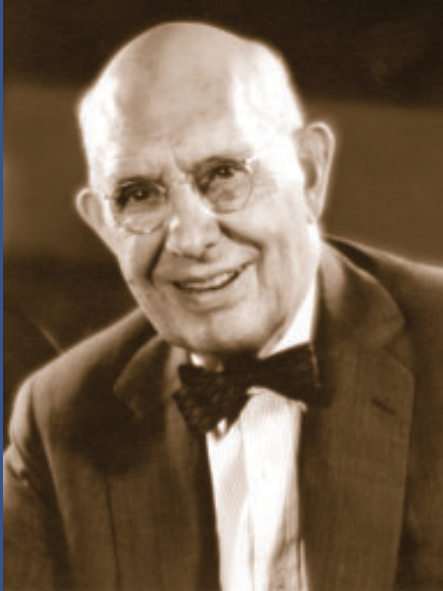


Edith Walton Deeds, college age (*Moraine Farm*)



The Deeds family relaxes on the porch of their home at Moraine Farm. After 1921, Deeds transformed his small farmhouse into the stately mansion located on Stroop Road. NCR now uses the home as temporary quarters for distinguished visitors. (*Moraine Farm*)

SELF-STARTER—THE BETTER IDEAS OF CHARLES F. KETTERING



Charles F. Kettering in later years

Before getting into the aviation business, Charles F. Kettering (1876-1958), born in Loudonville, Ohio, made significant contributions to the auto industry from Dayton. Kettering was one member of the “Barn Gang,” a group of innovative industrialists who often met in Edward Deeds’ barn on Central Avenue to discuss and tinker with technology. Kettering had perfected the electric cash register in 1904, while working at the National Cash Register Company. In 1909, he developed the self-starter for automobiles, which eliminated the need for the hand crank. He immediately received a contract to build more than 8,000 electric starters for the 1909 model Cadillac. From his company, the Dayton Engineering Laboratories Company (Delco), which he co-founded with Deeds, Kettering developed a number of other automotive inventions, including lighting and ignition systems, lacquer finishes, and leaded gasoline.

In addition to his role in the development of automobiles, Kettering can claim a spot in the development of aircraft. In 1912, his interest in aviation was fueled by a flight in a Wright brothers’ airplane. Five years later, Kettering joined with several Dayton industrialists to organize the Dayton Wright Airplane Company to tap into the economic potential of the military aircraft industry sure to blossom with United States’ entry into World War I. The Dayton Wright Airplane Company went on to manufacture more than 3,100 DH-4 biplanes with Liberty engines for the war effort, as well as 400 Standard SJ-1 trainers.

During World War I, Kettering also designed and built the world’s first guided missile, the Kettering Aerial Torpedo, nicknamed the “Bug.” The \$400 torpedo was a 300-pound, papier-mâché airplane with 12-foot cardboard wings and a 40-horsepower engine. It could carry 300 pounds of explosives at 50 mph. First tested on October 2, 1918, the flying bomb had impressive range and accuracy. The Army ordered a number of Bugs, but the bombs were not used in combat because officials worried about their reliability, especially when carrying explosives over Allied troops. Lessons learned from the Bug later contributed to radio-controlled drones.

Charles Kettering continued to have a leading role in the automotive and aircraft industry in his later years. General Motors Corporation purchased many of his businesses, including the Dayton Wright Airplane Company, and formed the General Motors Research Corporation. Kettering was appointed president of the corporation. With Tom Midgley, he developed the “anti-knock” Tetraethyl Lead gasoline for automobiles, which, when used as an aviation fuel, increased engine horsepower, safety, reliability, and speed. For his contributions to the field of aviation, Charles F. Kettering was enshrined in the National Aviation Hall of Fame in 1979.

Sources: “Charles Kettering,” viewed online May 5, 2003, at http://www.nationalaviation.org/museum_enshrinee; “A Starting Point: Dayton’s GM Story,” viewed online May 5, 2003, at <http://www.thinktv.org/program/archive/gmstory/gmstory.html>; Stuart W. Leslie, “The Bug: ‘Boss’ Kettering’s Cruise Missile,” *Timeline* August/September 1991, pp 42-51.



Kettering “Bugs” lined up on their launch rail (*Montgomery County Historical Society*)

education—at the University of Geneva in Switzerland.¹⁹⁹ This was not unusual for an offspring of Dr. Reeve. Before coming to Dayton in the 1850s, young Dr. Reeve had studied medicine in England and Germany and raised his daughter with an eye to the world beyond Third and Main. Writing of Dayton’s honoring the Wright brothers in 1909, she regretted in *Dayton, Ohio: An Intimate History*:

Then and there Dayton should have established those facilities which every inventor needs to carry on his work. Had this been done, in due time we should have developed into the manufacturing center of the world’s airplane production. It was with a gasp of incredulity that we suddenly perceived other nations outdistancing us. The French were making extraordinary strides; England was already giving more credit to some of her own workers than to the Wrights.²⁰⁰

Not to worry. Who should be in Washington, D.C., when the United States entered the war than the ubiquitous and indispensable Edward Deeds. And how did Deeds happen to be in the nation’s capital—just the right place at just the right time?

Deeds had gone to Washington early in 1917 at the request of Howard E. Coffin, the chairman of the Council of National Defense. The council was organizing a Munitions Standards Board and Coffin, who was also vice president of the Hudson Motor Company, had done business with Delco that Deeds and Kettering had established. Coffin had a high opinion of Deeds’ engineering ability and business sense.²⁰¹ When the Munitions Standards Board was disestablished, shortly after the United States entered the war, Coffin called upon Deeds to join the Aircraft Production Board.²⁰²

Deeds agreed. He had been very much interested in the airplane and aviation, at least since making personal acquaintance with Wilbur and Orville Wright in 1909.²⁰³ Indeed, when he acquired Moraine Farm from the proceeds of his Delco investment, Deeds set up an airfield—one of the first privately owned airfields in the country—building both a hangar there and a laboratory for aeronautical research and development. That was in 1916.²⁰⁴ Early the following year, he and Kettering invited Orville Wright to survey a tract of land just north of downtown Dayton, near Triangle Park, for a second airfield. Orville approved

the site and Deeds and Kettering purchased the land with the hope of establishing a public airport near the locus of Dayton’s business activity.²⁰⁵

In August 1917, Deeds was appointed acting chief and then chief of the Signal Corps’ Equipment Division. Along the way, he donned a uniform and was commissioned a full colonel in the Army.²⁰⁶ Thereafter, he was always “Colonel” Deeds. As chief of the Equipment Division, Deeds was in charge of all aircraft procurement for the Army. Congress had recently thrown more than a half billion dollars at the procurement problem and the public was beginning to clamor for “clouds” of warplanes to fill the sky and overwhelm the Hun.²⁰⁷

In fact, the procurement problem nearly overwhelmed the Army and its newly appointed colonel. On entering the war, the United States had virtually no infrastructure for developing and mass producing advanced warplanes. The airplane industry was small and undercapitalized and still in thrall to the Wright-Curtiss patent litigation.²⁰⁸ The Army had only a handful of engineers in Washington,²⁰⁹ who adjusted their spectacles and scratched their heads over contractor airplane designs before test articles were taken up to see if they could really fly. The Army’s aeronautical research and development occurred mostly in connection with repairing procured aircraft that didn’t fly very well, in a few scattered depots, the principal being at North Island, San Diego, California.²¹⁰

What to do? First, the Army needed more airfields and at least one center for conducting research and development on new model aircraft. *As it happened*, two of the sites were in Dayton, Ohio. Deeds, as president of the Miami Conservancy District, put, at the disposal of the Army, conservancy land to the northeast of the projected Huffman dry dam and adjacent to Huffman Prairie, where the Wright brothers had perfected their flying machine within sight of the Dayton-Springfield interurban line. This became Wilbur Wright Field in the summer of 1917.²¹¹ Wilbur Wright would in time become a logistics hub for the Air Service and later, as Patterson Field, for first the Air Corps and then the U.S. Air Force (see Chapter 2: Military Aviation Comes to Dayton, and Chapter 3: The Story of Air Force Logistics).

The R&D center was located in Dayton after brief consideration of Indianapolis.²¹² In the event, in October 1917, the Army determined to establish an “experimental engineering field” in Dayton on the North

Field site that Deeds, Kettering, and Orville Wright had scouted out the previous year and in which Deeds and Kettering had previously divested all personal ownership. Dedicated to the memory of the “Fighting McCooks” of Civil War fame, the new center was called “McCook Field” and opened for business in December 1917 (see Chapter 2: Military Aviation Comes to Dayton).

Upon opening its gates, McCook attracted to Dayton some of the top aeronautical scientists and engineers from around the nation and even the world.²¹³ This represented the second largest influx of outside talent to come to Dayton during the war. The largest was the immigration of African Americans, who came looking for work in northern wartime industry and remained to swell the numbers of their brethren who had helped build the Gem City during the previous century.

Both groups, as it turned out, settled heavily in the north and west of town. West Dayton had long been a black enclave. Dayton View and North Dayton were within bicycling distance of McCook Field. Within the year, the City Register recorded names that soon would be familiar, not only around town, but in some cases, around the country, even around the world.

DAYTON IN THE 1920s AND 1930s

Demographically, economically, socially, and intellectually, World War I inaugurated a new Dayton in a new century. It was this Dayton that cheered the returning doughboys as they trooped up Main Street one last time before doffing their uniforms, having made the world safe for democracy. On either side of their route of march were buildings that had looked down upon similar parades in previous years. Within a decade many of these structures were no longer left standing, having given way to larger, more modern buildings. Of the demolitions, the most historic was the Phillips House Hotel at Third and Main, which fell to the wrecking ball in 1926. It was the library of the Phillips House that had overawed little Charlotte Reeve in the 1850s. It was the Phillips House that offered hospitality to Mr. and Mrs. Lincoln in 1859,²¹⁴ and whose grand ballroom was the center of Dayton’s social scene from the age of pantaloons and hoop skirts almost to the flapper era. “So is the Phillips House and everything in it gone into the past,”



Spectators watch the International Air Races held at Wilbur Wright Field in 1924. The field commander's residence, now known as the Foullois House, is visible in the background.



Orville Wright, left, and Colonel Edward Deeds enjoy the 1924 International Air Races at Wilbur Wright Field. (Moraine Farm)

sighed an elderly Charlotte Reeve Conover, “to make way for a modern Dayton which we fear will neither remember nor care about those lovely, leisurely, fastidious, courteous and friendly days.”²¹⁵

However, it was not sentiment but *normalcy* that America craved once the war was over and the calendar turned to 1920. The man who introduced that term into the national lexicon was the editor of the *Marion Star* then serving in the United States Senate. Warren Gamaliel Harding *looked* like a president, said his handlers,²¹⁶ and a deadlocked Republican national convention wearily agreed. To oppose him, the Democratic Party turned to the two-time governor of Ohio, leading national Progressive, and campaigning editor of the *Dayton Daily News*, James Middleton Cox. For his running mate, Cox chose the assistant secretary of the Navy in the Wilson administration, the young, handsome, and aristocratic Franklin Delano Roosevelt of New York.²¹⁷ At the Montgomery County Fairgrounds on August 7, 1920, before a crowd of more than 100,000 Daytonians and assorted out-of-towners, Cox accepted his party's nomination.²¹⁸ The battle was joined and, for a brief moment, Dayton was in the national political spotlight.

Briefly. Cox and Roosevelt fought the good fight, campaigning vigorously for Wilson's League of Nations and completing the unfinished business of the New Freedom.²¹⁹ Harding spoke occasionally from the front porch of his home in Marion, Ohio, his speeches, in the inimitable quip of William Gibbs McAdoo, “an army of pompous phrases moving across the landscape in search of an idea.”²²⁰ Meanwhile, his vice presidential running mate, Calvin Coolidge of Massachusetts, evinced his trademark taciturnity. When the votes were counted, Harding and Coolidge won—by a landslide. When Harding chose as secretary of commerce the internationally respected Herbert Clark Hoover, Republican ascendancy was assured—and the course of the nation set—for the next dozen years.

But Dayton, in the meantime, fixed its sights on loftier goals. Billed as the “City of Factories” around the turn of the century, Dayton now styled itself “Air City of America.”²²¹ Daytonians really needed no reminding. Nearly every day the skies over downtown and points north were filled with a veritable aerial circus. McCook's engineers and test pilots were always up to something. In 1922, shoppers downtown were treated to the antics of the “radio dog,” a driverless vehicle that roamed the

downtown streets, dodging traffic and observing (just installed) traffic lights²²² while remotely controlled from a circling biplane overhead.²²³ That same year, McCook took its act northwards and demonstrated the possibility of “crop dusting” catalpa groves near Troy, Ohio.²²⁴ McCook’s main hangar bore the sign in big bold letters THIS FIELD IS SMALL, USE IT ALL. Sometimes it was too small and an airplane overshot the airfield and had to be fished out of the Great Miami River. Sometimes a plane crash-landed in a north-end backyard.²²⁵ When McCook’s pilots weren’t buzzing the Dayton skyline, their exploits elsewhere crowded the headlines of the Dayton papers.

The apex of all this activity came in 1924. That year Dayton was chosen to host the International Air Races. Air racing had grown to be not only a sport, but also a means of showing off and pushing to the limit the nation’s and the world’s latest aeronautical products and technologies. The site of the meet was Wilbur Wright Field,²²⁶ which had a longer runway than McCook and had regularly served as a flight test field for McCook’s Engineering Division. (In 1923, the Barling bomber, the world’s largest airplane, took off from Wilbur Wright.²²⁷ It was at Wilbur Wright, moreover, that a young Lieutenant Frank Stuart Patterson had been killed in a flight

test experiment in 1918. Thirteen years later, he would be memorialized when the field was renamed in his honor.)

Dayton had not only the air races to cheer it in 1924. Earlier in the year, the War Department had sealed a deal to make Dayton the permanent home for its aeronautical research and development work.²²⁸ Here is what happened.

McCook Field, from the very beginning, was never intended to be anything but a temporary set-up for the Army’s aeronautical engineering activities.²²⁹ The year before entering the war, Congress had authorized funding to build a massive aeronautical research and development complex at Hampton, Virginia.²³⁰ Alas, the work advanced too slowly to suit the Army so that, in 1917, the service built its own installation in Dayton.²³¹ However, McCook was built on land leased from the Dayton Metal Products Company²³²—and every year the firm raised the rent. McCook’s buildings, moreover, were built largely of wood—the prefab of the day—and presented a constant fire hazard.²³³ The takeoff and landing field was, as already noted, SMALL, and increasingly inadequate for larger and faster modern aircraft.

Meanwhile, work on the first wind tunnel at the NACA’s new Langley Memorial Laboratory at Hampton was completed in

1920,²³⁴ and the experimental program—open to the Army and Navy as well as industry and academe—began with a flourish. In 1922, moreover, the Navy inaugurated its Naval Research Laboratory (NRL) to carry on R&D, in part, complementary to the Naval Aircraft Factory. Not to be outdone, the Army began to scout sites to expand its own experimental and engineering activities.



Frederick Beck Patterson, left, with his father, John H. Patterson (*Mrs. Howell Jackson*)



Downtown Dayton, about 1923

The aged but indomitable John H. Patterson got wind of the Army's intentions and decided to make a bid for keeping the Air Service's R&D work—and payroll—in his hometown.²³⁵ Early in 1922, Patterson conferred with his son, Frederick—to whom he had turned over daily operation of NCR in 1921²³⁶—and other close associates.²³⁷ His actions were cut short, however, when, train bound for Atlantic City on May 7, he abruptly expired.²³⁸ After Frederick and the city of Dayton paused to bury Dayton's savior and first citizen, the planning and lobbying resumed. Frederick formed the Dayton Air Service Committee that raised more than \$400,000 to purchase land for a new airfield.²³⁹ The site chosen was in the floodplain below Huffman Dam, about five miles east of town.²⁴⁰ Dayton turned this land—more than 4,500 acres—over to the government in August 1924.²⁴¹ Dayton's future as America's "Air City" was assured for the remainder of the century.

But what to call the new airfield? Two names immediately sprang to mind—at least to Daytonians with an opinion on the matter: Patterson and Wright. The Pattersons, father and son, had led the fight to keep the Air Service's R&D work in Dayton. Besides this were the many contributions that John H. had made over the years to his hometown. The Pattersons, moreover, were of the first generation of pioneers to found Dayton. Were it not for Wilbur and Orville Wright, on the other hand, the city of Dayton might very well not have been in the aviation game at all. One airfield, to be sure, already bore the name of the elder brother—but hadn't the two worked as a team? Dayton newspapers ran a contest to poll public support for one or the other name. In the end, the War Department decided to name the field in honor of the Wrights.²⁴² Wright Field was dedicated on Columbus Day, 1927, with Orville Wright as guest of honor.²⁴³

The "new" Wright Field included the acreage of Wilbur Wright Field. Four years later, in 1931, the partisans of the Patterson *nom* were finally quieted when the portion of Wright Field northeast of Huffman Dam (i.e., the old Wilbur Wright Field) was separated from Wright Field and named in honor of John H.'s brother Frank's son Frank Stuart—the unlucky lieutenant who lost his life at Wilbur Wright Field during the war.²⁴⁴

During the balance of 1927 and into 1928, caravans of trucks and rail cars carted all that was portable from McCook Field across and out of town to Wright Field:

wind tunnels, propeller test rigs, dynamometers—even manhole covers bearing the designation U.S. Army Signal Corps. Nothing went to waste.²⁴⁵ When this had all been accomplished by the end of 1928, McCook, like ancient Carthage, was demolished and laid level with the dust. Indeed, the ground was regraded so that nearly nothing remained of America's first "Cradle of Aviation." Time to move on!

Dayton was also moving on and transmogrifying during the 1920s. Year by year, the face of the city changed—and changed dramatically—beneath the circling biplanes and occasional visiting blimps of McCook Field. In 1918, Messrs. Deeds and Kettering built a new, permanent home for the Engineers Club they had founded several years before. The new club, located on Monument Avenue across from Van Cleve Park, was a restrained, but dignified building of late antique Roman style that might have housed the Byzantine Exarch in old Ravenna. Instead, it afforded a magnificent view of airplanes flying above McCook Field to Orville Wright, who helped dedicate the building and who frequently lunched in modest obscurity in its ground floor dining room. (There, Theodore von Karman found him while visiting Dayton in 1926 and listened, fascinated, to how two local bicycle mechanics had mastered the laws of aerodynamics and solved the mystery of human flight without ever a lecture from Professor Ludwig Prandtl, Karman's *doktorvater*.)²⁴⁶ Next door to the club,

Deeds built the headquarters of the Miami Conservancy District. Dayton, then as now, was big enough to be interesting while small enough to be cozy for its movers and shakers!

During the 1920s, the Hawes and Stoddard properties on the crest of Lower Dayton View gave way to two outstanding monuments of civic architecture: the Dayton Art Institute and the Masonic Temple. (When the Stoddard mansion—a tribute to the opulence of high Victorian domestic architecture—fell to the wrecking



Frederick B. Patterson, 1920s president of the National Cash Register Company, also served as president of the Dayton Air Service Committee after the death of his father. (Mrs. Howell Jackson)



The Dayton Chamber of Commerce placed this sign near construction of the new Wright Field, illustrating the pride of Dayton citizens in acquiring "the largest aviation field in the world."

ENGINEERS CLUB OF DAYTON

The Engineers Club of Dayton, located on Monument Street, was built between 1914 and 1918. NCR executives, Charles F. Kettering and Edward Deeds, established the private club as an organization where professional businessmen and engineers from the Dayton community could come together and share ideas on scientific and social topics. Membership included leaders from the Dayton community, as well as civilian and military personnel from nearby McCook (and later Wright) Field. The elegant brick facility was far more luxurious than those to which McCook Field personnel were accustomed.

The stately building contained a 350-person auditorium, where Kettering taught science to school-aged children; a full dining room; barbershop; a game room with pool tables for gentlemen; and an elegant ladies lounge decorated in the design and color of fine, English Wedgwood china. Orville Wright (fourth president of the club) usually reserved a two-person table near the kitchen that was partitioned from the larger dining room for his privacy.

Over the years, many of the Miami Valley community's most innovative and successful people swelled the ranks of the Engineers Club and, more recently, membership eligibility expanded to include "...anyone of integrity, from any profession." Today, photographs and

artifacts line the walls to commemorate the inventive spirit and entrepreneurial savvy of past members.

Busts of Kettering and Deeds grace the lobby. These were sculpted by Gutzon Borglum, noted sculptor of Mount Rushmore and disappointed aircraft

designer who set into motion a congressional court martial of Colonel Deeds by accusing him of wartime profiteering during World War I.

Source: Fact Sheet: Engineers Club Tour, ver. 10-15-2002, Dayton Engineers Club.



This historical marker honoring the Wright brothers for the invention of the first practical airplane is located in front of the Dayton Engineers Club.



Engineers Club located on Monument Avenue, built between 1914 and 1918

ball, Charlotte Reeve Conover, no stranger to the Stoddard home, could not suppress a sigh: “*Sic transit gloria Stoddard!* Which may be bad Latin but allowable as sentiment.”²⁴⁷) The new Temple rivaled that of Solomon (nay, Herod!) in its dimensions but more nearly recalled, in its neoclassical facade, the Temple of Jupiter Optimus Maximus in ancient Rome. The Art Institute, a gift to the city from Mrs. Julia Shaw Patterson Carnell, was modeled on an Italian Renaissance palace of the quattrocento. Sitting majestically astride its

lofty perch above the Great Miami, it bespoke the Gem City’s pretensions to a higher cultural plateau.

Another specimen of Italianate quattrocento magnificence was a great pile of a building that arose on Monument Avenue in the late 1920s to house Dayton’s YMCA. The YMCA, which had always enjoyed commodious accommodations, abandoned its former headquarters at Third and Ludlow (when built, in 1909, it was the second largest YMCA building in the world) ultimately to the city of Dayton,

which thereafter made it serve as City Hall.²⁴⁸

In the late 1920s and early 1930s, other buildings also arose that defined the Dayton skyline till the 1970s and 1980s witnessed another spate of high-rise building activity. Most conspicuous were the Bell Telephone Building, a massively beautiful Art Deco structure that towered among the mansard roofs of the many Victorian homes still then extant on the west end of Dayton’s downtown; and the Hulman Building, whose vertical lines—if



The Dayton Art Institute, founded in 1919 as the Dayton Museum of Fine Arts, was originally located in a downtown mansion. Once its collections outgrew the space, Mrs. Julia Shaw Patterson Carnell funded the construction of a new museum, which was completed in 1930. (*Dayton Metro Library*)



The Dayton Freemasons originally had a remodeled church building in downtown Dayton. The new Masonic Temple (now called the Masonic Center) was finished in 1928 at an estimated cost of \$2.5 million. (*Dayton Metro Library*)



Julia Shaw Patterson Carnell underwrote the construction and subsequent operation of the Dayton Art Institute until her death in 1944. She was the mother of Frank Stuart Patterson, the test pilot who lost his life at Wilbur Wright Field and for whom Patterson Field was named. (*Dayton Metro Library*)

not altitude—emulated New York City’s Empire State Building.

Binding the city together—east and west of the Great Miami—were great concrete bridges, most built around the turn of the century, whose classical balustrades and graceful arches more nearly resembled those of some European capital of the eighteenth century—a London, Dresden, or Paris—than an American industrial metropolis. This city of lofty architecture—Dayton old and new—thus formed a vision of American urban civilization at its most urbane. That vision was hauntingly captured in many of the photographs of Dayton’s Jane Reece²⁴⁹—and none too soon! For in the 1960s, the vision was rudely dispelled by the building of the interstate highway that intruded upon, overrode, and bisected Dayton’s downtown. But, as President Calvin Coolidge once remarked matter-of-factly, “The business of America is business.” Keep on truckin’!



Rike-Kumler Department Store on the corner of Second and Main streets. The Miami Hotel is located to the left. Both of these buildings have been torn down. (Dayton Metro Library)



Main entrance to Wright Field, late 1930s. Building 12, which originally served as the Army Air Corps museum, is visible on the left.

But the circling aircraft of McCook Field and subsequently those of Wright Field also beheld developments, more transient though no less dramatic, than the changing Dayton skyline. In the 1920s, Dayton revisited the controversies, prejudices, and latent hatreds of 70 years before with a march of the white-sheeted Ku Klux Klan down Main Street to the Montgomery County Fairgrounds. It was the high point of Klan activity in Dayton, though a low point in interracial community relations among Dayton's citizens of European and African descent.²⁵⁰

Fortunately the rise of the Klan in the American heartland was short-lived. The 1920s was a period of growing prosperity for nearly all sectors of the economy—with the exception of the liquor industry. The 18th Amendment to the Constitution of the United States forbade the manufacture, selling, and consumption of alcoholic beverages. The successors of the ladies who marched for Temperance in the 1870s finally won the day and held their own for little more than a decade. The nation went dry and breweries went out of business.²⁵¹ Dayton's largest brewer, Adam Schantz, tried to market "lily water,"²⁵² but it was a poor substitute for what any enterprising gentleman—or lady!—could obtain under the counter, behind closed doors, and out of sight of "the Feds."

The aircraft industry also took a nosedive in the early 1920s. Colonel Deeds' Equipment Division may have had difficulty producing enough airplanes—but not airplane engines. The Liberty engine was, in fact, one of the great success stories of the war, one for which Deeds could take full credit. Alas, when the war ended, the Army had more engines—planes too!—than it knew what to do with. In addition to abruptly cancelling production contracts following the Armistice, the service also decided to dump on the market its excess aeronautical inventory. The result was a severe depression in the aircraft industry that lasted till the "Lindbergh boom" in the late 1920s.²⁵³

Charles Lindbergh flew into McCook Field on August 5, 1927,²⁵⁴ on his triumphal tour of the Midwest following his epoch-making flight from New York to Paris in May.²⁵⁵ It was perhaps the last great event in the event-filled history of the field, America's "Cradle of Aviation." A few days later, he flew over Rockport, Illinois, where young Fred Ascani looked up, saw the silvery *Spirit of St. Louis* soar across the sky, and decided that he, too, wanted to become a pilot.²⁵⁶ A dozen years later, as a senior West Point cadet, Ascani visited

Wright Field for the first time. Despite the tragic crash of a demonstration airplane on that occasion, Ascani persisted in his determination.²⁵⁷ In the late 1940s, he was second-in-command of Wright Field's Flight Test Division²⁵⁸ and, in the 1950s, as Director of Laboratories, supervised the most far-reaching reorganization of Wright Field's aeronautical research and development activity in history.²⁵⁹

The late 1920s and early 1930s was a revolutionary period in world aviation, one in which the nation's airplane manufacturers and the Army's Materiel Division at Wright Field played a pivotal role. McCook's Alfred Verville designed a cantilevered, low-wing monoplane racer with retractable landing gear and closed cockpit in 1922.²⁶⁰ It was ahead of its time by nearly 10 years. In the late 1920s, Wright Field's Carl Greene directed the development of a 55-foot, all-metal wing. The wing never flew. Instead, Wright Field's structural engineers subjected it to every kind of stress test imaginable. It passed every one with flying colors. Confident of the new, stressed-metal construction, Wright Field's Materiel Division pressured industry into thinking metal—and thinking *big*.²⁶¹

Over the next decade, Dayton's citizens were treated to many a strange sight in the skies over Third and Main. Since the Wright brothers adapted Octave Chanute's "two-surface machine" in 1900,²⁶² everyone assumed that any reliable airplane needed more than one wing with supporting struts and guy wires. However, starting in the early 1930s, this familiar perception was slowly effaced as a veritable pageant of strange aircraft cast shadowy planforms along Springfield Pike on the way to Wright Field: first the B-9 (1931),²⁶³ then the B-10 (1932),²⁶⁴ and ultimately, the B-17, which flew in from Boeing's plant in Seattle—nonstop—on August 20, 1935.²⁶⁵

Indeed, the revolution was sustained largely by the military since, by the early 1930s, the nation's commercial sector was once more in the grips of economic hard times.

The term "depression" is an economists' term that describes an abnormally low level of economic activity over a lengthy period of time. The Great Depression was the economic catastrophe that afflicted the industrialized world during much of the 1930s. Indeed, the word depression—in its less severe form, "recession"—has largely replaced the term "panic" that had been used to describe earlier severe economic downturns, the Panic of 1893²⁶⁶—which John H. Patterson predicted

and congratulated himself surviving—being perhaps the most memorable.²⁶⁷ Like earlier economic crises, the Depression began with a panic on the Wall Street stock and financial markets in October 1929. As the crisis spread and deepened, however, the word depression came to signify for a generation of Americans the whole awful experience of financial destitution.

The Depression came late to Dayton. While New York stockbrokers and moneymen were in freefall—sometimes literally—from the heights of the 1920s' bull market, Daytonians calmly looked up from the corner pavement of First and Main to watch the last course of bricks being laid for the new Biltmore Hotel. That was in November 1929.²⁶⁸ One year later, the Biltmore was in receivership and Daytonians were beginning to apprehend the full dimensions of the economic catastrophe engulfing the rest of the nation and world.²⁶⁹

Slowly, the home-building boom that filled out Dayton's neighborhoods in the 1920s and early 1930s, particularly to the north and south, atrophied, although it never ceased altogether. The line of farthest advance can be seen, even today, where the pattern of traditional, two-story brick and frame houses suddenly gives way to smaller, more cramped, two-story and "ranch" style homes of the post-World War II era.

Banks foreclosed on many a householder no longer able to meet mortgage payments. Then, the banks themselves closed. The president of the Winters Bank took his own life in 1934. The bank itself was saved only when Charles Kettering melodramatically walked into the first floor lobby and staved off a "run" on deposits by announcing that he would underwrite the institution, if need be.²⁷⁰ The homeless crowded into makeshift tent cities and lean-tos. One of these "Hoovervilles" metastasized on the banks of the Great Miami.

In the early 1930s, NCR recalled Edwards Deeds, who now became president and general manager of John H.'s tottering empire.²⁷¹ Deeds returned to his old office, which he found just as he left it more than 15 years earlier.²⁷² The terms of his earlier, abrupt departure were also "regularized." All forgiven if, perhaps, not quite forgotten.

In 1933, the nation retired Herbert Hoover and elected Governor Cox's running mate of 1920, Franklin D. Roosevelt, president. Roosevelt gave the banks a holiday and got many of the unemployed back to work again. "All we have to fear," he declared, "is fear itself!"²⁷³ It was not, of course,

DAYTON ON THE EVE OF WORLD WAR II

that easy, and the Depression ground on to the advent of World War II. It was, however, a New Deal, which the nation, with few cards left to play, hopefully seized upon.

At Wright and Patterson fields, the Army laid off few personnel although it did reduce the number of workdays—and thinned paychecks—to save money.²⁷⁴ Depressed conditions in industry, moreover, stanching the rapid turnover of personnel. More significantly, as the decade advanced, the Army began, for the first time since the mid-1920s, to hire more engineers. One of the newcomers was Captain Harry G. Armstrong. A medical doctor by training, Armstrong pioneered the study of human physiology in flight. In 1935, he teamed up with Carl Greene's Aircraft Branch engineers to design and test a pressurized-cabin aircraft. The result was the XC-35, which won the Collier Trophy in 1937—and contributed directly to development of the B-29 bomber.

In 1939, another young engineer full of brains and enterprise came to Wright Field. Frank Wattendorf arrived in Dayton to consult on the building of a giant new wind tunnel complex for the Materiel Division's laboratories. General Henry H. "Hap"

Arnold had broached the subject of upgrading the Air Corps' experimental program with Theodore von Karman earlier in the year, and the proposed wind tunnel complex was one result.²⁷⁵ Wattendorf was one of Karman's most trusted and gifted protégés, and had just returned to the United States from China, where he had overseen the design and construction of that nation's first, major wind tunnel facilities.²⁷⁶

Wattendorf took the measure not only of Wright Field but also real estate in Dayton. He purchased a number of run-down properties in McPhersontown and Lower Dayton View, which he proceeded to repair with the object of renting out. The winds of war were blowing again, and Dayton would be the center of much aircraft research and procurement. That meant an influx of personnel not unlike the previous war, 20 years earlier. The newcomers would need some place to live not too far from the field. Wattendorf made one of the properties his domicile while living in Dayton throughout the war. Indeed, Dayton became one of the "home bases" (one other was Washington, D.C.) for the much-traveled Wattendorf clan over the next four decades.

War broke out in Europe in September 1939, when Germany invaded Poland. Both Britain and France subsequently declared war on Germany. In the spring of 1940, Germany invaded France, this time overrunning the French and British defensive lines, forcing French capitulation



Charlotte Reeve Conover, doyenne of Dayton historians (Dayton Metro Library)



Congestion at the gate to Wright Field during World War II. The combined personnel strength of Wright and Patterson fields during the war increased to 50,000.

ON THE HOME FRONT IN THE MIAMI VALLEY

During World War II, all Americans made sacrifices, and few lives were left untouched. Women worked in defense factories or did volunteer work as civil defense and air raid wardens. They made hospital robes and gowns for patients in military hospitals, and knitted mittens, mufflers, socks, and sweaters for the fighting men overseas. They assembled Red Cross packages, containing sewing supplies, stationery, playing cards, cigarettes, soap, shoelaces, and razor blades, for the men at the front. They gave up their nylon stockings, which were made into parachutes, and their silk stockings were made into gunpowder bags. Recruiting posters at Rike's Department Store in downtown Dayton beckoned women to join the military, and many did. Several Daytonians even volunteered their dogs for military service, including Kay Carroll, wife of Brigadier General Carroll at Wright Field, who donated her beloved "Ruddy" (officially "Wright Rudder") to the cause of freedom.

Drives were held to collect all surplus tin, metal, and rubber. Rubber bands and erasers were no longer sold. Sugar, gasoline, coffee, fruit, vegetables, and meat were all rationed. Daytonians grew their own vegetables in "Victory Gardens" in their backyards. Women gave up their cooking fat to be made into gunpowder. The *Dayton Daily News* advised its readers to supply their own meat by raising rabbits.

Many Japanese-Americans, released from detention camps after proving their loyalty to the United States, resettled in Dayton through the War Relocation Authority (WRA) in Cincinnati. Dayton churches assisted them with housing and Dayton newspapers such as *The Journal Herald* championed their cause, stating that the Nisei (second-generation Japanese) had unjustly suffered persecution and hardship due to their race. Labor union members at the McCall (Printing) Corporation unanimously voted to allow the Nisei to work at their company. Other Nisei worked at the Red-Bar Battery Corporation, the Stroop Agricultural Company, and the Federal Housing Authority.

Thousands of Dayton children volunteered through the Office of Civilian Defense (located at the corner of Third and Ludlow) to hand-carry messages in case communication lines went down in the city. Children were trained to watch the skies for enemy aircraft and report anything unusual to Patterson and Wright fields. The Civil Air Patrol Cadets, founded in October 1942, provided aviation training to teenagers to prepare them for future aviation-related duties including search and rescue. Local Boy Scout troops helped with farm projects; Girl Scouts prepared food and served it to hospital patients; 4-H girls and boys grew vegetables and canned preserves. Children sold war bonds, bought war stamps, and collected much-needed rubber and scrap metal.

Literally the biggest contribution the citizens of Dayton made to the war effort was the USS *Dayton (CL-105)*, a \$31 million, 600-foot long, light cruiser; its construction was underwritten with war bonds bought by Daytonians. The *Dayton* served with Admiral Halsey's Task Force 38 and received a battle star for screening the fast carrier task groups and conducting shore bombardments against Japan in the summer of 1945.



Dayton Engineering Laboratories Company (Delco) plant in Dayton, Ohio, 1953. Delco supplied the military with artillery, aircraft engine parts, and other war materiel during World War II.

Commercial industries also mobilized to supply equipment and parts to the military. Companies felt duty-bound to provide the military with necessary materiel, but they also reaped the benefits of having a guaranteed buyer, low-interest loans, and tax credits. By the end of the war, thousands of companies had been contracted to produce war materiel. While the government tried to contract to companies with specific expertise, often it was forced to turn to smaller companies with industrial backgrounds unrelated to the products they were to manufacture. Companies in the Miami Valley were not exceptions. With Wright and Patterson fields as neighbors, the industries of Dayton and surrounding cities adjusted their regular assembly lines into military supply lines. Well-known corporations such as the National Cash Register Company (NCR) and Dayton Engineering Laboratories Company (Delco) answered the call for products to strengthen the military and its equipment (see Appendix 2 for comprehensive list of companies in the Dayton area that switched to production of war materiel.)

National Cash Register (NCR) undertook another role in the defense program. Electrical engineer Joseph Desch was tasked by the United States Navy to build a computer that could take on Germany's "Enigma," a secret message encoder used by German submarine crews for planning attack missions on Allied ships. Desch and his engineers created a new "Bombe" (the British had invented an earlier version that soon became obsolete) that decrypted the Nazi submarine messages. On April 20, 1943, female Navy personnel called WAVES (Women Appointed for Voluntary Emergency Service) arrived in Dayton to assemble the bombes. The WAVES lived at NCR's Sugar Camp, built by John H. Patterson many years before for his sales force, and worked at NCR's Building 26 on Main Street in downtown Dayton. (Some of the WAVES also received assignments to Wright Field.) After they built the bombes, the WAVES went to Washington, D.C., to put them into service. Thanks to "The Bombe," invented in Dayton, Ohio, thousands of American and British lives were saved, and the war was shortened by one to two years.

Sources: Philip Shiman, *Forging the Sword: Defense Production During the Cold War* (U.S. Army Corps of Engineers Research Laboratory, 1997), p 10; "World War II Industrial Facilities: Authorized Federal Funding," Heritage Research Center, Ltd., viewed online June 30, 2003, at <http://www.heritageresearch.com/War%20Facilities5.html>; Curt Dalton, *Home Sweet Home Front: Dayton During World War II*, (Dayton, 2000); Deborah Anderson, email to Robin Smith, dated July 28, 2003; *Dictionary of American Naval Fighting Ships (DANFS)*, viewed online August 22, 2003, at <http://www.hazegray.org/danfs/cruisers/c1105.txt>.



Working in factories with bombs and gunpowder was a dangerous occupation. In comparison to the 292,000 American soldiers killed in World War II and the 671,000 wounded, nearly 300,000 American factory workers were killed while performing their job duties and another million became disabled. Women accounted for 37,000 of those who died on the job and over 200,000 of the disabled. (*National Archives and Records Administration*)



NCR during World War II. A machine paints the exterior and interior of 37-mm high-explosive shells for the war effort. (*Library of Congress, Farm Security Administration, Office of War Information Photograph Collection*)



NCR employees were encouraged to come up with catchy slogans that expressed the company's determination to "do the best job in industry in backing up the Armed Forces." (*National Archives and Records Administration*)

and British retreat back across the channel. In the fall of 1940, the German *Luftwaffe* conducted intensive bombing raids on British military, industrial, and population centers, particularly London, in the so-called “Battle of Britain.” The British fought the Germans to a draw and then looked on in relief and near disbelief as the Germans, in June of 1941, turned on their erstwhile ally, the Soviet Union, and began a broad sweep across the Russian steppe toward Moscow.

As during the opening salvos of World War I, the United States remained a neutral observer during the first several years of hostilities. However, despite the strong pacifist and neutralist protests of the America Firsters—who included many eminent men and women, among them Charles Lindbergh—the nation began preparing for the worst. The most dramatic indication of United States’ resolve was President Roosevelt’s call upon the Materiel Division and aircraft industry for 50,000 warplanes, with 50,000 per year subsequently. That was in the summer of 1940.²⁷⁷

A year later, in the summer of 1941, the Materiel Division began to pour concrete

runways at Wright and Patterson fields. The old sod airfield would not be able to support the new class of long-range heavy bombers that the Materiel Division’s engineers had begun to solicit from industry. The B-29, with a range of 5,250 nautical miles, would enter service in 1943.²⁷⁸ A modified version was later prepared at Wright Field for carrying the atomic bomb. The B-36 was another airborne colossus that got its start when Wright Field issued performance specifications to industry in April 1941.²⁷⁹ A whole new facility—itsself colossal—was designed just to perform the static testing on the B-36.²⁸⁰

All these activities had their effect on Dayton. The wave of new recruits began to detrain in the Gem City in 1940 and 1941, booking rooms in hotels and boarding houses and renting apartments. Soon there would be a mini-building boom of mostly small, prefab houses for the city’s swelling military and industrial workforce. Indeed, rumors of war foreshortened the Depression in Dayton by nearly a year, as NCR and the city’s General Motors plants also began to retool for war work.²⁸¹

Old Dayton was giving way to the new,

in more ways than one. In 1940, Charlotte Reeve Conover died.²⁸² With her died memories stretching back nearly 85 years. When she was born, in 1855, Dayton was little more than a village and a few of Dayton’s founding generation still among the quick. She grew up hearing stories of Indian raids, the mustering of troops on the Dayton commons in 1812, the building of the canal, and the tragic fate of “Black Ben.” She herself witnessed the tumult of civil war on the very streets of her hometown and remembered being shunned by schoolmates as the daughter of the notorious Dr. Reeve. She recalled her debutante year in the 1870s, when young ladies giggled discretely at older, chaperoning women outfitted in out-of-fashion hoop skirts at dances in the Philips House ballroom. She remembered winter sleigh races on First Street and ice-skating on the Great Miami. She remembered—and published!—gossipy stories of the “First Families of Dayton.” Remarkably, she missed the 1913 flood—she was in New York City at the time—but got a day-by-day written account from her aged father, who barely survived the deluge himself in his Wilkinson Street home.²⁸³ Her invalid



B-17 bomber flies over downtown Dayton, late 1930s

mother died a month after the flood, possibly from the shock of it all.²⁸⁴ Her father—one of the most eminent physicians of his day—lived on until 1920.²⁸⁵ Already the author of numerous books and articles about Dayton and other things that amused her lively intellect, she pressed on to compile a massive, four-volume history of Dayton that she published in 1932.²⁸⁶ Shortly thereafter, she lost her sight, but not her energy and love for her hometown—and of life itself. “Honeysuckle smells as sweet,” she remarked a few years before her death, “when you’re too old to jump on the running board of a car.”²⁸⁷

Even a last whiff of honeysuckle was gainsaid many draft-age young Daytonians. As fall became winter 1941, the citizens of Dayton anxiously followed the headlines of the *Journal-Herald* and the *Dayton Daily News*. During November and into early December, the German Army inched its way toward Moscow through the bitter Russian winter. Who could doubt that the Nazi swastika would soon replace the Soviet star on the onion domes of the Kremlin! Then suddenly—unexpectedly—came a blow from the other side of the

world. As Daytonians sat down to Sunday dinner on the afternoon of December 7, news crackled across radios on Cox’s WHIO of a Japanese surprise attack on the main naval base of the American Pacific Fleet at Pearl Harbor, Hawaii.²⁸⁸ In his war message to Congress the following day, President Roosevelt declared it “a date which will live in infamy.” Hushed silence. Thunderous ovation. America was at war.

In little more than four months, a flight of B-25 bombers lumbered off the decks of the USS *Hornet*, destination Tokyo, Japan. In command was a former McCook Field test pilot, whose derring-do had always been done with the cold calculation of a professional engineer. Lieutenant Colonel James H. “Jimmy” Doolittle’s raid on the heart of the Japanese Empire gave the emperor and his generals a foretaste of their ultimate, inevitable defeat.²⁸⁹ It gave Americans renewed hope, and to the men and women of Wright and Patterson fields and citizens of Dayton, Ohio, justified pride and renewed determination to see the task-at-hand through to its completion.

Over the next three years, Wright and Patterson fields would nearly quadruple the number of their buildings, and the size

of their workforce would increase by nearly an order of magnitude. Almost every page of the Dayton phone directory would bear one or more names of someone, somehow associated with the enterprise of flight at the twin fields and in countless local factories and businesses of the greater Dayton area. During World War II, the foundations of American air power—and beginnings of space power—were laid at Wright and Patterson fields, placing Dayton, Ohio, in the epicenter of aerospace science, technology, procurement, and logistics for the remainder of the twentieth century.

* * *

“If you were dropped down in Dayton you would hardly know it. Great improvement is going on. The streets are all busy. ...Property is selling very high.”²⁹⁰ Frank Wattendorf? No, John Van Cleve. The year, 1829. *Plus ça change...!*



Main Street bridge, Dayton, before 1950 (Dayton Metro Library)

