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FOR PROGRESS, WAR, AND COMMERCE:

RHETORICAL CONSTRUCTIONS OF HUMAN FLIGHT, 1900-1935

A Thesis in
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by

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ABSTRACT

This thesis is rhetorical history of how Americans labeled, interpreted, and debated aviation technology in the early twentieth century. I study the rhetoric of three advocates who played key roles in aviation’s history: the Wright brothers, whose first flight in 1903 began national conversations about human flight’s meaning and purpose; William “Billy” Mitchell, whose bombastic advocacy for an independent air force in the 1920s began an ongoing debate about whether and how America should use airplanes for war; and Charles Lindbergh, who leveraged his fame to become a key voice in the effort to convince Americans that commercial flight had become safe and routine by the late 1920s. Each chapter combines close textual analysis of these advocates’ rhetoric with an intertextual survey of what their contemporaries had to say for and against aviation.

I begin with an introduction outlining the purposes, methods, and contributions of the thesis. Chapter two shows how the Wright brothers, while describing flight as a serious scientific endeavor that promised a better future, took part in a wider trend: labeling human flight with a vocabulary that combined America’s frontier mythology with words and images commonly associated with birds. Chapter three then analyzes how Billy Mitchell leveraged the hopes and fears of aviation’s technological “progress” to make the case for airplanes as weapons of war. He fatefully focused Americans on warplane technology and not on the human costs of bombing. Chapter four studies how Charles Lindbergh and the earliest American airlines re-branded flight as a routine and safe experience. Ironically, Lindbergh used his public reputation as an adventurer to help undo flight’s association with adventure and risk-taking, making arguments about how safe, routine, and professional flight had become. Airline advertisements echoed and
refined his message, emphasizing the professionalism of pilots and the comfort and convenience of commercial air travel.

Overall, my thesis maps dramatic changes in how aviation advocates defined, interpreted, and imagined the possibilities of human flight over the first half of the twentieth century. It charts the evolution of that rhetoric from depictions of flight as a romantic expression of humankind’s ingenuity and creativity, to warnings and demonstrations of its power to bring about either salvation or ruination, and finally to characterizations of flight as a routine feature of everyday life.
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Introduction

The History of “Winged Words”

The “Father of Aeronautics” received no respect in his own time. To study human flight in 1809 was to admit lunacy. This did not deter George Cayley; instead, it apparently encouraged him to speak up. So at the end of On Aerial Navigation, his formal essay arguing that human flight was possible, he justified his research by the benefits it could bring to society: “I may be expediting the attainment of an object, that will in time be found of great importance to mankind; so much so, that a new era in society will commence, from the moment that aerial navigation is familiarly realized.” Cayley’s voice was one of many in history’s long conversation about the possibilities of human flight. Inventors and proponents of the airplane could not help but talk about it. Some predicted that flight would bring about utopia, while others spun dystopian visions of human flight. One way or another, flight moved them.

This thesis is a rhetorical history of the early years of aviation in the United States. In it, I study early American debates over human flight’s meaning and purpose. Although this is the first history of its kind, it builds upon a long tradition. Scholars have long been interested in the relationship between society and technology. In rhetorical studies, scholars have studied how words have been used to label, discuss, and debate science and technology. Aviation’s history offers an illustrative case study reflecting these concerns. What flight might mean for society—and what aviation technology might be used for—were topics of public speculation and debate long before human flight became possible. All this talk about flight was emotionally charged: from the roots of western philosophy to Charles Lindbergh’s flight across the Atlantic, flight always possessed lofty symbolic importance. Yet none of the extant histories of aviation focus on the discourse surrounding flight’s development, and only one extended treatment of the
subject can be found in rhetorical studies. In the words of historian Joseph Corn, “Aircraft rapidly and dramatically changed warfare, travel, economic life, and the way people thought about the world.” In this account of the rhetoric surrounding the early years of aviation in the United States, I try show what role aviation’s advocates had in bringing about those changes.

The airplane’s worth was unclear to early twentieth-century audiences. Although the idea of flying had romantic appeal, airplanes possessed no obvious utility. For aviation to develop, its advocates had to argue for the technology’s potential, as Cayley tried to do in one of the first major published works on the subject. In this thesis, I study how other aviation advocates championed flight for differing purposes at three decisive moments in aviation’s history: (1) in the aftermath of the Wright brother’s legendary first flight; (2) in the early days of military aviation toward the end of World War I; and (3) at the dawn of a new age of commercial aviation in the late 1920s and early 1930s. Each of these “moments” revolved around the rhetoric of key figures in the history of aviation: the Wright brothers themselves, Brigadier General William “Billy” Mitchell, who championed military aviation, and Charles Lindbergh, who exploited his celebrity status to bring more attention to the commercial potential of flight. These people played major roles in debates that defined American aviation. Through study of the rhetorical exigencies they faced, the arguments they marshalled, their rhetorical successes and failures, and the broader conversations they provoked, we can understand how these early champions of human flight helped shape aviation’s place in American history and popular culture.

**Aviation in Rhetoric and History**

Several academic disciplines share my interest in the reciprocal relationship between society and technology. Their ranks include rhetoricians, media theorists, cultural historians, and science and technology studies (STS) scholars—just to name a few. The best of their studies see
technology to be neither a passive tool that humans wield at their will nor a deterministic force driving humankind to ends beyond their control. “Too often,” writes Martin Medhurst, “the debate about technology and its effects on human society has been dominated by the extremes” of either optimism or determinism.\(^8\) Humans interact with their technologies in complex ways, and scholars have more work to do in unpacking that relationship.

Only one systematic study of aviation has been written from a rhetorical perspective, and it describes aviation’s effects on American culture, not how Americans understood and discussed aviation technology. In her 2015 dissertation, Julia O’Grady argues that “iconic stories” about the Wright Brothers, Amelia Earhart, and the Tuskegee Airmen “generated excitement about flying but also offered reassurance” to Americans who were afraid of flight.\(^9\) She studies how these stories attuned Americans to aviation as they circulated and re-circulated through public memory. Her work tells part of the story of how Americans learned to trust aviation. But how did Americans learn what aviation was in the first place? From where did they get a vocabulary for talking about human flight? And how did public arguments and media coverage of flight influence aviation’s future development? These are the larger questions I try to answer by studying debates over aviation at three key “moments” when Americans confronted new arguments over aviation’s possibilities. Going beyond studying how Americans were persuaded to trust flight, I also study how Americans came to define aviation’s meaning and purpose in the first place.

Several other scholars of rhetoric have written about topics related to flight, but no one has focused directly on the relationship between the technologies of flight and public attitudes toward aviation. For instance, Jenson et. al. theorize Amelia Earhart’s “transcendent persona” and come away with an explanation of her public popularity but say little about how she
influenced public perceptions of flight. Similarly, George McHendry’s study of the rhetoric of airport security says little about how the tragic events of 9/11 and the advent of the Transportation Security Administration (TSA) shaped public perceptions of risk in air travel. In these and other rhetorical studies, the relationship between flight’s technology and public attitudes toward flight are not the primary concern.

More broadly, rhetorical scholars have been engaged in ongoing conversations about science and technology, but most of this work focuses on how scientists persuade one another or how they frame their work for public audiences. Work in the rhetoric of technology, in Bruce Gronbeck’s words, tends to focus on rhetoric’s role in how our modern technologies “got that way and what their implications are.” One way of doing that, he notes, is to examine case studies in which technology itself came up for debate: “If we are to understand how technology enters into the public sphere, and how (if at all) we construct technology rhetorically, then we must pursue case studies of debates over technology.” Others, such as Leah Ceccarelli, distinguish science from technology and argue that the “public address of scientists” also has been understudied. We need more case studies in the rhetoric of science and technology that focus on how technological advances are defined, debated, and implicated in broader discussions of social progress. This study contributes to that effort by exploring key debates over aviation’s future.

Perhaps the best model for my study is James Kauffman’s rhetorical analysis of public advocacy and debates surrounding the early space program, Selling Outer Space: Kennedy, the Media, and Funding for Project Apollo, 1961-1963. In this book, Kauffman approaches advocacy for manned missions to space in much the same way as I approach advocacy for human flight. Through studying public address that advocated for manned spaceflight, he shows
how myths and historical narratives defined American perceptions of spaceflight while convincing the public of spaceflight’s importance. In a sense, this thesis is a prequel to that book. Spaceflight’s rhetoric inherited many themes from earlier aviation rhetoric. Understanding rhetoric about flight can help us understand why Americans came to perceive the “final frontier” as manned flight into space.

Cultural historians of aviation have treated their subject in a wide variety of ways. In two volumes, Robert Wohl’s *Aviation and the Western Imagination* “deals with the aesthetic dimension of flight and aviation as a source of cultural inspiration” in the twentieth century.¹⁶ Joseph Corn explores how the airplane fostered utopic optimism in the first four decades of its existence.¹⁷ David Courtwright tells “the story of aviation as one of frontier expansion,” tracing metaphorical associations between flight and the frontier in twentieth-century American culture.¹⁸ These histories, while divergent in purpose and scope, all demonstrate aviation’s broad cultural significance. They also tell a historical narrative in which popular enthusiasm for aviation waned as flight became routine. And, finally, they demonstrate our need to better understand the rhetoric that shaped public perceptions of flight’s meaning and significance in the early twentieth century. Although all of these studies acknowledge that flight was intimately bound up in larger cultural myths and visions of the future, none attends closely to public debates that shaped how Americans thought about aviation and its role in the nation’s future.

Historian Dominick Pisano’s edited volume, *The Airplane in American Culture*, exemplifies our need to analyze discourse about aviation. Containing essays by many of aviation history’s leading scholars, Pisano’s volume emphasizes how enthusiasm for flight declined as aviation became commonplace. Pisano begins his own essay, for instance, with the following: “In the contemporary era, the average person does not often think of the airplane as anything
other than a machine to transport people and things to places around the world or as a weapon of war.” Other contributors also observe that airplanes no longer generate the excitement they once did. The contributors also conclude that we lack an adequate understanding of how that change in the cultural status of aviation came about. Pisano writes, “Nearly one hundred years after the invention of the airplane, and with time to evaluate its social, cultural, and political effects on our lives, the writing of the history of the subject has not progressed as far as it could or should.” Later in the volume, he makes the point more bluntly: “Historians simply have not done enough of the hard work of primary source research to answer basic questions about the history of aviation.” Those questions include the relationship of flight to issues of race and gender and the airplane’s role in America’s evolving “culture of war.” Although none of the essays in the volume aspires to a detailed rhetorical history of early aviation debates, all acknowledge that flight’s role in society was contentious. They acknowledge but do not closely examine the public debates in which flight’s uses and impacts were contested.

In this thesis, I hope to fill that gap by examining the rhetoric of flight, including debates over the benefits and risks of flight technology, in the first three decades of the twentieth century. By studying these early debates over aviation, I illuminate the exigencies, arguments, and effects of the rhetoric of flight, looking both at aviation’s champions and its skeptics. Examining both the short- and long-term impacts of those debates, I also explain how the airplane came to be seen as commonplace—a routine mechanism of transportation and commerce. James Carey argues that we should treat technology not as a “reflection of nature but as a form of action.” We should, in other words, study how technologies themselves “carry on the conversation of our culture.” This thesis does that by describing how the public discourse surrounding flight
defined aviation’s place in American life and, in the process, changed the course of American history.

**Purpose and Outline of this Study**

Extant cultural histories of flight describe the ramifications of aviation’s technological advances but do not attend to how those advances were interpreted, discussed, and debated in the first place. How did American people make sense of the airplane in the days before the technology was widespread and proven? What sorts of language were used to describe the technologies of flight and their potential contributions to American life? Histories of aviation take the answers to these questions for granted. They typically begin from the assumption that, in Joseph Corn’s words, the Wright brothers “invented, of course, the airplane.” But how did we come to accept that statement as a matter-of-fact? Indeed, how did we come to refer to fixed-wing, heavier-than-air flight machines as “airplanes” in the first place? As it turns out, there were a number of alternative labels for heavier-than-air flying machines, including “aerodrome,” “airship,” and “aerostat.” In the early days of human flight, all these labels, definitions, and meanings were, so to speak, “up in the air.” They were only settled through public discussion and debate about the technology of human flight and its implications for society. Analyzing that early public discourse about flight is one way to learn how all those labels, definitions, and meanings landed where they did.

My thesis poses these basic questions about several decisive moments in the early history of American aviation: How did changes in aviation technology inspire public discussion and debate? How did aviation’s advocates argue in favor of the new technology: what persuasive appeals did they make, what evidence did they use, and so on? Were those advocates’ arguments successful or unsuccessful, and why? Finally, how did those advocates spur broader public
conversations about the technology’s potential uses and significance? Taken together, the answers to these questions point to how public discourse introduced, argued for and against, and ultimately defined American flight.

We will come back to specific answers to these questions in the conclusion of this thesis. For now, suffice it to say that Americans initially drew from two sources to label and understand human flight: historical narratives, and avian vocabularies, or words pertaining to birds. By “historical narratives,” I mean to broadly refer to several things at once, including ancient myths about flight, spiritual traditions, and the frontier mythology that Americans used to interpret their own history in the nineteenth century. Each, woven together and with words typically used to talk about birds, gave Americans an initial vocabulary to talk about aviation. As aviation technology advanced and became more practical, Americans shifted away from the early terms and instead came to employ more modern terms of comfort and convenience. Aviation’s advocates had to undo flight’s mythic connotations in order to persuade Americans that flying was safe. But although they ensured that flight’s vocabulary no longer carried mythic connotations of adventure and risk-taking, they did not fundamentally change the vocabulary itself. Rooted in this historical narrative, I argue, are our most basic assumptions about human flight. The implications and connotations of the words we still use to describe aviation are deeply rooted in history.

This thesis takes an intertextual approach to advancing my argument. Each chapter analyzes two main bodies of primary texts. The first comes from the aviation advocates themselves. This means something different for each of the three case studies. The Wright brothers left behind a long paper trail of correspondence with family, friends, and other aviation pioneers. Careful guardians of their own publicity, they also occasionally published essays in
newspapers and scientific journals before and after they became internationally famous around 1908. Billy Mitchell penned scores of newspaper and periodical articles. He regularly made headlines in *The New York Times*, and over the course of his career wrote regular columns for *The Saturday Evening Post* and *Liberty.* His most influential “texts,” however, may have been photographs and films of the destruction caused by American warplanes in mock military exercises in June and July of 1921. Charles Lindbergh traveled all over the country giving speeches about the promise of aviation. He also wrote a best-selling book, titled simply *We,* that combined a narrative of his transatlantic flight with a celebration of the potential of commercial flight. The second body of texts for all three case studies comes from newspaper and periodical coverage of the key events and debates in the early history of aviation. These texts provide a window into broader conversations about aviation, allowing us to interpret and assess the impact of the key advocates’ words within a broader context.

**Chapter Two: Fantasies, Frontiers, and the Wright Brothers**

The Wright brothers flew for the first time on December 17, 1903. Only seven people witnessed the flight. For the next five years, the Wrights deliberately hid their invention from the public. They only made public statements about their invention to correct false or incorrect reports about its nature. Why the secrecy? Knowing they had invented something historic, the brothers wanted to secure patent rights before going public. By all accounts, they were not motivated to do so by greed, but by an honest desire to cement their legacy as the airplane’s inventors. They sought to secure their place in public memory.

Because so few people saw the machine fly firsthand, many doubted that it had been built. Skepticism abounded. Those who did witness the machine—mostly military leaders from various countries—were unsure of its practical use. So in 1908, to stir excitement and allay doubt
about their invention, the Wrights reluctantly began to fly in front of large public crowds.\textsuperscript{30} Wilbur, for instance, surprised New York with an impromptu flight around Manhattan.\textsuperscript{31} The flights were dull by today’s standards: the brothers flew slowly and in straight lines. Crowds who had never seen a human fly before were electrified. Wilbur performed a figure-eight in France, and the French press dubbed him the “father of aviation.”\textsuperscript{32} The public finally became enthusiastic about flight. Having proven their ability to fly, the Wright brothers faced the more difficult task of persuading the public that their invention had practical value. My second chapter studies how they argued both cases.

The Wrights had to prove that they had invented a working airplane. Inventors had been tinkering with flying machines for hundreds of years. None had ever flown, despite many broken promises to the contrary. On top of that, to almost every major religious tradition, flight was an ability reserved for angels and other spiritual deities. To followers of these traditions, the claim that mortals could fly seemed arrogant and even sacrilegious. Centuries of failed inventors combined with millennia of myth to associate human flight with folly and hubris. In the words of an editorial in the December 10, 1903 edition of the \textit{Chicago Tribune}: “No trace of a wing can be found or anything that indicates nature intended us to navigate the air. There is little possibility of that until we become angels.”\textsuperscript{33} Seven days after this editorial’s publication, the Wrights flew for the first time.

The editorial expressed a common attitude to which human flight’s inventors had to respond. Prevailing myths of flight and specific memories of failed attempts at flight created rhetorical challenges on top of the technical challenges the Wrights had to overcome. They attempted to do so by emphasizing the rigor and caution they used while inventing and testing the airplane. In public writings and appearances, especially after 1908, they modeled restraint.
Instead of playing up flight’s adventure, or risk, or drama, they soberly described the airplane’s technical features and described aviation as a serious engineering endeavor.

The frontier myth was central to the early rhetoric of flight in the U.S. Myths had long been present in talk about flight. The mythical figures of Daedalus and Icarus, for example, had been invoked since the earliest days of aviation rhetoric. In the early twentieth century, however, the closing of the American frontier created a new exigence for rhetorics of “manly” adventure and exploration. Appealing both to America’s embrace of “scientific progress” and the closing of the frontier, the early rhetoric of flight in the U.S. tapped into powerful myths about what made America great—a leader among nations. They also gave a simple explanation for human flight’s meaning and purpose at a time when few Americans agreed on either. These myths, combined with frequent comparisons between birds and human flight, initially provided Americans with a vocabulary for describing aviation technology.

Chapter Three: Technological Spectacle in Billy Mitchell’s Campaign for Aerial War

By the end of World War I, U.S. Brigadier General William “Billy” Mitchell was convinced that airplanes would forever change warfare. In future wars, he believed, victory would depend on air power. Troublingly, however, America did not as yet have an air force worthy of the name. At the time, Mitchell was relatively alone in this belief. Air power, he worried, was not being taken seriously by the U.S. military or the general public. Overcoming that attitude became Mitchell’s mission in life. When his superiors rejected his arguments for the creation of an independent air force, he took his case to the public. Mitchell’s aggressive public advocacy alienated military leaders who believed that he was out of line to question his superior officers in public. Mutual dislike between Mitchell and his superiors boiled over in 1925, when several of Mitchell’s airmen died in a series of accidents. Mitchell claimed that they died because
his air operations were underfunded. He accused his superiors of “incompetency, criminal negligence, and almost treasonable administration of the National defense.” That accusation went too far. By order of President Coolidge, Mitchell was court-martialed in 1925 for insubordination. His combination of radical ideas and belligerent advocacy ended his military career. His complicated legacy is at the heart of aviation’s enduring and painful relationship with war. In my third chapter, I study Mitchell’s advocacy of an independent air force.

The connections between flight and war had been imagined centuries before the airplane was invented. In Mitchell’s own time, those connections were reinforced not only by aerial warfare during World War I, but also in popular literature. Mitchell himself circulated many accounts of his first-hand experiences with aerial warfare during the Great War, while novelists and other popular writers imagined the future of aerial warfare. Most of these popular accounts were fanciful, but a few were frighteningly prophetic. For example, H.G. Wells’ 1908 novel, *The War in the Air*, imagined the sort of carnage that bombers would make all too real for civilian populations during World War II.

Mitchell leveraged the American public’s fascination with fictional aerial war. He advocated for military aviation through drama and spectacle. He penned scores of newspaper and periodical articles that described how foreign countries would bomb America into ruins if American policy makers continued to ignore military aviation. He wrote a series of articles for the *Saturday Evening Post* explaining why and how America’s military had to create an independent air force. Despite all of his writing, he attracted the most attention to his cause by bombing and sinking retired naval vessels during joint military trials with the Navy in 1921. The most dramatic of these trials took place in July of that year, when Mitchell’s planes sunk the supposedly unsinkable battleship *Ostfriesland*. He caught the sinking on film and disseminated
both photographs and films of the event to the wider public. The public thus saw the destruction that they could otherwise only imagine. Mitchell followed the bombing trials with flights over Philadelphia, Baltimore, and New York City. After each flight, he wrote articles in those cities’ newspapers about how they could have been obliterated if his planes had dropped bombs. Such stunts from Mitchell were common: he sought to shock the American people until they pressured Congress to take aerial combat seriously. Seeing was believing, as was often the case in aviation’s history. Americans would not think of military aviation as a serious matter of public policy until someone showed them what it could do. Mitchell showed Americans aviation’s destructive potential and ushered in the coming age of large-scale aerial bombardment.

In the short term, Mitchell did not achieve his goal of creating an independent U.S. Air Force. Instead, his public criticisms of his superiors got him court martialed for insubordination. Military budgets were thin in that time of isolationist sentiment, and within the military services there was stiff competition for funds. As a result, Mitchell’s advocacy of air power served only to alienate him from his fellow military officers. Yet Mitchell’s efforts did not go unnoticed. While his ideas may have seemed too radical or too expensive for top military brass, he clearly caught the public’s imagination. Mitchell caused few short-term changes in military aviation policy, but he did cause American discussions of military aviation to change. Before Mitchell, when Americans talked about aerial warfare, they talked about heroic pilots who fought those legendary aerial duels known as dogfights. After Mitchell, everyone talked about aerial bombardment—the large-scale destruction of cities from the air. He got Americans to consider large-scale military aviation as a question of public policy, and he did so with a fateful focus on technological capacities while paying little attention to ethical concerns.
Chapter Four: Charles Lindbergh and the Rhetoric of Routine Flight

Commercial aviation’s success was anything but inevitable. When airlines first formed in the late 1920s, most of the public still feared flight. Flying was for daredevils and barnstormers, not ordinary people. To make matters worse, even if the airlines had been selling a product that the public trusted not to kill them, they took off in the middle of the Great Depression. The 1930s were not a good time to start any new industry, much less one with such rhetorical baggage. Yet that is what the first commercial airlines did, and they did it with remarkable success. Part of the explanation for that success was the vocal support for their cause coming from a national hero, Charles A. Lindbergh.

We remember Lindbergh for flying solo across the Atlantic Ocean, not for flying across the United States. Yet he may have had a bigger impact on aviation’s development when he barnstormed across the U.S. in 1927, using his fame to promote both commercial aviation and airmail service. After his historic flight from New York to Paris, he embarked upon a marathon aerial tour that stopped in every state in the continental United States. Along the way he argued that flight could revolutionize American business and commerce, if only Americans got over their qualms about flying. Before the tour, he also wrote an autobiography, titled simply We, in which he wove arguments on behalf of commercial aviation’s safety into his life story. The explicit purpose of both his tour and his book was to calm the public’s fears about flight. In my fourth chapter, I analyze Lindbergh’s advocacy for commercial aviation in the context of common advertisements used by the airlines themselves.

Commercial aviation sold a product that most of their potential customers thought dangerous. This was the chief rhetorical obstacle to Lindbergh’s advocacy. By then, aviation technology had revolutionized how planes flew. They had become faster, lighter, and safer, but
the public still associated flight with daredevils and barnstormers. Most still feared to fly. New technologies, such as retractable landing gear, streamlined aerodynamics, and radio navigation, still needed to be explained, and there was nobody the public trusted more to explain these new technologies of aircraft engineering and “modern” flight than Charles Lindbergh.36

Advocates for commercial aviation sold flight to the American people by making it seem routine, a common feature of daily life. In We—and all throughout his cross-country tour—Lindbergh argued that aviation technology had become totally reliable and that pilots had become trustworthy professionals. Like the Wrights, he tightly controlled his public persona to appear more like a professional pilot—sober and careful—than a daredevil. Lindbergh’s advocacy helped improve the airlines’ *ethos* and paved the way for a generation of famous pilots who, like him, used their fame to argue for flight’s safety.

With Lindbergh making the case for airline safety, the airlines themselves used advertising to emphasize the comfort and convenience of commercial flight. Their sophisticated advertising campaigns, combined with Lindbergh’s campaign, essentially re-branded flight from a risky technology of frontier adventurism to a banal technology of routine transportation.

**Chapter Five: Conclusion**

In conclusion, I summarize each chapter’s findings and arguments. I then reflect on the answers to my four research questions. Changes in aviation technology inspired public discussion and debate because of how Americans historically understood flight. Long before 1903, Americans understood flight as freedom from the human condition’s constraints. Historical narratives about flight’s capacity to give humans freedom inspired public debate over flight’s potential to liberate people from their earthly limitations. Aviation’s most successful advocates leveraged those historical narratives to give their advocacy weight.
Risking oversimplification, we could say that aviation’s advocates sold flight in one of two seemingly contradictory ways. Most of the earliest aviation advocates emphasized the drama, spectacle, and excitement of flying and speculated about how it might bring about either utopia or dystopia. Later aviation advocates, on the other hand, tended to downplay its experimental and adventuresome nature, and instead focused on its safety and its potential to benefit society. Just as today, those advocates whose claims were the most dramatic or grandiose attracted the most public attention, but in the long run they were not any more effective than those who made more subtle and nuanced arguments. In fact, none of the advocates examined in this study achieved immediate success. All became well-known, however, and each impacted flight’s long-term course. In the end, flight’s history was shaped not so much by individual advocates, but by the vocabularies, ideas, and arguments they popularized and the ways their rhetorical legacies shaped the public imagination over time.

In addition to analyzing the arguments and impacts of each of the aviation advocates studied in this thesis, I will reflect on broader themes that span all of the three case studies. First, I suggest throughout the thesis how the early vocabulary used to talk about new aviation technologies constrained the public imagination. Terms and labels which at first were used simply for convenience or because advocates had to create their own vocabulary to employ when talking about flight later came to shape basic assumptions about human flight’s purposes and potential. Second, men of privilege and power dominated the rhetoric of flight in the early years, resulting in a gendered vocabulary of human flight. In the early years of aviation, the focus was on how flight might conquer new frontiers or change the face of war, a discourse that made place for women in the cockpit only to the extent that they could call attention to how routine and comfortable aviation had become by the 1930s. Third, all of the advocates examined in this study
were better at talking about aviation’s potential capabilities than they were about its limitations or ethical constraints. For various reasons, talking about what a technology *can* do seemed to come easier to these advocates than talking about what it *should or should not* do.

These three themes reflect broader trends in the rhetoric of science and technology. When we debate how and why new technology should be integrated into our society, we debate complicated and overlapping issues. The scholarly literature on the rhetoric of science and technology often focuses on how scientific controversies begin and unfold. One lesson from this study is that, most of the time, we actually take our technology’s meaning and value to be self-evident. Instead of interrogating only the rhetoric of scientific and technological controversies, we ought to interrogate those rhetorics of sciences and technology that we take for granted, including the early, emergent rhetorics of technologies that now seem commonplace. In doing so, we can illuminate how we come to understand our technological developments in particular ways, and we can better grasp the ethical implications that are sometimes obscured by our ossified assumptions about the meaning and value of those technologies.
Notes


6 Corn, The Winged Gospel, X.

7 Wohl, A Passion for Wings, 14-20.


15 James L. Kauffman, Selling Outer Space: Kennedy, the Media, and Funding for Project Apollo, 1961-1963 (Tuscaloosa: University of Alabama Press, 1994).

16 Wohl, The Spectacle of Flight, 1; Wohl, A Passion for Wings.

17 Corn, The Winged Gospel, 3-5.

18 Courtwright, Sky as Frontier, IX.


27 Hurley, Billy Mitchell, 66-68.


30 Tobin, *To Conquer the Air*, 302-318.

31 Tobin, *To Conquer the Air*, 350.


33 “Prof. Langley’s Ill-Luck,” *Chicago Tribune*, December 12, 1903, quoted in James Tobin, *To Conquer the Air*, 200.


36 James R. Hansen, *The Bird is on the Wing* (College Station: Texas A&M University Press, 2004), 41-81.
Chapter Two

**Fantasies, Frontiers, and the Wright Brothers**

*I cannot but believe that we stand at the beginning of a new era, the Age of Flight, and that the beginnings of to-day will be mightily overshadowed by the complete successes of to-morrow.*

*Orville Wright, 1909*

On December 17, 1903, Orville Wright became the first human to fly on a machine heavier than air. That night, in the hours before bed, he opened a magazine to “whittle” away time. He opened it to an article explaining that heavier-than-air human flight would forever be an “utter impossibility.” Doubts of flight’s possibility tangibly impacted the Wrights: no local newspaper covered their first flights in detail. Nobody believed the Wrights had succeeded. Even if they had succeeded, no one knew what their machine was worth. The next century would be defined by revolutions in travel, warfare, and commerce, all made possible by human flight. But human flight could not possibly have gotten anywhere unless people had first imagined its purposes and possibilities, and even argued on their behalf.

From the earliest myths about flight to eighteenth-century balloonists, two different perspectives on flight competed against each other. Trying to fly was either viewed as dangerously unrealistic hubris, or it was seen as the human’s ultimate path of transcendence and freedom. We preserve this distinction when we call a foolish notion a “flight of fancy” or an escape an act of “taking flight.” This distinction between flight as fanciful or liberating shaped how Americans discussed and eventually used aviation technology in the twentieth century. Humans did not develop aviation technology on a wide scale until human flight’s inventors made a good argument for why it would be useful. In this chapter, I study how they did so in America’s first debate over human flight. Although that debate had no firm resolution (it would continue until and beyond the era covered in chapter four), it did solidify the terms by which
Americans talked about flight. Through Americans’ early discussions of flight, flight came to connote progress into natural frontiers of knowledge and space.

In aviation history, the rhetorical tradition distinguishes between good and bad uses of the imagination. A wide cluster of terms—fantasy, phantasia, fancy, presence—refer to the same basic thing for a wide variety of theorists: arguments that call audiences to imagine distant objects or events. Michele Kennerly notes that, although the imagination can cause “vacuous daydreaming,” it can also spur judgment in situations where rhetoricians call their audiences to imagine things relevant to civic issues. Fantasy is a vice when it imagines only one person’s future and a virtue when a collective public imagines their future. What Kennerly calls “civic fantasy” marshals the public’s capacities for invention—rhetorical and, in aviation’s case, mechanical—to work towards a shared vision of a better future.

Civic fantasies must work within a nation’s pre-existing stories about where they come from and where they are going. They must mesh with the dominant myths and metaphors by which a particular culture understands the world. Possessing something like what Walter Fisher called “narrative fidelity,” civic fantasies must “ring true” with audiences’ daily lived experiences. If they do not, audiences may reject the fantasy’s vision, either because they disagree with that future’s assumed values or because they cannot recognize themselves living within that future.

Civic fantasies often drive discourse about new science and technology. Scientists often justify so-called “basic” scientific research, which they undertake without any practical outcome in sight, in terms of its future potential to improve society in unknown ways. Similarly, new technologies that do not have any obvious uses need to be justified. If you invent something that
has no obvious practical applications, you have to justify its existence in terms of what it might eventually accomplish.

When the Wright brothers invented the airplane in 1903, it had no obvious purpose. Early airplanes were slow, loud, and dangerous, and they could not carry much weight. What was their use? Against those who defined airplanes as toys, nuisances, or even threats to public health, the airplane’s advocates argued with civic fantasies that imagined a better future brought about by airplanes. No one agreed on a specific vision of that future. In fact, most commenters explicitly acknowledged that they had no way of knowing what, specifically, the future might hold. Commenters deferred to vague notions of “progress” as an end in itself. Despite their vagueness, these notions, especially when implicitly or explicitly tied to America’s frontier mythology, drove the airplane’s initial acceptance into society. The airplane became a modern extension of America’s frontier mythology—a powerful example of America’s supposed duty to overcome its own limits and conquer new frontiers. All of aviation’s advocates expressed civic fantasies of progress toward new natural and scientific frontiers, whether they invoked the frontier metaphor implicitly or literally. America’s frontier history did more to define the public discourse of aviation’s early history and development than any single advocate.

Yet certain advocates were more prominent than others, and this chapter focuses on the most prominent and famous of that first generation of aviation advocates: the Wright brothers. In this chapter, I begin by recalling how a long history of skepticism and even hostility toward the idea of manned flight constituted the context for the Wright brothers’ advocacy. I then analyze how the Wright brothers themselves talked about flight’s future by emphasizing flight’s scientific basis and by arguing that flight’s future should be controlled by restrained scientific experimentation. I finally examine the early twentieth-century debate over American aviation’s
purpose and usefulness, a debate that the Wrights began. I summarize the many competing visions for aviation’s future that were advanced by aviation’s advocates and detractors—visions that had little in common other than their high emotions and frontier metaphors. Whether invoked explicitly or implicitly, frontier metaphors gave Americans an initial vocabulary to talk about aviation, so I conclude the chapter by describing how images of the frontier appeared in early discourse about flight and what legacy they, along with the Wright brothers, left to later discussions of flight.

**Faith and Folly in Flight’s History**

Flight-related myths have a long and multicultural history. Despite their diversity, almost all ancient cultures equated flight with spirituality. Norse religious traditions praised ravens as all-knowing, for instance, and Christian traditions distinguish angels and demons from mortals by their ability to fly. For many ancient cultures, height symbolized transcendence and power. Mountains were sacred and birds were deities. Heaven was up and hell was down. Almost every early culture privileged flying and the sky as in some way associated with spirituality. For most of human history, flying was a spiritual act performed by deities, not something for mere mortals to try.

Many people nonetheless attempted to fly. Although the history of their actual attempts is clouded by thousands of years of myth and folklore, we can at least say that folly was the essence of flight’s experimental history. History holds countless tales of men and women confidently flinging themselves off of high places, only to crash into disappointment and the earth below. If any early aviators were successful, their stories have been lost among the more common legends of British “tower-jumpers” and flying Chinese chariots. Among the ruins of countless failures there are but a few examples of diligent thought being applied to the practice
of flight. These rare successes could not overcome the burden that so many stories of folly
placed on the western world’s consciousness of flight. By the 19th century, to contemplate human
flight was to admit to lunacy.¹⁰

Out of this historical malaise came George Cayley, a nineteenth century Canadian Baron. He was probably the first person to examine the principles of flight as an exercise in how humans might adapt technology to harness natural laws of aerodynamics. Historians often credit his research with founding the field of aeronautics as a whole. Without his work, engineers like the Wright brothers would have had no basic knowledge of aerodynamics from which to begin their work. Despite this, Cayley received little recognition in his time. Legend has it that his sons burned most of his aviation-related papers after his death.¹¹ They could not bear to have the family name tarnished by the supposed pseudoscience of flight. Cayley nonetheless gave future inventors the foundation on which to pioneer a real science of aerodynamics.

Lighter-than-air balloons, invented in 1783, gave the world hope that humans would someday master the skies. Hope quickly turned to disappointment, however, when no one could find a way to control airborne balloons. Able to sail gracefully on the wind but unable to direct themselves to any controlled landing place, balloons ultimately failed to satisfy long-held hopes that humans could use flight as a means of transportation. They sparked massive public interest and enthusiasm (roughly half of Paris gathered to witness one of the first flights),¹² but they failed to be practically useful. For a few years, showmen and show women made good money amusing crowds with ever-more ridiculous balloon launches, which included flying dinner cars and one brave soul who ascended underneath a balloon while riding a horse.¹³ But audiences tired of repetitive launches, and by the 20th century balloons and balloonists had a reputation for
being fanciful and useless. The apparent folly of the balloon craze ultimately made flight seem more air-headed than ever.

Despite these early disappointments, the twentieth century brought a new generation of inventors determined to fly. They approached the problem of flight with vastly different solutions. Some continued the century-long project of trying to build motors that could control balloons and airships through the air. Others tried to build wings that, when appended to human arms, could let the human fly under their own power. Others tried to build gilders with a view toward adding propulsion later. While their attempts usually failed, this generation inspired the inventors and engineers who eventually became the world’s first generation of pilots. We do not remember names like Cayley, Mouillard, Santos-Dumont, Bleriot, Maxim, Lilienthal, Langley, and Chanute, but these early inventors cleared the way for the Wrights and their peers. Unfortunately for the Wrights, the failures of these early inventors also helped convince the public that flying remained a fool’s errand.

Americans were skeptical of flight at the turn of the twentieth century. At that time, Samuel Langley was the only well-known American aviation pioneer. Unfortunately for him, his main effect on American attitudes about flight was probably to cement doubts about human flight’s possibility. As director of the Smithsonian Institution, Langley’s experiments received much more attention than the Wrights. The U.S. government funded him to design and build an aircraft after he made grand promises to the war department about its potential in battle. There were many witnesses on hand when a prototype of Langley’s first aircraft motored to the edge of the houseboat from which it was supposed to take off. The crowd, which included members of the national press, watched it tumble into the water. Langley became a national laughingstock—just another example of the folly of flight.
In 1903, then, the Wright brothers faced a challenging rhetorical situation. Almost every major religious tradition viewed flight as an ability reserved for angels and other spiritual deities. To followers of these traditions, the claim that mortals could fly seemed not merely arrogant but even sacrilegious. On top of that, centuries of zany balloonists and failed inventors were fresh in the American public’s mind, thanks most recently to Langley. Anyone who invented a flying machine faced the difficult task of persuading a skeptical public that their machine not only could fly but might have a useful and productive purpose.

**The Wrights’ Rhetoric: Optimism and the Rigor of Science**

The Wright brothers did not set out to be advocates for aviation’s cause, but their fame and authority ended up putting them in that role. After 1908, Americans trusted them as the leading authorities on matters relating to aviation, but not because they tried to “sell” the public on their invention. They made public statements for one of two reasons: either to correct a factual error made about them or their experiments in a newspaper or periodical, or to respond to the requests for interviews that flooded in after they became famous in 1908. Because early reports on flight frequently got the facts wrong, and because the Wrights were sought for many interviews, the brothers ended up having a wide public platform from which to share their views on aviation. They did not seek that platform, but their reputation as aviation’s greatest inventors gave them fame and an *ethos* of expertise. Regardless of their purpose in talking about aviation’s purposes and practicality, their words influenced how the American public came to view aviation.¹⁶

The Wrights offered a clear vision for future pilots and aviation engineers, but they actually said little about flight’s future impact on society as a whole. They tried for nearly all of their lives to define aviation as a serious scientific pursuit. To us, that goal might not seem
ambitious, but at a time when most Americans still thought of flight as folly they faced significant obstacles. The Wrights tried hard to model and advocate for the rigorously scientific pursuit of aviation. To them, so long as people pursued aviation with proper rigor, it would become useful. They emphasized a civic fantasy not about what aviation might do to change the world, but about the processes through which aviation might be made useful.

The Wright brothers took two different approaches to their public statements before and after 1908. Before 1908—before they were famous—they made few public statements, mostly terse and excitement-free descriptions of their experiments. After 1908, the brothers still shied away from the hyperbolic language other writers used to describe flight, but they began to make more confident predictions of flight’s future.

The Wrights published only five non-technical statements about the airplane before 1908, alongside a few papers on aerodynamics published in engineering journals. All five focused on the technical details of their experiments and said almost nothing about human flight’s implications for society. For example, the Wrights’ first public statement about the airplane, sent to the Associated Press on January 5, 1904, recounted the events of their first flight in scrupulous detail. The brothers wrote the statement to correct a false report about their first flight that had been leaked to the press by a telegram operator. The brothers’ statement was published by several Midwestern newspapers and roundly ignored by everyone else. Despite its negligible impact, it offers an interesting case study in how the brothers first tried to frame and define their invention to a skeptical public.

In the brothers’ own words, the statement told the “real facts” of their first flight. It consisted almost entirely of technical details. In dry prose, they described the wind’s direction and speed during their flight (measured with “a hand anemometer”), the specific distances they
flew, the precise height they achieved, and the time of day of the flights down to the minute. The brothers gave only one indication that they had done anything out of the ordinary: towards the statement’s end, they described packing up and going home after the flights, “knowing that the age of the flying machine had come, at last.” And that was it. The brothers displayed no excitement and no awareness of having invented something extraordinary or having done something historic. In retrospect, they may have inaugurated a revolutionary new age, but the brothers left Kitty Hawk merely “satisfied” with the success of their experiment. They did not say what this new age of flight might mean, only how it had arrived. The new age of the flying machine was, by the Wrights’ first telling, sober, full of technical details, and devoid of excitement about the future’s possibilities.

In a sense, it was a shrewd rhetorical response to the false reports they hoped to discredit. In those reports, the Wrights had come across as just another couple of “cranks” pursuing the folly of human flight. No publicity at all would have been preferable to being associated with the long history of cranks pursuing human flight. Their terse statement seemed clearly designed to distinguish them from earlier advocates of flight, whose enthusiasm only contributed to their reputation as fools. The Wrights, in contrast, cultivated the restrained ethos of scientists or aviation “experts.” As Orville Wright himself would later point out, most Americans simply weren’t paying attention in 1904, and those who were had their fill of false “confirmations” that people had flown. For the most part, the brothers’ first statement about their experiments in flight were simply ignored.

Yet as more rumors about the flights circulated and the public became more curious, the Wrights published several more articles explaining what they were up to. Their next statement came on March 12, 1906 and was published as a circular by the Aero Club of America. As in
1904, this statement mostly summarized technical details of flights they had completed to that point, complete with a table summarizing the distance and time aloft reached by each of their flights. As before, they had to prove that they were not mere crank inventors, but instead were serious engineers. They wrote that their goal all along had been to build a “machine of practical utility, rather than a useless and extravagant toy.” They framed their activities in scientific terms, discussing such topics as the “scientific efficiency” of the wings used in their “experiments.”

Once again, the brothers reacted against those who questioned aviation’s possibility and practicality by portraying their work as an exercise in scientific experimentation.

The brothers’ next public statements appeared in 1908—two in June, and one in September. The June statements were both similar to the Wrights’ previous two statements, and both were published in periodicals that specialized in technical subjects (*Aeronautics* and *Scientific American*). The September statement marked a change in course for the brothers: it came after they had staged large-scale public showings of their flier, and was the first piece they published in a general circulation periodical (*Century Magazine*). Writing for a different audience, the brothers relied on narrative instead of technical detail and summarized not just their experiments but also recent tests by other aviation pioneers that informed their experiments.

The Wrights’ June 1908 statements were the densest yet. They summarized all of their flights from 1903 to 1908, and provided a table that described the distance flown, time in the air, and wind speed during each of their 1908 flights. Again, their tone was measured and scientific; again, they described their flights as “experiments.” The most value-laden adjective that they used to describe their flights was “satisfactory.” The statements read more like a report from a laboratory experiment than an announcement of a world-changing breakthrough in technology. The Wrights apparently intended this. They were clearly sensitive to how sensational reports
about flight usually led to disappointment, and they distanced themselves from that history. Especially in *Scientific American*—a periodical with a readership well-versed in engineering and modern science—the brothers had to appear serious and credible. To be taken seriously, they needed to avoid sounding overly enthusiastic and focus on factual details.

Even when the brothers wrote for a general audience in *Century Magazine*, they wrote with little passion. Their highest excitement came in the article’s opening, which summarized published works on the “nature of the flying problem” and praised the old pioneers’ “unquenchable enthusiasm.” The rest of the article assumed a more matter-of-fact tone. The article summarized the entire history of their experiments, including the set-by-step procedure by which they built their own wind tunnel and the precise dimensions of the first kites they ever built.22 The Wrights wrote like they thought aviation pioneers should act: coolly, calmly, with an attention to detail but no hyperbole.

The brothers’ writing style changed after 1908, when they became international celebrities. The majority of their public statements began coming from interviews given to newspapers and periodicals. On a few occasions they took firm stands on the questions of flight’s future practicality and possibilities. They did not, however, stick to any one position consistently. One brother often contradicted something the other brother said, and they frequently contradicted themselves over time. Instead of creating a unified vision of flight’s future, the brothers alternatingly advanced almost every popular reason popularly given for why aviation might someday prove useful. The only consistent thoughts they had about human flight’s future was that it would be positive, including flight’s potential usefulness in future wars.

The brothers, like other commentators on flight, had much to say about whether airplanes might someday be used for “sport.” In an article published in the *Scientific American* in February
1908, for example, Wilbur confidently predicted that aviation would be involved in “sport,” although what he meant by that remained vague. The word “sport” was broad enough to include races and other types of contests, but Wilbur and Orville apparently meant that airplanes might be used for “pleasure runs, for fresh air, and for sight-seeing—perhaps even for touring.” Wilbur, in his *Scientific American* article, had this sense of sport in mind when he claimed that flight would “surpass” other popular technologies for sport, such as boats, bicycles, and cars. The rest of the article listed all the reasons why airplanes would soon be the most popular machines for sport: flight was “intense” and induced a “sense of exhilaration,” offered beautiful views to fliers, would soon be cheaper than other forms of transportation, and would allow pilots to land wherever they like, unlike balloon flights.

Sport, in this sense, appeared in many of the brothers’ other statements as well. Why spend so much time talking about taking “sports” as they way to utilize this new and still largely untested technology? Perhaps the answer lies in the Wright brothers’ effort to imagine a future in which human flight would become normal and routine. In 1908, most Americans could not imagine what human flight felt, sounded, and looked like, much less how it could be used for “sport.” Imagining flight being used for something as routine as going out for fresh air anticipated it becoming an ordinary part of daily life. So when the Wrights were asked, “What use is flight?” their answer was, in effect, that it will become an everyday event.

Not everyone agreed with the Wrights’ vision of everyday flying, particularly flying for “sport.” The Wrights themselves even shifted opinions on the subject. In November of 1908, the same year that he wrote that flight would appeal to people with a “force beyond” any other sport, Wilbur told an interviewer from *Motor* magazine that sport flying would only succeed “to a limited degree.” Instead of a future dominated by sporting, Wilbur now predicted that
human flight’s most dramatic impact would be on the future of war. “The future of the flying machine,” he stated confidently, “is entirely along military lines.” He imagined “hundreds” of airplanes taking the place of cavalry in armies around the world, allowing militaries to constantly “harass” each other from the air. Aviation was now a “military proposition,” he concluded, with a future bound up in war. 26

To the Wrights, aviation’s military future seemed promising. Orville repeatedly claimed that military aviation’s “greatest use” would actually be to “prevent war.” He imagined that airplanes could scout enemy positions constantly. As a result, all combatants would have “equalized information” about enemy troop movements, and war would therefore become “too expensive, too slow, too difficult, too long drawn out.” 27 Nations would sensibly think better of ever starting wars. The airplane’s ability to survey enemy locations alone would, in his words, “have a tendency to make war impossible.” 28 The Wright brothers remained consistently optimistic about the future of military aviation.

Commercial air travel was another possibility for flight’s future that the brothers entertained. They had mixed feelings on the subject. Immediately after 1908, the brothers seemed to believe that it was impossible. As time passed, however, Orville, at least, came to think that commercial flight might become popular but would never replace other modes of cross-country transportation.

The Wright brothers repeatedly predicted that airplanes would never have the technical capacity to carry large numbers of passengers at speeds sufficient to make commercial flight profitable. In 1908, Wilbur confidently declared that airplanes would surely “be limited to six or eight passengers at the most.” 29 He later claimed that transatlantic flights would be “impossible.” 30 The issue was not flight’s safety. Both brothers repeatedly insisted that flight was
perfectly safe—"not much more dangerous than football," as Wilbur wrote in 1908. The issue was that commercial travel by airplane would simply not be cost effective on a wide scale.

Orville, characteristically more optimistic than his brother, expressed his "firm" belief in 1909 that airplanes would soon be used for "commerce, to carry mail, to carry passengers." Even that prediction, however, was vague. Commerce would only result from the "successes of to-morrow"—successes that he, in 1909, could not envision. He would later clarify that he did not mean to suggest that airplanes would "supplant" other forms of transportation, but rather that they might be used alongside them in special cases where people needed to get between places quickly. Like Wilbur, Orville thought that airplanes were simply incapable of carrying enough people to make commercial flight profitable on a large scale.

Over the course of ten years, the brothers offered many positive visions of flight’s future but never landed on a single vision. Instead, they revised and updated their opinions as they went. Wilbur himself admitted that aviation technology was changing too quickly to predict its future. After claiming, in 1909, that "no airship will ever fly from New York to Paris" and that airplanes would never succeed as "load-carriers," he hedged his prediction: "What the airship will eventually be used for is probably what we can least predict at the present." The Wrights’ opinions of the future changed as rapidly as aviation technology. Overall, their advocacy modeled human flight as a rigorous and serious endeavor. However, they did not—and could not, given the circumstances—offer a clear and detailed vision of where human flight itself would end up.

**From Skepticism to Enthusiasm: The Confusion of Flight’s Early Language**

Few people predicted exactly what human flight’s future held. Reactions to human flight were largely positive but usually vague. Joseph Corn writes that Americans greeted the airplane
with “excitement and elation.”

Behind the excitement, however, lay uncertainty about flight’s worth. Aviation technology advanced so rapidly and had so many different potential applications that confusion was expressed alongside elation in most conversations about flight. No one knew what to call the Wrights’ flying machine, and even after they knew what to call airplanes, no one agreed on what they could do or how quickly they would develop. Before pictures of airplanes became widespread, few knew what they looked like. The first ten years of discourse about flight lacked coherence, at least until many settled on consistent themes revolving around frontier metaphors and words historically used to describe birds. These two sources of language and imagery supplied the much of the vocabulary for speaking of and understanding early human flight. Until they did, however, the early language of flight was full of confusion.

Reporting to a mass audience, initial newspaper stories about heavier-than-air flight tended not to report on the subject’s technical aspects. Instead, they focused on the process of invention itself. They reported on the “what” of human flight, not the “how.” They frequently contradicted each other with different labels for the same objects, and they offered vastly different visions of flight’s future. They represent early conversations about flight in all their confusion.

The earliest reports on flight were brief. Little was said about the Wrights’ experiments before 1903, and when word did get out the story was piecemeal at best. One such report came out of Westville, Indiana, in June of 1903, six months before the Wrights’ first flight. Focused on experiments in gliding by Octave Chanute (another early aviation inventor) and the Wrights, it only briefly mentioned the possibility of “annexing a screw propeller and adding a light motor to drive” the early gliders. “Aeroplane” was the closest the paper came to a consistent term for referencing the gliders, since it did not even consider the possibility of powered, heavier-than-air
fight. It displayed no knowledge of aerodynamics, comparing the flight of an “aeroplane” to how “a card, thrown edgewise horizontally, sustains itself sufficiently for a long flight.” This was patently false, and the article’s author probably made it up. There was no language for the technical aspects of flight. Early reports such as this one demonstrate that Americans literally did not know what they were talking about.

For another example, the *Grand Traverse Herald* in Michigan published a report in December 1903 that implied (incorrectly) that the U.S. government was interested in purchasing the Wrights’ flier. In the process, the report called the flier a “boxkite airship,” implying that the aircraft was simultaneously heavier-than-air like a kite and lighter-than-air like an airship. This, physics reminds us, was impossible. Elsewhere in the report, they called the flier a “machine.” That label was not wrong, but it was vague, and other words like “contraption” or “device” would have communicated as much specific content. Neither this nor the previous report made any mention of the machines’ possible future. Neither reporter apparently believed it had any future. This, of course, was still well before 1908.

Other reports got their facts right but still had no idea what to call what the Wrights had invented. For example, on December 28, 1903, *The Newark Daily Advocate* reported that the Wright brothers had “eclipsed” other aviation inventors by “apparently” solving “the problem of aerial flight without the aid of gas bags.” Although it went on to accurately describe the Wrights’ first flight, the reporter apparently had no idea what to call the wings of the aircraft, so a new word was invented: “aero-curves.” No accepted vocabulary of flight had been invented yet; no one knew what to call the phenomena they were describing.

Few of these early reports explicitly questioned the success of the Wrights’ experiment. Their reserved tone, however, hinted at their skepticism, which was also evident in hedged
claims about how the Wrights had “apparently solved” the problem of flight without gas bags. If true, the realization of mankind’s long dream of flight certainly warranted excitement. Yet few of these early reporters sounded excited. Reading between the lines one senses the many years of accumulated skepticism about human flight.

Some reports made their skepticism explicit. One such example came in a 1905 article written for the literary magazine, The Criterion, by George Grantham Bain. Titled “Man-Flight,” the article essentially dismissed all experiments in flight up until that point, claiming that “nothing practical even in the direction of making a toy has rewarded their efforts.” If a flying machine was to become practical, it would come through “scientific evolution,” and even then “few people” believed that it would have much “practical value.” In the end, Bain concluded that satisfying “for the moment the restless ambition of man” would be the most useful thing done by flying machines.41 He was not alone in this skepticism.

Confusion and skepticism thus characterized the early language about flight. With no agreed upon vocabulary of terms, reporters tried to make their stories understandable with inaccurate metaphors of thrown cards and the vague language of “machinery.” Because the Wrights shrouded their flier in secrecy, credible information was scarce. Moreover, there was little in those early reports to convince Americans that flight was worthy of serious discussion in the first place. For the most part, the early reports about the Wright brothers and human flight offered no real vision of flight’s future or its impact on humanity.

Then, in September 1908, the Wright brothers began demonstrating their flying machine before large public crowds. Only then did Americans begin to take them seriously. To counter the idea that the Wrights were just “crank” inventors, as Joseph Corn has written, Americans “just had to see an airplane” in flight.42 The Wright’s public displays very quickly dispelled
doubts about the airplane’s existence, although it did little to resolve the larger questions about its purposes and future.

Americans reacted with ebullience to the Wright’s demonstrations, but many still did not know what to call that machine flying over their heads. Some writers recognized how unpredictable flight’s future was, but that did not always stop them from speculating about the future. A.I. Root, a beekeeper who happened to live near where the Wrights did most of their test flights, witnessed many of the Wrights’ early flights and published one of the first eyewitness accounts in his beekeeping journal, *Gleanings in Bee Culture*. Root expressed excitement but refrained from making specific predictions about the future. Touting his account as a story that “outrivals the Arabian Nights fables,” Root described in detail what the brothers’ flier looked like when it flew, and he posed the question “everybody” would ask: “Well, what use is it? What good will it do?” He replied that “no man can answer as yet,” and but speculated that flying machines would one day allow the country to “bid adieu” to roads, railways, bridges, and all other pieces of earthly infrastructure. The airplane could someday cheaply and freely move commerce into “God’s free air,” he concluded. Aside from that vague speculation, however, Root claimed that “no one living” could properly predict what aviation would bring to the world.

Root’s reaction to airplanes typified how many Americans reacted to those initial flights. Later, in 1908, writers began to get even more excited, hailing the airplane as, in Corn’s words, “something totally new and very special.” Entire magazines and periodicals sprung up to cover aviation’s development. Newspapers devoted reporters to full-time aviation coverage. What once seemed fanciful now appeared fully real and full of potential. Flight was a fantasy come true; still, not everybody agreed on what that all meant for the future. Human flight was loaded with
heavy baggage from thousands of years of fantasies and failures. The only way people knew how to talk about this new invention was with the old language of “conquering frontiers” or “flying like a bird.” Because aviation technology was still so unsettled, Americans were free to entertain themselves with fantasies about flight’s future, but it would take many years to reach anything approach a consensus on the most promising and desirable uses of these new machines.

**The Frontier of Flight**

With so many competing visions of flight’s future, it follows that there was no shared vocabulary to talk about flight. However, there was one set of images and myths which many early commentators drew from: the idea of a flight as a new frontier. The idea, held implicitly or explicitly, was that aviation technology opened up new domains of space and knowledge. Frontier mythology was thus common to the rhetoric of flight for the first half of the twenty-first century.47 Some Americans, connecting the Wrights and others to a long lineage of scientific pioneers, drew on old metaphors that equated technological development with advances into unknown terrains of knowledge. Others placed flight within the narrative of American’s history of western expansion, metaphorically harkening to the rhetoric of manifest destiny. Others drew from both the scientific/technological and the geographic visions of pioneering. In any case, all thereby equated flight with “progress,” and these connotations of progress toward new frontiers would guide how Americans reacted to human flight for the next several decades. Because this metaphor fit so neatly with American narratives of manifest destiny and the conquest of the American frontier, fantasies based on this mythology worked well to explain human flight’s purpose. Despite the fact that no one agreed to a single vision of flight’s future, frontier metaphors cut across almost everyone’s discourse about flight and thus constituted the foundation of public discourse about flight.
Frontier metaphors commonly appeared in what initially seems like a counter-intuitive place: descriptions of bird flight. Many reports described human flight by comparing it to bird flight. Either implicitly or explicitly, these reports relied on the logic that human flight was a process of penetrating into domains of knowledge and space that had previously been impenetrable. The birds’ natural domain was the frontier. These reports metaphorically understood human flight as progress in conquering nature.

For example, many writers discussed learning to fly as a process of mimicking birds—taking their knowledge and putting it to use. A 1906 Washington Post article, “Birds Imitated by the Wright Brothers, the American Aeronauts,” implied that, in order to discover the scientific secrets of aviation, humans had to learn to be more like birds. The article noted that “it is not an easy task for a man to fly like a bird,” implying that human flight was solely a problem of learning the secret of how birds fly. Humans—these pioneers of flight—would need to enter a new frontier dominated by birds. To enter that frontier, these “would-be human birds” would simply have to research how birds fly and create “model imitations” based on birds. Assimilation into the frontier of the sky would be made possible by mimicking birds—the creatures that currently inhabited that frontier.

The article went on to compare human and bird flight visually. One picture accompanying the article featured “Lilienthal [a pioneer in the aerodynamics of gliders], the human bird soaring,” next to a “stork dropping down on nest.” Another pictured “an airplane on the ground” next to an “eagle getting ready to fly.” By picturing birds next to humans, the article visualized the idea that progress in flight required bird-like knowledge. To advance in flight was to progress over the natural world. The article did not literally invoke America’s
frontier mythology, but it did imply that human flight meant progress into new space and knowledge—a frontier currently occupied by birds. Progress, in this imagery, literally had wings.

Other writers even more explicitly claimed that progress in aviation relied on learning from the birds. J. A. Edgerton, in an article in an Ohio paper titled “Air Navigation Assured,” began, “Men are to fly. That is settled.” After defending human flight’s possibility, Edgerton devoted a section of the article to describing different types of “flying machines.” Titled “a Bird of Another Feather,” this section framed mechanical successes as a process of learning from the natural world. Human flight’s inventors, he wrote, “got their ideas from the bird. The feathered people weigh considerably more than the atmosphere they displace, but that does not prevent them from keeping aloft. . .[W]hat should prevent man from maintaining himself in the air with a craft of the same specific gravity as that of the bird?” Progressing into this new space—the air—required learning from birds. Edgerton concluded that “aerial navigation is at last an accomplished fact,” pointing to how the Wright brothers’ flier “raised itself like a bird.” Technology was beginning to conquer the birds’ frontier.51

Some of these writers probably compared airplanes to birds simply for convenience’s sake; others, however, talked about human flight as if it was a process not merely of imitating but of subduing nature. In doing so, they paved the way for understanding human flight as a process of conquering—and not merely understanding—the frontier of flight. Wilbur Wright himself spoke of learning to fly in this way. Addressing the Western Society of Engineers on September 18, 1901, he compared learning to fly to “learning how to ride a fractious horse.” One way to learn, he explained, was to “sit on a fence and watch the beast.” Later, one might, in “leisure time,” reflect on how to “overcome” it. But eventually one would have to “get on him and learn by actual practice how each motion and trick may be best met.” This was the only way
for those “who really wish to learn,” and that was his approach to learning the bird’s “art” of flying.\(^52\) By this view, humans were not only learning by observing nature, but by actually subduing it.

Although comparisons between human flight and bird flight did not always invoke frontier mythology, those comparisons did provide aviation with its basic vocabulary. Avian words gave Americans a common language for talking about human flight at a time when people still called wings “aero-curves.” Americans could not talk about what flight meant without first settling on “flight” as the common term for what they were talking about. The natural association between human flight and bird flight gave aviation a basic vocabulary. In doing so, it made room for more explicit frontier metaphors to emerge.

Soon more explicit reflections on the new “frontier” of flight began to appear in popular media, like a poem dedicated to the Wrights that appeared in at least one newspaper in 1909. The poem’s opening stanzas declared that the human’s “constant task” throughout history had been to “conquer as he can.” To that end, humankind had subdued all worldly elements except the air, which remained elusive: “Quoth [humankind], ‘The conquest were complete / Had I but conquered air.’” The sky was the one place where humankind’s pioneering energies had not yet been fully realized—that is, until the Wrights came along: “Then once again [man] waved his wand / And lo—THE WRIGHTS WERE THERE.”\(^53\) In this poem, progress was the ultimate purpose of humankind. Airplanes were just the latest tool humans had devised to conquer new frontiers, and for this they were worth celebrating and further developing.

Other commenters praised the Wright brothers for pioneering new domains of knowledge. Describing how the Wrights’ flier “could sail like a bird,” A.I. Root, the beekeeper mentioned earlier, lauded the Wright brothers as “scientific explorers” who were “serving the
world in much the same way that Columbus did when he discovered America, and just the same as that Edison, Marconi, and a host of other have done all along through the ages.” Root’s comparison of the Wrights to both a famous explorer and scientific pioneers perhaps reflected confusion over what sorts of new knowledge the airplane might bring. Who knew what the future of human flight would bring? Most people did not venture specific guesses. They did, however, welcome the airplane as an instrument of progress in humankind’s conquest of new domains of space and knowledge.

By the 1920s and 1930s, as historian David Courtwright writes, the American frontier “had become an irresistible metaphor for the country’s growing presence in the air.” The metaphor stuck so well that it also would come to structure how Americans discussed spaceflight well into the twenty-first century. Frontier mythology gave Americans a vocabulary for discussing flight of all types, well beyond the earliest years of aviation. Humans had entered a realm that had been closed to them for all of recorded history, and the possibilities for exploring the skies seemed endless. The frontier of the sky was unlimited, and it had remained unexplored for all of recorded human history. Thus, these pioneers of the sky heralded more than the beginnings of human domination of a new physical space. They heralded human mastery of nature and the discovery of knowledge and spaces that had been held from humans for millennia. This is why excitement ran so high at the first news of human flight—because “aerial navigation” had been for “so long regarded as a fascinating absurdity.” To fly was to conquer nature and to exert power over humankind’s environment like never before. When understood as the path to a brand new frontier, human flight seemed like important opportunity, no matter what its specific future held. Frontier metaphors, combined with an avian vocabulary, furnished
Americans with their first vocabulary to talk about human flight, but few yet had a clear vision of where that path might lead.

**Conclusion: The Legacy of the Frontier**

No single advocate determined how observers talked about the earliest attempts at human flight. Instead, various advocates drew from common stories and myths to help other Americans understand and evaluate the significance of flight. The discourse about flight that became popular and shaped flight’s future mostly revolved around the frontier myth, imagining flight’s future as an extension of the story that Americans told themselves about their country’s “progress” in conquering the western United States.

Of course, the Wright brothers also had a significant impact on the rhetoric of flight, and their story and legacy remain prominent in American memory. As Julia O’Grady notes, the Wrights’ first flight at Kitty Hawk became flight’s origin story. Through that story, Americans learned to view flight’s origin as an almost mythic combination of imagination and industrious work.⁵⁸ Even in 2015, we are still writing and reading new biographies of the brothers. David McCullough summarizes their enduring presence in American culture—and in the history of aerospace technology—with this anecdote: “On July 20, 1969, when Neil Armstrong, another American born and raised in southwestern Ohio, stepped onto the moon, he carried with him, in tribute to the Wright brothers, a small swatch of the muslin from a wing of the 1903 flier.”⁵⁹ The Wrights themselves have thus become mythic figures, worthy of a study in public memory in their own right. In part, we associate flight—and perhaps even innovation in general—with the combination of imagination and rigorous experimentation that we associate with the Wright brothers.
What was the legacy of frontier imagery in flight’s long-term development? Courtwright actually dismisses most early uses of frontier metaphors as “superficial, nothing more than a casual evocation of an exciting past or a cliché of progress.” Although some early invocations of the frontier may have been superficial, the metaphor did actually shape American flight’s trajectory in two ways. First, frontier metaphors gave Americans an initial vocabulary for talking about flight. Metaphors do not merely embellish otherwise descriptive language. In many cases, they allow us to discuss something for which we otherwise have no words. For example, A.I. Root called the Wright brothers “scientific explorers” at a time when the word “pilots” was not yet in common use. Second, frontier metaphors gave human flight an apparent purpose before it really had any practical uses. The metaphors provided Americans with a civic fantasy of flight’s future deeply rooted in American tradition and mythology. Frontier metaphors thus helped Americans label flight and understand what it might be used for, giving Americans a persuasive reason not to simply dismiss flight as folly.

Flight’s mythic frontier connotations also shaped future discussions about flight, as we will see in the next two chapters. Billy Mitchell leveraged the dramatic implications of military aviation’s progress to bring national attention to the topic of air power. Whereas flight’s mythic connotations were useful to Mitchell, they constituted a rhetorical obstacle for the first airlines. Airlines needed to convince Americans that aviation was for ordinary people and not just for risk-seeking adventurers. Ironically, they would enlist the help of Charles Lindbergh, who epitomized the bold, dare-devil, pioneering pilot, to help dissociate flight with frontier adventurism and to re-brand flight as a convenient, comfortable, and professional way for ordinary people to travel.
Today, in Kitty Hawk, North Carolina, there stands a massive monument where the Wright brothers first took flight. To commemorate their contribution to human flight, an inscription on the monument’s side reads, “In Commemoration to the Conquest of the Air.” Dedicated in 1932, the inscription testifies not only to the Wrights’ legacy, but to the impact of how Americans at the time rhetorically defined and interpreted the earliest attempts at flight. Sparked by the Wright brothers, those early discussions of flight invoked frontier fantasies about how flight represented the conquest of new frontiers of space and knowledge. Civic fantasies of frontier progress gave human flight meaning and purpose at a time when airplanes had neither.
Notes


2 Orville Wright, “Flying Machines and the War,” *Collier’s Weekly*, July 31, 1915, in Jakab and Young, *Published Writings of Wilbur and Orville Wright*, 207.


5 Kennerly, “Getting Carried Away,” 271.


10 Years passed after the Wrights’ 1903 flight before the public at large accepted that it had even been done, let alone that it was practical. A trite newspaper report two years after the advent of flight called the airplane a “pretty, though expensive and somewhat hazardous toy,” and concluded, “In the meantime walking is good enough for most of us, and if we must travel we will stick to the cars.” From “The Honor is Ohio’s,” *The Leader-Dispatch* (Piqua, Ohio), July 17, 1905.


16 Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 192.

17 “Statement by the Wright Brothers to the Associated Press,” January 5, 1904, in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 14-15.


19 Orville Wright, “Flying Machines and the War,” in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 217.

20 Wilbur and Orville Wright, “Statement to the Aero Club of America,” March 12, 1906, in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 18-19.


22 Wilbur and Orville Wright, “The Wright Brothers’ Aeroplane,” *Century Magazine*, September 1908, in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 24-33.

23 Orville Wright, “The Future of the Airplane,” in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 201.


31 Wilbur Wright, “Flying as a Sport—Its Possibilities,” in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 195.

32 Orville Wright, “The Future of the Airplane,” in Jakab and Young, 201.

33 Orville Wright, “The Safe and Useful Airplane,” in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 222.

34 Wilbur Wright, “Airship Safe: Air Motoring No More Dangerous than Land Motoring,” in Jakab and Young, *Published Writings of Orville and Wilbur Wright*, 205.


37 “Aerial Navigation,” *The Indicator*.


40 “Machine that Flies,” *The Newark Daily Advocate*.


For a thorough history of this idea and its effects on American flight’s development, see David Courtwright, *Sky as Frontier: Adventure, Aviation, and Empire* (College Station: Texas A&M University Press, 2005).

It might be a superficial similarity, but Fredrick Jackson Turner’s influential “frontier thesis” assumed that “the wilderness masters the colonist.” In other words, in order to pioneer a frontier, initial colonists had to become more like the frontier’s original denizens, just like reports on human flight claimed that humans had to become like birds. See Fredrick Turner, *The Frontier in American History* (New York: Henry Holt and Company, 1921), 4.


Chapter Three

Technological Spectacle in Billy Mitchell’s Campaign for Aerial War

Foreign airplanes patrolled over Iraq. They kept watch on the Iraqi people, they transported foreign troops, and they attempted to strike hostile soldiers. A distant colonial power maintained order through the air. These were not twenty-first century events. This happened in the early 1920s, when Britain used their fledgling air service to patrol the territory newly granted them by a League of Nations mandate. Debates about air power are as old as military aviation itself. In America, our current debate over drone strikes is only the most recent in a long line of debates over how and why we should use airplanes for war. One way to understand how we got here—and maybe even where to go next—is to study how American military aviation began. Fittingly, it began in an explosive debate, in which advocates used the persuasive force of technological spectacle.

In 1920, America owned a tiny fleet of warplanes. This worried Brigadier General William “Billy” Mitchell. He believed that victory in future wars would depend on air power. Relatively alone in this belief among military leaders, Mitchell mounted a public relations campaign to gain popular support for the creation of an independent and well-funded air force. His tone in that campaign was so confrontational towards his military superiors that they court-martialed him in 1925 for insubordination. His trial became national news and only earned him more publicity. Mitchell sparked a national debate over the warplane’s role in America’s military that, despite his court martial, eventually shaped the military’s use of strategic bombing in World War II and beyond. In this chapter, I bring a new perspective to American military aviation’s cultural and political history through a rhetorical history of the debate over air power that Mitchell began in the 1920s.
Technological change results from the combination of material and rhetorical invention. The historic course of U.S. military aviation owes as much to public debate as to aluminum smelting. Historians have told the material story behind U.S. military aviation, but that story largely ignores what drew military leaders to imagine how airplanes might be used in war in the first place. Historian Michael Sherry notes that Mitchell’s public popularity helps to account for how bombers became “acceptable to Americans as an instrument of warfare,” but he says little about how Mitchell made the case for airplanes as weapons of war. In this chapter, my goal is to account for how Mitchell became so popular and how he used that popularity to make aerial bombardment an important part of the U.S. military’s warfighting strategy.

By studying Mitchell’s advocacy, along with reactions to his rhetoric, we can see how his discourse shaped military aviation’s development in the 1920s and beyond. According to John Lynch and William Kinsella, histories of technology too often assume the “givenness” of their objects’ historical development. In contrast, rhetorical studies of technology seek to explain how rhetorical strategies for promoting specific technologies influence the ways people imagine and use those technologies. It was not at all a given that, during World War II, the U.S. military would center its military aviation strategy around bombing enemy civilian populations. Nor was it given that the U.S. public would accept such bombing campaigns as ethical. A rhetorical perspective can help us understand how rhetoric about military aviation helped prepare public opinion to accept what American bombers did in World War II.

Mitchell did not effect immediate policy change. He wanted to create a stand-alone air force, and that did not happen until after the war, in 1947. But as one of his foremost biographers notes, he did force the U.S. government “to consider aviation as it had not done before.” Mitchell sparked a major debate over whether the United States should have an air force, and in
the process he convinced many Americans of the importance of air power. In this chapter, I argue that Mitchell not only persuaded the government to take military aviation seriously but the American people as well. Unfortunately, he did so in ways that emphasized the technological spectacle of air power but deemphasized the human costs of air power’s violence.

Mitchell argued for military aviation by predicting that warplanes would soon project devastating power everywhere on the globe. He also argued that the only way to counter airpower was with more airpower. Geographical isolation was a luxury of the past. America would need to create and adequately support a stand-alone air force, or it would perish. To make this point, Mitchell filled his advocacy with language and images that captured the spectacle of military aviation’s potential power. Spectacle resonated with the American public’s hopes and fears about flight. He advocated at a time when aviation seemed to have limitless possibilities. Frontier metaphors had cemented aviation’s role in the “progress” of the nation, but many Americans were also nervous about airpower’s potential to cause great harm. Mitchell’s advocacy resonated with the public’s imagination and made him a popular hero. Before Mitchell, talk about large-scale military aviation was speculation. After Mitchell, talk of bombing entire cities was no longer the subject of science fiction but of public debate. Significantly, he began that debate with a focus on what military aviation could do to defend America, not around the human costs of large scale bombing of civilian populations.

In this chapter, I first trace how historical developments after the Wright brothers made Americans both more hopeful and more frightened about aviation’s possibilities—a context ripe for Mitchell’s advocacy for military aviation. I then analyze how Mitchell campaigned for military aviation in print and through the use of photographs and film. I show how he emphasized military aviation’s spectacular power and warned Americans that this power would
destroy their country if their government did not fund a strong, independent air force. To get a
sense of how Americans reacted to Mitchell, I then describe how the American press covered his
campaign over time, first treating him as a trusted authority on military aviation, then suggesting
that he had gone too far in his advocacy of a worthy cause. Finally, I show how, eventually, he
came to be remembered as a martyr and a visionary whose personal sacrifice birthed American
air power. Like Mitchell’s advocacy itself, the reactions of many observers centered on the
spectacle of military aviation’s power and never fully considered military aviation’s ethical
implications. I conclude by reflecting on Mitchell’s legacy for American military aviation and
our tendency to allow technological spectacles to efface ethical dilemmas.

\textbf{Dreams and Nightmares of Aerial War}

In order to understand Mitchell’s advocacy, we have to understand how Americans talked
about military aviation in the 1920s. As soon as human flight became possible, historian Joseph
Corn notes that “speculation regarding the airplane’s future became a popular activity.”\textsuperscript{8} We can
study those predictions (at least those put in print) and, through them, try to glimpse common
attitudes towards aviation. Many predicted that flight would revolutionize war, though they
disagreed whether the revolution would be good or bad for humanity. The predictions were
dramatic either way, and Mitchell’s advocacy drew much of its force from those earlier
predictions.

The Wright brothers, as we saw in the previous chapter, predicted that fighting war would
be one their invention’s primary uses. After they invented the airplane in 1903, the brothers hid it
from the public for five years while trying to sell it to the world’s militaries.\textsuperscript{9} In 1908, just as the
airplane’s existence was becoming common knowledge, Wilbur Wright stated in an interview
that the airplane’s primary purpose in the future would be war: “The future I see for the flying
machine is with armies.”¹⁰ To the Wrights, this was a positive future. Airplanes—or so they thought—were dangerous enough to deter nations from starting a war. Writing in Collier’s Weekly, Orville predicted that war would become “prohibitively expensive,” in both money and lives, thanks to the airplane. Thus, “the greatest use of the aeroplane,” he argued, would be “to prevent war.”¹¹

This attitude was not the Wrights’ invention. Many Americans discussed how the airplane’s destructive potential could one day guarantee world peace. They could imagine airplanes dropping bombs, but they did not think ahead to the creation of anti-aircraft weapons. So they talked about future warplanes as if they would be unstoppable. One day, airplanes would be able to sail over borders, armies, bodies of water, and mountains, making war unthinkably dangerous. Many people assumed that nations would know better than to start wars in an “air age.”¹² This assumption spun out of the larger cultural belief that new technologies invariably solved problems and contributed to human “progress.” Joseph Corn notes that this “technological utopianism” was widespread in the first half of the twentieth century. Technologies such as radio, x-rays, and aviation were “widely hailed as panaceas, capable of solving the era’s most pressing problems.”¹³ Warplanes got swept up into this enthusiasm. Reflecting back on this time in a 1948 interview, an elderly Orville Wright admitted the mistake: “We dared to hope we had invented something that would bring lasting peace to the earth. But we were wrong. We underestimated man’s capacity to hate and to corrupt good means for an evil end.”¹⁴ Orville’s “we” probably referred to Wilbur and himself, but in hindsight he could have included many other in his admission.

Not everyone welcomed the warplane’s arrival, however. Some commentators looked into military aviation’s future and saw humankind’s extinction. H.G. Wells was among them. In
January 1908, he published a novel, *The War in the Air*, which horrified readers with its vision of aerial violence and destruction. Imagining a world where war would be fought by massive aerial fleets, Wells wrote of a time when “no place is safe—no place is at peace.” Like the Wrights, he thought the airplane would be unstoppable. Unlike them, however, he predicted that wars would continue anyway: “The war comes through the air, bombs drop in the night.” He painted a picture of utter vulnerability, of a world where “quiet people go out in the morning, and see air-fleets passing overhead—dripping death—dripping death!” Humanity’s prognosis was grim. Wells meant the book as a wake-up call. Humanity could change its unthinking worship of technological progress, or it could come to a “swift, conclusive smashing” of an end.

The warplane’s introduction to large-scale warfare in World War I proved neither the optimist nor the pessimist correct. Alfred Hurley, one of Mitchell’s biographers, writes that the war ended “on an inconclusive note” with regard to the warplane’s potential. The machine was neither decisive nor insignificant. The war simply ended before the world’s fledgling air forces could figure out strategic ways to make airplanes useful. Mitchell himself called the war “kindergarten” for the world’s young air forces. The war did impact aviation’s development in two significant ways, however. First, the war quickened aviation technology’s development. When the war began, enemy pilots, upon sighting each other, would pass by with nothing but a wave. They had no way to shoot each other because no one had yet created airplane-mounted guns that could shoot without blowing off the airplane’s own propeller. By the war’s conclusion, experienced pilots had made dogfighting a vicious and well-established art, and airplanes were flying faster, higher, and farther than they ever had before. The war’s exigence caused rapid advances in aviation technology. Second, the war gave to the world a new kind of hero: the
fighter ace. These were individual heroes—knights of the air—whose romanticized aerial sparring captured the public’s imagination.20

Combined, these two forces—a massive leap in technology and a cultural fascination with pilot-heroes—made the post-war American public eager for more news about military aviation. Old issues underlying military aviation’s future went unresolved. Would warplanes save or destroy humanity? What were the ethics of bombing enemy civilian populations? Conversations turned to aviation technology and to the ace without answering these questions. Everyone predicted that military aviation would develop, but no one agreed on where it should be going—or on why or when it might get there.

Despite disagreeing in many ways, commenters on aviation’s future agreed on one point. Airplanes would change how people traveled and effectively shrink the world’s geography. This idea became a major theme in Mitchell’s advocacy. Between the first and second world wars, America harbored strong isolationist attitudes. Americans felt that they had been dragged into World War I by propaganda that convinced them to join in conflict in which they had no real stake.21 With little public or political support after the war, military budgets were slashed. Military officials had difficulty arguing that the country even ought to maintain the troops and equipment it already had. Aviation’s ability to shrink the geography of the world allowed Mitchell to argue that America did have to develop its military because isolation would be impossible in the future.

Billy Mitchell entered America’s conversation about military aviation with perfect timing. Most Americans were still incredibly enthusiastic about aviation, and they understood it in terms of the frontier metaphors introduced in the earliest reactions to flight. Moreover, when Mitchell started talking about the country’s need to have a dedicated Air Force, almost everyone
agreed that military aviation would change the nature of warfare. The public’s general optimism about aviation did not always translate into conversations about military aviation, however. That was one subject that actually worried many people, and Mitchell effectively exploited those worries to make the case for building an air force.

**Mitchell’s Rhetoric of Spectacle: Technology, Destruction, and Military Policy**

Mitchell’s advocacy began with his promotion to Director of Military Aeronautics in 1919. His official title changed frequently over the next six years due to peacetime army reorganizations. Whatever his title, he was, to the American public, the military’s top authority on aviation. He published fifty-four journal or periodical articles between 1919 and 1925, cementing his reputation as the foremost authority on the subject. About one third of those were in military journals, another third in lay journals about technology and/or aviation, and another third in general interest periodicals. The majority of these articles were published in either 1921 or 1925 because Mitchell mounted his most intense advocacy in those two years.\(^{22}\)

In 1921, Mitchell’s advocacy revolved around the spectacle of mock battles staged during joint Navy/air service bombing tests. In 1925, he drew off of those spectacles to issue bombshell declarations about military aviation in popular periodicals. His basic argument remained the same over the course of his time in the public spotlight: military aviation technology would soon be more powerful than any other weapon of war, and if America did not create and fund a standalone air force, another nation’s aerial fleet would destroy the country. During this period, the most noticeable change in Mitchell’s advocacy was his growing hostility towards his military superiors, which led in 1925 to his court-martial for insubordination.

The 1921 bombing trials grew out of disagreement among military officers about aviation’s possibilities. Many U.S. Navy officers acknowledged that airplanes would play
significant roles in future wars. They did not, however, share Mitchell’s belief that airplanes would soon render traditional naval technology and strategy obsolete. When Mitchell testified to Congress that his bombers could destroy “any ship in existence” in January of 1921, intra-military disagreement on the issue became a public feud.\textsuperscript{23}

The feud led to a series of weapon tests that became a resounding public relations success for Mitchell. Both Mitchell and the Navy were confident in their technology’s superiority, so both parties thought they could only gain from testing their technology against the other’s. One Navy officer even volunteered to stand on a ship while Mitchell attempted to bomb it; he was convinced that bombers would fail. In February of 1921, Mitchell “challenged” the Navy to a series of tests, and the Navy agreed. The Navy would line up a series of decommissioned ships and Mitchell’s bombers would attack them as if they were in a real combat scenario. The Navy hoped the experiment would conclusively prove that airplanes could not effectively attack whole navies; they envisioned the bombings as a sort of scientific test.\textsuperscript{24} For his part, Mitchell wanted to use the tests as a publicity stunt. He got his way: his planes sunk every ship presented to them, and Mitchell made sure to capture the spectacle in photographs and film. These images of bombers sinking ships were then disseminated across the country. The tests proved Mitchell right, and the story attracted national attention to Mitchell and his plan.

In 1925, Mitchell published a series of articles in the \textit{Saturday Evening Post}, a hugely popular weekly periodical, reflecting on those earlier tests and their implications. In those articles, Mitchell elaborated for the first time on his theories of aerial warfare for a broad, general audience. Later that year, however, Mitchell responded to several high-profile military aviation accidents by accusing his superiors of “criminal negligence” and “treason.” The accusation crossed a line, and he was court-martialed at the end of the year. Historians tend to agree that he
Mitchell’s military career went down in flames, but the popular press portrayed him as a martyr and a visionary. As newspapers across the country gave readers daily updates on the trial’s progress, Mitchell’s ideas reached even more people, and he became something of a national hero.

**Mitchell’s Early Advocacy: Statements and Stunts**

Between 1919 and 1922, Mitchell made a number of controversial statements and staged dramatic publicity stunts to attract press coverage. He got free publicity—and the newspapers got dramatic headlines—from his warnings that foreign nations might soon be able to bomb American cites, for example. After Mitchell testified before the House Naval Affairs Committee in 1921, the *New York Times* headlined their story “Germany had Airship to Bombard New York.” In that article, the *Times* reported that Mitchell has told the committee that the Germans, by the end of the war, had built an airship that could reach America and bomb New York City. He claimed that only the armistice saved New York from ruin.

Mitchell issued even more dramatic warnings in other widely covered appearances before Congress. Testifying before the House Appropriations Committee in January 1921, he claimed that America’s whole eastern half, from “New York to Chicago,” was “vulnerable” to attack from airplanes flown from enemy aircraft carriers. Several newspapers covered this testimony and quoted large portions of it, including the *New York Times*, which featured it on the front page. Mitchell claimed that swarms of bombers powerful enough to “sink any ship in existence” threatened America’s navy and coastal defenses, and if an enemy was “barbarous” enough they could utilize “war gas” and poison a whole city the size of New York. Such an attack, he warned bluntly, could “kill everybody.” The nightmare vision of the entire city of New York attacked with poison gas was reminiscent of “dripping death” that H.G. Wells imagined in his 1908
dystopian novel, *The War in the Air.* Mitchell, in short, was describing an apocalypse, and he insisted that the only defense against such an attack would be “in the air.” According to Mitchell, America would develop its own air power, or it would perish.

From the start, Mitchell also made headlines by haranguing his bosses. Testifying to Congress in 1919, he argued that “high War Department officials” had neglected aviation, not realizing the “importance of aviation as a fighting branch of the service.” This was a serious charge coming from a subordinate officer. As a result of this negligence, he claimed the U.S. air fleet could not even “maintain an expedition to Mexico” if it had to. If America could not even project air power to Mexico, what chance did it have to effectively combat other, more advanced European air forces? Mitchell concluded by calling the establishment’s attitude toward aviation “pathetic.”

To him, air power was a crucial branch of America’s military, and the American military was ignoring aviation at its own risk. His comments were incendiary enough to earn him headlines in leading national newspapers.

The impact of Mitchell’s critique rested, in part, on his own *ethos.* Unlike past commentators who speculated about aviation’s future, Mitchell had flown combat missions during World War I and had supervised American air operations during that war. Compared to even the Wright brothers, Mitchell had unparalleled authority to discuss what U.S. military aviation could or could not do. When Orville Wright discussed aviation’s future, he could only speak in probabilities and generalities. When Mitchell, a brigadier general, predicted the future, his predictions seemed like more than flights of fancy. Mitchell’s early statements earned publicity not only because they were incendiary, but also because he was the first American military figure with the *ethos* to so confidently predict the future of military aviation.
This may help to explain why Mitchell was seemingly beloved by the public but shunned by the military establishment. Whereas ordinary Americans devoured stories about the future of aviation, American military leaders had historically voiced skepticism (or at least called for moderation) in conversations about aviation’s future. It was a U.S. general who confidently predicted, two months before the Wright brothers first flew, that humankind would never fly in anything heavier than air. Mitchell’s advocacy was perfectly suited to capture the public’s imagination for the same reason it was guaranteed to disturb his fellow military officers. Mitchell confidently said what no American military expert had said before: military aviation was going to completely change the nature of warfare. To the American public, he said what they had been waiting to hear for two decades. To his superiors in the U.S. military, he was couching mad flights of fancy in his authority as a military officer and irresponsibly putting pressure on them to fight for the legislation and funding to build the air force he envisioned.\textsuperscript{29}

Mitchell’s published essays alone could not carry the day, so he also staged several spectacular “tests” to prove military aviation’s potential. While casting them as experiments designed to test flight’s military capabilities, Mitchell designed these events as publicity stunts from the very beginning. In 1919, for example, Mitchell sponsored a transcontinental air race that he trumpeted as ironclad proof of military aviation’s increasing range. Mishaps and crashes plagued the race, but Mitchell’s pilots successfully took off from America’s east coast and eventually ended on the west coast.

In a statement to the press, Mitchell did not mention the crashes, but instead made sure to frame the air race as proof of air power’s global reach. The October 19 edition of the \textit{San Francisco Chronicle} carried his statement verbatim in an article headlined, “Air Race Shows U.S. Isolation is Broken Down.” The headline directly quoted Mitchell’s claim that America’s
geographical isolation was now “completely broken down.” To prove this, he explained that the distance flown cross-country by the American pilots was greater than distance required to fly across the Bering Strait. Mitchell concluded that airplanes could already fly between continents, and that “complete control of the air by any nation means military control of the world.” The very possibility that airplanes could cover whole continents was enough to change warfare’s future. Of course, no one yet had the technology to build reliable airplanes that could cover a whole continent in large numbers, and both Mitchell and his audience knew it. He was speaking of the “next war,” in which aviation’s power “was not only possible, but almost a sure accompaniment” to the fighting. Air power could soon be decisive in war, and Mitchell claimed to have experimental evidence of that fact.

Mitchell’s most effective publicity stunt endures as the most famous moment of his career: the 1921 joint Navy/air service bombing trials. Although the trials’ planning received some press attention, it was the spectacular results that gained Mitchell the most notoriety. Mitchell’s bombers sank every ship, even the supposedly unsinkable Ostfriesland, a German battleship given to the U.S. as a war prize. When bombing smaller ships before the Ostfriesland, the trials proceeded slowly. Bombers made one attack at a time, then waited for inspectors to board the ships and record the damage. Mitchell kept this routine until the time came to attack the Ostfriesland with two-thousand pound bombs—the most powerful bombs he had, and behemoths by that day’s standards. As expected, the German battleship withstood some initial attacks with smaller bombs. But Mitchell wanted to “kill, lay out and bury” the ship, so he broke protocol and told his men to bomb it until it sank. Four two-thousand pound bombs struck it in rapid succession, and it sank in about four minutes.
Those results are controversial to this day. The ships Mitchell bombed were stationary and unmanned. Navy advocates claimed that the ships would have been harder to hit if they had been moving and harder to sink if they had been actively maintained and defended by a crew. They also claimed that Mitchell only sunk the Ostfriesland by breaking the test’s protocol, and that the test’s results were thus suspect. Mitchell retorted that the rapid bombing of the Ostfriesland was the most accurate part of the trial, since bombers would not be held back at regular intervals during real battles. In any case, Mitchell got what he wanted: not a scientific test, but an effective publicity stunt.34

Mitchell recorded the whole spectacle on film. He specifically sought out a filmmaker, George Goddard, who could record and disseminate aerial footage of the bombings. In Mitchell’s own instructions to Goddard, the goal was to get “newsreels of those sinking ships in every theater in the country, just as soon as we can get ‘em there.”35 He wanted to show the American public what aerial destruction looked like and give them tangible evidence that air power really could be as destructive as he claimed. The footage ended up in theatres throughout the country, and millions of Americans saw it.36

The footage marked the first time most Americans actually witnessed military aviation in action. Its reels seem to have been cut together and shown in different sequences in different places, but the basic shots remained the same. Most of it was shot from the air. Few Americans had seen aerial photographs, let alone aerial films, so the footage was new and exciting even in concept. The films included long panoramic shots that showed, all at once, the Navy’s ships waiting to be bombed and the aerial fleets waiting to bomb them. They showed close-ups of the warplanes taking off and cruising in-flight. Americans could actually see what Mitchell had before asked them to imagine: a fleet of airplanes swarming over apparently helpless ships.
Decades of predictions and science fiction about aerial warfare seemed to come true before the viewers’ eyes.

The film showed bombs causing massive explosions next to and on the ships. They showed the Ostfriesland being struck by a rapid sequence of bombs, shuddering under massive plumes of water, and quickly rolling on her side. These shots were cut together to speed up the ship’s sinking, and thus showed the ship slipping under the waves almost immediately after bombs fell on it. The ships looked helpless and the airplanes looked triumphantly powerful. Viewers watched the first battleship ever attacked from the air become the first battleship sunk from the air. The collection of unprecedented aerial footage and large-scale destruction must have seemed spectacular to Americans who had never before seen such a thing.

In addition to the film, Mitchell captured still photos of the bombing trials that newspapers circulated nationwide. One of these photos (Figure 1) showed, for example, a massive explosion shooting off the Ostfriesland’s deck. The battleship, one of the largest ships in the water, seemed dwarfed by an explosion caused by a bomb dropped from the air. The aerial perspective exaggerated the battleship’s diminutive appearance. Not only did Americas see the Ostfriesland bombed, they saw it bombed from the pilot’s perspective, making the ship seem small, immobile, and helpless. Images like this showed Americans spectacular imagery of destruction that they had never before seen and evidenced Mitchell’s claims about air power’s potency.
Taken together, Mitchell’s films and photos of the 1921 bombing trials provided compelling visual proof of the military potential of airplanes. It is a common cliché that a picture is worth a thousand words, or that seeing is believing. In this case, however, those clichés could not have been truer. Previously, the public had seen nothing to convince them of air power’s ability to destroy whole navies. Indeed, most had never seen an airplane cause catastrophic damage to either a land- or water-based target. Images of the Ostfriesland exploding dramatically evidenced Mitchell’s claims about the potential of air power. Viewers saw real destruction on a scale that only had been imagined in literary works. The images not only demonstrated the airplane’s possible role in warfare, but showed how air power was superior to established military technology.

Mitchell’s early advocacy brought him national publicity and brought military aviation to the forefront of many Americans’ consciousness. His advocacy showed how aviation
technology’s spectacular capacity for destruction necessitated the creation of an independent
U.S. air force. By emphasizing the spectacle of military aviation’s destructive potential, he
leveraged public hopes and fears about military aviation’s future. In doing so he garnered
widespread attention at the same time he showed that military aviation had tangible and not just
speculative potential. His early advocacy thus set up his later, even more dramatic attacks on
military leaders who he claimed failed to appreciate that potential.

**Mitchell’s Later Advocacy: Tirades against the Military Establishment**

The *Ostfriesland* tests earned Mitchell national attention—attention that no doubt made
his superiors uncomfortable. From 1922 to 1924, however, Mitchell traveled the world studying
how other countries were developing air power and dropped out of the public spotlight for a
time. The research and writing he conducted during this period eventually informed American
doctrines of aerial strategy and tactics. Back home, however, he received relatively little
publicity.\(^{38}\)

That changed in 1924, when Mitchell returned to the public’s attention with an October
speech to the National Aeronautics Convention. In this speech, he endorsed for the first time the
idea of bombing enemy cities as a way to win wars. He did not make the endorsement explicitly,
claiming only that U.S. air power could “smash up” only enemy centers of “production, supply
and transport.”\(^{39}\) At that time, however, bombers had no precise method for guiding bombs onto
specific targets, and as we now know, even precise targeting does not always prevent “collateral
damage.” Mitchell’s plea to “smash up” enemy military production centers was tantamount to
advocating the bombing of enemy civilians. No public figure as notable as Mitchell had
previously argued publicly for this kind of strategic bombing, so the speech attracted attention. It
was not, however, the highlight of Mitchell’s return to the public spotlight.
In late 1924 and early 1925, Mitchell published a series of five articles in the *Saturday Evening Post*. Through the *Post*, he reached more Americans than he had ever reached before. His articles concisely restated his previous arguments on behalf of air power, giving Americans a comprehensive argument for why air power was a vital element of America’s future military strategy. Indeed, it was essential to the nation’s survival, according to Mitchell.

In his *Saturday Evening Post* articles, Mitchell made the case that air power posed the greatest threat to U.S. security, and that isolation would be impossible in the future. Defining air power as “the ability to do something in or through the air,” Mitchell argued in his first *Post* article, in 1924, that air power could extend anywhere: “As the air covers the whole world, aircraft are able to go anywhere on the planet.” All locations were equally “exposed” to airplanes. As a result, the only way to defend against air power was to counter it with stronger air power. Geographical boundaries meant nothing. At a time when most Americans believed that oceans kept their country safe, Mitchell tried to scare the public out of complacency by arguing that airplanes made isolation impossible.

If airplanes could go anywhere, they also could observe everything. Mitchell devoted an entire section of his December 20, 1924 article in the *Saturday Evening Post* to describing “things that airmen see.” In that section, Mitchell wrote a brief narrative about what a pilot would see on a westbound flight from America’s east coast. He described countless railways, small towns in the Allegheny Mountains, and the industrial centers of the Midwest. A pilot flying over the United States would “see more of the country” than anyone else could; as a result, he would “appreciate” the country more than “any other class of persons.” To see something from above was to really understand it. This had obvious military implications: what airplanes could see, they could attack.
Airplanes could strike anything that “can be seen from the air,” Mitchell argued, and over the course of his four articles for the *Saturday Evening Post* he mentioned a wide range of targets airplanes might destroy: industrial plants, ships, armies, and railways, among others. They might even be used to control “serious domestic disturbances”—in other words, riots. Airplanes could strike anything. And they could strike with deadly force, making them what Mitchell called the “greatest weapons ever devised by man.” Airplanes could go anywhere, see everything, and their bombs could “cause more destruction than any other weapon.”

Not only would airplanes go anywhere and destroy anything, but they could not be stopped. No counter to them yet existed. Mitchell claimed that no way to stop air power had “yet been created or thought of.” Massive fleets of bombers could “nullify” ground-based defenses with their sheer numbers. Ship-based defenses would fare no better, because small pursuit planes could attack before the bombers moved in and render anti-aircraft fire “impossible.”

“The only defense against aircraft,” Mitchell concluded, “is other aircraft.” Airplanes could “go wherever there is air” and could only be stopped by superior air power.

These arguments relied, in some measure, on the visual spectacles Mitchell had created earlier. As he described massive fleets of bombers—bombers with enough force to wipe out a city, piloted by trained “air-going” warriors with a “spirit, language, and customs” of their own—he encouraged his readers to imagine those bombing tests on a much grander scale. Recounting, in detail, what those battleships in flames looked like from the air, he relied upon his readers’ own imaginations to envision wholesale attacks on cities by large fleets of bombers. Anyone in the 1920s who read Mitchell out of context might have mistaken him for a science fiction writer. Americans had long been fascinated by apocalyptic fiction, but now Mitchell was telling them that those scenarios of massive destruction could become real.
Mitchell devoted considerable space in his *Post* articles to recalling the 1921 bombing trials—especially the sinking of the *Ostfriesland*—and elaborating on their significance. Despite the Navy’s protests that the trials were inconclusive, Mitchell described them as indisputable proof of air power’s destructive potential. In addition to first-person recollections and vivid descriptions of the various ways his warplanes obliterated the ships, Mitchell filled his articles with the best images of the bombing trials. Photographs of the *Ostfriesland* exploding and sinking accompanied Mitchell’s argument that air power had rendered sea power obsolete.

Mitchell filled his narrative of the bombing trials with detailed imagery. He described the accidental collateral damage to observation vessels stationed near the bombed ships. He wrote of “fragments of steel thrown over the water for more than a mile,” and of the “tons” of water thrown up into columns by the bombs, only to fall back down to “sweep [the ships’ decks] clear.” The bombs were so accurate, Mitchell argued, that one pilot was able to purposefully send a bomb down a ship’s smokestack. Mitchell described every attack—and its ensuing destruction—in similar detail. After the *Ostfriesland* had been sunk, he recalled, the *Alabama* was attacked with “various weapons”: phosphorous bombs, thermite, and smoke bombs, on top of two-thousand pound bombs. Under that hail of bombs, the ship “sank to the bottom in thirty seconds.”

Twice using the word “amusing” to describe the effects of his bombing tests, Mitchell sounded like a boy excited about his new toys in his series of *Post* articles—except that his toys were warplanes. His enthusiasm showed through in vivid language, such as in the following extended description of the effort to sink the USS *Arizona*, one of the battleships used in the test:

> We tried out various weapons against [the *Arizona*] before she was sunk. Phosphorus bombs gave a magnificent display, the lapping flames enveloping the ship. We put thermite, the greatest producer of heat known, on her decks and covered her with smoke
clouds dropped from the airplanes. We attacked her at night and made direct hits with our bombs in the darkness.53

Mitchell reveled in his technology’s destructive power. Readers familiar with science fiction fantasies about air power, like the work of H.G. Wells, could no doubt relate. Mitchell made real those fictional visions of military aviation’s destructive power. In the process, he raised the real possibility that America would be in danger if it did not develop its own air power. As Mitchell ominously warned at the end of his Post article describing the destruction of the Ostfriesland, “in spite of these splendid performances” put on by his bombers, America was “falling back constantly” in the race to develop air power.54

Mitchell habitually overstated aviation’s military capabilities at the time. His anecdote about the airplane that sent a bomb down a smokestack, for example, greatly overstated how accurate his bombers really were. In fact, most of the bombs dropped during the trial missed their target. And when he claimed that American isolation had “completely broken down” because planes could now fly over the Bering Strait, he again engaged in overstatement. Generous biographers call Mitchell a visionary who made these grandiose claims to show Americans what aviation could do, fully convinced that it would someday soon fulfill his predictions. Critical biographers condemn his exaggerations as crass publicity stunts. Regardless, his advocacy made strategic bombing appear as a real possibility and a subject of serious policy debate.

In all of his advocacy, Mitchell never raised ethical concerns about bombing enemy cities or civilian populations. He focused squarely on what aviation technology could do and why it was necessary to build up American air power. By his logic, military aviation was a self-justifying defense against other countries. The need for a strong air force, to him, was unquestionable. If anyone acted unethically, Mitchell claimed, it was the traditional and orthodox
thinkers within the military who raised doubts and encouraged political opposition to his proposals.

In his Post articles, Mitchell repeatedly accused the military establishment of being too conservative, even negligent. He dismissed all controversies over his brash statements as “merely showing how any innovation, particularly in methods of warfare, is kept down by the more conservative elements” of the military. Mitchell was especially frustrated by this because, as he repeatedly pointed out, America had the best natural and industrial resources for developing aviation in the world. The potential for the world’s best air power was there, if only the country had the will to develop it. The conservatism of the military establishment was the real threat to America’s safety. “Where there is no vision,” he warned, “the people perish.”

Mitchell joined with other early speculators on aviation’s future in the utopian belief that, if developed and deployed properly, air power could bring about a better world. He suggested how warplanes could spread “elements of civilization and good” across the globe if led by the United States and its allies. He approvingly cited how the British had bombed the country he called “Irak” as an example of the type of civilization and order that air power could enforce. To him, a government’s ability to exert total power over its citizens was a good thing. This is not surprising coming from the man who once called Benito Mussolini “one of the greatest constructive powers for good government that exists in the world today.” Mitchell did not worry about fascism; he worried that, if the American military did not develop its air power, it might be attacked and taken over by another country. Military aviation could guarantee that America remained the strongest nation in the world.

Especially in light of this great promise, Mitchell’s attitude toward his superiors’ neglect of military aviation is more understandable. For much of his career, he had spoken only vaguely
about his displeasure with the military establishment. That changed in September of 1925, when Mitchell made the statement that eventually would end his military career. After a series of accidents killed dozens of his pilots in the summer of 1925, Mitchell seized the opportunity to write seventeen pages of angry, scathing criticism of the American military establishment. He sent copies of the tirade to news organizations nationwide. The *New York Times* was one of many newspapers to print the statement in full. Mitchell’s biographers agree that Mitchell intentionally meant the statement to prompt charges of insubordination and lead to a public trial. Mitchell knew the statement would have an explosive effect, but he concluded that “as a patriotic American citizen,” he could “stand by no longer” and watch the mismanagement of the nation’s air force. Noting that “his arrest would undoubtedly be ordered by the War Department,” he was resigned to his fate: soon after the statement was picked up by the press, he was court-martialed for insubordination.

Mitchell’s vitriolic statement had clearly crossed the line. Calling military policy towards aviation “disgusting,” he argued that any “self-respecting” military officer had to be “ashamed” to wear his uniform. He accused both the Navy and the Army of using “public propaganda” to lie to the American public about air power’s potential. In words that headlined dozens of newspapers, he accused the military of “incompetency, criminal negligence and almost treasonable administration of the national defense.” But Mitchell saved perhaps his harshest accusation for his statement’s conclusion: “The bodies of my former companions in the air molder under the soil in America and Asia, Europe and Africa, many, yes, a great many, sent there directly by official stupidity.” This was immoderate even for Mitchell. He had called his superiors negligent before, but he had never before directly blamed them for the deaths of
American servicemen. The statement crossed a line of decorum that even he had never before crossed.

Mitchell was court-martialed a few months later in a trial that captured the country’s attention. His statement was outrageously out of line, and his superiors—including even President Coolidge—had been looking for a way to rid themselves of him for some time. Leading newspapers made a media spectacle of the trial, running daily columns of updates. The New York Times ran an article about the trial in every single issue from October 28 to December 18, 1925. Because Mitchell was allowed to flood the trial with legally irrelevant evidence supporting his claims about air power, he was able to slow down the trial and keep his opinions in the spotlight for as long as possible. The result, according to Hurley, was “one of the sensations of the decade.” The debate over whether Mitchell had been insubordinate turned into a debate over air power’s potential. Mitchell’s trial ended his career, but it sparked a continuing national debate over American military aviation.

Throughout his campaign to promote American air power, Mitchell argued that developing military aviation’s technology was a matter of national survival. When possible, he let the spectacle of air power speak for itself, utilizing pictures and films of his bombing tests and other publicity stunts to show Americans the possibilities of aviation technology. When necessary, he grabbed headlines with controversial statements, eventually becoming a national celebrity with his bombastic persona. Whatever the tactic, Mitchell’s advocacy forced Americans to take notice of military aviation’s power and recognize how it would change warfare in ways the military establishment refused to accept. He turned bombers from fantasies into a central issue of national policy and defense. At the same time, his emphasis on spectacle effaced ethical
dilemmas posed by military aviation, as was evident in how the press reacted to Mitchell’s advocacy over the course of his career.

An Expert, a Blowhard, and a Visionary: Press Reactions to Mitchell

Over time, the American press responded to Mitchell in different ways. At first, they simply cited him as an expert, often reprinting his statements verbatim and deferring to his authority. After Mitchell’s irascible personality became more evident, however, they began to respond with more skepticism and sometimes outright derision. During his court-martial, they still acknowledged his expertise and occasionally acknowledged that he had a point about America’s failure to build a modern air force. After his court-martial, this dimension of his *ethos* became even more prominent, as the press gradually seemed to forget about his confrontational personality and remembered him as something of a martyr and visionary for military aviation’s cause. By taking his claims seriously and giving them publicity, the press helped popularize his vision of military air power and his emphasis on the spectacle of aviation technology.

Early coverage of his campaign to promote military aviation treated Mitchell as the leading expert in the field, letting him speak for himself and often quoting him at length. For example, a May 1921 review of Mitchell’s *Our Air Force* praised the book as an “aid to aviation” that made “highly important points.” Echoing Mitchell’s argument that “expansion and conservation of aviation resources are two vital policies in the national defense,” the reviewer touted Mitchell’s expertise, describing him as “the first American officer under German fire in the war, and the first American officer to fly across the enemy lines.” With credentials like those, Mitchell’s opinions seemed difficult to question. The review concluded by noting Mitchell had earned two medals through “personal bravery” and “exceptional administrative and executive
work.” To the writer, Mitchell was an expert whose views on aviation deserved to be taken very seriously.

Newspapers tended to elevate Mitchell’s credentials every time they mentioned his name. In a report covering a fatal plane crash caused by bad weather, Mitchell’s name was barely mentioned, yet he was introduced as “assistant chief of the Army Air Service and formerly in command of all American air forces in France.” In coverage of a controversy over foreign countries “dumping” used warplanes through large-scale sales to the United States, a reporter cited Mitchell’s “strong advocacy” against the dumping, introducing him as “chief of the aircraft division of training” and quoting him at length. Even as early as March 1919, one newspaper called Mitchell “one of General Pershing’s right hand men.” During this time, it seemed, Americans could not encounter Mitchell’s name without reading some affirmation of his stature and expertise within the military.

Because they saw Mitchell as an expert, many newspapers ran reports that simply regurgitated his often controversial opinions. In 1920, for example, an article headed “Next War to be Decided in Air” consisted entirely of quotations from Mitchell. It repeated verbatim Mitchell’s “vivid” description of a future involving “giant gun-bearing battle planes, bombers, rigid dirigible balloons and armored aircraft of various designs.” From there, the article simply quoted Mitchell’s narrative about what a battle fought with those weapons would look like. It did not editorialize in any way about Mitchell or his claims; it did not label his views as speculative or controversial. Instead, it simply reported his opinions as if they were fact.

In a country that still did not know much about aviation, Mitchell thus became one of the leading—if not the leading—authority on military aviation and its future. After World War I, Americans were hungry for news about military aviation technology, and fighter aces already
had become mythical heroes. Mitchell thus had a ready-made audience for his advocacy of military aviation, and the press presented him and his credentials as perfectly suited for the role of spokesman for all of military aviation.

Mitchell was more than just an aviation expert, however. Even in news stories that had nothing to do with military aviation, he appeared a something of a larger-than-life, even heroic figure. In 1921, for example, he made headlines when, at the National Capital Horse Show, a “lovely lady in distress” left her horse’s saddle at home. According to the Washington Herald, Mitchell “came to the rescue” by flying back to the lady’s home to get the saddle, and thus “the day was saved.” For this small act of generosity, the Herald dubbed him the “gallant warrior.”

During the 1921 bombing trials, the press coverage focused more on the sheer spectacle of the bombings than Mitchell’s personality. One report began with a claim sure to please Mitchell: the tests, an Arizona newspaper reported, demonstrated “the ability of the airplane to destroy the capital ship.” That report went on to describe how “one-ton missiles” dropped from the planes “exploded near the port quarter” of the Ostfriesland, flooding “compartment after compartment” with water “rushing in through rents torn in the hull.” The verbs “exploded,” “flooded,” and “rushing” depicted a dramatic scene of absolute destruction. The focus here clearly was on the technology and its spectacle. Mitchell was not even mentioned until the second page of the article.

Articles reporting on the bombing tests often followed Mitchell’s lead and emphasized the size and destructiveness of the warplanes’ bombs. The New York Tribune ran an article with the headline, “Bombs Sink Huge German Dreadnought.” They followed with the sensational subtitle, “Ostfriesland, Once Pride of Kaiser’s Fleet, Wrecked by 2,000-Pound Blasts from Giant Aircraft.” By highlighting the Ostfriesland’s former reputation as cutting-edge military
technology, the headline emphasized the “giant aircraft’s” unprecedented destructive potency. Scenes like this previously had been the stuff of science fiction; suddenly, headlines like “Alabama Ripped by Plane Bombs Stem and Stern” appeared in the daily news. Calling the bombing trials “astounding and almost incredible,” the Tribune and other newspapers now seemed to employ language and imagery straight out of science fiction novels like Wells’ *The War in the Air*, describing how the bombs sent up columns “of spray mixed with the black of the ascending smoke.” Another Tribune headline about later bombing trials headlined its story, “Planes Blind Warship, Drop Flood of Fire.” Planes “blinding” ships with “floods of fire” seemed apocalyptically powerful. These articles treated the bombing tests as spectacular realizations of warplanes’ destructive power.

Generally, the press echoed Mitchell’s assessments of the bombing trials’ success. The Washington Times reported that Mitchell and his pilots were “jubilant” over the “universally successful” tests. Deferring to his expertise, some newspapers just let Mitchell speak for himself, with the Washington Herald echoing Mitchell’s claim that “he had conclusively proved his argument that battleships would fall easy prey to airplanes.” After the bombing trials, Mitchell’s pilots flew over various cities, supposedly demonstrating how they could annihilate those cities if they carried real bombs. Some papers reported soberly on this demonstration and dutifully quoted Mitchell’s remarks on the subject. The Washington Herald, however, described the fly-overs in remarkably sarcastic terms, reporting that citizens who “hardly knew there were airplanes overhead, were thrown into imaginary demoralization.” Repeatedly referring to the attacks as “theoretical” and “imaginary,” the Herald concluded that as a theoretical exercise the attack “was a perfect success,” but then reminded its readers that “military theory” did not always prove correct in “practice” during World War I. To some,
Mitchell’s overblown claims about warplanes’ potential were apparently becoming tiresome.

Missing from any of the articles was any discussion of what bombs do to people. One article noted tersely that “no living creature” was on the Ostfriesland during the trial bombings, so the “probable effect of the explosion on a crew” was impossible to determine. It speculated that “shell shock” might put the “ship’s crew out of action,” but then quickly moved on to another topic.81 Not a single article considered the human costs of bombings ships or cities. The articles thus presented a sanitized version of military violence not unlike some twenty-first century action films. Ships were blown up, set on fire, clouded in smoke, and sunk, yet the worst fate imagined for any of their crews was “shell shock.”

Unsurprisingly, then, no article pursued the subjects of the ethics of air power, or even whether the United States should develop military aviation technology. Whether the story was the spectacle of falling bombs, the heroism of Mitchell and his pilots, or Mitchell’s overblown claims, the ethics of war got left out of the conversation. Press reports on Mitchell effaced human suffering and its attendant ethical dilemmas with the sheer spectacle of Mitchell’s technology. Instead of discussing whether America should develop weapons capable of levelling cities, Americans got caught up in the fascinating spectacle of those weapons’ destructive potential. It was as if modern bombers were “as innocuous and recreational as their scale models that millions of young boys were gluing together.”82 By focusing on the technological spectacle of the bombings, as H. Bruce Franklin has argued, Americans lost sight of “the world of the bombed.”83

During Mitchell’s court-martial, spectacle once again effaced deeper conversations, this time conversations about Mitchell’s character and whether he was insubordinate in accusing his subordinates of treason. Hurley writes that many members of the press editorialized that
“Mitchell had gone too far.” A few were still highly sympathetic to him and his cause. Most, however, simply focused on the drama of Mitchell’s trial. The New York Times, in a full-page story (Figure 2), featured an artist’s rendering of the scene. The written story merely described the demeanor of the trial’s participants, and did not weigh in on the charges against Mitchell and his defense. The stylized drawing of the courtroom literally left little room for detailed consideration of the charges against Mitchell. The headline, “The Intense Drama of the Mitchell Trial,” said it all, as the trial’s drama and hoopla became the story. Once again, Mitchell became the center of national attention, and of course he used the occasion to once again make the case for his vision of American air power.

Figure 2: Drama Dominates the Trial’s Story. Source: New York Times, November 15, 1925.

Mitchell faded from publicity after he was found guilty of insubordination, stripped of his rank, and discharged from the military. With the loss of his rank in the military, he lost his ethos
of expertise. He published many more essays, but Hurley writes that they had “little immediate
effect.” For the next two decades Americans remembered Mitchell with ambivalence. When he
died in March of 1936, his obituaries were telling: *Time* magazine, for example, neither praised
nor condemned him. Instead, it simply described Mitchell’s “unswerving conviction” and his
“gift for invective.” Recalling how later in his life he was “bellowing louder than ever,” the
newsmagazine hinted at both admiration for Mitchell’s conviction and criticism of his bellicose
rhetoric. Mitchell was mostly remembered as he appeared later in his life: bombastic,
confrontational, and single-minded in his promotion of military aviation.

World War II, in a sense, vindicated Mitchell. Franklin writes that “by 1943, Mitchell’s
vision of airpower had become dominant in American culture.” Twenty years after the press
marveled at the spectacle of Mitchell’s bombing trials without reflecting on what those bombs
might do to people, Americans talked about bombing Axis cities as if they were “not inhabited
by real people.” The conversation over whether America should use bombers in war ended on
the same note with which Mitchell began it, emphasizing the destructive capabilities of bombers
without giving much thought to the human suffering bombers could cause. Mitchell did not get
his way—an independent air force would not be created until 1947—but he did speed up the
arrival of air power as an essential element of American military strategy. Indeed, Franklin
claims that Mitchell was the “central figure in the triumph of air power in America.” His
tireless promotion of air power through a rhetoric of spectacle resonated with Americans both
hopeful and fearful about flight’s future possibilities, and his focus on air power’s technology
rather than its ethical implications had a lasting impact.
Mitchell’s Legacy

In 1957, the National Air Museum unveiled a larger than life state of Billy Mitchell. It depicted him staring off into a distant horizon: the future coming from the air. By 1957, Mitchell was a popular hero. He had even been immortalized by a Hollywood blockbuster, The Court-Martial of Billy Mitchell. The movie remembered Mitchell as a prophetic hero whose personal sacrifices gave birth to the U.S. Air Force. Its final scene depicted Mitchell leaving the court house immediately after being court-martialed. Looking upward, Mitchell, played by Gary Cooper, saw a squadron of biplanes overhead. The movie then briefly cut away from the planes; when it cut back, they were replaced by fighter jets. The message was clear. Mitchell was a martyr who deserved much of the credit for the technological advancement of American air power.

Something important got lost in the spectacle surrounding Mitchell, however. Films of the Ostfriesland sinking, articles describing air power’s potential, and news coverage of Mitchell’s trial all looked past ethical concerns about bombing enemy civilians. On Mitchell’s part, this omission must have been deliberate. He was well-read in the European military aviation doctrine of “strategic bombing”—a euphemistic label for trying to win wars by obliterating enemy cities. Mitchell supported the idea in private. But, in public, he focused on the sheer spectacle of air power. He discussed technology’s “amusing” power and emphasized the threat to America posed by its lack of air power. He ranted against his military superiors with confidence and occasionally vicious invective. But he never focused the public’s attention on the probabilities of collateral damage during bombing raids, or even on the effects bombs have on human bodies. Mitchell did not get his way in the first big debate over how and why America
should use air power, but he did put the issue of air power on the national agenda, and he did so in a way that focused future discussions of air power on technological rather than ethical issues.

Contemporary military aviation increasingly puts distance between war and its victims. Indeed, Jessy Ohl writes that the contemporary rhetoric surrounding military air strikes, particularly by drones, “Lubricates the gears of war” by obscuring “the destruction of foreign bodies” and rendering war impersonal, even “boring.” Yet while the visual rhetoric of our contemporary warplanes might be less dramatic than Mitchell’s explosive spectacles, the focus remains on the military technology rather than human suffering. In debates about whether and how we should use air power, aviation technology still seems to obscure haunting ethical questions.

Mitchell’s statue no longer stands in the National Air and Space Museum, but his legacy of privileging technological spectacle over ethics remains. In spring 2015, the museum prominently exhibited several of the American military’s newest drones. The display celebrated the drones’ capabilities: their ability to go anywhere, to observe anything, and to destroy any threats they may find. Although the drones look very different than the biplanes of Mitchell’s day, both represent the cutting edge of aviation technology in their respective eras. Both were deemed necessary to keep America safe. Both were used to kill America’s enemies in foreign lands. Americans still get caught up in the spectacle of their aviation technology, leaving the hard ethical questions behind. Maybe we should flip the script. Instead of focusing so much on the spectacular possibilities of aviation’s technologies, perhaps we should begin in “the world of the bombed,” reflecting on the human suffering those technologies cause.
Notes


11 Orville Wright, “Flying Machines and the War,” Collier’s Weekly, July 31, 24-25, reprinted in Jakab and Young, Published Writings of Wilbur & Orville Wright, 214-215.


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“Orville Wright—‘First Man to Fly’: Interview with Orville Wright by Leland Chase,” The Rotarian, April 1948, 8-10, 50-53, reprinted in Jakab and Young, Published Writings of Wilbur & Orville Wright, 103.

15 H.G. Wells, The War in the Air (London: George Bell and Sons, 1908), 240.

16 Wohl, A Passion for Wings, 70.

17 Wohl, A Passion for Wings, 76.

18 Hurley, Billy Mitchell, 37.


20 Wohl, A Passion for Wings, Chapter Seven.


24 “Navy Dared to Test Strength Against Planes,” Chicago Tribune, February 7, 1921, accessed November 2, 2015, ProQuest Historical Newspapers.


29 Officers who disagreed with Mitchell usually did so with more propriety than Mitchell ever used. For the example of one Navy officer who delicately suggested that Mitchell was making most of his claims up, see: Thomas T. Craven, “Our Navy’s Air Service,” American Review of Reviews 63 (Spring 1921): 399-404.

“Navy Dared to Test Strength Against Planes,” *Chicago Tribune.*


Footage of the bombing is scattered across diverse archives and equally diverse corners of the internet. I could not track down which versions of the film, specifically, were shown in 1921. Many versions seem to have been edited and re-shown as late as the 1930s. What we can be sure about is that many Americans viewed the films in theaters and that they at least saw the basic scenes I have described here. Original film reels are housed at the San Diego Air and Space Museum’s Film and Audio Archive. For one digitized version of the films, see “Bombing the Ostfriesland,” SDASArchives, Youtube, published June 13, 2012, accessed 11/14/2015, https://www.youtube.com/watch?v=w7zNzU4SoDc.


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67 “Seven Killed as Big Airplane Crashes in Maryland,” Richmond Times-Dispatch, May 30, 1921.


69 “Aero ShowOpens in Burst of Glory,” The Sun (New York, NY), March 2, 1919.
“Next War to be Decided in Air,” *Evening Herald* (Klamath Falls, OR), May 1, 1920.


Franklin, *Peace is Our Profession*, 335.


Chapter Four

Charles Lindbergh and the Rhetoric of Routine Flight

Airlines hurl passengers through the air in a metal tube at velocities near the speed of sound. Passengers, meanwhile, tend to complain about how little legroom they have, or the poor on-board food, or their noisy neighbors. Airlines passengers do not think about the stupendous physical forces involved in their flight. Although many people still fear airline flight, most worry more about inconvenience than safety. Flight strikes many twenty-first-century passengers as routine, boring, and necessary, despite the inconveniences. Part of the explanation for our acceptance of flight has to do with our massive material and legal investments in a nationwide system of airports and airways. Yet part of the explanation is also rhetorical: beginning in the 1920s and 1930s, commercial airlines have “sold” us on the convenience and comfort of modern air travel.

In the early twentieth century, commercial flight had two good reasons to fail. The first was the Great Depression, which threatened any new business, and especially businesses founded on new technology. The second was fear. Average Americans encountered flight in one of two places: a barnstorming stunt performance, or a newspaper article describing an airplane crash. Barnstormers taught Americans that flying was for daredevils, and airplane crashes confirmed that fears of flight were reasonable.

Commercial flight achieved swift success despite these barriers. The standard explanation for why, according to aviation historian David Courtwright, is that government subsidies allowed the first airlines to build and maintain a high-quality nationwide aviation infrastructure. With that infrastructure in place, passengers flocked to the airlines, which presumably had finally become safe and convenient. Courtwright notes that this explanation ignores “demand-side” influences
on commercial flight’s development. In other words, for all of commercial flight’s technological advances, “Flying still had to be sold to a reluctant public.”¹ This chapter studies how early airlines, with the help of Charles Lindbergh, sold flight to an initially skeptical public.

The period highlighted in this chapter, from 1925 to 1930, marks an important moment in aviation history. It was during this time that commercial aviation’s advocates first sketched out the rhetorical contours of the case for making air travel a routine part of America’s transportation system. Although others have touched upon this period while investigating public memories about aviation,² I focus on how the commercial airlines, with help from one of the most famous aviators in U.S. history, persuaded the American public that flight was safe and desirable for ordinary Americans. I argue that commercial flight’s advocates played up flight’s connotations of risk and adventure to get publicity, but then used that publicity to re-brand flight as safe and routine. Flight gradually evolved from being seen as an exciting and dangerous form of adventure—the province of daredevils and stuntmen—to a safe, convenient, and comfortable mode of routine everyday transportation.

Ironically, the airlines’ greatest ally in this effort to rebrand human flight was one of flight’s great adventurers, Charles Lindbergh. Lindbergh became famous for flying solo across the Atlantic Ocean in May of 1927. His career’s arc matched aviation’s arc through the twentieth century. He began his aviation career as a barnstormer, trained to fly with the U.S. military during World War I, but then was reduced to carrying airmail when no other jobs for pilots opened up after the war. By 1927, he was well-trained in the most advanced aviation technology, yet found himself flying stunts for show. He embodied the paradox of flight in 1927. To professional pilots, flight was a controlled and rigorous process that was rapidly standardizing its technology and procedures. To the public, flight still seemed tremendously exciting, but also
very risky. Ironically, the emerging airline industry initially exploited the public’s excitement about flight to sell commercial flight as safe and even routine—an industry defined not by barnstormers but by professionally trained pilots utilizing the latest technology.

Lindbergh spearheaded this effort to sell commercial flight to the American people. Immediately after his ocean-crossing flight, he accepted an offer from Harry Guggenheim, a billionaire patron of aviation, to promote commercial aviation in a flying cross-country tour. Lindbergh stopped in every single state, landing to discuss aviation’s value and potential with locals. The tour lasted from July 20 to October 23, 1927. Its scope was staggering. Biographer A. Scott Berg reports that, by the tour’s end, Lindbergh “had flown 260 hours, delivered 147 speeches, and had ridden in 1,285 miles of parade. An estimated thirty million spectators had turned out to see him—approximately one-quarter of the entire nation.” Immediately before embarking on the tour, Lindbergh also published an autobiography—simply titled We—that generated even more interest in what he had to say. It became an instant bestseller. In it, Lindbergh used his own life story as an argument not for risk-taking or reckless adventurism, but for embracing commercial flight as a routine part of everyday life.

I begin this chapter by summarizing how, when the first airlines formed in the late 1920s, most Americans still imagined flight as an exciting spectacle but feared to fly themselves. Lindbergh’s successful transatlantic flight began a wave of good publicity for commercial airlines, which Lindbergh reinforced in We and in his cross-country tour. Treating flight as just another mode of public transportation, Lindbergh argued that flight could be as reliable and comfortable as trains or cars, and that pilots were now highly trained professionals who passengers could trust with their lives. Airlines extended Lindbergh’s arguments with large-scale advertising campaigns, exploiting Lindbergh’s fame to launch their own campaigns emphasizing
the comfort, convenience, and professionalism of commercial aviation. Together, the airlines and Lindbergh helped bring about what Courtwright calls a “dismantling” of two prevailing emotions associated with flight: “fear” and “inspiration.” When flight stopped being frightening, it also stopped being exciting. Ironically, then, Lindbergh—one of the greatest risk-taking adventurers in the history of flight—left a legacy of public attitudes toward commercial flight as safe, routine, and even boring.

Mythic Obstacles to Commercial Flight in the 1920s

Airlines are no safer than their pilots, and Americans—for good reason—did not trust pilots in the late 1920s. Barnstormers—the colloquial name given to itinerant stunt fliers who would fly from town to town, making a living by charging people for flights and shows—had drilled into the public’s imagination that pilots were “intrepid birdmen,” a label frequently used in the early twentieth century. According to historian Joseph Corn, the label grew from the common belief that pilots were “a breed apart” and that “ordinary mortals” were not meant to fly. That was great fare for selling a barnstormer’s performance, but not for selling an airline ticket. “Birdmen” could be trusted for entertainment, not entrusted with a passenger’s life.

Newspapers and periodicals supplied further reasons to fear flight with sensational stories about airplane crashes. “Death by Air Transport,” a 1932 article in Forum and Century written by Lloyd Graham, exemplified how such stories stoked the general public’s fears about flight. The article told the story of a “nonchalant” airplane passenger whose “routine” flight turned deadly when the plane flew into fog. After the pilots lost track of the ground, they crashed, and everyone on board the plane died. The point of Graham’s narrative was that the commercial aviation industry was more dangerous than “those with money at stake” wanted people to know.
Airline flights, he claimed, were “prone to failure.” These sorts of warnings were commonplace throughout the late 1920s and early 1930s.

Newspapers frequently turned planes crashes into sensational headlines. For example, readers of the *Chicago Daily Tribune* picked up their papers on January 11, 1930, to read (in boldfaced capital letters): “AIR MAIL PILOT BURNS TO DEATH IN PLANE CRASH.” Unlike today’s news coverage of airline crashes, which typically treat such incidents as highly unusual, early newspaper coverage of airplane crashes treated such incidents not only as horrific but as an unavoidable result of humans trying to fly.

To most Americans, airline flight thus seemed terrifying, and this posed a rhetorical problem for anyone involved with aviation. For commercial aviation to succeed, the public had to be convinced that aviation was no longer at the whim of bad weather, that pilots were no longer reckless risk-takers, and that the technology of flight had become completely reliable. The good news for commercial flight’s advocates was that, even by 1927, aviation had come a long way, particularly in three areas directly related to safety: radio navigation, pilot training, and the technology of airplane design.

Advances in radio communications vastly improved flight’s safety by improving the pilot’s ability to communicate and navigate. With radios, pilots could communicate with the ground and navigate without seeing out the window. Airplanes were thus much less dependent on good weather to fly, which in turn made regularly scheduled airline flights possible. An airline cannot easily make money if it must constantly cancel flights for lack of perfect weather. Beyond safety, radios offered to airlines a degree of feasibility—and, with that, legitimacy—that was previously unattainable.
Professional pilots needed to be proficient in the use of new radio-based flight instruments, so airlines began to require their pilots to undergo strict and rigorous training. Courtwright points out how bluntly the shift to radio and instrument based flight sometimes happened: “The real old-timers hated the new ways…but woe to those who could not, or would not, make the transition. They were either fired by the airlines or flunked by federal inspectors, who in 1932 began testing transport pilots on radio navigation and instrument flying.”

Changing aviation technology required airline training to change, creating a new culture of professionalism within the airline industry.

Radio navigation and professional pilots formed two thirds of the definition of “modern flight” in 1930. The remaining third was the modernized airplane, for which the National Advisory Committee for Aeronautics (NACA) provided a blueprint in its 15th annual report. The Chicago Tribune was among several newspapers that reported at length on efforts to improve the technology of flight. What would this ongoing “scientific research” do for the modern airplane?

According to the report in the Tribune, the NACA’s report was worth quoting at length:

Make it lighter and stronger; make it faster and more controllable; make it carry more pay load and consume less fuel and oil; construct it more simply and cheaply, and make it easier to maintain and overhaul; make it more reliable by improving methods and facilities of air navigation; improve the landing and takeoff characteristics of the airplane so as to enable it to land and takeoff in small areas – in short improve its aerodynamic efficiency and make it more controllable, especially at low speeds.

In short, the airplane was being improved in every conceivable way, and in fact many of these technological improvements were actually occurring. Advances in airplane design led to retractable landing gear, new engine cowling, wing flaps, and a host of other advances that made airplanes faster, safer, and more versatile. Especially across the 1920s, aviation technology dramatically improved.
All of these advancements in aviation technology did not speak for themselves, however. It was important that advocates for the aviation industry not only call attention to these advances but also find other ways to overcome deep-seated fears about flying. The American public had become accustomed to a rhetoric of flight that emphasized the dangers and adventure of flight and that portrayed pilots as daredevils and barnstormers. The airlines, with help from Charles Lindbergh, set out to transform those perceptions of flight.

**Lindbergh’s Advocacy for Flight’s Reliability and Professionalism**

Lindbergh did many difficult things in 1927, but one of his more difficult tasks was the least dangerous: writing a book. Following his flight across the Atlantic Ocean in May of 1927, he agreed to let the G.P. Putnam’s Sons Company publish a ghostwritten biography of his life. He found their ghostwritten copy too full of “purpose prose,” however, and decided to write the book himself—under a one-month deadline. Locking himself in a mansion belonging to Harry Guggenheim (the same patron who would pay for his cross-country tour), he dashed off forty-thousand words in three weeks, then departed on his cross-country tour. Fitzhugh Green, his editor, wrote a long postscript describing Lindbergh’s post-flight tour of Europe, appended it to Lindbergh’s manuscript, and published the book in July. Titled simply *We*, it was an immediate best-seller, eventually selling some 650,000 copies. Because many Americans bought and read it during Lindbergh’s tour, it functioned as something of a primer for the message he hoped to convey. In short, that message was that flight had become reliable and safe enough to become an everyday part of America’s public transportation system. Large-scale commercial air travel was now not only possible but was already, by 1927, safe enough to be routine.

To start, Lindbergh stressed how dependable modern aviation technology had become. He accomplished this in part by filling the book with minor details about aviation technology.
For example, in his account of his own transatlantic flight, he described his airplane engine’s optimal R.P.M. for gaining altitude, the minutiae of navigating in the air with a compass, and the complicated math by which he calculated how much time it would take him to reach various landmarks. All of these details were unnecessary to his narrative’s progression. But by focusing the readers’ attention on what was—for that time—sophisticated technology, he highlighted the dramatic technological progress that had been made in aviation in a few short years. Even when telling the story of how he had to make an emergency jumps out of an airplane while flying air mail, he made it clear that the extreme weather was to blame, not some technical failure. Aviation technology, as he described it, had become dependable and sophisticated enough to be taken for granted.

Because of its reliability, Lindbergh argued that aviation technology already made commercial flight perfectly safe and viable. After pointing out that airplanes had been invented “less than twenty-five” years ago, he wrote that, in 1927, airlines were “operating regularly over long distances and under all conditions.” Early airplane technology, he explained, was “frail” and depended on good weather, but now “properly operated commercial airlines” were perfectly safe. Already the air mail was “seldom delayed,” and when rare delays did occur, they were due to “impossible” weather. And as “radio navigation and instruments for blind flying improve,” Lindbergh predicted, pilots eventually would be able to “keep their schedules under the worst conditions and in comparative safety.” This portrait of flight clashed directly with the assumption, held by many Americans, that flying was a risky and haphazard business.

Lindbergh did more than argue that flying was now safe and reliable. He portrayed it as the future of mass transportation, allowing travelers to go further, faster, and to places not accessible by land or sea. He claimed that, in the modern world, “time is paramount and territory
is inaccessible,” and that aviation was naturally suited such a world, standing “at the head of its competition.” Because airlines were now equipped with “advanced” technology, commercial flight operations could also now be put on a “sound financial basis.” Flight was not only a superior way to travel, but it had become economically competitive with other means of transportation.

Lindbergh bolstered his authority by weaving these arguments throughout the narrative of his own life story. His account of how he joined the air mail service, for example, doubled as an argument about air mail’s efficiency. “The United States,” he wrote, “is being covered with a network of air mail routes, and it is only a matter of the public using this service before nearly every city in the country will be served by airlines.” That claim came at the end of a chapter where he described, in meticulous detail, how his own experience flying air mail demonstrated its potential. If anyone would have a good grasp of commercial aviation’s future, readers were left to think, surely that would be Lindbergh.

In addition to these explicit arguments, Lindbergh stressed commercial flight’s viability by writing in a remarkably plain style that made his exploits seem routine, not adventurous. He wrote in a deadpan “voice” even when describing his transatlantic flight’s most emotional moments. For example, when describing his takeoff—a perfect opportunity to wax poetic about the drama of the situation—he simply wrote: “About 7:40 A.M. the motor was started and at 7:52 I took off.” He wrote in a similarly dispassionate tone about his historic landing in Paris: “I flew low over the field once, then circled around into the wind and landed.” Here, and in We as a whole, Lindbergh wrote in a dry, seemingly objective tone that conveyed no sense of the great adventure or danger of his experiences with flight. In short, he sounded like a professional pilot, not a reckless barnstormer.
Lindbergh devoted only two chapters of *We* to his transatlantic flight. One of the other eight chapters was about his childhood, and the remaining seven were about his flight training. In those seven chapters, Lindbergh described the process of getting a pilot’s license, training to fly with the U.S. Army, and preparing to fly for the air mail service. Readers who expected him to share thrilling stories of adventure instead found, for example, a detailed description of the Army’s flight training process at Brooks Field in Texas. In the book’s conclusion, Lindbergh did thank the European countries he visited for their warm welcome, saying he would “cherish” his memories of Europe “for all time.” But he attributed his hero’s welcome in Europe not to his personal achievements as an adventurer or daredevil, but to the public’s realization that aviation “eventually would bring still closer together the new world and the old.” As presented in *We*, the “unforgettable” crowds who gathered to cheer him were really cheering for the future of commercial aviation.

Lindbergh had long sought to shape and control his own public image. Shortly after he landed in Paris, the *New York Times* had run a front-page article supposedly giving a first-person account of the flight. In fact, the article had been ghostwritten, and Lindbergh was “shocked and disappointed” that it misrepresented “my character and viewpoint.” It was too sensational, he complained, and he apparently persuaded the *Times* to subsequently depict him as more sober and professional. He had an important message to convey to the public, it seemed, and that message was not about his own exploits but the future of commercial aviation.

During his cross-country tour, Lindbergh also struggled to control the message. Berg writes that the tour “wavered between the historical and the hysterical,” as massive crowds greeted him in all eighty-two cities he visited. Most people probably came to see Lindbergh the hero, not to hear his dry predictions about the future of commercial aviation. Like the early
airlines, he struggled to strike a balance between using the adventure of flight to attract attention while assuring the public that flight had become safe and routine.

During the tour, Lindbergh reiterated many of the same themes he emphasized in We. His message “that aviation had a brilliant future, in which America should lead” was emphasized at every stop. He refrained from flying any stunts, and everywhere he consulted with engineers and toured local airports, using every chance he had to call attention to aviation’s new technology and infrastructure. He insisted that the professional team of fliers who joined him arrive on time at every stop—and, indeed, they only arrived late once during the entire tour. Whenever a member of the press asked him a personal question, he responded: “If you can show me what that has to do with aviation, I’ll be glad to answer you.”

Lindbergh used the massive public interest in his personal exploits to publicize commercial aviation’s technology, profitability, and professionalism, and his actions during the tour reinforced that message.

It’s important to realize just how popular Lindbergh was after he returned from his solo flight. Two hundred and fifty thousand people turned out to see him receive the Distinguished Flying Cross from President Calvin Coolidge in Washington, D.C., on June 10, 1927, not including the masses who lined the parade route as he made his way to the event. When he arrived in New York immediately after his stop in Washington, he was greeted by a crowd of more than four million people, and the ensuing parade rained about two thousand tons of ticker tape on the city. In his first week back in America, he was recorded on more than seven million feet of film—more than anyone else in human history up to that point. To say Lindbergh was famous is an understatement. The celebration immediately upon his return, combined with the subsequent publication of We and his national tour, combined to create a nation “obsessed” with Lindbergh.
Lindbergh’s 1927 tour brought newfound publicity and respectability to the fledgling commercial aviation industry. Harry Guggenheim, the patron who arranged and payed for the cross-country tour, was sure that Lindbergh had changed American attitudes about flight as early as October of 1927, the month the tour concluded. In a letter to Lindbergh, Guggenheim wrote that “nothing has so much contributed to the promotion of aviation in America, with the exception of your own historic flight to Paris, as this tour.” Forbes magazine echoed the sentiment, writing that Lindbergh had done more for commercial aviation than “any mercantile or financial magnate on either side of the Atlantic.” Yet Lindbergh could not have sold commercial flight alone, of course. Over the next two decades, the airlines would echo and refine his message about the promise of commercial aviation in their advertising campaigns.

**Airline Advertisements: Re-Branding Flight as Safe and Convenient**

When the early airlines began advertising in the late 1920s, they, unlike Lindbergh, did not explicitly argue that flight was safe. Instead, they implied flight’s safety by noting how many miles they had flown or their years of experience in commercial aviation. While Lindbergh touted aviation technology’s reliability and the pilots’ professionalism, the airlines likewise made those appeals more implicitly, while also touting flight’s comfort and convenience. By giving Americans a way to imagine flight as part of their daily lives, airline advertisements made flight seem less intimidating.

Airlines touted their product’s convenience to make air travel seem preferable to other modes of transportation. In a series of 1931 advertisements (Figure 3), for example, United Airlines beckoned passengers to fly “coast to coast,” noting how quickly they could fly from Chicago to ten other cities. Here, the appeal to convenience worked through comparison. The ability to travel from coast to coast, or to reach any the listed destinations that quickly, was
obviously preferable to other, much slower modes of transportation. The advertisement’s boast—
“From Chicago, 8 planes daily”—might seem quaint by today’s standards. In 1931, however,
United compared favorably to other airlines that only dispatched one or two flights per day.

Other airlines touted their convenience with more explicit appeals to airline flight’s speed. For example, 1931 advertisements for American Airways (Figure 4) told passengers to
“save hours by air” in bold letters. Here, the main appeal was to how quickly the airline could transport passengers. Just like the United advertisements from around the same time, the text explained how many flights were offered between specific destinations, with an emphasis on how few hours the trips took. Both ads, although small, depicted planes streaking through the air, as if to emphasize their speed. Both ran repeatedly in major newspapers throughout the early 1930s. Airline flights, according to these ads, made life more convenient by getting Americans between destinations at high speed.
Even in the early years, airlines targeted businessmen in their advertising. Eastern Air ran at least one such advertisement in the Wall Street Journal (Figure 5). Headlined, “Air Travel Serves the Business Man,” the full-page ad listed the many reasons air travel was convenient for business leaders. Airlines were “fast, averaging 110 miles an hour,” and thus able to join “the business interests of the North and South.” They were convenient for their ability to move businessmen around at (comparatively) blistering speed. They also promised that businessmen could “keep in contact” with the business world while traveling through “up-to-the-minute quotations on important stocks and principle commodities.” Even “telegraph facilities” were
“available at each stop.” These business perks made airlines seem sophisticated and convenient, a far cry from the bumpy and inconvenient flights of old. A large faux-chart took up most of the page, depicting an airplane “gaining” altitude to symbolize Eastern Air’s rising business success—and, presumably, the business success of Eastern Air’s passengers. Convenience meant different things to different passengers, and to business people it meant saving time on travel while also staying in touch.

Figure 5: Air Travel’s Business Sense. Source: Wall Street Journal, June 27, 1932.

While speed and convenience made flight preferable to other modes of travel, the airliner’s comfort was also touted by these early advertisements. Each of the ads examined so far featured appeals to comfort. United Airlines subtitled their 1931 ads: “TAKE to the air…for Cool Summer Travel Comfort!” (Figure 3). American Airway’s advertisements called planes “comfortable” and complete with “courteous, dependable service” (Figure 4). And Eastern Air’s
ad in the Wall Street Journal noted that Eastern Air’s planes were “big and comfortable” and serviced by “hostesses” (Figure 5). The comfort appeals in these ads were even seasonable. In the winter, United Airlines advertised that their airplane cabins were heated; in the summer, they advertised that their cabins were cooled. Climate-controlled cabins were a far cry from the open-air cabins of the earliest planes. Some United advertisements even touted their planes’ on-board lavatories. These comforts assured passengers that flight would be just as comfortable as other modes of travel.

Notably, few of the early airline ads actually pictured airplane cabin interiors. Around 1930, airplane cabins were not, in truth, as comfortable as these ads made them sound. They were still quite cramped and noisy, akin to flying inside a tin can flanked by two massive motors. Airlines wisely chose to use text rather than actual pictures to sell the creature comforts of flying, leaving it to the passengers to imagine the experience.

The professionalism of the airlines and their pilots was a third selling point in most early ads for commercial flight. United proclaimed themselves “the largest air line in the world,” touting their “5 years and 25 million miles” of experience (Figure 3). American Airways boasted of having “air mail pilots,” who presumably had more flying experience than anyone else (Figure 4). In 1932, United’s advertisements boasted that their company had already accumulated “40,000,000 miles flying experience” (Figure 6). With this much experience under their belts, United’s pilots were obviously not the stereotypically brash young daredevils and barnstormers of popular culture. They were a new breed of professional pilots. These appeals—to only five years of flying experience, or to flying with air mail pilots—might seem weak by today’s rigorous standards of pilot training. But these were literally the most experienced pilots in America in the 1930s.
The reliability of their planes, navigation, and other technologies was another selling point in the early airline ads. United’s 1931 ads boasted of “Tri-Motor Boeing Planes,” flown by not one but two pilots, and equipped with “radio” to guide them along in the air (Figure 6). Safety was the point of having multiple engines, two pilots, and radio communication and navigation. If the flight lost a pilot, an engine, or even sight of the earth, it could still proceed safely. The redundancy of multiple engines and pilots was undoubtedly reassuring to Americans skill skeptical about both the technology and the men who flew planes. Eastern Air boasted that each of their airplanes was “multi-motored,” implying—though not actually saying—that the plane could still fly safely should one engine fail (Figure 5). Like other appeals in these early airline ads, they left that part of the appeal to the imagination of their audience.

With memories of the old risky world of stunt flying still fresh in the minds of some of their readers, the airlines had to stress how everything had changed. In 1932, Paramount Airlines even went so far as to assure readers of the New York Times that they now flew “all metal...
airplanes” (Figure 7), apparently out of concern that some readers might recall old, rickety airplanes constructed out of wood and fabric. These **topoi** of modern flight—the themes of convenience, comfort, professionalism, and technological progress—gave Americans new ways to imagine flight as a routine mode of mass transportation. They also defined how the airlines would promote themselves for at least the next two decades. As Stephen Browne has argued, rhetoric not only has effects on audiences, but also on rhetoric itself; in other words, “language shapes language.”

This is evident in how these early airline advertisements constrained later advertising of commercial aviation. In the next section, I show how these early **topoi** of flight were manifested in the airline advertising of the 1940s and 50s.

*Figure 7: Safety in Metal. Source: New York Times, Sept. 20, 1932.*

**Perfecting the Rhetoric of Safety and Convenience: Airline Advertising from 1940 to 1950**

As airlines became more lucrative, they polished their initial appeals into colorful and more sophisticated advertisements. Appeals to comfort, for example, evolved from descriptions of heated cabins to vibrant images of pure luxury. A 1951 advertisement for Capital Airlines (Figure 8), for example, depicted a cabin that resembled a cozy parlor or the lobby of a upscale hotel. Fashionably dressed passengers read newspapers, smoked cigarettes, and carried on cheerful conversations while a smiling stewardess served drinks. In the background, a mother played with her daughter. The passengers did not seem at all aware that they were flying; they may as well have been seated in the luxury car of a train.
The airlines also sharpened their appeals to businessmen concerned mostly with convenience and efficiency. A 1950 advertisement for American Airlines (Figure 9), for example, put it in concise economic terms: “Sales go up when Salesmen do!” Flying, in other words, was good for business. The ad portrayed businessmen bantering cheerfully as they boarded a flight, modeling their success in their demeanor and fine clothes. The ad’s text reinforced this message, claiming that air travel supplied “an economical and logical” solution to the businessman’s travel problems. It allowed businesses to “increase the efficiency of individual effort without increasing the cost” and thus was “the surest path to profit.” Such ads echoed the airlines’ earlier arguments that flight was a convenient mode of travel, but went beyond that to create a clear association between airline travel and business success.

Figure 8: The Image of Luxury. Source: New Yorker, 1951.
Figure 9: The Convenience of Business Flight. Source: Time Magazine, 1950.
Professionalism remained one of the airlines’ major talking points in the 1940s and 1950s, as they further refined the pilot’s image as well-trained and experienced professionals. A 1949 ad for American Airlines (Figure 10) depicted working pilots in the cockpit. The captain in the foreground looks mature but not too old, with a wrinkled face that exuded the *ethos* of time-earned expertise. In the background, the co-pilot was hard at work talking to air traffic control and manipulating the airplane’s control panel. Both pilots were immaculately dressed in their pilot’s uniform. Both had their hands on the airplanes’ controls, depicting confident command of the airplane. The image’s subtitle summarized its visual message: “He commands your flagship and your confidence.” Pilots had come a long way since the day of the barnstormers.

Airlines also continued to tout their technology’s sophistication, assuring travelers that technological advances had made even flying in bad weather safe. In 1950, for example, American Airlines ran an advertisement in *Time* magazine (Figure 11) that pictured a weatherman explaining the day’s forecast to two airline pilots. Surrounded by complex-looking charts, graphs, and symbols, the weather forecasting operation looked sophisticated. The people looked the part too, with the weatherman looking studious with his glasses, his sleeves rolled up, and using a pointer to emphasize some data. He looked exactly like one might imagine an airline weatherman. More importantly, the text suggested that all flights on American began with this sort of meeting, as the pilots conferred with a trained “meteorologist” with many years of “specialized study” and “practical experience.” Working as a “team,” the meteorologist and the pilots decided the appropriate “comfort level” for every flight, “around or above unfavorable weather.” These were the “weather eyes of the Flagship Fleet,” the ad concluded, suggesting that science and technology had overcome the challenges of flying in bad weather.
Given all their efforts to distance commercial aviation from the days of risk-taking daredevils, it might seem ironic that the ads of the 1940s and 1950s also revived the frontier imagery common in the rhetoric of aviation’s pioneers. Portraying modern aviation as the ultimate fulfillment of America’s frontier heritage, two full-page magazine advertisements in the 1940s simultaneously reminded Americans of their frontier past and the promise of the future—a future made better by commercial aviation. In the first ad (Figure 12), a young boy looks up from the back of a classic covered wagon. The ad’s text claimed that “a golden future” awaited that boy in the “frontier of the sky.” That frontier promised even “more glorious adventures and treasure” than the frontier conquered by those who “answered Horace Greely’s still-echoing call…‘go west.’” The “winning of the west was the winning of a continent,” the ad pointed out, “but the conquest of the skies opens the inviting gates of a completely new world.” The ad went on to suggest that this “completely new world” was already here, as the “skyways are part of
your everyday life already.” The ad, sponsored by Chicago and Southern Air Lines and published in *Time* magazine, concluded with a “glimpse” into an even better world in the future—a period of “putting America’s wartime needs first”—when “everybody is everybody’s neighbor, and shall, God willing, be his friend.”

An advertisement sponsored by all of the major airlines in the *Saturday Evening Post* (Figure 13) made a similar argument. Depicting the romanticized frontier family, standing outside of their log cabin and dressed in pioneer garb down to the coonskin hats, the ad featured a modern airliner flying overhead. Juxtaposing the airplane and the pioneers, the implication was clear: flight was the natural culmination of America’s frontier heritage. The ad’s text reinforced this message. It first described how the original pioneers successfully built “new homes, new lives and fortunes,” and eventually built up the United States itself. They did this despite the “folks who stayed behind” and called them “crazy.” The story of aviation, of course, was “another drama” in which Americans doubted that a “fool contraption” could “change man’s measurement of the earth.” As with the frontier pioneers, the pioneers of aviation had to overcome both dangerous conditions and the doubts of their fellow citizens as they conquered the new frontier of flight. But while flight’s early challenges “were great,” airplanes had now become “practical and dependable.” With the new reality of “faster, more luxurious and economical travel by air,” the new frontier also had been conquered.
One last example blended many of the *topoi* used to sell commercial flight to the public between the late 1920s and the early 1950s. In an advertisement for Capital Airlines in 1952 (Figure 14), a cheery young family boarded an airliner. The baby—rosy-cheeked and beaming at her mother—stood out, dressed head-to-toe in red against the drab background of her parents’ clothes. The ad was subtitled, “She’ll fly before she walks,” implicitly suggesting not only that flight was the way of the future, but also that airlines had become so safe and comfortable that nobody gave flying a second thought. The family prepared to board the plane with everyone—including the infant—perfectly calm and peaceful. The ad also sold the airline’s convenience, calling its “economical” service a saver of both “time and energy.” Calling airline flight “routine today”—even though it was “unthinkable a generation ago”—the ad emphasized the dramatic progress of the airline industry. In less than half a century, commercial aviation had become a
routine part of life, an activity that “fits in perfectly with modern living.” The re-branding of flight from the days of dreamers and risk-taking daredevils was complete.


**Professionalism and Routine Flight: The Early Airlines’ Legacy**

Airline passengers in 1927 probably passed much of their flight time in mortal fear. By contrast, airline passengers in 2016 are rarely terrorized by anything more than a screaming baby across the aisle. Our expectations for airline flight today testify to the legacy of early airline advertisements. We continue to expect our airlines to serve us with comfort, convenience, and professionalism. Part of this expectation, as I suggested earlier, stems from vast improvements in commercial aviation’s infrastructure. Yet much of it owes to how airlines rhetorically transformed commercial airline travel into a routine part of everyday life. If we board airline flights in excitement, we are probably excited because of where we are traveling, not because of any drama inherent in flight. We owe this attitude, in part, to the early efforts, beginning in the late 1920s, to make the case for commercial aviation’s safety and convenience.
Charles Lindbergh’s advocacy of commercial aviation left two somewhat contradictory legacies. Although he helped Americans imagine pilots as professionals, his own fame rested on an earlier *mythos* of the pilot as daredevil and adventurer. Amelia Earhart, Wiley Post, and a host of other early fliers also earned their fame because of Americans’ hunger for stories of risk-taking and adventure. Paradoxically, many of these pilots, like Lindbergh, would go on to be ambassadors for flight’s safety and commercial utility. Earhart, of course, also broke a gender barrier in flight and paved the way for many other women pilots—there were many, and they were frequently more accomplished than the men—who faced the added burden of trying to break into a profession dominated by men.\(^{38}\) Still, they, like all other famous pilots of the 1930s and 40s, owed some measure of their public notoriety to the legacy of Lindbergh’s famous flight.

In the end, the most significant legacy of commercial aviation’s early advocates may still be ahead of us. Twenty-first century commercial spaceflight will probably face many of the same rhetorical challenges faced by the aviation pioneers studied in this thesis. Spaceflight seems impossibly complicated and dangerous; early astronauts were portrayed as pioneering frontiersmen, and many were tough, seasoned fighter pilots. The whole idea of ordinary Americans rocketing off the planet is loaded with emotional baggage rooted in centuries of myth and science fiction about human flight and space exploration. If commercial spaceflight develops in a way similar to commercial airline flight, we may yet again witness a rhetoric that seeks to domesticate a technology of risk-taking and adventure into a routine mode of transportation.
Notes


4 Courtwright, *Sky as Frontier*, 37.


6 Courtwright, *Sky as Frontier*, 97-104.


10 For detail on the struggles (sometimes guided, often misguided) of those who tried to advance aviation’s cause, see Corn, chapter III.


17 Lindbergh, *We*, 177.


19 Lindbergh, *We*, 177.
20 Lindbergh, *We*, 194-196.


22 Lindbergh, *We*, 216.

23 Lindbergh, *We*, 224.

24 Lindbergh, *We*, 104.

25 Lindbergh, *We*, 228.


28 Berg, *Lindbergh*, 168-170


36 The only example I could find of an advertisement that showed the inside of an airplane’s cabin was a 1930 ad for the Ford Triplane. It was, in other words, an ad selling the plane itself to airlines, not an ad selling airline flight. Although the picture’s subtitle claimed passengers had “all the comforts of a yacht,” the picture itself showed a cramped cabin—not something airlines would have wanted to show. See “Silver Wings Across the Sierras,” *Wall Street Journal*, Sept. 3, 1930.


38 Corn, *The Winged Gospel*, 76.
Chapter Five

Conclusion: Horizons for the Rhetoric of Flight and Technology

Aviation changed the course of history. Rhetoric helped Americans understand those changes, and may have even influenced the course of aviation history itself. American discussions of flight imagined how the technology might develop, helping Americans weigh its risks and rewards. The rhetoric of flight, of course, did not determine flight’s technological progress by itself, but major events, like the Wright brothers’ flights, the use of planes in WWI, and Lindbergh’s famous solo fight across the Atlantic were also interpreted rhetorically in ways that pushed public opinion about flight in specific directions. How these (and other) events and technological developments were described, publicized, and interpreted rhetorically is an important part of the story of how the technology of flight became so central to American military and cultural history.

The Wright brothers introduced the airplane to the world. Imagining a bright future for human flight, they encouraged future inventors and engineers to pursue the technology with scientific sobriety and rigor. They modeled both that optimism and that scientific sobriety in their writings and public personae, thus encouraging the public to accept aviation as a legitimate engineering endeavor at a time when hardly anybody—not even the Wrights—had a clear vision of its uses and implications. Despite that early lack of a clear vision of flight’s future, the Wrights and their contemporaries talked about human flight in terms of its potential to open up new frontiers of space and knowledge for the benefit of humankind. This vocabulary was empowered by millennia-old associations between flight, freedom, and transcendence, as well as by America’s history of frontier expansion. This combination of optimism, experimentation, and mythic visions became the foundation of how Americans initially imagined human flight.
Billy Mitchell introduced the American people to the airplane’s military potential. He glamorized military aviation while warning Americans that their country would be vulnerable to destruction if it did not develop a strong program of air power. Using the print media to his advantage, he captured national attention with his own bombastic persona and staged spectacles to show his bombers’ military potential. Mitchell moved American discussions of military aviation beyond post-World War I memories of exploits by famous fighter aces and focused the national conversation about military aviation’s potential to determine the outcome of war though large-scale bombing. He did so with a focus on the strategic benefits of such bombing, not its ethical implications. His legacy lives on in contemporary discussions of military aviation that emphasize military aviation’s technological capacities without taking full account of the human costs of war.

Charles Lindbergh and the first airlines introduced America to modern commercial flight. They used romantic memories of flight’s pioneering adventures to get the public’s attention, yet their ultimate persuasive purpose was to assure the public that modern aviation had become safe and convenient. To do this, they touted how commercial aviation could save time and open up new travel destinations to the American public, while also stressing the comfort and professionalism of modern air travel. Distracting the public’s attention away from well-publicized crashes and other problems within the early commercial aviation industry, they instead focused on how commercial air travel had become more efficient than other modes of mass transportation, and they celebrated the modern airline pilot as the epitome of sober professionalism. In the process, they ironically went up against many of flight’s romantic and even mythic connotations as exciting and adventuresome. Instead, they made it seem banal—a
routine, almost boring mode of mass transportation that was safe, convenient, and within the reach of ordinary Americans.

At the outset of this theses, I posed four questions: How did changes in aviation technology inspire public discussion and debate? How did aviation’s advocates argue in favor of new technologies? Were their arguments successful or unsuccessful, and why? How did the advocates spur broader public conversations about the technology’s potential uses and significance? The answers I have offered to these questions have not been simple, but in conclusion I can suggest some general responses to each. I can also suggest some promising avenues for future research, as the three case studies in this thesis, taken together, point research on the rhetoric of technology in new directions.

First, changes in aviation technology historically have promoted public discussion and debate because Americans historically have been fascinated with human flight. Indeed, the earliest mythology of flight cast it as a transcendent or even a spiritual act. On its own, the Wright brothers’ first flyer hardly merited public notice; it was unstable, fragile, and could not fly very far at all. Yet the appearance of a human flying through the air like a bird electrified the American public because of centuries of myth and folklore about human flight. The Wrights did not simply invent a new machine. They tapped into an ancient myth that gave their new technology greater meaning, naturally prompting public discussion and speculation about its significance and possible uses.

Later changes in aviation technology inspired debate for much the same reasons. When warplane technology became capable of large-scale bombing, it became an exigence for debate because it resonated with pre-existing hopes and fears about the airplane’s power. When aviation technology became sophisticated enough to support regular commercial aviation, it again became
an exigence for debate, this time because safe and reliable aviation technology flew in the face of centuries of rhetoric that portrayed aviation as adventurous and risky. In each case, changes in aviation technology inspired public discussion and debate because of how those changes related to how Americans historically had understood flight.

The second question—how did advocates argue in favor of aviation technology?—varied from case to case. In general, however, we can say that aviation advocates historically have used one of two seemingly contradictory approaches: they either played up the spectacle, drama, and adventure of flight, or they downplayed those qualities in favor of emphasizing the long-term benefits or practicality of flight on a mass scale. The Wright brothers, Charles Lindbergh, and the early airlines all found it necessary to downplay the excitement of flight so that flight’s practical uses might be taken more seriously. Others, including many of those who commented on the Wrights’ achievement and Billy Mitchell, preferred to celebrate the spectacle, drama, and potential history-making implications of human flight. This distinction, then, highlights two very different ways of imagining flight’s significance in human history. If flight was seen as a risky spectacle or an adventure, it was something of interest only to a few bold heroes. If, on the other hand, flight suggested the sober pursuit of more practical goals, it was something that invited the participation of every American. One might have thought that the success of commercial aviation in our own day finally resolved that tension by rendering flight routine, even banal. But with the advent of space flight, a whole new frontier of human aviation opened up, creating a whole new generation of aviation explorers and heroes.

My third question asked whether and why the rhetoric of early aviation advocates was successful. None of the advocates examined in this study transformed public opinion overnight. Each did, however, have a significant impact on how Americans subsequently discussed and
debated aviation issues. The Wrights did so through stimulating new interest in human flight and through their lingering presence in public memory; Billy Mitchell did so by making military aviation a topic of serious conversation in America, even as he himself was court marshalled; Lindbergh laid the groundwork for the early airlines to convince Americans that commercial flight could become a routine part of their daily lives. If we define success broadly, as influencing how Americans discussed and thought about aviation over time, then each of these advocates had a significant impact.

Those aviation advocates who were most successful, as this thesis has suggested, tapped into pre-existing associations of flight with excitement, fear, hope for the future, or other vaguely articulated emotions. They typically gave those emotions more substance and specificity through clear demonstrations of flight’s technology. The Wrights gave substance to visions of human flight by staging fly-overs before large public crowds. Billy Mitchell demonstrated the fearful power of military aviation by blowing up and sinking ships. Lindbergh first demonstrated the amazing potential of flight to shrink the world with his transatlantic flight, then joined with the budding commercial airlines to demonstrate that the public could travel by air with the same safety, convenience, and comfort of more familiar modes of ground transportation. In each case, these advocates connected the myths and visions of flight in the “old” world with demonstrations of how the “new” technologies of human flight could transform those visions and myths into reality.

All of these advocates left behind legacies that still influence how we talk about aerospace technologies. We already have seen how the Wright brothers took part in larger conversations about flight as a new frontier of knowledge and space. We have also seen how Mitchell was part of a continuing debate over military aviation, which he made more prominent
with his use of technological spectacle. Lindberg and the airlines responded to questions long
asked about the potential of aviation as a routine mode of mass transportation. And when we
now talk about space as the “final frontier,” or about the implications of using drones to bomb
enemy targets, or about the quality of service we get from modern airlines, we too become part
of those ongoing conversations, building on the legacies of these early aviation advocates.

Three themes with implications for rhetorical theory also emerge from all three of the
case studies in this thesis. The first is that the labels and definitions we assign to new
technologies influence our assumptions and later debates over what those technologies can do.
The frontier vocabulary, which gave Americans a way to discuss aviation when it was new,
became taken for granted over time. It quietly shaped who Americans thought belonged onboard
airplanes (risk-takers and adventurers), what they thought airplanes should do (conquer
territory), and how safe they thought airplanes were (not safe at all).

My broader point is that the initial vocabularies we use to label a technology can ossify
into a set of norms and expectations for that technology’s meaning and use. We no longer
associate commercial flights with the frontier experience; their regularity, their massive
infrastructure, and their safety record have rendered them banal. But even today’s rhetoric of
commercial aviation can be seen as comparable to the rhetoric that came after the closing of the
frontier in American history—the rhetoric of American exceptionalism that took hold in the
Progressive Era. We still also talk about flight with a vocabulary borrowed from early
comparisons between pioneer aviators and birds. The word “aviation” itself is borrowed from the
Latin word for bird, *avis,* and that still shapes our perception of aviation more than we might
think. In fact, the only real basis for comparing human and bird flight is that both use
aerodynamic principles to go up and down in the air. Otherwise, airplanes have little in common
with birds: they do not flap their wings, they cannot maneuver in the air like birds, and they require long runways to take off and land. In every detail, human flight is nothing like bird flight. Yet still we still call what airplanes do “flight.” The implied link between human flight and bird flight owes itself to the early vocabulary chosen to discuss human flight, not to any natural similarity between the two.

What if we imagined flight, as Samuel Langley did, as a process of running or “skipping” along the air? Langley, director of the Smithsonian Institution and a contemporary of the Wrights, imagined that aircraft would skip instead of fly along in the air, as if they were stones skipping across a lake. After consulting with a philologist, he called the flying machine he invented an “aerodrome,” which roughly means “air runner” in Latin. “Running” through the air suggests something different from flying over it. We tend to imagine our airline flights as passages over, not through, the air. We thus call the territory we traverse while flying on an airliner “flyover country.” Imagine how different that image would be if we “skipped” or “ran” across country. With different vocabularies come different ways of imagining how technology works and what it can do. Sometimes, as in the case of the early commercial airlines, those early vocabularies create rhetorical obstacles, as the language and imagery of the frontier did by associating flight with risk-taking and adventure.

The second larger point that emerges out of this study is implied by the first: those who control the vocabularies we use to define and understand technology have a lot of power and influence. In this thesis, we have heard from only a privileged few Americans who, in the early twentieth century, had the time and resources to engage in experiments in flight and debates over the future of aviation. When voices outside of these circles of privilege broke into these debates, they were treated as oddities or even spectacles unto themselves, not as serious participants in
public deliberations over the future of flight. When we talk about how Americans discussed and debated flight in the early twentieth century, it is important to recognize that we are really talking about a small number of powerful white men who controlled the press, served in the military, or worked in the commercial aviation industry between 1900 and the early 1950s. The occasional female voice, like that of Amelia Earhart, was treated as an exception to the rule, and the voices of African Americans and other minorities were largely absent from the debate. Imagine how different the course of aviation history might have been had African Americans, drawing from the century-old association of flight with freedom in African mythology, had defined the terms of the debate. One interesting direction for future research would be to focus on what the dominant vocabulary of flight leaves out, and to reflect on how things might have been different had those marginalized voices been included.

Finally, each of these case studies points to some of the ways excitement over aviation’s capabilities and future prospects overwhelmed sober reflection on its limitations, constraints, and ethical implications. Initial excitement over the airplane’s potential to bring “progress” ignored the reality that the earliest flying machines were, in fact, functionally useless. Billy’s Mitchell’s emphasis on the destructive power of warplanes deemphasized the technological limitations of airplanes and ignored altogether the ethical implications of indiscriminate bombing from the air. Even Lindbergh and the early airlines, by focusing on the convenience and comfort of commercial airlines, distracted attention from continuing problems with making airline travel safe, convenient, and affordable for ordinary citizens. In every case study in this thesis, the rhetoric of flight focused more on flight’s possibilities—even its history-changing potential—more than on the limitations, constraints, and ethical questions that had yet to be resolved.
Enthusiasm for new technologies often outpaces sober thoughtfulness about their implications for society. But this thesis hones that point in two ways. First, across these case studies, we have seen how past American mythology often constrained thinking about the specific possibilities of flight. Enthusiasm for technology takes its specific form from the reserves of public memory by which a people define and understand their worlds. Second, we have seen how enthusiasm for technology is not necessarily a given but must be rhetorically encouraged and channeled in particular directions. When it comes to making a new technology seem exciting and purposeful, the rhetoric of technology enthusiasts may be more important than the technology itself. It is through rhetoric that a new technology is made to resonate with responsive chords of myth and memory already present in the audience.

These implications of the present study also suggest future avenues of research in the rhetoric of technology. First, we might explore how other common technologies are defined and interpreted through the filter of taken-for-granted assumptions about history, society, and technological progress. We might also explore how the vocabularies used to interpret and define common technologies constrain future ways of understanding, discussing, and using them. One of the basic assumptions about research in the rhetoric of technology is, in the words of Thomas Benson and Carolyn Anderson, that “technology is imagined by culture and in turn constructs culture.”1 By studying how cultural traditions give technology its vocabulary and how, in return, technology shapes culture, we can better understand rhetoric’s effect on the reciprocal relationship between technology and society.

Second, we might pursue critical and comparative analyses of how a particular technology was discussed and interpreted by different communities with differing levels of knowledge, privilege, and power. Extant work in this vein typically tries to understand a cultural
norm through case studies of how people use technology at the expense of taking that
technology’s basic meaning and purpose for granted.\textsuperscript{2} Such analyses do not explain how a
specific technology’s assumed meaning and purpose are rhetorically constructed and can work to
rhetorical ends. We can instead try to unsettle those basic assumptions, especially when they
seem to have negative side effects. One example of this kind of study might be Leah Ceccarelli’s
analysis of metaphors that portray scientific research as progress into a frontier, where she
concludes that such metaphors sometimes justify unhealthy “competitiveness and economic
exploitation.”\textsuperscript{3} By considering how we come to take for granted ways of defining and using
technology, and by looking for perspectives on technology left out by what we take for granted,
studies in the rhetoric of technology can point out better ways to think about and use our
technical creations.

Third, we might pursue more studies of how advocates reflect on the possibilities and
limitations of particular technologies, particularly those with important ethical implications. The
twenty-first century will witness developments in biotechnology, commercial spaceflight, and
cybernetics, among other inventions. Our new technology’s possibilities—not to mention its
possible pitfalls—will be even greater than those promised by the inventions of the twentieth
century. Case studies in historical and contemporary rhetoric surrounding new technology can
teach us how to be more thoughtful about what our technology can do and more critical about
how our technology’s possibilities may need, in some cases, to be constrained.

Pursuing these avenues, studies in the rhetoric of technology could build on one another,
leading to more robust theories of how new technologies are labeled, interpreted, and put to use.
Such studies also might reflect on what might have been had particular technologies been
rhetorically cast differently. Ceccarelli has written that “persistent uncertainty” clouds the
question of whether studies in the rhetoric of science and technology have “something valuable to offer” other disciplines studying similar topics. My three suggestions offer one route out of that uncertainty. Nuanced histories of the vocabularies we use to describe technology, comparative and critical studies of other potential ways to discuss and imagine technology, and reflection on the potential pitfalls inherent to our discussions of technology’s potential, when put together, lead to a distinctly rhetorical understanding of how language shapes technology’s place among us.

George Cayley’s prediction that human flight would lead to a “new era in society” proved correct; human flight has indeed led us into a new world of global travel. But that world looks nothing like the prediction of any particular commentator. In the three short decades covered by this thesis, the dominant understanding of flight progressed from a romantic vision of pioneering flight into new frontiers of space and knowledge, to frightening scenarios of flight’s potential to destroy civilization, and finally to routine acceptance of flight as an everyday mode of mass transportation. At each step of the way, America’s attitude toward aviation was shaped by the rhetoric of aviation enthusiasts who, like Cayley, could not help but talk about it.
Notes


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