Review Essay

Blaming Wilbur and Orville

The Wright Company: From Invention to Industry. *By Edward J. Roach*. Athens, Oh.: Ohio University Press, 2014. xiv + 218 pp. Illustrations, bibliography, notes, index. Cloth, $69.95. ISBN: 978-0-8214-2050-8.

Birdmen: The Wright Brothers, Glenn Curtiss, and the Battle to Control the Skies. *By Lawrence Goldstone*. New York: Ballantine Books, 2014. xiv + 407 pp. Illustrations, bibliography, notes, index. Cloth, $28.00. ISBN: 978-0-345-53803-1.

Reviewed by Tom D. Crouch

Few Americans can match the honors and adulation accorded Wilbur and Orville Wright. The brothers emerged as great international heroes with their first public flights in Europe and America in the high summer of 1908. They were no longer the shadowy figures whose claims to have flown an airplane as early as 1903 were widely discounted; now kings, queens, presidents, and prime ministers flocked to see them fly and showered them with awards. Newspapers on two continents chronicled their triumphal progress across Europe and return to the United States in 1909. Wilbur's death from typhoid in 1912 was reported in bold headlines around the world. In the decades that followed, the Wrights' joint achievement would be commemorated with a great national monument, enshrinement in Greenfield Village (Henry Ford's grand tribute to the heroes of American ingenuity), and membership in good standing in the pantheon of brilliant inventors whose work reshaped history.

Yet where the Wrights are concerned there has always been an alternate view. Over a century after Kitty Hawk, there is still no shortage of rival candidates for the honor of having flown before the two brothers from Dayton. In spite of all evidence to the contrary, Brazilian textbooks continue to recognize native son Alberto Santos-Dumont as having achieved true flight before the Wrights, while just last year the Connecticut legislature voted to honor a Bridgeport resident as having beaten Wilbur and Orville into the air by two years, a favorite-son claim with little creditable evidence to support it. At the same time, a minority of

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critics who accept the Wrights as the inventors of the airplane question the brothers' characters and motivations.

While Edward Roach, historian with Dayton Aviation Heritage National Historical Park, chronicles the Wright brothers' business problems, he is by no means a critic. He closes a major gap in our understanding of the brothers, drawing on an untapped cache of corporate records and the scattered papers of business associates to produce a history of the Wright Company set in the larger context of American business, labor, urban, and industrial history. His book is a fresh, honest, and well-researched view of Wilbur and Orville's experience as the president and vice president of the Wright Company, respectively, detailing the rise and fall of a firm that in different hands might have dominated an infant industry.

The author points to the difficulties faced by these two brilliant, intuitive engineers as they moved from invention to management. The problems grew following Wilbur's death, after only two years at the helm of the Wright Company. "Without him, the company began its slide into irrelevancy. Left without his brother's leadership and counsel, Orville was unprepared and uncomfortable as the president of a well-capitalized corporation that had as its directors titans of Wall Street with national aspirations" (p. 175). A hard judgment, perhaps, but one supported by Roach's careful marshaling of the evidence.

Lawrence Goldstone, the author of *Birdmen*, offers a far more critical view of the business career of the Wright brothers. He provides an overview of the early history of American aviation, from pre-Wright experimenters to the exploits of devil-may-care exhibition pilots who dominated American skies before U.S. entry into World War I. His primary focus, however, is on the early history of the aviation industry in America and the patent suits brought by the Wright brothers against Glenn H. Curtiss and others, whom they regarded as infringing on their patent.

Goldstone is quick to recognize Wilbur Wright as "one of the greatest intuitive scientists this nation has ever produced" (p. xii). He contends, however, that Wilbur, having invented the airplane, "was driven forward to pursue his aspirations to monopoly with almost religious zeal" (p. 384). In their vigorous enforcement of their patent rights, he argues, the Wrights were not focused on "profiteering" or a simple desire to acquire great wealth. Rather, he portrays the brothers as exemplars of philosopher Max Weber's Protestant ethic, in which the acquisition of wealth is a sign of great piety, God's just reward for virtue and hard work. Wilbur Wright, he insists, was a man beset by "demons that caused . . . [him] to abandon science, to eschew innovation [and] to embark on a hopeless crusade to vanquish foes real and imagined"

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(p. 386). Curtiss, their great rival, is portrayed as a man who simply wants to build improved aircraft and make a decent profit.

Goldstone is all too inclined to trust Curtiss on critical issues. His discussion of the 1914 trials of the 1903 Langley Aerodrome offers a case in point. Having lost the latest judgment in the patent suit brought by the Wrights, Curtiss borrowed the sad remains of an aircraft that had failed to fly when tested twice in 1903. If he could refurbish and fly the old machine, he could return to court with proof that someone had been "capable" of flight before the Wrights.

Curtiss did make some short flights with the rebuilt Aerodrome. Goldstone accepts his word that those first flight trials were made with the original machine that had simply been refurbished, after which alterations were made. In fact, Curtiss had only been able to obtain the central frame and engine of the original machine. The all-important wings and tail of the craft had been destroyed in the 1903 crash. The Curtiss workmen built those portions entirely from scratch, making a great many critical changes from the original in the process. The wing area, aspect ratio, and camber of the airfoil, for example, differed from the 1903 machine, with a strongly reinforced main spar. The bracing system, probably responsible for the failure to fly in 1903, was radically different. Those were only the most important of many changes. In spite of Curtiss's statements to the contrary, those critical alterations were made prior to the first tests, invalidating the claim that the 1914 trials proved that the 1903 craft had been "capable of flight." Curtiss was not telling the truth, and Goldstone fails to catch him at it.

Nor is this the author's only incorrect assumption at the expense of the Wrights. He claims, for example, that "no member of the Wright family" attended the funeral of Lt. T. E. Selfridge, a Curtiss associate who died in a crash while flying with Orville Wright (p. 141). Wilbur Wright was in Europe, and Orville confined to a hospital bed with serious injuries, but as the *Washington Post* noted, sister Katharine Wright attended, representing the family. Again, Goldstone is taking the word of anti-Wright secondary accounts, rather than checking with the most obvious original source.

Several of the high-level reviewers of *Birdmen* demonstrate a breathtaking level of vicious anti-Wright sentiment that leaves Goldstone in the shade. Patrick Cooke, writing in the *Wall Street Journal*, concludes that "Orville was a vindictive SOB whose greed and begrudgery were surpassed only by those of his brother Wilbur." Joe Nocera's review in the *New York Times*—headlined "Greed and the Wright Brothers"—underscores Goldstone's basic contention that "by attempting to neuter Curtiss, the Wrights stifled the development of American aviation" (p. 382).

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That America had fallen far behind Europe in aviation by 1917 is beyond doubt. Every American airman who flew into combat in the "war to end all wars" did so in an airplane entirely designed and almost entirely built in Europe, except for those naval aviators operating Curtiss flying boats in search of enemy U-boats. Is Goldstone fair in blaming the sorry condition of American aviation on the stifling influence of the Wright patent suit?

Evidence to the contrary begins with the fact that the Wright Company paid a much higher price as a result of the litigation than did Curtiss. Consider the matter of aircraft sales, surely a basic measure of corporate success. Between 1909 and 1917, Wilbur and Orville Wright and the various Wright companies operating on the basis of their patents sold a total of twenty-six aircraft to the U.S. Army, their largest single customer. Twelve of the Army aircraft were built and sold in 1917 by the Wright-Martin Company, the organization created after 1915, when Orville Wright sold his shares and left the firm for good. During the same period, the companies controlled by Glenn H. Curtiss sold a grand total of 232 aircraft to the U.S. Army. This number, representing twenty-four distinct designs, was almost half of the total number of aircraft purchased by the Army prior to U.S. entry into World War I, and nearly ten times the number of Wright aircraft purchased during this period. In addition, twenty of the first twenty-seven aircraft purchased by the U.S. Navy before 1913 were Curtiss machines. The Wright Company sold only three machines to the Navy during this period.

Glenn H. Curtiss, the most significant target of the litigation, emerged from the era of the patent suits as the only American manufacturer building planes at a European level. Apparently undeterred by the legal threat, he worked to develop and market new products that met the needs of military customers in America and Europe. Nor was he alone. Glenn Martin, another pioneering American aircraft manufacturer, enjoyed far greater financial success than did the Wright Company in the months prior to the resolution of the patent suits in 1917.

In fact, while there was much concern at the time, little solid evidence exists to indicate that the patent suits had any serious impact on American aviation. How then are we to explain the fact that the nation that had given birth to the airplane had fallen so far behind?

The answer lies in a 1913 congressional study of aeronautical expenditures by the nations of the world. Germany led the world, with $28,000,000 spent on aviation between 1908 and 1913. France, Russia, Italy, and Austria followed close behind, with England in sixth place with a total national expenditure of $3,000,000 for aeronautics. Having spent only $435,000 for all flight-related activity during that

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five-year period, the United States was in thirteenth place, behind Japan, Chile, Greece, and Brazil. (All figures are from *Aeronautics in the Army*, hearing before the Committee on Military Affairs, U.S. House of Representatives, sixty-third Congress, first session, 1913.)

In addition to official appropriations, several leading aeronautical powers had also established national subscriptions that provided an additional $7,100,000 in private financial support for their aeronautical industries. Once again, Germany led the way, with $3,500,000 in private funds, followed by France ($2,500,000), Italy ($1,000,000), and Russia ($100,000). According to official U.S. government estimates, the other nations of the world had spent a total of $93,620,000 in public and private funds on aviation between 1908 and 1913.

That money was spent on direct purchases of aircraft and engines and on government-sponsored research and development programs. Each of the European powers that went to war in 1914 already maintained sophisticated aeronautical research laboratories. In the United States, the National Advisory Committee for Aeronautics was not authorized by Congress until 1915, and its first flight laboratory was not established until 1917.

In America, as Goldstone explains, flying was the domain of aerial showmen out to thrill the crowds at local meets and air shows with old-style pusher biplanes. In Europe, on the other hand, rich prizes were established to promote improvements in airframe and engine technology. Competition encouraged the development of aircraft that could fly higher, faster, and farther.

In attempting to answer the question of why America, the home of the airplane, lagged far behind Europe only a decade after Kitty Hawk, Goldstone and others who would blame the Wright brothers should step back and look at the larger picture. With war clouds glowering on the horizon, European nations had invested heavily in a set of new technologies with military potential. Americans, an ocean away from potential conflict, did not see the need to support the embryonic industry.

It is difficult to escape the conclusion that management difficulties and the time and resources expended on patent litigation limited the ability of the Wright brothers to continue pushing the limits of the technology to which they had given birth. Contrary to Goldstone's argument, however, the failure of other American aircraft builders to keep up with advances in Europe had little to do with the patent wars and everything to do with a limited market and the low level of public and private investment in flight technology.

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