

Air and Space this Week

Item of the Week

Transcontinental Air Travel after WWI: Two Pivotal Moments in History

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Commercial aviation grew rapidly after World War I. The war had stimulated rapid growth in airplane technology, and trained a large number of pilots. It was just a matter of time before the new-fangled invention became important in both the military and civilian world.

Two major events shaped public, and congressional, opinion and three people played a significant role in promoting the coming importance of aviation. This is their story.

Aviation's first decade was characterized by very rapid growth of airplane technology. A mere few years after Kittyhawk found air shows and demonstrations becoming popular, and aircraft going from rickety open seat contraptions, and I do mean open seat, to much more capable flying machines.

The commercial value of aircraft was readily apparent, too. The first scheduled flight with paying passengers took place on January 1, 1914. Humor attended flight, too. On November 4, 1909, John Moore-Brabazon took a pig named Icarus II aloft, thereby proving that, in fact, "pigs could fly."

Pilots vigorously pursued flight records and daring deeds. One of particular note was Calbraith Perry Rodgers, who managed the first coast-to-coast flight across the United States. It took seventy stops and almost three months to make the trip (September 17 – December 10, 1911); he could have taken several transcontinental train trips in that time! He flew a Wright Model EX pusher biplane he named the "Vin Fiz," after his sponsor, a popular soft drink of the time. The *Vin Fiz* is [presently in the collection](#) of the National Air and Space Museum. Rogers was responding to a contest offer by William Randolph Hearst: \$50,000 (a ton of bucks in those days) to the first to fly across the USA in 30 days or less. He didn't get the money, became famous anyway, and died in a plane crash on April 3, 1912.

The proven value of aviation in WWI impressed a lot of people, and some knew that airplanes were about to become very valuable in both military and commercial uses.

The Transcontinental Reliability and Endurance Test of 1919

General Billy Mitchell was one of those impressed, to the point of becoming a zealot. His demonstration of the potential power of aircraft as ship killers is a topic for another time. Suffice to say, he scared a lot of admirals. Between the threats from above, and below (submarines) the surface navy of the future did, indeed, have much to fear.

Mitchell began his long agitation for a separate military service, akin to the RAF of Great Britain. However, the opposition of FDR (then Secretary of the Navy), and President Wilson kept military air as an adjunct to the Army and the Navy, at least for a time. Mitchell decided he would need public opinion as an ally in his quest.

The public was already somewhat familiar with aviation, spurred by Rogers' flight and others, and the stories of gallant fly-boys of WWI, but Mitchell wanted to impress everyone with the big improvements made in aircraft technology and capabilities during the war years. He created the "Transcontinental Reliability and Endurance Test," but it was more a race to generate favorable publicity than a test. And the public needed a diversion, too. They had recently endured a cavalcade of bad news such as the "War to End All Wars," a series of violent race-related and labor-related incidents, and President Wilson's stroke.

The idea worked; press coverage was huge.

A series of twenty checkpoints and fueling stations were set up along the route to be used by the racers, er, testers. Most of planes involved were DH-4s, but there were a few others, including a captured Fokker and a Martin twin-engined bomber. Forty-eight planes would start the route, traveling from east to west; another fifteen were aiming to fly the route in the opposite direction. A number of notorious/famous/soon-to-be-famous pilots were racing, among them LtCol Harold G. Gatty (commanded the First Pursuit Group in France); fifth-ranking US Ace, Field Kindley; Assistant Secretary of War Benedict Crowell (he participated as a passenger briefly; his aircraft crashed on take-off!); Major Dana C. C. Crissey, commander of Mather Field in Sacramento; Major Carl Spaatz (he would become the Commander of Strategic Air Forces in the ETO in WWII, and later became the USAF's first Chief of Staff); and Lowell Smith, who had once flown for Pancho Villa.

Disaster struck many of the planes the first day. Eighteen fliers didn't make it past Buffalo. Engine trouble caused several forced landings. One of those had to crash land, and its observer/mechanic was killed. Of those east bound, 11 of the 15 made Salt Lake City, their first checkpoint after crossing the Sierra. Major Crissey circled the field there, waving at the crowd, but stalled and crashed, killing both him and his observer. Three gone, and that intensified the press coverage.

The second day was also rough. Bad weather hampered the west-bounders, causing many forced landings, including one in Lake Erie (fortunately, the crew was rescued). East-bounders had snow and fog in Wyoming, conditions that forced one plane into radical maneuvers to avoid terrain, causing it to stall and crash. Its pilot, badly hurt, walked three miles for help. It was no avail; his observer died in the crash. Four gone.

The competition heated up on the third day, and “Tooey” Spaatz was one of the front-runners. Spaatz and the other east-bounders encountered bad weather and mechanical problems. Lt. Maynard won the first leg of the race, but it cost a fifth life when one of the competitors landed hard at Buffalo, bouncing his observer out of the airplane, breaking his neck in the process. [Two other lives had been lost when one of the competitors crashed *en route* to the starting position.] The return leg remained. Some of the competitors (including Spaatz), and some of the press, grew alarmed at the human cost, but the race went on. The next two days, a number of accidents occurred as stragglers finished up their first leg. On 10/15, an aircraft sustained engine failure over Wyoming and crashed, in spite of the pilot’s attempt to make a dead-stick landing.

These two deaths triggered more bad press (go figure). Major newspapers and government officials began to speak out against the race. Mitchell responded that the problem was not the race, but the DH-4. The plane had a terrible, but only partially-deserved, reputation in WW1, being called the “infamous flaming coffin.” Its fuel tank was behind the pilot, and in some crashes, would break loose and crush the pilot between it and the engine. But none of the five fatal accidents involved this or other major design flaws of the DH-4. Three of the crashes were clearly pilot error, and the other two were dead-stick landings, which pilots of that era were more-than-somewhat familiar.

The race continued. One of the front runners suffered a broken engine crankshaft, a serious failure that would normally taken too long to repair for him to continue the race. However, the Boeing bomber in the race had crashed nearby, and one of its engines survived to be inserted into the stricken DH-4, which carried on. Another DH-4 was destroyed when the lamp of a mechanic working on it caught the aircraft on fire, a total loss. That pilot was allowed to continue, IF he could secure a suitable replacement. A dim prospect, but Tooey Spaatz soon landed at that checkpoint, and turned his aircraft over to the lucky contender, Captain Lowell Smith (who would later lead the first round-the-world flight in 1924). Smith would be the first east-bounder to return to the West Coast. However, he did not win the race. Lt. Maynard arrived at Roosevelt Field in New York (he not only had an observer/mechanic, he also carried his dog, Trixie, the first dog to make a double transcontinental crossing by air!).

Lt. Maynard died three days later, stunt flying at a local county fair in Rutland, VT.

The press lost interest when Maynard was declared the winner, but the final flying wasn’t completed until October 31. Sixty-three planes started the race, 33 completed a one-way crossing, and only 8 completed the round-trip. Seven men died during the race. Flying in those days was exceedingly hazardous; the Air Service lost a pilot every 274 flying hours on average. But the death rate zoomed to 1 fatality per 80 flying hours for the 1919 racers, a fatality rate matching that suffered by the Lafayette Escadrille during 22 months of WWI combat!

Mitchell was a prophet. His view of air power would more-or-less prevail, but he was certainly ahead of his time. The Test proved only that the aircraft of the day were not particularly reliable nor did they have much in the way of endurance. Neither revelation was new news,

and certainly weren't worth the human cost. As for Congress, they weren't impressed, either; they cut the Air Service's budget severely.

But one thing was proven. U.S. airmen, and their support teams, were tough as nails.

SOURCES

The National Air and Space Museum has in its collection one of the 32-foot-long laminated cloth maps of the race route: <https://airandspace.si.edu/collection-objects/1919-transcontinental-reliability-and-endurance-test-strip-map-1919>

The National Park Service has a web article on Lt. Alexander Pearson, one of the race competitors who narrowly survived a crash in border-country Mexico; see: <https://www.nps.gov/articles/alexanderpearson.htm>

A story by William M. Leary, apparently excerpted from a now-unavailable source at Maxwell AFB, proved useful: <https://www.earlyaviators.com/emitche1.htm>

Binghamton, NY, not far from where I grew up, was one of the check stations on the race route. The "Treasures of the Tier" article linked to here gives additional insight as to the conditions in this part of the race course: <http://nyslandmarks.com/treasures/19oct2.htm> [FYI: The southern Finger Lakes region of New York is often referred to as the "Southern Tier" (of New York) and the corresponding area south of the NY/PA border as the "Northern Tier" of Pennsylvania. They are collectively known as the "Twin Tiers." I know, I know, the Southern Tier is north of the Northern Tier. I just grew up there, I didn't get to help with the namer's sense of direction!]

The 1921 Transcontinental Air Mail Flight

The U.S. Postal Service began experimenting with using airplanes to carry the mail from point-to-point more quickly than trains could. Their first efforts were more of a stunt than an operational system, but that would change in the next decade.

Frank Hitchcock was the Postmaster General from 1909-1913, and he was very interested in using airplanes to transport mail. He was no stranger to public relations, and even flew as a passenger in a Baltimore aviation meet in 1910, an act that brought significant, favorable, press coverage. He seemed to like public displays of aviation (the original PDA), and used an event in September, 1911, to enlist eight pilots as "aeroplane mail carriers," and have them fly a mail sack from Garden City, NJ to Mineola, NY, where they would drop them in a field to the local postmaster waiting below. The first to do so was one [most-cooly-behelmeted](#) Earle Ovington.

The Postal Office Department (POD) held similar promotions for the next several years, both to demonstrate the feasibility of air transport of mail and to build public support, hence political support, for Federal funding of an expansion of postal delivery technology into the air. The event planners were pretty well versed in press relations, and would generate publicity with gimmicks such as promoting the first U.S. Mail flight by a woman at the Montana State Fair in 1913.

Congress eventually relented, and appropriated \$50,000 to support the nascent air mail efforts. The next year, they doubled the funding in order to establish experimental air mail service. The POD had intended to contract for the flying, but the Army Signal Corps wanted more pilot training opportunities, both for their pilots and the civilians they contracted, so the ASC was selected to carry the mail.

Airplane and supporting technologies had improved since the Air Race of 1919, but things were still very primitive. The aircraft engines were unreliable, flight instruments were rudimentary, there was no radio communications with the ground, and there were very few navigational aids. The accident rate was huge, and that was in daylight flying. Flying at night was out of the question. The pilots were brave and fearless, but they weren't stupid!

One of the biggest problems the early air mail service faced, apart from the danger of flying, was that air mail just wasn't competitive with ground transport by rail. The cost in terms of pounds/mile was significantly higher by air than by rail, and the time saved was relatively minor, since the procedure being used for air delivery had the planes stop flying at sunset, transfer the mail they carried to a train, have the train continue through the night, stop in the morning to re-transfer the mail to the next plane relay, and so forth.

The air mail system required a government subsidy to be viable, and that was getting harder to come by. The public resisted paying more for air mail delivery, the Post Office was reluctant to subsidize air mail, and President Harding was opposed to using any further tax money to support air transport of the mail. Something was needed to give air mail a big boost.

Otto Praeger was the Assistant Postmaster General, in charge of the air mail program. He was one of those folks in history that has both enormously bad and enormously good qualities.

On the bad side, Praeger was not a pilot, he was the fishing buddy of the Postmaster General. He had total disregard for his pilot's concern about aircraft maintenance and dangerous flying. Any pilot refusing to fly because their plane had potentially-fatal mechanical problems, or that weather conditions were unsafe, was summarily fired on the spot. Conditions were so bad in 1917 that his pilots [went on strike](#) for safer conditions.

On the good side, Praeger was devoted to the establishment of air transport in the delivery of mail. He decided on a promotion not unlike that of Billy Mitchell in 1919, but on a smaller scale. Since the biggest objection to air mail transport so far was that the savings in delivery time were too small to justify the increased costs involved, he would show everyone that it is possible to deliver a load of mail from coast to coast in a single twenty-four-hour period.

Coast to coast in twenty-four hours with improved DH-4s absolutely would require flying at night!

The airmail routes then in use had been established, so some of the infrastructure was in place to support the demonstration. Praeger arranged for large bonfires to be set to guide the pilots during the night-flying stretch.

Four planes would be involved, along with a relay of pilots, with two stops for changing pilots built into the route plan, in addition to regular fuel stops. Two planes would depart from Los

Angeles and head east; another two would depart from Long Island and head west. The take-off date, in a patriotic nod to publicity, was February 22, George Washington's birthday.

Bad weather beset the west-bounders, and one of the planes had to drop out due to wind and ice damage. The other made the first stop, in Chicago, but relay pilot William "Wild Bill" Hopson ran into storms that grounded him, too.

The east-bounders fared somewhat better. Favored by good weather, both planes made Reno without incident, but one of the planes crashed on their next leg. That plane's mail sack was recovered, and passed to another pilot, who continued its journey eastward. The plane that didn't crash made Salt Lake City as scheduled. His mail was then taken on a relatively short leg from Salt Lake City to Cheyenne, WY. But it was now getting dark.

Pilot Frank Yeager had the next leg. He set off from Cheyenne in the gathering darkness, bound for North Platte, NE, arriving in the early evening, and damaging his tail skid on landing. It was now completely dark.

Pilots of this period were a rather colorful lot. Their profession was extremely dangerous and physically strenuous, and many lived a devil-may-care lifestyle. The pilot who would take the next leg, North Platte to Chicago, the appropriately-named Jack Knight, certainly fit the image. He had crashed in Wyoming's Laramie Mountains a week earlier, and was still feeling the effect of his injuries, which included a broken nose. He had to fix the damaged tail skid before he could take off, and then left North Platte around 10 PM local time.

The bonfire system worked fine, and Knight flew across eastern Nebraska without incident, landing at Omaha around 1 AM local. And there he ran into trouble.

The weather ahead was awful. The pilot scheduled to relieve Knight at Omaha was hung up by snow in Chicago, the next scheduled stop for Knight's mail. There were no other pilots available, and three of the four planes were now out of the running for the racers.

Knight knew the importance of this demonstration in establishing air transport as a viable delivery method. He knew the dangers of flying at night where he couldn't see the ground. What he didn't know was the route ahead; he had never flown east of Omaha.

Jack Knight showed he had the right stuff. He took the next leg, from Omaha to Des Moines, in spite of having just flown a full shift under trying conditions. When he got Des Moines, it was snowing heavily, making a landing impossible, so he flew another 120 miles to Iowa City. He refueled there, then made the next 200-mile leg, landing in Chicago safely. The press was waiting for him, and they went wild. Knight had flown a total of 830 miles, almost all of it in pitch darkness and much of it in a snowstorm.

The rest of the demonstration flight was blessedly anti-climactic. Two other pilots relayed the mail Knight carried on to New York. A total of seven pilots carried the mail, covering 2629 miles in a total elapsed time of 33:20:00, with twenty-six of those hours actually aloft. It wasn't quite done in "one day," but it did vindicate Praeger's belief that, with better infrastructure, air mail was a viable round-the-clock option for rapid transport of mail.

The trip was a sensation. It was Praeger's idea, and Congress appropriated the funds necessary to really get air mail "off the ground." Although there were a number of pilots and support personnel involved, the press/public cared only about Jack Knight. He was "good copy," and became quite famous.

Knight helped set up a system of beacons and other navigational aids that would allow for safer nighttime mail transport, and continued to fly air mail long after the 1921 flight. The Post Office and Army Signal Corps parted ways in 1925, and the Post Office then contracted for flight services. Knight followed along, joining the National Air Transport company and continuing his mail flights. (NAT was a precursor to today's United Air Lines.)

Knight had a number of illustrious colleagues flying the mail with him in the early/mid 1920s, including Charles Lindbergh.

Knight kept copious notes about this air mail flying experiences. After he became famous in 1921, "he was probably urged by newspaper editors and others to tell his stories." His notes have found their way into the NASM collection, and they make for exciting reading. One might think that the Rocky Mountain crossing was the toughest part of the coast-to-coast route, but the part that Knight and colleagues feared most was the segment they called "Hell Stretch." It wasn't in the west at all, rather, it was in northern Pennsylvania on the Cleveland-to-New York leg. Fog, rain, considerable topography, and tricky variable winds caused the pilots a lot of grief. Read about it yourself, at: <https://www.airspacemag.com/history-of-flight/crossing-the-alleghenies-in-1919-9218483>.

During WWII, Jack Knight, now too old to fly combat, was working with the [Defense Supply Corps](#) (now the [Defense Logistics Agency](#)), setting up a transportation route from South America that would supply native rubber to the war effort. Alas, he contracted malaria on one of his trips south, and died on February 24, 1945, in Chicago.

Knight's bravery on the North Platte to Chicago legs of the air mail race of 1921, and the resulting positive publicity and governmental funding, is [widely-regarded as "saving" air mail](#).

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