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Dayton and the Wright-Patterson Air Force Base

George Ruppell, S.M.

Even today some people wonder why Dayton, Ohio is called the home of aviation and the mention of McCook, Wright and Patterson fields seems like another mystery. Even the news media before 1910 missed the big story. In Dayton the two sons of Bishop Milton Wright, Wilbur and Orville, bicycle builders and repairmen, thought that they could fly with an engine, and at the same time there was Samuel P. Langley, the head of the Smithsonian Institute in Washington, D.C., doing the same thing. The Dayton boys corresponded with everyone they thought would have some experience with flying. Octave Chanute in Indiana, Otto Lilienthal the German glider expert who made many flights before he was killed in 1896, and his understudy Percy Pilcher in England, wrote to the Wrights. By trial and error they found that the air flow charts which Lilienthal was using and which he shared with them, were wrong. They learned that by using elevators and stabilizers they could avoid shifting the weight of the operator's body, and many other things. Since they could find no gasoline engine to fit their needs they had to build their own. Any bicycle enthusiast viewing the "Wright Flyer" will notice how they used the sprocket chains from bicycles to carry power from the motor to the propeller. Aside from an understanding father and an energetic sister, there did not seem to be many in the Wright hometown who had confidence in Wilbur and Orville. According to tradition, another Dayton boy, John Hertz, a friend with ideas, foresaw the time when rented cars would replace livery stables, and Mr. Hertz suggested that the Wrights should do something useful like building an automobile, while he may have thought that his own son must have been in the sun too long.

Samuel Langley, the unofficial government experimenter tried to launch an airplane from a boat in the Potomac, with Charles Manley at the controls. He failed twice and Manly almost drowned the second time on December 8, 1903. The "New York Times" then advised Langley to give up attempting to fly. "Life is too short and his is capable of services incomparably greater than can be expected to result from trying to fly." Eventually Glenn Curtiss flew the Langley plane after he made some adjustments.

Meanwhile on December 17, 1903 the Wrights made four successful powered flights at Kitty Hawk, North Carolina, and they had photographs of their feat. The telegram to their father, Bishop Wright stated: SUCCESS FOUR FLIGHTS THURSDAY MORNING AGAINST TWENTY ONE MILE WIND STARTED FROM LEVEL WITH ENGINE POWER ALONE AVERAGE SPEED THROUGH AIR THIRTY ONE MILES LONGEST 57 SECONDS INFORM PRESS HOME CHRISTMAS. ORVILLE

WRIGHT. When Bishop Wright showed the telegram to the man at the Dayton "Journal," he missed the fact that man had made powered flights successfully. Instead the newspaper announced that the Wright boys would be home for Christmas. To complete the story, the telegraph operator spelled Orville's name OREVELLE.¹

During the following years they continued to improve their machine at Huffman Prairie near Simms Station (later called Wright Station) on the Dayton Electric Railway, better known to Daytonians as the traction line. Later this area, in the Huffman retarding basin, would be known as Wilbur Wright field, and today it is called Patterson field.²

Meanwhile nationally Brigadier General James Allen, Chief Signal officer of the Army established an Aeronautical Division on August 1, 1907, and on August 2, 1909 the Signal Corps acquired its first airplane from the Wright Brothers for \$30,000. Until 1911 it was the only plane owned by the United States government and Benjamin D. Foulois was the only pilot. In fact he was a self-taught pilot since he received instructions by letter from Orville Wright. Then on July 18, 1914 Congress created the Aviation Section of the Signal Corps and President Wilson signed the Aviation Act on July 24, 1917. During those years World War I seemed far away, until the French Government on May 23, 1917 asked for 5,000 American pilots, 4,500 aircraft and 50,000 ground personnel to service the planes by 1918. Meanwhile in the Spring of 1916 the War Department saw the need for research and development of airplanes and established a liaison office at the Bureau of Standards to supply information until a facility and manpower would become available.³

However on April 6, 1917 the United States Congress by a joint resolution declared war on Germany, and events thereafter moved rapidly. To speed research, development and procurement of needed supplies, Edward Deeds of General Motors was called to Washington, D.C. and was given a colonel's commission. The War Department originally decided to use Langley Field in Virginia as a tactical base and by October 18, 1917 resolved to find a new site for engineering and experimental work on airplanes. Several Daytonians, among them Edward Deeds and Charles Kettering of General Motors and Frederick Patterson of National Cash Register Company, induced the government to locate the facility in Dayton because it was central to an industrial area within one day's railroad trip of Pittsburgh, Cleveland, Chicago, Detroit and other areas of production. Colonel Deeds was then Chief of the Equipment Division of the Signal Corps and he decided to use the north field (McCook) which had previously been acquired as a private flying field. The preparatory work had been done as follows.

Early in February 1917, upon the advice of Orville Wright the Dayton-Wright Company had been formed to do experimental work at south (Moraine) field. They needed another field primarily for flying so they proceeded to take options on the land bounded on the west and north by the Miami river, on the east by Keowee Street, and on the south by Herman Avenue. By April 4, 1917 they had acquired 121.547 acres in eleven parcels of land, three of which were owned by descendants

Ruppell: Dayton and the Wright-Patterson Air Force Base

of Alexander McDowell McCook of the civil war "Fighting McCooks" family. Thereafter they continued to purchase land until there were 254 acres within the city of Dayton. This was called the north field, which was renamed McCook field on October 1, 1917 by the Aircraft Production Board of the War Department.⁴

Meanwhile on September 23, 1917 the same aircraft production board recommended to the chief signal officer, Colonel Deeds, that temporary facilities should be provided in Dayton for research and development. As a result Deeds sold his part of the above tract to Kettering at cost, and he transferred the lands to Dayton Metal Products Company at cost. This company had been founded in 1915 by Edward Deeds, Charles Kettering and the Talbotts. Legalities were completed by October 4, 1917 and the property thereafter was leased to the government on an annual basis. The mission from the start was to engage in research and development, but contractors did most of the building of components. The mission has not changed much since then.⁵

On October 2, 1917 Lieutenant Colonel C. G. Edgar, chief of the Construction Division in Washington ordered J. K. Grannis who was in charge of local operations, to use local labor and materials. A contract with the Dayton Lumber and Manufacturing Company was signed the same day to begin construction of buildings at McCook Field. Meanwhile headquarters were set up in the Lindsey building in downtown Dayton. This local group was called the airplane engineering department, and the following year it was combined with the production engineering department and was then called the airplane engineering division. After World War I it became the engineering division of the air service. All of the buildings were constructed of wood, emphasizing the "temporary" character of the facility. During the war British planes were redesigned, and generally problems that had to be solved were handled at McCook. Newsreels of the period showed tests such as the one performed by Lieutenant James H. Doolittle when he put a plane through loops, rolls, spirals, tail spins, power dives, and other maneuvers to test the wings and other parts. During the war the field behind Huffman dam was used to train pilots and the supply facility nearby was called the Fairfield Air Depot.⁶

Since it was apparent that a larger area would be necessary than could be acquired at McCook, a group of public spirited Daytonians met at the Dayton Country Club in October 1922 to discuss plans to raise money for a new site for the McCook facility. About the same time a government group was considering moving the facility to Langley Field or to Maryland or New Jersey. In two days enough money was raised to buy 663 acres and to this was added 4,325 acres from the Miami Conservancy District. But the Conservancy did not actually own all of the lands at that time, so Adam Schantz was delegated to pick up the options and negotiate the purchase of the needed acres. Since all of the money raised was not needed, an additional amount was used to construct a memorial to the Wrights at the corner of the field opposite Huffman dam. Mr. Patterson as chairman of the group which called itself the Dayton Air Service Committee, informed Major General Patrick on November 23, 1923

that the lands had been acquired and would be transferred to the federal government as soon as the legal aspects were completed.

Finally on August 17, 1924 Secretary of War, John W. Weeks accepted the property in the name of President Calvin C. Coolidge from the committee. They had secured 4,988 acres in Montgomery and Greene counties. This was to become the new engineering division which had outgrown McCook Field. Transfer of materials began as soon as new permanent structures were available. The new facility was dedicated on October 12, 1927 as Wright Field, and McCook was phased out by 1929.⁷

Even before the end of World War I, the flying field called Wilbur Wright Field, had to be extended so between November 4, 1917 and October 4, 1920 the tracks of the Ohio Electric line, and those of the C.C.C. & St. Louis, and the Erie railroads were relocated. Huffman dam was constructed and the retarding basin became a reality. Then on October 27, 1921 Wilbur Wright field was extended to receive the largest planes contemplated. Since the village of Osborn was on the flight line, the Osborn Removal Company purchased 129.48 acres adjacent to Fairfield. The moving of Osborn homes was completed in 1924 and the merged communities were renamed Fairborn. In July 1931 the Wilbur Wright Field was renamed Patterson after Lieutenant Frank Stuart Patterson, who with Lieutenant Leroy Swan, was killed on June 19, 1918 when the machine gun synchronizer malfunctioned as they were testing it, splintering the propeller and causing both men to die.⁸

Three tracts of land were presented to the government by the Dayton Air Service Committee. Tract one became Patterson Field or Area A. Today it includes the Air Force Logistics Command (AFLC), the hospital, the Foreign Technology Division, and flying field, and other facilities. Area B, which is the successor to McCook Field contains the laboratories and other support facilities besides the Air Force Institute of Technology (AFIT). The Wright memorial is on the hill at the northeast corner overlooking the original Huffman Prairie. Area C includes the former Fairfield Air Depot. Here are headquarters offices, the old museum was here, besides storage and other facilities. The new museum is in Area B near the corner of Harshman Road and state route 444.⁹

In order to obtain an idea of what is done at one set of laboratories in Area B today, the Aeromedical Research Laboratory (AMRL) may be considered. After a series of airplane accidents which were evidently not due to mechanical failures, a group of seventeen medical doctors were assigned to the newly organized Medical Research Laboratory at Hazelhurst Field, a corner of Mitchell Field in Mineola, New York on January 19, 1918. Their mission was to study the cause of human aircraft accidents and to develop physical standards for flyers. From this the School of Medicine (SAM) evolved. In 1959 the School of Medicine was moved to Brooks Air Force Base in Texas.¹⁰

Meanwhile Major (later Major General) Malcolm C. Grow, M.C., had begun studying the ideal psycho-physical human structure for combat flying in 1931 at Wright Field. On September 15, 1934 he was called to Washington, D.C. and replaced by

Ruppell: Dayton and the Wright-Patterson Air Force Base

Major (later Major General) Harry G. Armstrong, M.C., who was ordered to carry on special research projects within the engineering section of the materiel division of the Air Corps at Wright Field. The first civilian scientist added to the group was Dr. John W. Heim, who came from Harvard School of Public Health with credentials as a frontier thinker in medical technology. By May 29, 1935 this unit was designated the physiological research laboratory. Civilians were then involved in the work of studying ways of providing safety, survival and comfort to flyers. Then on February 10, 1939 it was redesignated as the Aero Medical Research Unit. In May 1939 Air Marshal Sir Harold E. Wittingham visited the facility and reported to his British counterparts that they at Farnborough would do well to follow the lead of the Wright Field group. When a committee on Aviation Medicine visited the facility on November 27-29, 1940 they noted that the pilot was the only limiting factor to further air developments.

World War II brought specialists sponsored by the National Research Council in 1941. With the attack on Pearl Harbor money for expanded development became available. Thus by July 1, 1942 the laboratories became the Aero Medical Unit. Biologists, physicists, engineers, psychologists and others were added to the facility. It was then redesignated the Aerospace Medical Research Laboratories (AMRL). After 1949 aviation medicine became space medicine. When support was needed for Project Mercury, AMRL was called upon on September 18, 1958. Part of the training of the astronauts took place here, and all of the equipment was either designed, tested or both at AMRL.

The work of the laboratories today is to solve problems which are expected to arise in future years. Their objective is to advance the state-of-the-art and provide consultation with other government organizations and industry. Many improvements in airplanes have originated here, such as thermal clothing, evaluation of noise and pollution levels for human beings, equipment for transporting sick people, and oxygen equipment, which are now used by commercial airplanes. Thus the Armstrong group has become one of the most efficient problem solving groups in the world.¹¹

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NOTES

1. An avalanche of words in newspapers, magazine articles and official reports have appeared about the fields and the Wrights. A recent article about the Wrights appeared in *The American Heritage*, June 1970, by Sherwood Harris, "The First to Fly", pp. 61-69. "U.S. News & World Report", March 29, 1971 is one of the references to the Hertz-Wright relationship.
2. There is a sixty volume "History of the A.E.F." (American Expeditionary Force) Air Service on which McFarland, Pendergast, Niehaus, Curry and others probably depended, in the War Department, Washington, D.C.
3. J. J. Niehaus, "Genesis: Materials Central, 1917-1962", is a laboratory report. He makes the same mistakes as others when he states that the field in Dayton called McCook was the property of the family of General Anson McCook. Apparently the first time this appeared was in the "Dayton Journal" October 22, 1917, page seven in an unsigned article. This is contradicted by General Isaac R. Sherwood, *Memories of the War*, Toledo, 1923. Chapter

four is devoted to the McCook families, and those living after the war are located. Property deeds in the Montgomery County recorder's office list the parcels bought by Deeds and Kettering, Deed Book 391, page 100. An account by George B. Smith, the financial secretary to Deeds and Kettering, lists the same parcels of land they bought in 1917. This agrees with the deeds in Montgomery and Greene Counties recorders' offices.

4. *History of Bureau of Aircraft Production*, (no author), Vol. II, AMC, Historical Study Number 198, Chapter Seven gives the detailed development of the Air Force from the Signal Corps. This is an in-house publication. On page 359 the resolution of the Aircraft Production Board of October 1, 1917 naming McCook Field is given. It states correctly that the McCook concerned was Major General Alexander McDowell McCook. Many accounts list Anson McCook.
5. Mauer Mauer, "McCook Field, 1917-1927" in the *Ohio Historical Quarterly*, January 1958, Vol. 67, No. 1 is a good account but it is evident that he was not familiar with the site of McCook Field, when he states that "there was no rail line to the field; consequently supplies and equipment had to be hauled to the station, two miles away . . ." A picture of the entrance in Air Force files shows the tracks of the Leo Street carline, which were used for deliveries. Besides, the main line of the B. & O. Railroad to Detroit was merely a few blocks away.
6. "A Historical Account of Materials Efforts from McCook to Wright Field, 1917-1962" by James J. Niehaus, Chief, Operations Office, 3 December 1962. Aeronautical Systems Division, Air Force Systems Command. There are no page numbers. This is also an in-house publication. "The air service building's sixth floor" to which some reports refer, according to senior citizens, is the same as the Lindsey, U.B., and Knott building. See also John F. Curry, Major, A.S. (Air Service), "Select Committee of Inquiry into Operations of the U.S. Air Services, McCook Field", Dayton, Ohio, September 1920.
7. A list of the properties deeded by Edward Deeds and Charles Kettering is found in Deed Book 391 in the Montgomery County Record Office, Dayton, Ohio, recorded April 6 to April 20, 1917. Other conveyances are: lands from the Miami Conservancy District to the United States of America June 16, 1917, in Deed book 120, page 82, Greene County Record of Deeds; May 19, 1917; May 23, 1917; July 1, 1917 for the airfield, and July 1, 1921. Property maps of the "Huffman Retarding Basin" owned by the Miami Conservancy District are in the office of that company. The best record is the unpublished, privately printed and distributed "Informal Supplementary Report to The Miami Conservancy District Court", by Colonel Edward A. Deeds, December 1944.
8. "History of the Air Depot at Fairfield, Ohio 1917-1943" by Lieutenant F. J. Pendergast, covers the period when it was established in 1917 to the creation of the Fairfield Air Depot Control Area Command on February 1, 1943, pp. 27-115. The War Department general Order No. 20, on August 21, 1925 dropped the name Wilbur Wright for the field, and the Air Service Engineering Division was named Wright Field. The flying field was called Patterson, and a new field to replace the one at McCook was developed and called Wright Field. See also "The Skywrighter", Vol. 8, No. 1, Jan. 13, 1967.
9. A brief summary of this phase is in J. J. Niehaus, "Genesis: Materials Central, 1917-1962". There are no page numbers.
10. "Medical Service Digest, USAF School of Aerospace Medicine, 50th Anniversary", Aerospace Medical Division, Air Force Systems Command, Brooks Air Force Base, Texas, XIX, No. 1, January 1968, pp. 1-2.
11. Exact details for this development are found in an unclassified typed work called "History

Ruppell: Dayton and the Wright-Patterson Air Force Base

of Aero Medical Laboratory, Wright Field, Ohio”, in the library of the AMRL at Wright Field. No author is listed but it is probably the work of several librarians through the years. It surveys the period from September 1934 to September 1945. The revised “Engineering History from McCook Field to the Aeronautical Systems Division, 1917-1970” by Albert E. Misenko and Philip H. Pollock, was done at the Historical office of Wright Field, August 1970. “1917-1967, 50th Anniversary, Wright-Patterson Air Force Base” edited by Ebert Smith, is a good overview of the present structures. For specific details see, “About the Labs! Biomedical and Behavioral Sciences”, Wright-Patterson Air Force Base, Ohio, 1967.

