Focus

Cover illustration: View of Lafayette, Indiana on August 16, 1859 with the balloon Jupiter of Professor John Wise preparing for a flight to New York that would be the first delivery of U.S. Post Office mail by air. An accident delayed the flight until August 17. Wise only reached Crawfordsville, Indiana, but it was the first official airmail (see p. 4). Photograph provided by Indiana Division, Indiana State Library.

Indiana’s aviation history includes many firsts—some are provided throughout this issue. Hoosiers have been part of many other significant events and activities.

This issue provides an introduction to the rich aviation history that exists in communities throughout the state. “You be the historian,” at the bottom of this page, suggests some ways that students—and other readers—can explore and document their local aviation history.

On page 3, two maps provide a 1944 snapshot-view of the effect of aviation in Indiana. The maps are part of a report that resulted in the creation of the Aeronautics Commission of Indiana in 1945.

On page 4, a three-part approach is begun in presenting aspects of Indiana’s story. At the bottom of the page is a national/international timeline to provide context for the Indiana story; it continues through page 14. U.S. entries are in blue in order to distinguish the national story more easily. On pages 4-8, an Indiana timeline is printed above the national/international timeline. It highlights some of Indiana’s aviation history. It provides page references to related articles in this issue. At the top of these pages, several topics have been covered in more depth.

On pages 9-14, six Indiana historical markers relating to aviation history have been highlighted. The Indiana Historical Bureau administers the historical marker program. Six communities have commemorated and celebrated their local history with these markers. Readers are encouraged to inquire about the program. A complete list of markers is available on the Historical Bureau Web site (www.statelib.lib.in.us/www/ihb/ihb.html).

On page 15, “Selected Resources” is provided. Readers should note additional sources with individual articles throughout the issue. Readers are also encouraged to explore the Internet. Several Web sites are also located that expand on topics covered—or not able to be covered—in this issue.

The back cover illustration of Hoosier astronaut David Wolf seems to be an appropriate close to this issue, which starts with the first airmail in 1859. Aviation in Indiana will continue to make history far into the future.

You be the historian

- Investigate which airport(s) and aviation industry(ies) have been important in your community or area.
- Gather available resources for preservation.
- Begin an oral history project to collect information from individuals involved in past and present aviation activities—pilots, engineers, mechanics, executives, etc. Include the experiences of people who flew as passengers in the early years of commercial service; explore similarities with and differences from present-day flight on airlines.
- Produce materials to make others aware of the history that you have researched: for example, articles for local publications, exhibits for local institutions, or videos or oral tapes for local media.
- Work with your public library—or other repository—to preserve and make available to others the resources that have resulted from your investigations.
- Select a significant site or event in your local aviation history and apply for an Indiana historical marker to celebrate your local history.

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The Indiana Historian provides resources and models for the study of local history to encourage Indiana’s citizens of all ages to become engaged with the history of their communities and the state of Indiana.

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The report from which these two maps are taken examines the large economic impact of aviation and recommends legislation to assure its future success. The map above left indicates fifty points at which approximately 175 plants and industries are manufacturing aircraft and aircraft parts with a dollar value of approximately $2,373,000,000 (p. 20). The map on the right was prepared by the Indiana Economic Council to show the effect of the national plan released by the Civil Aeronautics Administration on November 28, 1944 (pp. 9-10). “Airports [in 1944] are classed from one to five, according to size of runways and other features. No. 1 is the smallest and No. 5 is the largest and best equipped” (p. 9).

Source: Survey, Findings and Recommendations with respect to Indiana’s Aviation Problems (Indianapolis: Governor’s Commission on Aviation, 1944).
The first airmail

John Wise, a nineteenth-century professional balloonist from Lancaster, Pennsylvania, knew upper air currents in the Midwest blew from west to east. He believed that he could carry light mail and passengers in a balloon from the Midwest to the east coast.

The citizens of Lafayette, Indiana invited Wise to prove his theory. On August 16, 1859, thousands of people gathered to watch. The program for the day (at left) indicates the preparations and the showmanship.

An accident delayed the trip until August 17. Finally, Wise ascended with official U.S. Post Office mail—123 letters and 23 pamphlets. Wise’s destination was New York City. He descended in Crawfordsville, Indiana.

The U.S. Post Office issued a commemorative stamp on the centennial of the trip, August 17, 1959.


Gliders in the dunes

Octave Chanute was born in France in 1832. His family moved to America when he was seven. He was one of America’s foremost civil engineers when he retired in 1889 and made Chicago his home. Chanute became interested in flight and researched and published an important book Progress in Flying Machines (1894).

Convinced that he could build a more stable, safer glider, Chanute and several other enthusiasts went to Miller Beach, in what is now the northeastern part of Gary, Indiana. There, in June 1896, they conducted test flights using several types of gliders.

On August 20, the group went to Dune Park, several miles east of Miller Beach, and tested three new gliders. The resulting Chanute biplane glider was the model for the Wright brothers’ successful designs for their machines.

A bronze plaque placed in 1936 remains in Marquette Park, Gary to commemorate Chanute’s aviation accomplishments.


Program from newspaper with end pulled out and enlarged. Lafayette Daily Journal, August 15, 1859.

Indiana aviation timeline

1232 Chinese use kites to send messages during war (Hellemans and Bunch, 81).
1480 Italian Leonardo da Vinci draws his conception of a working parachute (Hellemans and Bunch, 97).
1492 Leonardo da Vinci designs his first helicopter, but it is never built (Hellemans and Bunch, 101).
1500 Frenchman L. S. Lenormand, influenced by accounts from China, is the first Westener to use a parachute (Hellemans and Bunch, 233).
1723 Frenchmen Jean Francois Pilatre de Rozier and Francois Laurent are the first humans to fly using a hot-air balloon. They are airborne for 25 minutes (Hellemans and Bunch, 233).
1783 August 27 In France, physicist Jacques Alexandre Charles builds the first hydrogen balloon (Hellemans and Bunch, 233).
1784 Vincent Lunardi is the first Englishman to ascend in a hydrogen balloon (Hellemans and Bunch, 235).
1793 First successful parachute jump is made from a hot-air balloon by Frenchman Jean-Pierre Blanchard (Hellemans and Bunch, 243).
1859 Professor John Wise completes first airmail delivery via balloon from Lafayette, Indiana (see pp. 1, 2, 4).
Aviation at Indianapolis Motor Speedway

Carl Fisher, who built the Indianapolis Motor Speedway, was a balloon enthusiast. In June 1909, Fisher hosted, at the Motor Speedway, the first national balloon race sponsored by the Aero Club of America.

As the photograph above shows, nine balloons were in the race. Fisher’s balloon was the Indiana. He and his partner were aloft forty-nine and a half hours and landed in Tennessee. The balloon New York won the race.

A year later, the Motor Speedway was the site of the first licensed aviation meet in the U.S., June 13-18, 1910. The big news was the presence of Orville and Wilbur Wright and their team of six planes and expert pilots. Orville Wright was the first pilot to take off, his plane launched from a monorail. He circled the track twice and landed, impressing observers with his mastery. The feats accomplished in the days that followed led the newspaper to call the pilots “air wizards.” One of the Wright pilots, Walter S. Brookins, rose to 4,384.5 feet, breaking the world altitude record.


Excerpts from Indianapolis News, June 13, 1910.
The Purdue University Airport was laid out on a farm field west of the campus on November 1, 1930. To meet federal government regulations at the time, a circle of light-colored limestone was used to identify the landing area, and a required windsock was hung from a dead tree.

In 1934, this hanger-laboratory was built, and “the airport was officially opened for business as a going concern” on September 4 (Knoll, 348-49).

Aviation at Purdue University

A survey of aviation in Indiana would be incomplete without noting the accomplishments of Purdue University, West Lafayette, Indiana as an aviation pioneer. A few items have been included in the general Indiana timeline at the bottom of pages 4-8 of this issue. All parenthetical page references herein are to Knoll; Web site refers to the Purdue University Aeronautical and Astronautical Engineering site (http://aae.www.ecn.purdue.edu/AAE.html).

1910 Students organize the Purdue Aero Club “to build an airplane and to assemble a collection of books on aeronautics” (341).


1921 An Aerodynamics Laboratory is established; Mechanical Engineering seniors can choose Aerodynamics (with four courses offered) as an option (345).

1928 Two aviation courses are offered for graduate students, and the university owns three planes (346).

1928 Shambaugh Airport opens in Lafayette. Some Purdue students go there independently for flight training (346).

1930 In the summer, Purdue offers its first flight training to students. Technical instruction is given at Purdue; the flying lessons are given by Curtiss-Wright Flying Service (349).

1930 Purdue University Airport is created in November. The landing area is marked with a ring of limestone, and a windsock is hung on a dead tree—meeting federal requirements (348).

1934 A hanger-laboratory is built at Purdue University Airport; it is “officially opened for business as a going concern” on September 4, the first college-owned airport (349, Web site).

1935 Amelia Earhart is on staff at Purdue University as the “Counselor on Careers for Women” (351).

1935 Wiley Post, a famous U.S. aviator, makes an emergency landing at Purdue’s airport on April 14. Post is impressed with Purdue’s facilities (350, 351).

1935-1936 Purdue offers a credit course in flying called “Limited Commercial Pilot” (353).

1938 Because of the growing unrest in Europe, the Civil Aeronautics Authority establishes the “Civilian Pilot Training” program at educational institutions to ensure a pool of trained pilots for national defense. Purdue, already well established, is a leader and trains more than 500 pilots over two years (353, 354).

1942 Purdue Aeronautics Corporation is organized for better control of the many military flight-training programs that had been brought to the airport (354).

1942 Purdue’s oldest school of engineering is named the School of Mechanical and Aeronautical Engineering (354).

1943 In August, twenty-three students graduate with the new Bachelor of Science degree in Aeronautical Engineering (355).

1945 In the fall, Purdue’s new School of Aeronautics holds its first registration (355). Two chief branches are Aeronautical and Engineering Air Transportations.

1995 The website of Purdue University, Purdue News, 7:2 (April 1995), p. 5.
1919
Robert H. Goddard of the U.S. suggests that a small vehicle can reach the moon by using rockets (Hellemans and Bunch, 435).

1925
Robert H. Goddard launches first liquid-fuel propelled rocket which goes 184 feet into the air, reaching a speed of 60 miles per hour (Hellemans and Bunch, 447).

1927
Charles A. Lindbergh of the U.S. makes first nonstop solo flight across the Atlantic in 33.5 hours (Hellemans and Bunch, 449).

1929
Robert H. Goddard launches first instrumented rocket, carrying a small camera, barometer, and thermometer (Hellemans and Bunch, 455).

1930
British engineer Frank Whittle patents the jet engine (Hellemans and Bunch, 457).

1932
British engineer Heinrich Focke develops first practical helicopter (Hellemans and Bunch, 473).

1936
German engineer Heinrich Focke develops first practical helicopter (Hellemans and Bunch, 473).

1937
Germany works on construction and testing of liquid-fueled rockets (Hellemans and Bunch, 475, 477).

1947
In February, two men are the first to graduate from Purdue with the degree Master of Science in Aeronautical Engineering (357).

1947
First forty-one students graduate with Purdue’s Bachelor of Science degree in Air Transportation (356).

1950
First Purdue Ph.D. in Aeronautical Engineering is granted to Commander Richard L. Duncan, U.S.N. (357).

1954
Dr. Abe Silverstein, native of Terre Haute, is Indiana’s Early Bird pilot, Roderick M. Wright, obtains his pilot’s license (356). More women are drawn to aeronautics engineering (357).

1955
Allison T-56 turbine propelled engines power Indiana aeromagnetic survey reveals possible oil and gas fields.

1956
Indiana aerial applicators spray 1 out of every 185 acres in the state.

1958
First automatic computer to be placed in operation by the Civil Aeronautics Administration begins service at Weir Cook Municipal Airport in Indianapolis (Indianapolis Star Magazine, September 9, 1958).

1959
Trans World Airlines and Delta Airlines announce non-stop jet service between Indianapolis and New York City and Indianapolis and Miami, Florida, respectively, to begin within a year (Indianapolis Star, December 19, 1960).

1960
Indiana University Medical Center works with collaborators to plan emergency use of helicopters for ambulances throughout the state (Indianapolis Star, December 19, 1960).

1962
Purdue graduate Neil Armstrong and Frank Borman, Gary, Indiana, are named to nine-member group to be first men on the moon (Indianapolis Star Magazine, September 17, 1962).

1967
On January 27, Virgil I. Grissom and 2 other astronauts become the first human to enter the stratosphere in a balloon (Indianapolis Star Magazine, December 1975), 12-13).

1969
Trans World Airlines and Delta Airlines announce non-stop jet service between Indianapolis and New York City and Indianapolis and Miami, Florida, respectively, to begin within a year (Indianapolis Star, December 31, 1959).

1973
Name of school is changed to School of Aeronautical and Engineering Sciences (Web site).

1975
In 1984, Purdue University adopted a special logo depicting the Challenger space shuttle and the saying “Purdue, touching tomorrow today.” President Steven Beering noted that the logo “vividly illuminates our university’s mission.” In addition, it was designed to “heighten public awareness of Purdue’s major contribution in educating astronauts and mission specialists for the nation’s space program” (Indianapolis News, February 8, 1984).

1984
Purdue University has contributed more astronauts than any institution except the Naval and Air Force academies.

1995
School celebrates its golden anniversary with publication of One Small Step: The History of Aerospace Engineering at Purdue University (Web site).

Twenty-one Purdue “alumni have made pioneering contributions to the nation and the world as astronauts.” The Purdue Web site provides the names and information about all of them. The Indianapolis Star Magazine, March 15, 1981 noted that “Purdue University has contributed more astronauts than any institution except the Naval and Air Force academies.”
Aviation and law enforcement

The Indiana State Police Aviation Section was formed in 1947 when “The traffic at the Indianapolis Motor Speedway . . . was becoming troublesome and it was thought that if someone could observe traffic from the air, alternate routes could be used to increase traffic efficiency.” After renting a Navion aircraft to help with 1947 race traffic, the Indiana State Police purchased its own Navion in 1949.

Over the years the Indiana State Police Aviation Section fleet has grown. Its responsibilities now include services to government, citizens, and law enforcement: “flying the Governor along with other state officials, conducting medivac flights and premature baby transportation, traffic enforcement, marijuana eradication, criminal surveillance and assisting State Emergency Management during state wide disasters.”

Today, the Aviation Section includes eight helicopters, two twin-engine aircraft, and four single-engine aircraft.

Source: Sergeant Richard Kirk, “Indiana State Police Aviation Section” (Indianapolis: Indiana State Police Aviation Section, 1998).

1937 1938 1939 1939 1944 1947 1957 1958
Frank Whittle of Great Britain builds first working jet engine (Hellemans and Bunch, 475).
German engineer Pabst von Ohain’s jet engine is first such engine actually to fly an airplane (Hellemans and Bunch, 481).
Igor Sikorsky constructs first helicopter designed for mass production (Hellemans and Bunch, 481).
Germany begins to use jet-propelled bombs controlled by an autopilot mechanism against the United Kingdom (Hellemans and Bunch, 487).
First airplane flies at supersonic speed in the U.S. (Hellemans and Bunch, 501).
October 4 Soviet Union launches first artificial satellite, Sputnik I; later Sputnik II is launched carrying a dog (Hellemans and Bunch, 526).

TWA jet flight to California carrying Hoosiers among its passengers is hijacked after Indianapolis stop. After landing in Havana, Cuba, the plane and passengers return safely to Miami, Florida (Indianapolis Star, August 1, 1969).
Indianapolis helicopter pilots set 15 world records in a commercial helicopter with an Allison engine (Indianapolis Star, April 16, 1985).
U.S. Department of Commerce grants Foreign Trade Zone status to Michiana Regional Airport at South Bend (http://sbnair.com/timeline.htm).
In November, South Shore rail service begins at Michiana Regional Airport making it the only U.S. airport with air, intercity rail, and interstate bus service in one location (St. Joseph County Airport Authority Press Release, March 19, 1998).
On October 31, American Eagle Flight 4184 crashes into a soybean field south of Roselawn, Indiana, killing 64 passengers and 4 crew members (Indianapolis News, November 1, 1994).
Air traffic control for Indiana consists of a network of 12 air traffic control towers and 9 radar-equipped facilities (Indiana State Aviation System Plan, 1995, p. 15).
September 28 marks the official start of Indianapolis native David A. Wolf’s 119 days aboard Russian space station Mir (http://www.jsc.nasa.gov/Bios/htmlbios/wolf.html).

astronauts are killed in Apollo 1 capsule (Carruth, 645) (see p. 14).
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Birthplace of Wilbur Wright

Wilbur Wright was born on an Indiana farm near Millville, Henry County on April 16, 1867. In the spring of 1869, the family moved to Dayton, Ohio, where Orville was born on August 19, 1871.

In 1892, the Wright brothers opened a bicycle shop in Dayton. They began to manufacture their own bicycle brand there in 1896. By 1897, the brothers were seriously pursuing research on flight by writing to the Smithsonian, the U.S. Weather Bureau, and Octave Chanute, an engineer living in Chicago. In the period 1899-1903, the Wrights built flying models, performed experiments, flew gliders, and constructed a wind tunnel. They continued seasonal experiments at Kitty Hawk, North Carolina.

They finally achieved sustained, controlled, powered human flight in their wood-framed and fabric biplane on December 17, 1903. Their principal contributions included a light motor, strong frame, and the ability to control wing edges (wing-warping) during flight. The brothers had applied for a patent concerning wing-warping on March 23, 1903, and it was issued May 22, 1906.

Moving their experiment back to Dayton, they made the first flights of their 1904 plane, the Wright Flyer II. In June 1905, they ran flight tests of the 1905 Flyer III—the world’s first practical airplane.

In 1905, in an effort to market their plane, the Wrights offered to demonstrate the plane for the U.S. War Department, which declined. However, the U.S. Signal Corps signed a contract for delivery of a Wright plane in 1908. In 1911, a Wright Model B-1 hydroplane was delivered to the U.S. Navy.


Source: Historical Marker file 33.1966.1, Indiana Historical Bureau.

The 1903 Flyer on December 17, 1903 "piloted by Orville Wright, has just taken off from the monorail” (angled line at left) on "man’s first flight in a power-driven, heavier-than-air machine" at Kitty Hawk, North Carolina. Wilbur Wright (on the ground at right) “had held the wing to balance the machine until it left the rail." This is the only picture of this flight (Kelly, opposite 116).
Indiana’s Early Bird Pilot

Members of the Early Birds of Aviation, Incorporated were men who flew solo between 1903 and 1916. These pilots hold a special place in the history of aviation in the United States. The Smithsonian Institution’s National Air and Space Museum Archives in Washington, D.C. serves as the official repository for documents concerning the Early Birds.

Indiana’s only Early Bird pilot, Roderick M. Wright, was born on March 24, 1887 on a farm in Daviess County, near Washington. He grew up fully expecting to be a farmer and became an agricultural student at Purdue University, West Lafayette, Indiana.

Wright, however, read about the efforts of Orville and Wilbur Wright as pioneers in flight. In June 1911, Wright attended his first air exhibition in Evansville, Indiana. He was so excited by the event that he decided to become a student at the flight school operated by Orville and Wilbur Wright in Dayton, Ohio.

He later enrolled in the flight school and earned his license on July 26, 1913—Number 254 issued by the Federation Aeronautique Internationale. This international group preceded United States federal aviation agencies, which started in 1926 and evolved into the Federal Aviation Administration in 1958. Wright was the first licensed pilot in Indiana.

Wright utilized his flying skills and experience as mechanic, test pilot, flight instructor, and passenger/transport pilot. He returned to the family farm in 1933, bought an airplane, and built a private airstrip and hanger. He taught family members to fly and took occasional contract work. During World War II, he tested parachutes over his property.

From 1953 to 1957, Wright represented Daviess County in the Indiana General Assembly. In 1954, he flew for the first time in a jet plane. On October 13, 1960, Wright died. He is buried near his family farm.

Source: Historical marker file 14.1997.1, Indiana Historical Bureau. There is no known kinship between Roderick M. Wright and Orville and Wilbur Wright.
P-47 Thunderbolt Factory

On December 8, 1941, the United States declared war on Japan as the result of the Japanese bombing of Pearl Harbor, Hawaii. There was an immediate need for war-related materials.

World War II had a major effect on the economy of Evansville, Indiana. By the end of the war, fifty of its companies were involved in war-related production with three-quarters of its industries having defense contracts.

On April 7, 1942, the Republic Aviation Corporation of Farmingdale, New York broke ground for a factory to manufacture P-47 Thunderbolts in Evansville, Vanderburgh County.

The factory produced its first plane, named the "Hoosier Spirit," on September 20, 1942. By September 27, 1945, 6,242 Thunderbolts had been manufactured at the Evansville plant. The factory provided employment for over 5,000 people; a high percentage of the employees were women.

The P-47 Thunderbolt was the star of World War II fighter planes. There were 15,683 Thunderbolts produced between May 1941 and December 1945 in three U.S. factories—more than any other fighter bomber. It was reliable, durable, and fast. P-47s served U.S. efforts in all geographical locations of the war and logged 1,350,000 combat hours.

A P-47 weighed almost seven tons, had a wing span of nearly forty-one feet, and was more than thirty-six feet long.

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1968

First of the "jumbo jets," the Boeing 747, goes into service across the Atlantic Ocean (Hellemans and Bunch, 565).

1969

December 31

First supersonic airliner, the Soviet Tupolev TU-144, is demonstrated (Hellemans and Bunch, 561).

1968

December 21-27

Frank Borman, James A. Lovell, Jr., and William A. Anders orbit the moon 10 times in first manned Saturn V flight (Carruth, 641).

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First of the "jumbo jets," the Boeing 747, goes into service across the Atlantic Ocean (Hellemans and Bunch, 565).
First U.S. Skylab mission is launched May 25 and lasts 28 days; the second Skylab is launched July 29 and lasts 59 days; the third Skylab is launched November 16 and lasts 84 days (Hellemans and Bunch, 570).

Soviet spacecraft lands on Mars (Hellemans and Bunch, 574).

July 20 U.S. Viking 1 Lander lands on Mars, first spacecraft to soft-land on a planet other than Earth (Hellemans and Bunch, 578; http://nssdc.gsfc.nasa.gov/planetary/viking.html).

On December 8, 1941, the United States declared war on Japan in response to the Japanese bombing of Pearl Harbor, Hawaii. Manpower and materials were needed quickly. On May 6, 1942, the War Department announced its intention to build a pilot training school and air field southwest of Seymour in Jackson County. On December 1, 1942, the Seymour air field was activated.

The U.S. Army Corps of Engineers oversaw the construction of the structures, runways, and roads. There were 413 buildings and four 5,500-foot runways located on 2,560 acres. It was a state-of-the-art facility.

In March 1943, the field was officially named the Freeman Army Air Field. Richard S. Freeman was born on June 22, 1907 in Winamac, Pulaski County. He graduated from West Point and was assigned to the Army Air Corps. He earned the Distinguished Flying Cross. He died on February 6, 1941 when his plane crashed in Nevada.

Also in March 1943, the first cadets arrived at this advanced twin-engine training school. Many of the graduates went on to fly bombers, such as B-17s and B-24s. The last graduation was February 1, 1945. A total of 4,245 pilots graduated from the Freeman Field aerial training base. Twenty-four instructors and cadets were killed during training.

In January 1946, the facility was declared to be surplus. It was deactivated in November 1948. The War Assets Administration determined the post-war use of the land and structures: 2,241 acres for a municipal airport for Seymour; more than 240 acres for agricultural training in the Seymour Community Schools; and the Seymour Industrial Association received more than sixty acres to develop an industrial park.

Lawrence D. Bell

Bell was born in 1894 in the Indiana farming community of Mentone, Kosciusko County. The Bell family moved to Santa Monica, California in 1907 when Lawrence was thirteen. Lawrence saw his first airplane at the 1910 Air Show at Los Angeles, with his older brother, Grover. At home, he and his brother built their own flying airplane model.

After graduating from Santa Monica High School in 1912, Lawrence became a mechanic for exhibition pilots Lincoln Beachey and Grover Bell with their Curtiss airplane.

In 1913, Bell became a factory manager at Glenn L. Martin’s factory in Santa Ana, California and later in Cleveland, Ohio. A year later he was superintendent. In 1928, Bell went to work for Consolidated Aircraft in Buffalo, New York, reaching the rank of vice-president.

In 1935, Bell founded his own company, Bell Aircraft Corporation, also in Buffalo. Many advanced aircraft were produced there. These included the first jet plane of the U.S., the P-59; the Bell X-1 jet aircraft, and the Bell 47G helicopter. The X-1 was the first plane to break the sound barrier earning Bell, Charles Yeager, and designer John Stack the Collier Trophy. In addition, the first commercial helicopter license of the Civil Aeronautics Administration was granted to Bell Aircraft Corporation. Lawrence Bell died in October 1956.

Two related companies still exist. Bell Helicopter Textron is the world’s largest helicopter manufacturer. Bell Aerospace Textron produces component parts for space vehicles. Two presidential helicopters preserved in the National Air and Space Museum, Washington, D.C., and in the Air Force Museum, Dayton, Ohio, are Bell products.

The Lawrence D. Bell Aircraft Museum in Mentone was dedicated in 1982. It houses and displays, with associated aircraft, the collection given by Bell to his hometown.

Source: Historical marker file 43.1995.1, Indiana Historical Bureau.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>1976</td>
<td>French–English Concorde is the first supersonic airliner to operate a regularly scheduled passenger service (Hellemans and Bunch, 579).</td>
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<tr>
<td>1979</td>
<td>U.S. space probes Voyager 1 and 2 are launched on a journey to Jupiter and the outer planets (Hellemans and Bunch, 580).</td>
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<tr>
<td>1980</td>
<td>Gossamer Albatross is first human-powered aircraft to cross the English Channel (Hellemans and Bunch, 583).</td>
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<tr>
<td>May 12</td>
<td>First nonstop transcontinental balloon flight is completed by American Maxie Anderson and his son Kris. Aboard the Kitty Hawk, they travel 3,100 miles from California to Quebec in four days (Carruth, 747).</td>
</tr>
<tr>
<td>November 12</td>
<td>U.S. Voyager I flies by Saturn (Hellemans and Bunch, 586).</td>
</tr>
<tr>
<td>April 12</td>
<td>First flight of the U.S. space shuttle Columbia begins; its landing April 14 at Edwards Air Force Base, California is the first wheels-down landing by any spacecraft (Carruth, 753).</td>
</tr>
<tr>
<td>December 14</td>
<td>Dick Rutan and Jeana Yeager of the U.S. pilot the airplane Voyager around the world in 9 days without refueling (Hellemans and Bunch, 599).</td>
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</tbody>
</table>
Virgil I. Grissom was born April 3, 1926 in Mitchell, Lawrence County, Indiana. He graduated from Purdue University, West Lafayette, Indiana in 1950.

Grissom served in the U.S. Army Air Corps as an aviation cadet in 1944. He reenlisted after college and earned his pilot wings in early 1951. He served in Korea; he was an instructor pilot after the war. In 1957, he became a fighter test pilot. He was selected in 1959 by the National Aeronautics and Space Administration as one of the seven astronauts in the first phase of the U.S. Space Program.

In a speech on May 25, 1961, U.S. President John F. Kennedy pledged to support a program to land a man on the moon by 1970. This program was to be accomplished in a process that included the Mercury, Gemini, and Apollo mission programs.

Grissom flew the second project Mercury sub-orbital mission on July 21, 1961. He flew as the command pilot in the Gemini III flight, March 23, 1965, with John Young. They orbited the earth three times and were the first astronauts to maneuver a spacecraft in orbit.

Grissom, Roger B. Chaffee, and Edward H. White, were chosen to pilot the first Apollo mission, with Grissom as the command pilot. They began training for a planned sixteen-day mission scheduled to launch February 14, 1967. On January 27, 1967 a flash fire in the Apollo 1 capsule killed all three men.

Grissom was buried at Arlington National Cemetery. Bunker Hill Air Force Base, Miami County, Indiana was renamed after him in 1967. There is a memorial with exhibits at Spring Mill State Park, near Mitchell, including Grissom’s helmet from the Mercury mission and the Gemini III capsule and space suit.

**Source:** Historical marker file 47.1966.1, Indiana Historical Bureau. Contact: Indiana Department of Natural Resources for Virgil I. Grissom: Teacher Packet (Indianapolis: Department of Natural Resources, [1987]).

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**Table of Events**

<table>
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<tr>
<th>Date</th>
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<tr>
<td>January 28</td>
<td>U.S. space shuttle Challenger explodes 74 seconds after liftoff at Cape Canaveral, Florida, killing all seven astronauts aboard, including Christa McAuliffe, a New Hampshire schoolteacher and the first private citizen chosen for a space shuttle flight (Carruth, 787).</td>
</tr>
<tr>
<td>May 4</td>
<td>Soviet cosmonaut Yuri V. Romanenko returns to Earth from Mir station after 326 days in space, a new record (Heleman and Bunch, 602).</td>
</tr>
<tr>
<td>April 25</td>
<td>U.S. unmanned spacecraft Magellan is launched by space shuttle Atlantis to begin a voyage to Venus. It reaches Venus orbit on August 10, 1990 (Carruth, 819).</td>
</tr>
<tr>
<td>July 9</td>
<td>U.S. Columbia ends the longest space shuttle flight after circling Earth 221 times and traveling 5,760,000 miles in 2 weeks of orbit (Carruth, 851).</td>
</tr>
<tr>
<td>July 6</td>
<td>U.S. Mars Pathfinder’s Sojourner Rover rolls onto the surface of Mars and sends pictures and sensor data to Earth until September 27 when all communication is lost (<a href="http://nssdc.gsfc.nasa.gov/planetary/mesur.html">http://nssdc.gsfc.nasa.gov/planetary/mesur.html</a>).</td>
</tr>
</tbody>
</table>

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**Astronaut Virgil I. Grissom**

Selected Resources

Bibliography

  
  Comprehensive, easy-to-read timeline of American history.

  
  Contains chronology of most significant achievements in science history.

- Historical marker files, Indiana Historical Bureau.
  
  The Historical Bureau maintains an individual file for each Indiana state format historical marker. Files vary, but may contain copies of resources, application materials, and research papers.

  
  Very informative, easy-to-read and understand chapter on Purdue and aviation.

- *A Salute to Indiana’s Aviation History*. [Indianapolis]: Aeronautics Commission of Indiana, [circa 1956].
  
  Brochure; place to start for further research.

Additional Resources

  
  Gives personal insight into many of Indiana’s early pilots.

  
  Good general information.

  
  General, but informative and comprehensive in its topics.

  
  Provides insight into a fascinating Hoosier.

  
  Very good timeline and bibliography.

- Indiana Challenger Centers for Space Science Education.

  Contact for more information: Brownsburg Community School Corporation, Harris Elementary School, 725 South Green Street, Brownsburg, IN 46112, telephone 317-858-4106; and Purdue University-Calumet, 2200 169th Street, Hammond, IN 46323-2094, telephone 219-989-2323 (opening projected January 1999).

  
  Useless resource for further research.

  
  Very useful for research on Bell.

Suggested student resources

  
  Traces the history of human flight from Greek mythology to the space shuttle. Related activities are included in easy-to-read language.

  
  Historic photographs and documents are included: for intermediate readers. Ideas and experiments that led to the first powered flight in 1903 are described.

  
  An easy-to-read biography focusing on the training and career of this Indiana native.

  
  Includes profiles of four female aviators: the Ninety-Nines, an association of female pilots; and the record-setting flights of Amelia Earhart and other female aviation pioneers. For intermediate readers.

  
  Traces the evolution of the airplane from the first flying machine to supersonic jets; wonderful illustrations. Timelines series.

  
  Wonderful photographs trace the history and development of aircraft from hot-air balloons to jetliners. An excellent resource for any age. Eyewitness Books.

  
  This easy-to-read work details earliest attempts at flight; includes illustrations and projects to demonstrate flight principles.

Special thanks to the following individuals:

- Mary Anthrop, Archivist, Tippecanoe County Historical Association.

- Deb Taylor, Indianapolis Motor Speedway Museum.

- Sergeant Richard Kirk, Field Enforcement Division, Aviation Section, Indiana State Police.

- R. Troy Allen, “Project Takeoff,” Aviation Division, Indiana Department of Transportation. Contact Allen at 317-232-1494 for information on school aviation programs.
NASA mission specialist, David A. Wolf, in preflight activities for Mission STS-86 on the space shuttle Atlantis. Atlantis docked with the Russian space station Mir on September 28, 1997. Wolf spent 119 days aboard Mir and returned to Earth on January 31, 1998. Wolf is a native of Indianapolis, Indiana. He received a Bachelor of Science degree in electrical engineering from Purdue University and a doctorate of medicine from Indiana University. Information about Wolf, the mission, letters from Wolf from space, etc. are available on the NASA Web site (http://www.ksc.nasa.gov/shuttle/mission/sts-86/mission-sts-86.html) and by searching for David A. Wolf.