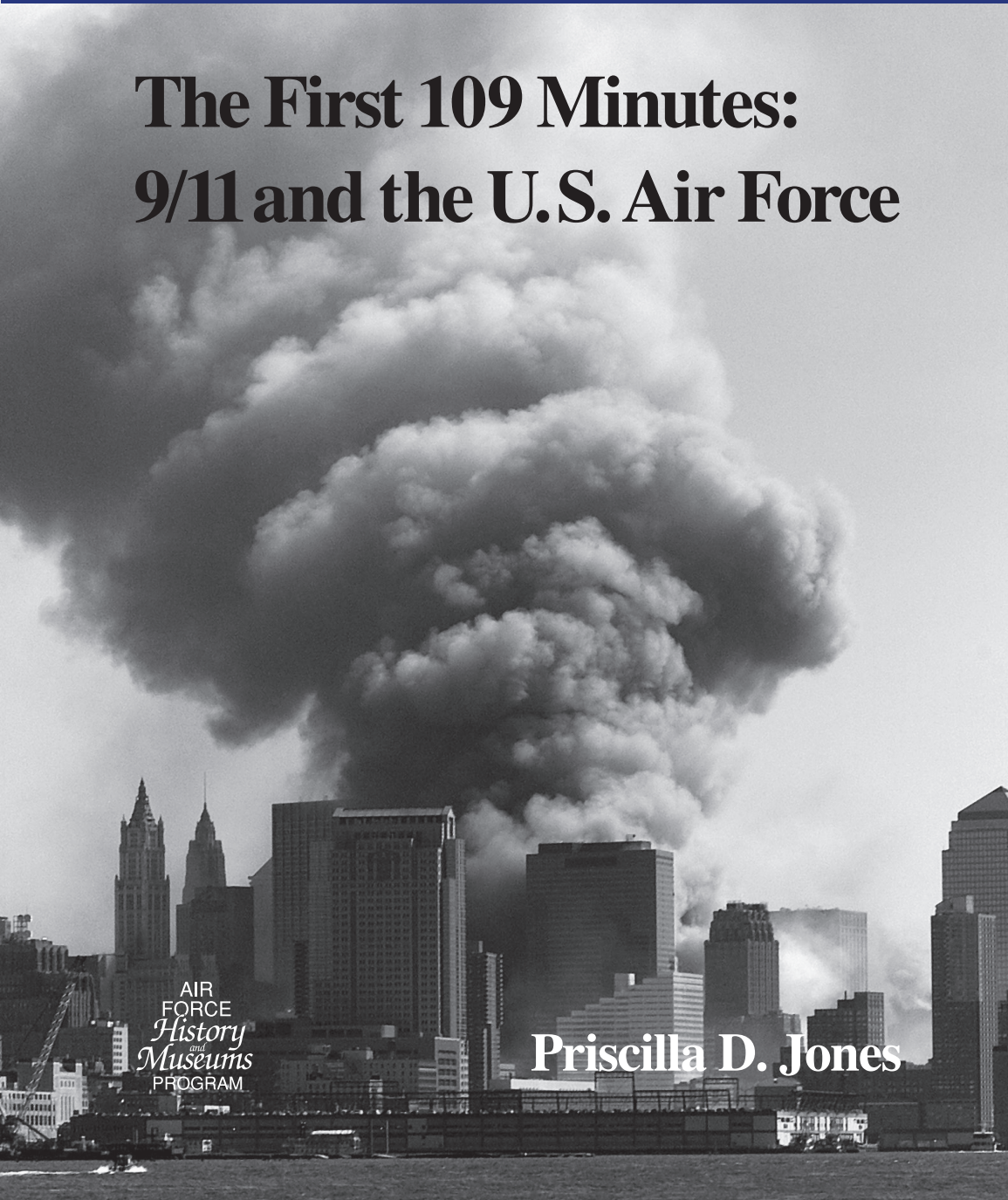


9/11 Tenth Anniversary 2001–2011

The First 109 Minutes: 9/11 and the U.S. Air Force

AIR
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History
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PROGRAM

Priscilla D. Jones



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Washington, D.C.
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The First 109 Minutes: 9/11 and the U.S. Air Force

Introduction

Tuesday, September 11, 2001, dawned cool and clear, with sunny skies all along the eastern seaboard. For Air Force aviators like Lt. Col. Timothy “Duff” Duffy of the 102d Fighter Wing at Otis Air National Guard Base, Massachusetts, the day held the promise of perfect flying weather, and at a time when the U.S. civil aviation system was enjoying a period of relative peace, despite concerns about a growing terrorist threat. It had been over ten years since the last hijacking or bombing of a U.S. air carrier. But that morning, the country came under a shocking, coordinated aerial assault by nineteen al-Qaeda¹ hijackers at the direction of the network’s leader and cofounder, Islamist extremist Osama bin Laden (1957/1958–2011).² The attack plan the suicide operatives carried out had been years in the making. It was intended to cause mass, indiscriminate casualties and to destroy or damage the nation’s financial, military, and political centers, four high-value U.S. targets selected by bin Laden, independent operator Khalid Sheikh Mohammed, and al-Qaeda operations chief Mohammed Atef.³ Analysts in the United States immediately recognized the historic nature of the aerial strikes,⁴ launched without warning against targets in New York City and Washington, D.C., and compared them to another deadly surprise aerial attack against the United States almost sixty years earlier.⁵ The December 7, 1941, assault by Japanese forces on the U.S. naval base at Pearl Harbor had been the most devastating attack against U.S. territory by a foreign adversary until the morning of September 11, 2001.⁶

The four al-Qaeda hijacker-pilots and their teams commandeered the four fuel-laden commercial jet aircraft in which they were passengers and intentionally crashed them into 1 and 2 World Trade Center, in New York City; the Pentagon, in Arlington, Virginia; and an empty field in Shanksville, Pennsylvania. This final hijacking, of United Airlines Flight 93, fell short of its intended target in Washington, D.C., because of the heroic efforts of the passengers and surviving crew to take back control of the aircraft. The 9/11 attack—beginning with the hijacking of American Airlines Flight 11 and followed by the hijackings of United Airlines Flight 175, American Airlines Flight 77, and United Airlines Flight 93—would become, in two and a quarter hours, the deadliest, costliest terrorist strike in U.S. history. The 109-minute attack period itself began when American Airlines Flight 11 was attacked at or just after 8:14 a.m. Eastern Daylight Time (EDT) and ended when United Flight 93 crashed at 10:03 a.m. EDT. But the loss of life did not. By the time of the collapse of 1 World Trade Center, North Tower, at 10:28 a.m. EDT, almost three thousand people were dead or dying; the financial center of the United States had been turned into burning, toxic rubble; the iconic symbol of the military strength of the country had been severely damaged; the tranquility of a field in Pennsylvania had been shattered; U.S. Air Force and Air National Guard fighter aircraft had established combat air patrols over Washington, D.C., and New York City; and the administration of President George W. Bush and the Department of Defense had begun to shift major resources of the federal

government and military services to a new national priority, homeland defense.⁷

Even while the attacks were still underway, it was clear that the country faced an unprecedented challenge. On the floor of the command center at the North American Aerospace Defense Command's (NORAD) Northeast Air Defense Sector (NEADS) in Rome, New York, SMSgt. Steve Bianchi, an assistant to mission crew commander Maj. Kevin Nasypany, reflected that, "This is a new type of war."⁸ And suddenly, as Vice President Richard Cheney noted a few days after the attacks, the country's national leadership had to consider a new mission for U.S. Air Force pilots: the possible shoot-down of a commercial passenger aircraft filled with U.S. citizens.⁹

The terrorist attacks of September 11, 2001, had a profound impact on the nation's economy and governmental organization; on its budgets for national defense; and on the mission of its armed forces, particularly the U.S. Air Force. Even the date—9/11—quickly became iconic, and without the 9/11 hijackings, the first three major U.S. military operations of the new century would not have been launched: Operation Noble Eagle (ONE), Operation Enduring Freedom (OEF), and Operation Iraqi Freedom (OIF). The U.S. Air Force played an important role in all three. The attacks of that morning precipitated the launch of Operation Noble Eagle and obliged the U.S. Air Force to deploy forces to protect the continental United States, Alaska, Canada, Hawaii, and Guam against possible additional attacks from the air.

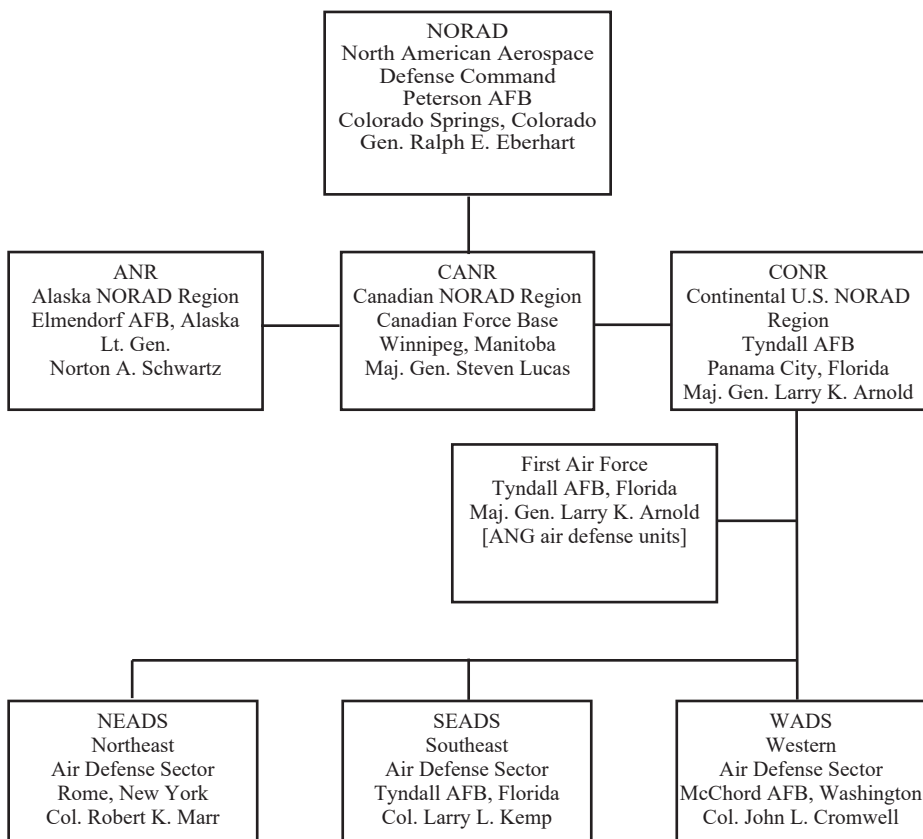
The nature, timing, and effectiveness of the air defense response that the Northeast Air Defense Sector (NEADS) launched on the morning of September 11 depended on many factors. Several of these were partly or entirely outside the control of the U.S. Air Force, such as the speed of the attacks and the tactics of the hijackers; the knowledge, experience, intuition, and initiative of Federal Aviation Administration (FAA) personnel; and the involvement and actions of those higher up the civilian chain of command.¹⁰ But the air defense response depended perhaps most on the effectiveness of the communications, coordination, and interaction *within and between* the Federal Aviation Administration on the one hand and the North American Aerospace Defense Command and Northeast Air Defense Section on the other.¹¹

The North American Aerospace Defense Command Air Defense Structure on 9/11

On September 11, 2001, the North American Aerospace Defense Command (NORAD), based at Peterson Air Force Base, Colorado, under the command of Gen. Ralph E. Eberhart, oversaw three air defense regions responsible for protecting the airspace over Alaska, Canada, and the continental United States. The last of these, the Continental United States NORAD Region (CONR), under the command of the dual-hatted commander of First Air Force, Maj. Gen. Larry K. Arnold, oversaw three sectors, the Northeast, the Western, and the Southeast Air Defense Sectors. The locations of the departures, flight paths, and crash sites of the four aircraft hijacked on September 11, 2001, were all in the Northeast Air Defense Sector (NEADS), commanded by Col. Robert Marr, Jr. (See Diagram 1.)

Diagram 1

NORAD Air Defense Structure on 9/11¹²



On September 11, 2001, the responsibility for defending the air space of the continental United States rested with only fourteen fighter aircraft at seven air defense alert sites across the country.¹³ Based in Rome, New York, the Northeast Air Defense Sector had two alert sites on which to call, Otis Air National Guard Base in Cape Cod, Massachusetts, and Langley Air Force Base in Hampton, Virginia. Each site had two designated alert fighters on duty twenty-four hours a day, seven days a week. Many other fighter aircraft were based across the country, but they were not NORAD assets, and it would take time to arm them and to organize their crews.¹⁴

In years past, far larger numbers of U.S. Air Force aircraft had provided air defense for the entire nation. The post-World War II chill in relations between the United States and the Soviet Union, the expansion of the Soviet long-range bomber fleet, and the detonation in 1949 of a Soviet atomic bomb contributed to the evolution of the continental air defense mission and its dedicated fighter force in the United States. Established in 1957, the joint U.S.-Canadian North American Air Defense Command, as NORAD was then called, was responsible for intercepting any Soviet long-range bombers that might attack the Northern Hemisphere over the North Pole. The command's forces numbered about twelve hundred interceptors by 1960. The number of alert fighters and alert sites changed as the character of the Soviet military threat evolved. With increased Soviet reliance on ballistic missiles over manned bombers beginning in the early 1960s, and due also to budget concerns, the Department of Defense had by the mid-1970s reduced the number of NORAD interceptors to about three hundred. The number of alert sites and fighters continued to drop, as breakup of the Soviet Union and dissolution of the Warsaw Pact in 1991 greatly diminished the threat of nuclear attack, which NORAD's core structure had been developed to counter. Thereafter, NORAD strategists began to consider shifting the mission to defending the United States and Canada by maintaining peacetime air sovereignty. This meant "providing surveillance and control of the territorial airspace." To do so, NORAD air sovereignty fighters would carry out a number of missions. These included "intercepting and destroying uncontrollable air objects; tracking hijacked aircraft; assisting aircraft in distress; ... and intercepting suspect aircraft, including counterdrug operations and peacetime military intercepts." The most serious task, in the view of NORAD's leadership in the early years after the fall of the Soviet Union, was the interception of drug smugglers. But the flow of drugs into the United States continued virtually unabated, and, in any event, the largest percentage of alert sites' total activity involved assisting aircraft in distress and inspecting unidentified aircraft.¹⁵

In February 1993, Gen. Colin Powell, U.S. Army, the chairman of the Joint Chiefs of Staff, determined that, because of the greatly reduced Soviet threat, "the United States no longer needed a large, dedicated air defense force."¹⁶ He therefore recommended that the number of dedicated Air National Guard units assigned to the continental air defense mission "be sharply reduced or eliminated" and that the mission should be carried out "by dual tasking existing active and reserve general-purpose fighter and training squadrons in the Air Force, the Navy, and the Marine Corps."¹⁷ In a report sent on May 3, 1994, to the chairmen of the U.S. Senate and U.S. House armed services committees and subcommittees on defense appropriations, the General Accounting Office—as the General Accountability Office was then called—supported Powell's recommendations, concluding that "A dedicated continental air defense force is no longer needed."¹⁸

Overview of the 9/11 Attacks and Summary of the Air Defense Response (8:14 a.m.–10:03 a.m. EDT)

The 9/11 terrorist attacks engendered a classic case of the fog of war, in the

air and on the ground. The government's longstanding antihijacking protocol, setting out the roles and responsibilities of the Federal Aviation Administration and NORAD in the event of an act of air piracy, was either bypassed or became lost along its way to the office of the Secretary of Defense. Amidst the chaos and violence of that morning, the U.S. Air Force played a prominent role in the federal response to the attacks, as service personnel fought in the face of the nation's most deadly surprise attack since Pearl Harbor to defend the country against the four commandeered aircraft and a number of additional suspected hijackings.

Of critical importance to an effective air defense response was timely notification, by FAA air traffic controllers to NEADS personnel, of each hijacking. This issue and other aspects of the air defense response timeline were investigated by the staff of the National Commission on Terrorist Attacks Upon the United States, more commonly known as the 9/11 Commission, beginning in early 2003. The commission's investigations continued into 2004, and its final report was published in July of that year.¹⁹ The commission and its staff had access to extensive audio and written records, including various logs, tape recordings, and radar transmissions, of the Northeast Air Defense Sector, NORAD, the Continental U.S. NORAD Region, and the Federal Aviation Administration. This enabled the commission to determine, for the first time, an accurate timeline of the hijackings and the military response they engendered.²⁰ Table 1 (following page) provides an overview of the four hijacked aircraft.²¹

The reconstruction of the events of 9/11 had been faulty in the days immediately after the attacks and slow for some time thereafter. This was due, in part, to the complex, cascading nature of the attacks; to the speed at which they occurred; to the conflicting accounts of and incomplete information about possible follow-on hijackings; to the overwhelming focus on preventing future attacks, rather than immediately dissecting the response to the last one; and to inadequate forensic capabilities across the government, but particularly in the key entities involved in the air defense response. The original faulty hijacking and response timelines, drafted by government agencies in the hours and days after the attacks, served as the basis for widespread media coverage and also as the foundation for congressional testimony. But their problematic nature became apparent even before the 9/11 Commission published its final report, and in March 2004, Gen. Ralph E. Eberhart, the commanding general of NORAD, wrote to the 9/11 Commission and acknowledged that the commission's timeline was accurate.²²

In a finding of particular relevance to the U.S. Air Force and the conduct of future U.S. air defense operations, the commission concluded that the Federal Aviation Administration did not notify the Northeast Air Defense Sector of the hijackings expeditiously enough for Air Force fighters to intercept any of the doomed aircraft. This lapse resulted from a variety of circumstances, many having to do with the surprise nature of the attacks and the violent tactics of the hijackers. The commission determined the following with respect to the four hijackings:

1. The FAA notified NEADS of the first hijacking—shortly thereafter determined to be American Airlines Flight 11—over eight and one half minutes before the

Table 1
General Overview of the Four Hijacked Flights
(all times are EDT)

	American Airlines Flight 11	United Airlines Flight 175	American Airlines Flight 77	United Airlines Flight 93
Airplane make/model	Boeing 767-223	Boeing 767-222	Boeing 757-223	Boeing 757-222
Registration number	N334AA	N612UA	N644AA	N591UA
Itinerary	Boston Logan International Airport (BOS)-Los Angeles International Airport (LAX)	Boston Logan International Airport (BOS)-Los Angeles International Airport (LAX)	Washington Dulles International Airport (IAD)-Los Angeles International Airport (LAX)	Newark Liberty International Airport (EWR)-San Francisco International Airport (SFO)
Passengers and crew	Passengers: 81 (including 5 hijackers) Crew: 11 (9 cabin and 2 flight deck) Total: 92	Passengers: 56 (including 5 hijackers) Crew: 9 (7 cabin and 2 flight deck) Total: 65	Passengers: 58 (including 5 hijackers) Crew: 6 (4 cabin and 2 flight deck) Total: 64	Passengers: 37 (including 4 hijackers) Crew: 7 (5 cabin and 2 flight deck) Total: 44
Scheduled departure time	0745	0800	0810	0800
Push-back time	0740	0758	0809	0800
Wheels-off time	0759	0814	0820	0842
Impact time	0846:25	0903:11	0937:46	1003:11
Crash site	New York City WTC 1 (North Tower)	New York City WTC 2 (South Tower)	Arlington, VA Pentagon	Shanksville, PA Empty field

plane slammed into the north tower of the World Trade Center. This was the longest notification the NEADS air defenders received that day.²³

2. The FAA notified NEADS of a “second possible hijack” almost simultaneously with the crash of United Airlines Flight 175 into the South Tower.²⁴

3. Fifteen minutes after this second strike at the World Trade Center, the FAA passed to the NEADS air defenders a report that American Airlines Flight 11 had in fact not crashed; instead, the hijacked aircraft was said to be flying over New Jersey, or even further south, and heading toward Washington, D.C.²⁵ The confusion over the status of American Flight 11 had begun, however, almost immediately after the North Tower was hit. During the period between the two

attacks in New York City, the FAA told the NEADS air defenders that it could not confirm that American Flight 11 had crashed.²⁶

4. Less than four minutes before American Airlines Flight 77 crashed into the Pentagon, the FAA told the NEADS air defenders that the flight was missing. The FAA staffer, who did not describe the flight as a hijack, passed the information to the air defenders during a telephone call initiated by NEADS about another problematic aircraft.²⁷

5. NEADS personnel were not aware that United Airlines Flight 93 had been hijacked until just over four minutes after it had slammed into an abandoned strip mine in Pennsylvania. Word of United Flight 93's last known latitude and longitude came during a telephone call from an FAA military liaison who was himself unaware that the aircraft had crashed. Twelve minutes after the crash, in the course of a telephone call initiated by NEADS staff, the FAA informed the air defenders that United Flight 93 had gone down at an unknown location northeast of Camp David.²⁸

The conclusions of the 9/11 Commission with respect to the timing of the FAA's notification to NORAD's Northeast Air Defense Sector are summarized in Table 2 (following page).²⁹

Even a cursory examination of the 9/11 Commission's report and timeline suggests that improving U.S. air defense against a future terrorist attack depended upon, first, a quicker determination by the FAA that a plane was indeed hijacked and, second, more effective coordination and timely communication between the FAA and the various sectors of NORAD. These, in fact, have been among the government's critical accomplishments post-9/11, and the success of Operation Noble Eagle has been due in part to improvements in these areas.

Throughout the attacks, and in the hours that followed, military and civilian agencies and leaders endeavored to obtain accurate information, to establish interagency communications, and to respond in a coordinated way. These efforts bore increasingly substantial results as the day wore on. But during the critical 109 minutes of the actual attack period, the military response by the U.S. government consisted of the launch by NEADS of four fully armed designated air defense fighters and a spare jet armed with a 20-mm Gatling gun.³⁰ None of these aircraft were able to intercept any of the four hijacked planes.³¹

All five of these fighters sent aloft during the attack period on September 11 had a single, and the same, intercept target: the first aircraft hijacked, American Airlines Flight 11. The first scramble—two fighters from Otis Air National Guard Base—launched in response to an FAA request for assistance with respect to American Flight 11, but the plane had already crashed by the time the fighters took off.³² More than thirty-five minutes later, the second scramble—three fighters from Langley Air Force Base—launched in response to a faulty FAA report that American Flight 11 was still aloft and was headed toward Washington, D.C.³³

The five fighters could not intercept the second, third, or fourth plane hijacked at least in part because NEADS did not ask their pilots to do so. And the NEADS air defenders could not make such a request because they did not know, or knew

Table 2
Timing of FAA Notification to NORAD's Northeast Air Defense Sector
(all times are EDT)

Flight and Event	American Airlines Flight 11	United Airlines Flight 175	American Airlines Flight 77	United Airlines Flight 93
Last routine communication	Just before 0814	0842	0851	0927
First sign of trouble	0814 or shortly thereafter	0847	0854	0928:17
FAA believes flight in distress	0825	0853–0855	0856–0900	0934 (FAA ATC in charge of flight had concluded this at first sign of trouble)
FAA notifies NEADS	0837:52	0903	0934: FAA tells NEADS AAL 77 was missing	1007: FAA tells NEADS UAL 93 had been hijacked 1015: FAA tells NEADS UAL 93 had crashed
Fighter battle stations order (Otis ANGB, Falmouth, MA)	0841:32 (2 F–15s: Otis ANGB)			
Fighter scramble order (Otis ANGB)	0845:54	See AAL 11		
Fighters airborne (Otis ANGB)	0852	See AAL 11		
Airline impact time	0846:25: WTC 1 Collapsed: 1028:22	0903:11: WTC 2 Collapsed: 0958:59	0937:46: Pentagon Section collapsed: 1010	1003:11: PA
Elapsed time: FAA believes flight in distress until FAA notifies NEADS	12 minutes 52 seconds	8–10 minutes	34–38 minutes	33 minutes
Elapsed time: FAA notifies NEADS until crash	8 minutes 33 seconds	11 seconds	3 minutes 46 seconds	Minus 3 minutes 49 seconds
FAA notification to NEADS: AAL 11 still airborne	0921:10 (First mentioned about 0856:31)			
Fighter battle stations order (Langley AFB)	0909 (2 F–16s: Langley AFB, Hampton, VA)			
Fighter scramble order (Langley AFB)	0924 (Scramble order included a third F–16, with guns)			
Fighters airborne (Langley AFB)	0930			

too late, that United Airlines Flight 175, American Airlines Flight 77, and United Airlines Flight 93 had been hijacked. For their part, FAA air traffic controllers were in most cases unable to expeditiously and accurately determine if and which aircraft were hijacked on September 11. These uncertainties, and the resulting delays in notifying the military and requesting assistance, were the consequence of several circumstances, primary among which were the tactics of the hijackers. By murdering the cockpit crews of the four flights, the hijackers rendered obsolete the government's antihijacking protocol; by turning off or altering the flights' transponders, the hijackers made exceedingly difficult locating, tracking, and intercepting the commandeered planes.

In the overwhelming majority of pre-9/11 hijackings, the information flow from commercial pilots—under threat but still at the controls—to air traffic controllers, and then, eventually, to NORAD and responding U.S. Air Force pilots, remained intact. Within minutes, the nature of the 9/11 attacks rendered invalid the traditional “hijacking paradigm”³⁴ that assumed that negotiations between hijackers and law enforcement would take place, usually after a commandeered plane had landed safely, and that passengers and crew would emerge unscathed. The tactics of the 9/11 hijacker-pilots and their teams took full advantage of these long-held assumptions to keep the victimized passengers and remaining crew under control and the air traffic control system—and, hence, the air defense system—largely in the dark. In a stroke, FAA antihijacking protocols that had been the standard for decades and NORAD air defense response procedures built thereon were outdated and irrelevant. In hindsight and to their credit, many FAA and NEADS employees, having little situational awareness and, often, in the absence of senior staff, took the initiative and improvised a response to a catastrophic situation for which they had not trained and were not prepared.³⁵

Pre-9/11 Antihijacking Protocols and Procedures

The last hijacking involving coordination between FAA air traffic controllers and management and the U.S. military took place on February 11, 1993, when a twenty-year-old Ethiopian man hijacked Lufthansa Airlines Flight 592 over Austrian airspace shortly after it left Frankfurt International Airport bound for Cairo and Addis Ababa. Wielding what looked like a semiautomatic pistol but later turned out to be a starter's pistol, Nebiu Demeke commandeered the Airbus 310-300 and forced the pilot to divert the aircraft to New York after a refueling stop in Hanover, Germany. After the plane landed at John F. Kennedy International Airport, the hijacker surrendered peacefully to the Federal Bureau of Investigation (FBI), ending the eleven-and-a-half-hour ordeal for the 94 passengers and 10 crew aboard.³⁶

Ironically, four of the military personnel involved in the U.S. response to the Lufthansa hijacking played key roles in the air defense response on September 11, 2001.

The commander of the battle cab at the Northeast Air Defense Sector on 9/11, Col. Robert Marr, was in February 1993 in the NEADS operation section when his commander learned from a news broadcast of the Lufthansa hijacking. With the

aircraft heading towards the United States and seeking sufficient advance notice for the military to respond, Marr told representatives from the Federal Aviation Administration that they needed to pass a request for military assistance up their chain of command. He also alerted his own chain of command to be prepared for such a request. As the hours passed, coordination continued at higher levels of authority on the military and FAA sides, and Marr explained the need for an air defense response to the Lufthansa flight during a call he received from the White House. After initially opposing NEADS involvement, the White House called back several hours later that day and authorized the Northeast Air Defense Sector to proceed. The sector scrambled two F-15s from Otis Air National Guard Base, and then two F-16s from Atlantic City Air National Guard Base, to intercept and trail the hijacked aircraft.³⁷ As Marr later recalled, “It took over six hours to gain an initial tail on this occasion.”³⁸

The lead pilot of the first two fighters sent aloft on 9/11, Lt. Col. Timothy “Duff” Duffy, had been the second of two Otis F-15 pilots scrambled in response to the Lufthansa hijacking. After intercepting the errant flight off the coast of eastern Canada, the fighters remained out of sight, about ten miles behind it. They moved within about five miles, but above and behind the Lufthansa as the aircraft neared Kennedy airport. The Otis fighters flew by at low altitude as the jet landed, circled overhead as negotiations proceeded, and returned to their bases after the hijacker surrendered.³⁹

The senior director of the weapons section at the Northeast Air Defense Sector on 9/11, Maj. James Fox, was a NEADS weapons controller during the Lufthansa hijacking. Unlike the 9/11 hijackings, the Lufthansa hijack unfolded over a period of many hours and over a distance of 5,600 miles, and its pilot remained in control in the cockpit. This enabled NEADS personnel to receive intelligence far in advance of the aircraft’s arrival in U.S. airspace and to prepare for an effective, timely response by reviewing hijack regulations and hijack exercises.⁴⁰

MSgt. Joe McCain, the mission crew commander technician on 9/11, was a NEADS identification technician during the Lufthansa hijacking. His NEADS colleagues designated the Lufthansa flight a “Special 15” classification, as they would do on September 11, 2001, in connection with the suspected hijacking of Delta Airlines Flight 1989. The Lufthansa hijacking was treated as a law enforcement issue, and the Federal Bureau of Investigation was the lead agency on the ground.⁴¹ Because NEADS personnel exercised for this type of air piracy every week, the Lufthansa hijacking was, in McCain’s view, a ““very easy scenario”” to which to respond.⁴²

Thanks at least in part to Colonel Marr’s initiative, coordination between the Federal Aviation Administration and the Northeast Air Defense Sector in response to the Lufthansa hijacking was smooth. Intercept authorization from higher national authorities came down to NEADS in approximate accordance with established interagency procedures, if slowly, and the execution of the actual intercept followed known protocols.⁴³

The U.S. government’s antihijacking procedures and protocols current in 1993 underwent only minor revisions in the years leading up to the 9/11 attacks.

Certain high-level instructions and orders in effect on September 11, 2001, set out protocols for FAA-NORAD cooperation in the event of a hijacking and addressed issues surrounding the request for and authorization of military escort aircraft. Two of these official pronouncements laid out procedures that would be implemented after the Federal Aviation Administration had determined that a plane had been hijacked and required military assistance, but they gave no guidance as to how such a determination should be made. This lacuna was filled, at least in part, by a third order directed to FAA air traffic controllers.

A Chairman of the Joint Chiefs of Staff (CJCS) instruction and its enclosures dated June 1, 2001, provided guidance and direction to the deputy director for operations, National Military Command Center (NMCC); the commander of the North American Aerospace Defense Command; and operational commanders for dealing with hijackings of civil or military aircraft. Under the CJCS protocol, in effect on September 11, 2001, the head of the Federal Aviation Administration was solely responsible for directing the response of law enforcement agencies to a hijacking. If the FAA administrator determined that law enforcement needed the assistance of the Department of Defense (DOD), then he or she would notify, as expeditiously as possible, the National Military Command Center, which was the “focal point” for any FAA requests for DOD assistance. In this capacity, the center would coordinate, on behalf of the Defense Department, between the Federal Aviation Administration and operational commanders. In the event of a hijacking judged to require the assistance of military escort aircraft, the FAA hijack coordinator was to notify the NMCC deputy director of operations, who would contact the North American Aerospace Defense Command or an appropriate unified command to determine the availability of suitable assets and would also forward the FAA request to the secretary of defense for approval. Approvals would return to the National Military Command Center for dissemination to NORAD or to the unified command. The center would then authorize direct coordination between the FAA and the squadron designated to provide escort aircraft. Normally, NORAD would provide such aircraft, in which case the FAA would coordinate through the relevant air defense sector.⁴⁴

In an updated order on special military operations issued on July 12, 2001, the Federal Aviation Administration set out revised procedures on the escort of hijacked aircraft that mirrored the protocol described in the CJCS order of June 1. Each order took as its starting point an FAA determination that a confirmed hijacking needed a military escort.⁴⁵ The escort would be directed to perform three limited tasks: follow the hijacked aircraft, report anything unusual, and assist search and rescue efforts in the event of an emergency. There was no mention of military aircraft being asked to shoot down an errant plane.⁴⁶

A second FAA order that included a changed dated July 12, 2001, set out air traffic control procedures and phraseology applicable for emergencies in general and hijackings in particular. The provisions were designed for air traffic controllers, who were, in virtually all emergency situations, at the beginning of the decision-making chain, second only to pilots. The order gave controllers guidance on how to determine an emergency existed or a flight had been hijacked and when

and how to render assistance. Controllers were to provide “maximum assistance” to distressed aircraft, and they were to “[e]nlist” the radar, emergency facilities and services of the military when they deemed it necessary or upon the request of a pilot. But controllers could begin to assist, in general, only after receiving from pilots certain minimum required information about the nature of the emergency. Instructions on handling hijacked aircraft assumed only one scenario: that pilots of commandeered planes would be able to transmit—“squawk”—to their air traffic controllers a special hijack transponder code, which in September 2001 was Code 7500. Upon observing this code, a controller was to ask the pilot to verify it; thereafter, the controller was to notify supervisory personnel of the hijack. The controller was also responsible for assisting any military escort aircraft that might eventually be dispatched and to help to position them behind the commandeered plane.⁴⁷

Several tragically flawed assumptions about the nature of air piracy underlay the existing CJCS and FAA antihijacking protocols in effect in September 2001. The traditional view of hijackings held the following. First, the overwhelming majority of hijackers sought to advance a political cause or an economic agenda and not their own deaths. Second, hijackers did not go to flight training school and so would not know how to take navigational control of commandeered aircraft or how to render such aircraft unidentifiable to air traffic controllers by turning off or altering their transponders. Third, and perhaps most critically, in the event of a hijacking, airline pilots would have the time, opportunity, and ability to so notify air traffic controllers, by using a code word over the radio or the special hijack transponder code. Fourth, there would be time for hijack notifications and requests and approvals for military response to pass up and down the FAA, NORAD, and DoD chains of command as required.⁴⁸

Even in the pre-9/11 world, fighter pilots and other military personnel were not entirely sanguine about the prospects of a happy outcome to fighter escorts of hijacked commercial aircraft. The commander of one of the installations from which fighters were scrambled on September 11, 2001, recalled that military personnel “‘always joked that ... [the purpose of a fighter escort of a hijacked aircraft] was plotting the wreckage. ... [Y]ou would mark the debris circle.’”⁴⁹

The effectiveness of the antihijacking protocols, which provided the framework for FAA-NORAD coordination and military air defense, depended in part on the actions of the FAA administrator, who would determine if a response by law enforcement would be sufficient or if assistance by the Department of Defense would be needed. The efficacy of these protocols also depended heavily on actions that would be taken by the FAA hijack coordinator at FAA headquarters, by personnel at the National Military Command Center (NMCC) at the Pentagon, and by the secretary of defense. For a variety of reasons, none of these individuals and entities were in a position as the 9/11 attacks began to facilitate and coordinate FAA-NORAD communications or to authorize and direct the air defense operations that were launched in response.

Even more fundamentally, however, the success of the antihijacking protocols and the timeliness of an air defense response depended on determinations made

by controllers in FAA route traffic control centers as to whether a hijack or other emergency situation existed or was imminent. Under the standard practices described above, air traffic controllers in September 2001 relied in large measure on notifications by pilots to expeditiously confirm a hijack.⁵⁰ Indeed, before 9/11, controllers had been taught in the FAA's hijack training courses to expect such confirmation.⁵¹ Those course were based on two unalterable assumptions: pilots would remain in control of their aircraft during piracy incidents, and they would be able to notify controllers of their situations, overtly or covertly from the cockpit, in one of three ways. First, a pilot might be able to directly confirm, verbally, that his flight was hijacked.⁵² Second, a pilot would alter the transponder code to the 7500 hijack code, causing the word "HIJACK" to flash on the flight's data block on the traffic monitoring unit in the relevant air route traffic control center. Or, third, a pilot would signal the air traffic controller by using coded language, such as the word "trip" to refer to the course of the aircraft.⁵³ But the 9/11 hijackers, having quickly killed or disabled the cockpit crews of all four aircraft, ensured that no such notification would be forthcoming.⁵⁴ Critically, also, training exercises did not emphasize scenarios involving the Federal Aviation Administration and the North American Aerospace Defense Command working together to respond to a hijacking to the extent required on September 11, 2001. While the training did afford air traffic controllers the opportunity to practice the pre-9/11 protocol for alerting the military to a hijack threat, it apparently never required them to practice intercept procedures.⁵⁵

Controllers were trained to keep aircraft separated, not to vector them together, a skill needed to conduct a successful intercept.⁵⁶ In addition, their ability to vector an intercept fighter might be compromised by their inexperience with military aircraft traveling at supersonic speeds.⁵⁷ Several controllers on duty during the 9/11 attacks had had air traffic control experience during their prior service in the U.S. Air Force, and at least one seasoned veteran believed that his ability to vector a fighter for intercept resulted from that military experience and not from his FAA training.⁵⁸ It is unclear whether or not training included a hijack simulation or intercept exercise that involved joint FAA-NORAD participation.⁵⁹ In any event, training did not confront controllers with a suicide hijacker.⁶⁰

The 9/11 Commission determined that, despite this gap in the training of its air traffic controllers, the Federal Aviation Administration had "indeed considered the possibility that terrorists would hijack a plane and use it as a weapon."⁶¹ In the spring of 2001, the agency's intelligence function, the Office of Civil Aviation Security, distributed an unclassified CD-ROM presentation to air carriers and airports, including authorities at Logan, Newark, and Dulles. The briefing, whose overall subject was the increased threat to civil aviation, mentioned the possibility of suicide terrorist hijackings but concluded that "'fortunately, we have no indication that any group is currently thinking in that direction."⁶² The 9/11 Commission left to an endnote in its *Final Report* the warning contained in the FAA intelligence presentation "that if a hijacker intended to commit suicide in a spectacular explosion, the terrorist would be likely to prefer a domestic hijacking."⁶³

Like air traffic controllers, U.S. commercial airlines flight crews and attendants were not trained to confront suicide hijackers. Before the 9/11 attacks, the airlines' Common Strategy and training for flight attendants and crews, like the Federal Aviation Administration's training for air traffic controllers, were based on the notion of a traditional hijacking. Hijackers would not have the ability to fly the airplane; aircraft transponders would not be disabled or turned off; and communications would not be cut off. In short, as recalled by the "chief pilot" and managing director, Flight Operations Technical for American Airlines, hijackers "were understood to be terrorists that wanted to come out of the thing alive."⁶⁴

Without a notification from a pilot, the determination that a flight was hijacked—as opposed to experiencing serious mechanical difficulties or merely under the command of an inattentive pilot—rested with the air traffic controller. Absent a "Mayday" or other verbal communication from a pilot, FAA emergency and hijack response protocols directed controllers, when "in doubt that a situation constitutes an emergency or potential emergency, [to] handle it as though it were an emergency."⁶⁵ Even so, the protocols assumed, in the main, that pilots would be able to communicate and to be part of the decision-making process. A controller was to begin to render assistance "as soon as enough information has been obtained [from the pilot] upon which to act."⁶⁶ The controller's decision as to the type of assistance needed would be based on "information and requests received from the pilot."⁶⁷ Even the specific instructions on hijacked aircraft were predicated on the notion that the controller would observe the special hijack transponder code, which, it was assumed, would be transmitted by the pilot.⁶⁸ In the words of Cleveland Center air traffic controller John Werth, the thirty-year FAA veteran who handled United Airlines Flight 93 on September 11, 2001, "'you can't do anything with the aircraft unless he talks to you.'"⁶⁹

Course deviations, loss of radio contact, and loss or alteration of transponder signals—later determined to be the first signs of trouble on the 9/11 flights—were not unheard of, nor were they, on their face, necessarily disturbing, particularly if they had occurred in isolation. Before the 9/11 attacks, many air traffic controllers had handled commercial aircraft that had gone slightly off course, particularly because of weather; a significant course deviation, however, would indicate a serious mechanical problem. Controllers had experience with another notoriously common phenomenon, loss of radio contact with pilots and crew, and, much less frequently, with the loss of an aircraft's transponder signal. Before the 9/11 attacks, controllers would have interpreted the rare instance of simultaneous or nearly simultaneous loss of radio contact and transponder signal as a serious in-flight emergency, but one caused by a catastrophic equipment failure or a crash, not a hijacking. Likewise, the combined occurrence of even a drastic course deviation, loss of radio communications, and loss of transponder could signal an electrical or mechanical failure, not necessarily a hijack. In any of these circumstances, as on September 11, 2001, the controller would spend several minutes trying to contact the pilot, the airline company, and nearby planes to reestablish communications with the problematic flight and correct its course. Only after these efforts had been tried and failed would the controller raise a more general alarm.⁷⁰

In the event of a hijacking in which the pilot was able to alert an FAA air route traffic control center, for example via the hijack transponder code, the responsible air traffic controller would, first, verify the hijack with the pilot using the hijack code and, second, notify his or her supervisor of the incident. To avoid escalating the situation, the controller would not question the pilot but would handle any requests from the cockpit. Routinely, the controller would also clear the airspace in front of the hijacked plane.⁷¹ Meanwhile, the supervisor would inform the center's traffic management unit and the operations manager in charge of the incident. Any request for military escort or other assistance would be initiated at the level of the operations manager in charge. The FAA center would then contact the appropriate regional operations center, whose staff would, finally, notify FAA headquarters.⁷² There, the hijack coordinator would contact the National Military Command Center at the Pentagon to ask for a military escort aircraft, and the center would then seek permission from the Office of the Secretary of Defense to accede to the FAA request. If and when that office approved the provision of military assistance, the necessary orders would be sent down the NORAD chain of command.⁷³ Thereafter, the National Military Command Center would keep the hijack coordinator abreast of developments. The center would also help FAA air route traffic control centers to coordinate directly with and provide tracking information to the North American Aerospace Defense Command.⁷⁴ Eventually, an appropriate FAA air traffic controller would assist in placing discretely five miles behind the hijacked aircraft any escort aircraft scrambled in response.⁷⁵

The CJCS instruction and the FAA orders, applying to instances of confirmed hijackings were bypassed in the emergency air defense response to the attacks of September 11, 2001. The 9/11 Commission maintained that the standard protocol was unsuitable "in every respect" for the occasion.⁷⁶ Commissioners were probably correct in concluding that its application that day would not have enhanced the possibilities of intercepting—much less shooting down—the doomed aircraft.⁷⁷ But apropos or not, the protocol was by and large not used. That the Federal Aviation Administration established direct contact with the Northeast Air Defense Sector, and that NEADS scrambled and launched its alert fighters in defense of the country, had more to do with individual initiative than adherence to established procedure.

The suicide hijackings launched on September 11, 2001, constituted a type of war unseen on U.S. soil since the Japanese bombing of Pearl Harbor on December 7, 1941. Like that earlier attack, the success of this "new type of war" was virtually ensured—at least on that day—by its very nature. The strategy and tactics of the four teams of hijackers and the ease with which they and their weapons passed through the aviation security system allowed the perpetrators of the 9/11 attacks to achieve a key element of a successful military campaign—surprise.⁷⁸ A number of factors contributed to the fog of war challenging the FAA air traffic control apparatus and the NEADS air defense response system on September 11. But perhaps the primary cause of the resulting tumult was the sine qua non of the 9/11 attacks: the four hijacker-pilots and their shocking synthesis of the tradition of suicide bombing and the tactics of the kamikazes.

Much emphasis was placed after the attacks on the fundamentalist motivations of the attackers, but their motivations were especially relevant in one particular sense: the hijackers and those who inspired and planned the attacks believed they were at war against the financial, commercial, military, and political systems of the West. However, the motivations of the perpetrators were irrelevant in at least one respect: the U.S. federal government and the national aviation and air defense systems were in many ways ill prepared to respond quickly and effectively to a surprise attack launched from within the country by attackers of any motivation.

In the end, three of the four hijacked flights reached their targets; the fourth, United Airlines Flight 93, with which the hijackers probably intended to hit the Capitol, failed to do so because of unexpected timing and human endeavor. The fourth attack was thwarted, in part because the flight's tardy takeoff and a late takeover by the hijackers. These delays gave its passengers time to learn from loved ones on the ground of the other hijackings, to face their own probable fate, and to collectively plan and launch a counterattack to try to retake the aircraft.

This heroic civilian counterattack was not the only effort undertaken on the morning of September 11, 2001, to defend the country against the hijacked aircraft-turned-guided missiles. As the attacks unfolded, in an increasingly chaotic and deadly situation, FAA air traffic controllers and NEADS air defense personnel raced to obtain timely, accurate, comprehensible, and actionable information, and to prepare, launch, and direct an aerial counterattack with the small force of available alert aircraft.

During several decades of traditional hijackings, the expeditious launch of NORAD air defense fighters depended in large part upon timely hijack notification by the Federal Aviation Administration, which in turn depended upon how quickly FAA air traffic controllers determined that a flight was hijacked, which in its turn depended upon maintaining ground communications with a hijacked plane and, particularly, upon the ability of a victimized pilot to notify controllers of his or her predicament. The 9/11 hijackers were in no way traditional, however: they swiftly murdered the pilots, took over flight control of the aircraft, ceased responding to direction from air traffic controllers, altered course, and turned off or altered transponders. The four teams of hijackers undertook some of these actions in different sequences, but the result was the same: in a matter of minutes, the traditional communication chain, from pilot to the Federal Aviation Administration to the North American Aerospace Defense Command, was shattered; determining a hijack was made highly problematic; and traditional air defense response protocols were rendered obsolete. What remained to be reconstituted, indeed established, was an effective communications link between the Federal Aviation Administration and the North American Aerospace Defense Command or specifically, on September 11, 2001, its Northeast Air Defense Sector.

American Airlines Flight 11

The Federal Aviation Administration notified the Northeast Air Defense Sector of the first hijacking—later determined to be American Airlines Flight

11—just under nine minutes before the plane slammed into the North Tower of the World Trade Center. This was the longest notice the NEADS air defenders received that day.⁷⁹ This circumstance, and other aspects of this first attack, make the hijacking of Flight 11 and the sequence and development of the air traffic control-air defense response thereto of particular interest. (See Table 3 below.)⁸⁰

Event	9/11 Commission Timeline
Takeoff (wheels off)	0759
Last routine communication	Just before 0814
First sign of trouble ⁸¹	16 seconds after last routine communication
Likely takeover	0814 or shortly thereafter
Transponder turned off	0821 ⁸²
Initially unintelligible transmission of unknown origin heard by Boston Center air traffic control specialist	0824:38
Second suspect transmission heard by Boston Center air traffic control specialist	0824:57 ⁸³
FAA believes flight in distress (hijacked)	0825
AAL 11 begins southbound turn over Albany, NY	0826 ⁸⁴
Third suspect transmission heard by Boston Center air traffic control specialist and his section	0834 ⁸⁵
FAA notifies NEADS	0837:52
Fighter scramble order: 2 F-15s (Otis ANGB, Falmouth, MA)	0845:54
Fighters airborne (Otis ANGB)	0852
Airline impact time: WTC 1	0846:25
Elapsed time: FAA believes flight in distress (hijacked) until FAA notifies NEADS	12 minutes 52 seconds
Elapsed time: FAA notification to NEADS until crash	8 minutes 33 seconds
FAA notification to NEADS: AAL 11 still airborne	0921:10
Fighter scramble order: 2 F-16s (Langley AFB, Hampton, VA). Scramble order included a third F-16 with guns only	0924
Fighters airborne (Langley AFB)	0930

American Airlines Flight 11, a Boeing 767-223,⁸⁶ was scheduled to depart from Boston Logan International Airport at 7:45 a.m. EDT on a nonstop flight to Los Angeles International Airport. It pushed back from the gate at 7:40 a.m. and lifted off at 7:59 a.m. Aboard were a pilot, first officer, nine flight attendants, and 81 passengers, including five al Qaeda terrorists.⁸⁷ Just under fourteen minutes into the flight, in its last routine communication, the cockpit crew acknowledged navigational instructions⁸⁸ from air traffic control specialist Peter Zalewski, on duty in Area C at the FAA's Boston Air Route Traffic Control Center, Nashua, New Hampshire.

Sixteen seconds into that transmission, Zalewski instructed the pilots to climb to 35,000 feet, but they did not acknowledge this direction or any of the controller's multiple subsequent radio transmissions. Investigators, including the 9/11 Commission, later concluded that the hijacking occurred at this point in the flight, but Boston Center personnel did not suspect for approximately ten additional minutes that American Airlines Flight 11 had been hijacked.⁸⁹

Becoming increasingly concerned as the plane began to move into the arrival route for Boston Logan airport and approached another sector's airspace, Zalewski checked his own radio equipment, which was working properly; tried to contact the flight on an emergency frequency;⁹⁰ checked the frequency used by Boston Approach, the previous sector; and tried to contact American Airlines via the Aeronautical Radio Incorporated (AKA AirInc) system. Thinking that the plane might be having an electrical problem, he reported to his supervisor, Jon (Jonathan) Schippani, the sole operational supervisor in charge of Area C that day, and they began to follow procedures for handling a "no radio" (NORDO) aircraft.⁹¹ At this time, neither suspected a hijacking.⁹²

Over the next few minutes, Zalewski and other Boston Center air traffic controllers and radar associates attempted to contact American Airlines Flight 11 multiple times by a variety of methods and on different frequencies, enlisting help from the previous sector, Boston Approach, and also from other American aircraft. American Airlines Flight 11 did not respond.⁹³ Soon thereafter, as the situation escalated during what would be the missing aircraft's last six or seven minutes of flight, John Hartling, Zalewski's colleague and a former U.S. Air Force air traffic controller, expanded the center's search for assistance by contacting U.S. Air Flight 583 and United Airlines Flight 175. These flights did succeed in achieving visual contact with the hijacked plane and identified its altitude as between 27,000 and 29,000 feet. United Flight 175 would soon, itself, be hijacked.⁹⁴

In the midst of these early and ongoing efforts by Boston Center personnel to communicate with American Airlines Flight 11 and to direct other aircraft away from its path, one of the hijackers in the cockpit of the errant aircraft turned off its transponder.⁹⁵ With the loss of this secondary radar return, Boston Center radar scope displays instantly lost the plane's flight data tag, indicating its speed, altitude, airline identification, and flight number. American Airlines Flight 11 was thereafter observed as only a primary radar target, a simple blip, by Zalewski and other controllers when they switched their computers to display primary targets.⁹⁶ They were able to continue to track the flight after giving it a data tag.⁹⁷

Without that tag, however, the blip of American Airlines Flight 11 would have been indistinguishable from the sea of blips, visible on FAA and NEADS scopes, representing the thousands of airplanes in U.S. airspace that morning.⁹⁸

The loss or alteration of the transponders on all four of the aircraft hijacked on September 11, 2001, was an intentional and calculated act by the hijackers and had serious consequences for FAA and NEADS personnel attempting to find, track, and intercept the missing planes. Without properly operating transponders to respond to queries from their ground-based radar, FAA air traffic controllers could not easily identify and track the primary-only flights. Critically, controllers could not determine the planes' altitude—without the help of a pilot flying nearby who might be able, at best, to provide an estimate thereof—or, easily, the planes' latitude and longitude coordinates.⁹⁹ And unfortunately, most Boston Center personnel did not know that NEADS air defense scope operators could determine altitude on nontransponding, primary-only aircraft. However, several key individuals at Boston Center—notably, its military operations specialist, Colin Scoggins—were so aware and realized that this capability would be another reason to contact the military, in addition to asking for fighters to escort or tail a hijacked aircraft. At the New York Air Route Traffic Control Center, at Ronkonkoma, on Long Island in New York, too, controllers knew that they could not determine altitude on a plane that was on only primary radar. But some key staffers there, including twenty-year FAA veteran Kevin Delaney, the supervisor of New York Center's quality assurance office on 9/11, did not know that the military could do so.¹⁰⁰ To successfully find a missing or hijacked, indeed any, airplane in the sky, the Northeast Air Defense Sector for its part needed to know either the plane's transponder code—Mode 3 in military parlance and Mode C in FAA parlance—or the plane's latitude and longitude coordinates.¹⁰¹

At this point on the morning of September 11, the loss of a transponder on a commercial aircraft did not mean that it had been hijacked. However, Zalewski and his colleagues were now even more concerned that the aircraft was experiencing serious electrical or mechanical trouble. Still, no one at Boston Center yet suspected the plane had been hijacked. Their views soon changed dramatically. Just over ten minutes after the aircraft's last routine communication, Zalewski heard two clicks over the frequency assigned to several planes in the sector, including American Airlines Flight 11.¹⁰² He then heard what his experience in international air traffic control told him was a Middle Eastern voice transmitting the following radio message:¹⁰³

[W]e have some planes[.] [J]ust stay quiet[,] and you'll be okay[.] [W]e are returning to the airport.¹⁰⁴

The transmission was rather garbled, and Zalewski could not decipher the first sentence.¹⁰⁵ Seconds after receiving this transmission, he clearly heard a second threatening transmission, convincing him that the flight had been hijacked. An unidentified voice—probably that of Mohammed Atta—from the cockpit of

what was subsequently determined to be American Airlines Flight 11 made the following transmission at 8:24:56 a.m. EDT:

[N]obody move[.] [E]verything will be okay[.] [I]f you try to make any moves[,] you'll endanger yourself and the airplane[.] [J]ust stay quiet[.]¹⁰⁶

A little over a minute later, near Albany, New York, American Airlines Flight 11 began a hard but level left turn to the south.¹⁰⁷ A third transmission came at 8:33:59 a.m. EDT:

[N]obody move please[.] [W]e are going back to the airport[.] [D]on't try to make any stupid moves[.]¹⁰⁸

The importance of these transmissions to the recognition of American Airlines Flight 11 as hijacked, and, thus, to the air defense response, cannot be overstated. The 9/11 Commission believed that the hijackers intended to broadcast these messages to the passengers over the cabin's public address channel.¹⁰⁹ It seems likely that Atta wanted to keep the doomed passengers quiet, seated, and unaware of their approaching fate. The first two of the three threatening communications came less than two minutes before Atta made a major course alteration to begin the southbound turn. The third transmission came about three minutes before American Airlines Flight 11 began its steep and final descent from 29,000 feet and less than thirteen minutes before it crashed into the North Tower.¹¹⁰

But the hijackers' announcements were not, in fact, made over the public address system, and so they were not heard by anyone aboard American Airlines Flight 11.¹¹¹ That the transmissions were heard, instead, by air traffic controllers and by other planes on the same frequency suggests that the hijackers pushed the wrong button, not knowing how to operate the available communications systems properly.¹¹² Included in the group of planes on the same frequency, ironically, was United Airlines Flight 175. That flight's captain and first officer—to avoid being overheard on that frequency by anyone doing harm in the cockpit of American Airlines Flight 11—waited more than fifteen minutes, until they were passed out of Boston Center airspace, to tell David Bottiglia at the New York Air Route Traffic Control Center that they had heard “a suspicious transmission” after departing from Boston Logan.¹¹³

After receiving the second transmission, Zalewski put the communications from American Airlines Flight 11 on the overhead microphone so that the entire section could hear what was going on. Because he had not clearly understood the first sentence of the garbled transmission, he asked Boston Center quality assurance specialist Robert Jones to pull the audio tapes so that that transmission could be analyzed.¹¹⁴ Some minutes later, as soon as he had reviewed the first communication, Jones told Terry Biggio, the operations manager in charge at Boston Center, that a speaker with what was clearly a Middle Eastern accent had begun the transmission with the following statement: “We have some planes.” Biggio, in turn, immediately—ironically, seconds before United Airlines Flight

175 crashed into 2 World Trade Center—passed this information to the New England Regional Operations Center (ROC) in Burlington, Massachusetts. He did not call the Washington Operations Center (WOC) directly to inform FAA headquarters of the hijacking, but he joined a ROC conference call that he believed was actively monitored by WOC personnel.¹¹⁵

In the meantime, however, the second threatening transmission had convinced Boston Center personnel that American Airlines Flight 11 had been hijacked. In Biggio's view, the combination of the loss of radio contact, the loss of transponder, and the course deviation was serious and made it necessary to contact the Regional Operations Center. But he later doubted that Boston Center personnel would have concluded that the plane had been hijacked had they not heard the threatening communications from the cockpit.¹¹⁶

At this point, eleven minutes after the last routine communication from American Airlines Flight 11, Boston Center air traffic controllers and management recognized that the aircraft had been hijacked. But Boston Center would not so notify the air defenders at the Northeast Air Defense Sector for another twelve minutes. And the pre-9/11 "conceptual box"—circumscribing FAA and NORAD antihijacking protocols, planning, and practice—remained in place even longer.¹¹⁷ The "box" rested on two unshakable assumptions about commercial aviation and hijacking, and by extension, national defense: first, aircraft pilots would remain at the controls and would be able to communicate their predicament to air traffic controllers, and second, hijackers did not know how to fly planes and did not want to die. The first major hijacking of the twenty-first century rendered both notions obsolete.

The pre-9/11 "box" limited the ability of FAA and NORAD personnel to predict or even imagine what could transpire in the cockpit of a hijacked aircraft. Consequently, many Boston Center personnel believed that the threatening transmissions were being made by an individual or individuals in the background of the flight deck and that someone, probably the pilot, on American Airlines Flight 11 was intentionally and surreptitiously keying a push-to-talk button on the aircraft's yoke to allow air traffic controllers to hear what was going on in the cockpit.¹¹⁸ This confusing and faulty assumption that the American Airlines pilot remained at the helm for much of the flight resurfaced throughout the morning in official FAA headquarters and regional operations center documents,¹¹⁹ despite widespread awareness that at least one person aboard had been stabbed, that communications with the aircraft had been lost, and that its altitude had been fluctuating.¹²⁰ A New England Regional Operations Center daily log even noted a report that not only was the pilot keying the microphone, but that the crew of the hijacked aircraft had turned the transponder off.¹²¹ The belief that the American Airlines pilot was keying the microphone was reported as fact by major newspapers in the days after the attacks¹²² and was repeated two years later to 9/11 Commission staff by at least one Boston Center supervisor.¹²³ In fact, however, after the attacks, the Federal Bureau of Investigation reviewed the speech patterns and other characteristics of the recorded transmissions, and its analyst concluded definitively—as Zalewski and Jones had believed that day—



An image of the crash of American Airlines Flight 77 into the Pentagon, captured by a facility security camera.



A gray smoke plume rising above the crash site of United Airlines Flight 93 near Shanksville, Pennsylvania. Photo, "End of Serenity," used with permission of Valencia McClatchey, photographer and copyright owner.



The Pentagon, minutes after the crash of American Airlines Flight 77. Foam residue is visible on the building's facade, before its collapse. Unattributed DOD photo.



Rubble at Ground Zero, September 19, 2001, one week after al Qaeda terrorists flew American Airlines Flight 11 and United Airlines Flight 175 into the World Trade Center towers, causing their collapse. U.S. Navy photo by Photographer's Mate 2d Class Aaron Peterson.



F-16s of the 119th Fighter Wing, North Dakota Air National Guard, flying a combat air patrol over the Pentagon and Washington, D.C., as part of Operation Noble Eagle, November 2001. Air National Guard photo.



An F-15 of the 102d Fighter Wing, Massachusetts Air National Guard, flying over lower Manhattan and Ground Zero during an Operation Noble Eagle combat air patrol mission several months after the 9/11 attacks. Air National Guard photo by Lt. Col. Bill "Torch" Ramsey.



An F-16 Fighting Falcon flying over the Pentagon as part of Operation Noble Eagle, September 24, 2003. The aircraft is assigned to the 20th Fighter Wing at Shaw Air Force Base, South Carolina. U.S. Air Force photo by SSgt. Aaron D. Allmon II.



Two F-16 Fighting Falcons flying over San Francisco Bay and into precontact position with a KC-135E Stratotanker before refueling during an Operation Noble Eagle training patrol, March 16, 2004. The F-16s are with the California Air National Guard's 144th Fighter Wing in Fresno. The KC-135 is with the 940th Aerial Refueling Wing at Beale Air Force Base, California. U.S. Air Force photo by MSgt. Lance Cheung.

that one of the hijackers in the cockpit made the transmissions, speaking directly into the microphone.¹²⁴

The notion that airline pilots always remained at the controls of hijacked aircraft persisted beyond the demise of American Airlines Flight 11. At the Northeast Air Defense Sector, seconds after learning that FAA personnel were dealing with a possible second hijacking, that of United Airlines Flight 175, NEADS personnel in the surveillance section remarked on the absence of the “7500” hijack transponder code signal from its cockpit crew: “We have smart terrorists today, their [sic: they’re] not giving them [the pilots] a chance to squawk[.]”¹²⁵

The “box” also limited the framework in which hijacking was interpreted. Before 9/11, a hijack was thought to entail a diversion to Cuba or a ransom demand and was not considered an act of terrorism.¹²⁶ The threatening communications convinced Boston Center controllers and managers that American Airlines Flight 11 had indeed been hijacked. But most of them—and, soon, their opposite numbers at New York Air Route Traffic Control Center—believed that the plane might land at Kennedy airport or even Albany airport,¹²⁷ or would head to Cuba or elsewhere in the Caribbean.¹²⁸ In accordance with the long experience of pre-9/11 hijackings, no one seriously considered any other outcome.¹²⁹ Even in the later stages of the doomed flight’s path, as New York Center controllers watched it head towards Kennedy airport until it disappeared from their scopes, some believed that its failure to reappear on screen was due to malfunctioning radar. In the absence of any information that what had hit the North Tower was in fact American Airlines Flight 11, some controllers initially thought that the aircraft might have landed at Kennedy.¹³⁰

Just after Boston Center received the second transmission, and in accordance with FAA-NORAD protocol, center managers and controllers notified colleagues and superiors across the organizational structure and up the command chain of the Federal Aviation that a suspected hijack was in progress. Daniel L. Bueno, the supervisory traffic management coordinator, and Terry Biggio, the operations manager in charge, notified the New England Regional Operations Center and the Air Traffic Control System Command Center in Herndon, Virginia, both of which were in contact shortly thereafter with the Washington Operations Center at FAA headquarters. Bueno and Biggio and several Boston Center controllers also began coordination with New York Center, New York TRACON (Terminal Radar Approach Control), and Washington and Cleveland Air Route Traffic Control Centers.¹³¹ Despite these endeavors, notable gaps in communication and coordination soon appeared. For example, a teleconference that Bueno established at the suggestion of the Herndon Command Center between Boston, New York, and Cleveland Centers did not include Indianapolis Center. There was, however, no indication that the hijacked plane would head towards Indianapolis Center’s airspace, and, thus, there was no reason to distract its controllers.¹³²

More significantly at this point, “FAA headquarters began to follow the hijack protocol but did not contact the NMCC [National Military Command Center] to request a fighter escort.”¹³³

The situation with American Airlines Flight 11 began to deteriorate quickly after Zalewski received the second threatening transmission. A few minutes after the flight turned to the south, Boston Center personnel, lacking precise information on its altitude, were particularly concerned when they discerned a decrease in the speed of its data tag. Bueno and the military operations specialist, Colin Scoggins, believed that this loss of speed meant the plane was possibly descending.¹³⁴ Just after Zalewski and his section colleagues heard the third threatening transmission, and in conjunction with ongoing efforts to alert the FAA chain of command to the possible hijacking, several center staffers launched a parallel, two-part endeavor, on their own initiative and outside the bonds of protocol, to notify the military and expedite the air defense side of the hijacking response equation.

The first part of this effort began at 8:34 a.m. EDT when Bueno called Cape TRACON, an FAA facility at Otis Air National Guard Base at Falmouth, on Cape Cod, in Massachusetts. Based on his experience in the early 1980s with a scramble to escort a hijacked aircraft, Bueno was aware that military assistance came from Otis. For the same reason, he also considered contacting Burlington, Vermont, and Atlantic City, New Jersey.¹³⁵ He knew that an FAA letter of agreement with Cape TRACON set out the procedure for active fighter scrambles, under which his call should have gone to the Northeast Air Defense Sector. But he called Cape TRACON directly because of the urgency of the situation, because the facility was the FAA contact point for Otis,¹³⁶ and possibly because Bueno may not have been sure how to contact Otis himself.¹³⁷ Bueno spoke first with a Cape TRACON air traffic controller, Steven Walsh, and then immediately thereafter with Tim Spence, the operational supervisor, about contacting Otis to request that fighters be scrambled to “go tail” American Airlines Flight 11. Bueno told Spence that the errant flight was “a possible hijack”, and Spence assured Bueno several times that he would pass the request to Otis.¹³⁸ At the same time, Walsh heard the Cape TRACON flight data specialist say that he was trying to telephone the command post at Otis.¹³⁹ It will be recalled that on September 11, 2001, the North American Aerospace Defense Command had limited assets: under its control were only fourteen fighters on air defense alert, two each at seven alert sites in the United States. Two of these, Otis Air National Guard Base and Langley Air Force Base, were force providers for the mission of the Northeast Air Defense Sector. The Otis facility, home to the 102d Fighter Wing, was the only air defense base on the East Coast between Washington, D.C., and the Canadian border.¹⁴⁰ Bueno apparently also made an additional phone call or calls. Years after the 9/11 attacks, he told author and pilot Lynn Spencer that he called the Otis Tower, a controller at which told him to contact the Northeast Air Defense Sector, the only authority that could order a scramble.¹⁴¹ Scoggins, Bueno’s colleague, recalled just over a week after the attacks that Bueno had called the 102d Fighter Wing and was told that the wing “needed a scramble order over the scramble circuit.”¹⁴²

The second part of Daniel Bueno’s effort to scramble fighters began concurrently with or immediately after this conversation with Spence. Over the next several minutes, at least two of Bueno’s Boston Center coworkers, independently or at his direction, tried to contact the Northeast Air Defense

Sector directly. After the situation with American Airlines Flight 11 began to escalate, William Dean, then working as John Hartling's radar associate in Area E, Sector 20, left his position and reported to the Traffic Management Unit watch desk. There he made several calls, including to the Northeast Air Defense Sector, where, he thought, there might have been air defense fighters. Dean expected that an effective and quick procedure to get military assistance existed. He found, instead, that the information flow between the Federal Aviation Administration and the Northeast Air Defense Sector was “muddled”.¹⁴³ In addition, Bueno asked Joseph Cooper, a colleague in the Traffic Management Unit, to call the military for assistance. Cooper reached TSgt. Jeremy W. Powell, on the operations floor as a NEADS senior director (weapons) technician, at 8:37:24 a.m.:

Boston Center (Cooper): Hi. Boston Center TMU [Traffic Management Unit]. We have a problem here. We have a hijacked aircraft headed towards New York, and we need you guys to—we need someone to scramble some F-16s or something up there, help us out.

NEADS (Powell): Is this real world or exercise?

Boston Center (Cooper): No, this is not an exercise, not a test.¹⁴⁴

Cooper did not know that any military exercises were planned for September 11, 2001. However, NEADS personnel were indeed expecting a planned exercise, Vigilant Guardian, to begin at 9:00 a.m. EDT,¹⁴⁵ but it was on hold because of a Russian Bear exercise.¹⁴⁶ Because of Vigilant Guardian, the glassed-in command center, or battle cab, that overlooked the operations floor, was already staffed and was concluding a briefing on the morning's exercise.¹⁴⁷ Powell's question would be repeated a number of times that morning by his colleagues and superiors, who initially wondered—as Powell had done—if the details they heard over the next few minutes of the suspected hijacking might actually be simulated scenarios that planners were inserting into the training exercise.¹⁴⁸ Even after the crash of United Airlines Flight 175, the NEADS air defenders continued to emphasize the “real”- or “live”-world nature of the morning's events and to alert others that they were not part of the previously planned exercise.¹⁴⁹

Powell contacted Maj. Dawne Deskins, who was then in the battle cab as the NEADS aircraft control and warning officer for the Vigilant Guardian exercise. When she arrived on the operations floor, she confirmed with Powell that the call from Boston Center involved a real-world hijack, and Powell put her on the phone.¹⁵⁰ Cooper explained to her, in greater detail, the situation and his request for assistance, though he did not realize that the alert fighters at Otis were F-15s and not F-16s:

Boston Center (Cooper): We have a hijacked aircraft headed towards the New York metro area, wondering if you could, umm, send someone up there. Some F-16s maybe out of Otis[.]

NEADS (Deskins): Okay, do you have a Mode 3 on it[?]

...

Boston Center (Cooper): Nope, it is just a primary target only ... [W]e lost the ... Mode C on it, so you would have to get up in the air[,] and we would have to vector you towards the aircraft[.]

...

NEADS (Deskins): ... Can you give us a lat.lon. [latitude-longitude] where you think he is...[?]

Boston Center (Cooper): Yeah, hold on a second.¹⁵¹

Boston Center was still tracking the errant flight's primary radar return, but because the transponder signal was lost, the center would have to control the intercept until NEADS identification technicians could find the aircraft. Without the transponder signal and, therefore, without a radar point, NEADS personnel needed the plane's latitude and longitude coordinates.¹⁵²

Within minutes, these exchanges between Boston Center and NEADS personnel would lead to the placing on battle stations, and, shortly thereafter, to the scrambling, of two F-15 fighters from Otis Air National Guard Base.

After his conversation with Dan Bueno at Boston Center, Tim Spence at Cape TRACON began his telephone calls by contacting the Otis ANGB Tower to alert personnel there of the situation with American Airlines Flight 11 and to ask how to facilitate Bueno's request for fighters.¹⁵³ Otis Tower personnel gave Spence a telephone number for the Otis base operations desk and/or for the Otis supervisor of flying desk and apparently also told him that a scramble required an authorization from the Northeast Air Defense Sector. Spence then called the base operations building and told personnel there of the possible hijacking. Spence acknowledged that he did not have authority to order a fighter scramble, but he advised the operations desk to prepare to receive a scramble order.¹⁵⁴

At this point, the lines of communication and hijack notification between Cape TRACON, Otis Tower, and Otis base operations become rather less clear. Otis Tower personnel apparently also called the operations building and spoke with TSgt. Margie Woody, who transferred the tower's call to TSgt. Michael Kelly.¹⁵⁵ As the full-time technician in the Command Post, Kelly was responsible for communicating NORAD and NEADS directives to Otis Air National Guard Base. Kelly recalled that he gave the caller, who he identified as Boston Center—not Otis Tower—the NEADS number and also transferred the call.¹⁵⁶ The caller may in fact have been neither Boston Center nor Otis Tower, but instead, Cape TRACON: Spence later recalled that by the time he spoke with a male military staffer at the Northeast Air Defense Sector, Boston Center had already contacted the NEADS air defenders.¹⁵⁷ Kelly then called the supervisor of flying desk and notified Lt. Col. Jonathan T. "Tracer" Treacy, the commander of the 102d Fighter Wing's 101st Fighter Squadron and the supervisor of flying for the day.¹⁵⁸ Kelly also called NEADS personnel, to notify the air defenders about the possible hijacking and scramble request. He reached MSgt. Joe McCain, at the mission crew commander technician console position, who already knew of the hijacking: less than a minute before, Joseph Cooper had spoken with TSgt. Jeremy Powell,

and the NEADS response to the hijack notification and scramble request had already begun.¹⁵⁹

Though they were not discussed in the 9/11 Commission *Final Report*, the calls placed by Spence and by Otis tower personnel to the operations desk helped to expedite the response of the two Otis air alert fighter pilots to the order to battle stations placed by NEADS personnel at 8:41 a.m. EDT.¹⁶⁰ Spence did not know it at the time, but he speculated later that the alert pilot had “some degree of warning” of the approaching scramble order because he may have been at the desk when Spence called Otis Air National Guard Base.¹⁶¹ Lt. Col. Timothy “Duff” Duffy, the 101st Fighter Squadron’s director of operations and one of two alert pilots at Otis ANGB on the morning of September 11, was in fact near the break room near the operations desk. On duty there was MSgt. Mark Rose, who received a call from Otis Tower relaying news from Boston Center about a possible hijacking. Rose, the superintendent of aviation management, alerted Duffy, and then the call was redirected to Kelly at the Command Post.¹⁶²

A traditional Guardsman and a pilot for a major airline, Duffy was disappointed to be on alert instead of on the flying schedule on the morning of September 11. As the operations officer, in charge of training, Duffy always warned his colleagues to be careful as they headed out for their training assignments. About ten minutes before his exchange with Rose, Duffy later recalled, one of his coworkers had commented on the date—9/11—and had said, “‘Hey, it’s a 911 day.’ You know, dial 911. Everybody be careful, not even knowing [, yet, about the hijacking]...”¹⁶³

Duffy did not take lightly the news from Rose of a suspected hijacking, recalling later that “in an ASA [air sovereignty alert] squadron, that is not one of those words you throw around.” In addition, Otis fighters were on five-minute alert. Though the squadron could not take orders from the Federal Aviation Administration, Duffy hoped to get ready while awaiting NEADS instructions and the expected call to battle stations. He therefore radioed his fellow alert pilot to suit up.¹⁶⁴

On alert duty with Duffy, covering the shift for another pilot flying a training mission that morning, was full-time Guardsman Maj. Daniel S. “Nasty” Nash. Listed as lead in the alert roster, Nash was in his office when he received instructions to suit up from Duffy. Nash learned of the possible hijacking when he reported to the locker room, where Duffy was already suiting up. After hearing of Duffy’s prior hijacking experience, Nash told him to take the lead on the expected scramble.¹⁶⁵ Duffy stopped in the Command Post to tell Lieutenant Colonel Treacy that he and Nash were swapping leads. Treacy, meanwhile, had telephoned the Northeast Air Defense Sector to report the FAA scramble request. The NEADS commander, Col. Robert K. Marr, Jr., would have authority to scramble the fighters. By this time, Joseph Cooper at Boston Center had spoken with TSgt. Jeremy Powell at the Northeast Air Defense Sector.¹⁶⁶

Treacy was on two telephones, one to FAA personnel and the other to NEADS personnel, and he was “trying to get them to talk to each other.” Treacy put the phones down and told Duffy that the hijacked aircraft was a 767, en route

from Boston to California, and he may also have identified the plane as American Airlines Flight 11.¹⁶⁷

Duffy then joined Nash—who at that point knew only that they were responding to a possible hijacking—as they headed to a Ford pickup and drove to the alert barn. Along the way, they heard TSgt. Michael Kelly pass along an order from the Northeast Air Defense Sector by sounding the klaxon to alert all personnel to go to their battle stations.¹⁶⁸ As Duffy later recalled,

... we went out and hopped in the alert vehicle and were driving out there. We ... [were] going like 80 [mph]—it's only about one-half mile.... We were half way there, and we hear "Alpha Kilo one two, battle stations." Which is good, because now [that order is] ... coming from NEADS. So, we are no longer doing phone calls from Boston Center to Otis Tower to the squadron, which is the way I got notified.

Duffy and Nash, having saved several minutes' time by suiting up before receiving the order to battle stations, then hopped in their jets, strapped in, and waited for further orders. Duffy had time to tell his crew chief, SMSgt. Wing K. Ng, waiting at the bottom of his ladder, that there was a suspected hijacking of a 767 out of Boston.¹⁶⁹

As these details reveal, after determining that American Airlines Flight 11 was a possible hijack, FAA air traffic control staff at the Boston Air Route Traffic Control Center launched two efforts, in parallel lines of communication to Otis ANGB and to the Northeast Air Defense Sector, to try to get fighters scrambled.¹⁷⁰ Boston Center's telephone calls to Otis personnel helped to expedite the response of the two air alert pilots on duty at the base on the morning of September 11. This hijack notification and request for fighter assistance—which passed from FAA personnel directly to Air Force personnel and outside the prescribed antihijacking protocol—enabled traditional Guardsman and commercial airline pilot Lt. Col. Timothy "Duff" Duffy, the 101st Fighter Squadron's director of operations, and full-time Guardsman Maj. Daniel S. "Nasty" Nash to suit up and to head toward their fighters in advance of a NEADS order to battle stations.¹⁷¹

Meanwhile, in Rome, New York, NEADS battle commander Col. Robert Marr learned from a subordinate of the call from Boston Center and of its scramble request. After confirming that the hijacking was "real world" and not part of the morning's Vigilant Guardian exercise, Marr put the Otis fighters on battle stations. He recalled later that doing so saved "about three minutes from the scramble time."¹⁷²

Marr then informed the Continental U.S. NORAD Region (CONR) of the possible hijacking. He reached CONR headquarters at Tyndall Air Force Base, Florida, and spoke first with Lt. Col. Randy "Cat" Morris, the deputy director of fighter operations. Referring to his decision to place the two Otis air alert fighters at battle stations, Marr told Morris about the FAA request for assistance and indicated that "NEADS was 'forward leaning' fighters from Otis." After speaking with Marr, Morris directed that the Vigilant Guardian exercise be suspended.¹⁷³ Morris

later recalled that “The CONR staff had no real[-]time situational awareness.” They received information on 9/11 from several sources, including multiple chat channels and secure telephones, CNN, and the three CONR sectors.¹⁷⁴

Shortly thereafter, Marr spoke with Maj. Gen. Larry K. Arnold, the First Air Force and CONR commander, and told him of these developments.¹⁷⁵ Marr sought and received Arnold’s authorization to scramble the fighters to intercept the errant aircraft. Both men were well aware, as Morris had pointed out to Marr, that hijacking was considered a law enforcement issue, and they realized that a number of notifications and clearances—from the FAA to the National Military Command Center and all the way up to the office of the secretary of defense—were required under the federal government’s antihijacking protocol before a scramble could be launched. But Arnold decided that the scramble should proceed and that they would “get permission later.” Arnold later recalled that “We didn’t wait for that. We scrambled the aircraft, told them get airborne, and we would seek clearances later.”¹⁷⁶

Because neither Arnold nor Marr, nor the NEADS air defenders, knew the precise location of American Airlines Flight 11, Arnold authorized Marr to scramble the two Otis F–15s toward Warning Area 105, also known as Whiskey 105.¹⁷⁷ This military-controlled airspace extended over an area of the Atlantic Ocean south of Martha’s Vineyard and covered nearly to New York City.¹⁷⁸ Arnold and Marr intended to keep the Otis fighters in Whiskey 105 while staff obtained further information on the track of the hijacked aircraft.¹⁷⁹ In Arnold’s view, the scramble was going to be conducted in cooperation with the FAA, and “the only order the pilots had from CONR was to hold over the water until further directed.”¹⁸⁰ But in Marr’s view, in the circumstances prevailing that morning and without knowing the location of the hijacked plane, the NEADS mission crew commander, Maj. Kevin Nasypany, had “the discretion to take the Otis fighters directly to New York City.”¹⁸¹

After their conversation, Marr passed to Nasypany the order directing the flight of the two Otis F–15s to scramble,¹⁸² and Arnold called NORAD. The NORAD battle staff was in place at Cheyenne Mountain Operations Center (CMOC) because of the Vigilant Guardian exercise and NORAD’s Operation Northern Denial. Arnold later recalled that he spoke with an unnamed deputy commander for operations.¹⁸³ The operations deputy told the CONR commander to proceed with the scramble and said that NORAD staff would contact the Pentagon—specifically, the National Military Command Center—to get the clearances. Arnold apparently also spoke with Maj. Gen. Eric A. Findley, Canadian Forces, the CMOC battle staff director and NORAD director of operations to facilitate getting the necessary clearances.¹⁸⁴ In accordance with NORAD procedures,¹⁸⁵ Findley contacted NORAD commander Gen. Ralph E. Eberhart.¹⁸⁶

Minutes after Nasypany’s scramble order, and as Duffy and Nash were preparing to take off, Boston Center reported to NEADS personnel that a plane, possibly a 737, had crashed into the World Trade Center. Nasypany realized that the report was unconfirmed and might be inaccurate but also that the destroyed aircraft might be American Airlines Flight 11. Noting that the flight’s last reported

position was south of John F. Kennedy airport, Nasypany directed his staff to continue to work with FAA air traffic controllers to clear the Otis F-15s to the New York City area.¹⁸⁷

The Otis fighters, designated Panta 45 and 46, were airborne between 8:52 and 8:53 a.m. EDT.¹⁸⁸ Unbeknownst to the pilots, their target, American Airlines Flight 11, had crashed into the north tower of the World Trade Center six minutes earlier, at 8:46:40 EDT, less than a minute after Duffy and Nash had received the scramble order.¹⁸⁹ Nash later recalled that he and Duffy “were up even before the jets’ radar kicked in.”¹⁹⁰ Nasypany and the NEADS air defenders initially headed them over water toward New York City. “[T]he original flight strip for the fighters gave a destination of Kennedy Airport.”¹⁹¹ The Otis fighters headed northeast, the fastest route from the runway, made a tight turn, and headed toward their assigned vector.¹⁹²

Just over three minutes into their flight, Duffy learned from Boston Center, Cape Sector, that American Airlines Flight 11 had crashed into the World Trade Center. Its demise suddenly called into question the Panta flight’s mission. Duffy consulted with NEADS personnel, who told him that “the mission is holding.”¹⁹³ Nasypany, on a phone with Marr in the glass-enclosed NEADS battle cab overlooking the operations floor, quickly determined that the Panta flight should—in the absence now of any target and to avoid heavily congested civilian airspace in the New York area—proceed to Whiskey 105 and remain in a holding pattern, at an altitude to be chosen by Boston Center, south of the Long Island coast.¹⁹⁴

The upper stories of the North Tower were on fire, but the attack on the United States was not over. Unbeknownst to Boston Center, Duffy, Nash, and NEADS and CONR personnel, including Marr, Nasypany, and Arnold, another commandeered plane, in its final two minutes of flight, was bearing down on the south tower of the World Trade Center. Within minutes, the mission of the Otis fighters would change from holding in military airspace off Long Island to flying over Manhattan.

United Airlines Flight 175 and the “Phantom” American Airlines Flight 11

The Federal Aviation Administration notified the Northeast Air Defense Sector of a “second possible hijack” almost simultaneously to the crash of United Airlines Flight 175 into the South Tower.¹⁹⁵

United Airlines Flight 175, a Boeing 767-222,¹⁹⁶ was scheduled to depart from Boston Logan International Airport at 8:00 a.m. EDT on a nonstop flight to Los Angeles International Airport. It pushed back from the gate at 7:58 a.m. and lifted off at 8:14 a.m., at roughly the same moment that the hijackers aboard American Airlines Flight 11 were launching their attack. Aboard Flight 175 were a pilot, first officer, seven flight attendants, and 56 passengers, including five al Qaeda terrorists.¹⁹⁷ Twenty-four minutes into the flight, the cockpit crew responded in the affirmative to air traffic controller David Bottiglia at New York Air Route Traffic Control Center, at Ronkonkoma, on Long Island, who had asked if they had spotted American Airlines Flight 11. Bottiglia, as it happened, was assigned to both aircraft that morning. Twenty-eight minutes into the flight, in

their last routine communication with Bottiglia, the cockpit crew members of United Flight 175 completed their report on the “suspicious transmission” from an unidentified plane that they had heard shortly after departing from Boston. This was later determined to be Atta’s first announcement from the cockpit of American Airlines Flight 11. Investigators, including the 9/11 Commission, later concluded that the hijackers aboard United Flight 175 probably launched their assault only seconds after this communication with Bottiglia, sometime between 8:42 and 8:46 a.m. EDT.¹⁹⁸ (See Table 4 below.)¹⁹⁹

Table 4	
United Airlines Flight 175 and 9/11 Commission Timeline	
(all times are EDT)	
Event	9/11 Commission Timeline
Takeoff (wheels off)	0814
Last routine communication	0842
Likely takeover	Between 0842 and 0846
First sign of trouble	0847
Transponder code changed	0847
FAA believes flight in distress (hijacked)	0853–0855
FAA notifies NEADS	0903
Fighter scramble order: Otis ANGB	See AAL 11
Fighter airborne: Otis ANGB	See AAL 11
Airline impact time: WTC 2	0903:11
Elapsed time: FAA believes flight in distress until FAA notifies NEADS	8–10 minutes
Elapsed time: FAA notification to NEADS until crash	11 seconds

The first signs of trouble aboard United Airlines Flight 175 came very quickly. First, the aircraft turned southwest without clearance. Then, at 8:46:48 a.m. EDT, seconds after American Airlines Flight 11 hit the North Tower, someone in the cockpit of United Flight 175 made the first of two rapid changes to its assigned transponder code. The flight also left its assigned altitude. Under normal circumstances, New York Center’s Dave Bottiglia would have quickly noticed these developments, but he was involved in the ongoing search for the possibly hijacked American Flight 11. This task preoccupied him, particularly when he lost the radar feed on the American plane’s primary track at 8:46:31. Bottiglia remained focused on American Airlines Flight 11, as reports came in about a fire at the World Trade Center, and, thereafter, as he continued to hunt for the American plane, which he thought was heading south at a low altitude. About five minutes later, he noticed the changes to the United flight’s transponder and repeatedly tried to contact the cockpit crew. At 8:53 a.m., as the Otis F–15s were

airborne and as radio reports began to come in about the crash of a commuter plane at the World Trade Center, Bottiglia warned another controller that he could not find United Flight 175 and that he feared it had been hijacked. This news, and the notion that military assistance was needed in this escalating situation, began to filter up over the next several minutes through the various levels of senior management at New York Center, who then tried to contact regional managers.²⁰⁰ They, however, “were discussing a hijacked aircraft (presumably American 11) and refused to be disturbed.”²⁰¹

Ten minutes would pass before a New York Center staffer informed the NEADS air defenders of a “second possible hijack”²⁰² just seconds before what NEADS personnel quickly learned was Flight 175 slammed into the South Tower at 9:03:11 EDT.²⁰³ Nasypany, on the phone with Marr, told the battle commander that NEADS personnel had received an unconfirmed report of a “second hit from another aircraft.” Marr, in the battle cab, and several other NEADS personnel had just seen the crash, live on CNN. The Otis fighters were at that moment south of Long Island,²⁰⁴ and NEADS personnel were making an early effort to locate refueling tankers for them.²⁰⁵

The north and south towers of the World Trade Center were now burning. Concerned that more aircraft out of Boston Logan airport or elsewhere might still be “out there,” hijacked and heading toward New York City, Nasypany wanted to move the Otis fighters out of military airspace in Whiskey 105 and to place them, in coordination with FAA controllers, over Manhattan.²⁰⁶

Seeking “to establish a greater presence over New York,” Nasypany also told the battle cab that he wanted to scramble the two armed alert F-16s at the 119th Fighter Wing, Detachment One, at Langley Air Force Base in southern Virginia and to send them to the same location as the Otis fighters. But the battle cab declined his request and directed the NEADS mission crew commander to order the Langley fighters only to battle stations.²⁰⁷

On the morning of September 11, 2001, Marr had at his disposal only four armed fighters sitting strip alert with which to defend about a quarter of the country. Two of these, the Otis F-15s, were already airborne and holding in Whiskey 105; the other two were the Langley F-16s. Concerned about the Panta flight’s fuel situation, Marr held the Langley fighters at battle stations, seeking to avoid having all of his fighters ““in the air at the same time, which ... [would mean that] they’d all run out of gas at the same time.””²⁰⁸ Marr and Arnold later recalled that the Langley fighters were put on battle stations rather than scrambled because they might be sent to relieve the Otis fighters if NEADS personnel could not find a refueling tanker quickly and also because of the uncertainty about the developing situation in New York City.²⁰⁹ Nasypany, too, recalled that the order to battle stations “was generated by the events taking place in New York.” He noted that “the strategy was to ‘lean forward’” in the event of another attack. His order sent the Langley fighters to battle stations “without a specific target,” but he intended to use them “in response to another threat.”²¹⁰

In the meantime, however, no additional hijackings had been reported to NEADS. Nasypany’s priorities were now to move the Otis fighters closer to New

York City, specifically south of Kennedy airport, and to find and position refueling tankers to support them.²¹¹ But the air defenders were merely “in the eye of the storm.”²¹² Unbeknownst to Arnold, Marr, Nasypany or any of their subordinates, there had already been another hijacking, the third of the morning. In the time period between the two crashes at the World Trade Center, the Indianapolis Air Route Traffic Control Center had lost contact with a third aircraft, American Airlines Flight 77. Controllers there, unaware of the attacks in New York City,²¹³ initially believed that the plane had crashed due to electrical or mechanical trouble. Ironically, as the NEADS and CONR leaders were considering ordering the Langley fighters to battle stations or to scramble, Indianapolis Center controllers were asking the Air Force Rescue Coordination Center at Langley Air Force Base to search for the possibly downed American flight.²¹⁴ United Airlines Flight 93, the fourth and final hijack, had at this point been in the air for over twenty-five minutes and would be flying normally for another twenty minutes.²¹⁵

With FAA air traffic controllers working to clear airspace, NEADS directed the Panta flight to leave the holding pattern. The Otis F-15s arrived over New York City and established a combat air patrol (CAP) over the city thirty-two minutes after becoming airborne.²¹⁶ The Otis fighters were the first on the scene of the disaster and represented the initial element of the U.S. military response to the terrorist attacks, but their defensive measure was too late to counter even the second attack: by the time they arrived, United Airlines Flight 175 was no more, and the south tower of the World Trade Center had been ablaze for almost twenty-two minutes.²¹⁷

Duffy and Nash flew combat patrols over New York for the next several hours. Duffy set up a point defense, splitting the air space to cover it in its entirety, and the two Otis pilots took turns refueling and intercepting.²¹⁸ During their time aloft, Duffy and Nash received requests to identify a few civilian airliners and then, mostly, police and emergency response helicopters from the FAA entity, New York TRACON, at Westbury, New York, in coordination with NEADS.²¹⁹ Duffy later estimated that he and Nash together intercepted “fifty or more” targets of interest, including general aviation aircraft, news helicopters, and even a number of Army Guard helicopters.²²⁰

The momentary lull after the two attacks at the World Trade Center did not last long. A classic instance of the fog of war had begun to settle in almost immediately after the first strike, and confusion over what type of aircraft had hit the North Tower and questions about the status of American Airlines Flight 11 persisted for some time thereafter. This situation escalated in the minutes before Duffy and Nash established the combat air patrol over New York City, when Boston Center passed to the NEADS air defenders startling news from FAA headquarters: American Airlines Flight 11 was still airborne and was presently heading south toward Washington, D.C. Suddenly, NEADS personnel were faced with what was apparently a third hijacking, as whatever plane had hit the North Tower was now thought, by many, *not* to have been Flight 11.²²¹

After passing the Boston Center report to the battle cab, the NEADS mission crew commander, Nasypany, advised the battle commander and the fighter officer

there that NEADS needed to scramble the Langley fighters immediately.²²² In Nasypany's view, the Langley scramble should be placed over Baltimore, Maryland, to serve as "a 'barrier cap' between the hijack [American Airlines Flight 11, thought to be still aloft] and Washington, D.C."²²³ Nasypany also told the battle cab that he wanted to direct the Otis fighters to "try to chase this guy [American Airlines Flight 11] down" if the aircraft could be found.²²⁴

But battle cab personnel were unenthusiastic about the latter recommendation.²²⁵ Marr, the battle commander, later recalled that "he 'nix'd' the tail chase—the Panta (Otis ANGB) fighters 'chasing down' A[merican] A[irlines Flight] 11, as reported heading south to Washington, D.C.—'as soon as' he heard of it."²²⁶ Nasypany was, nevertheless, still concerned about the placement of the Panta flight. He told his weapons team that he wanted the Otis fighters closer to New York and was pleased to learn that they were already over New York.²²⁷ Nasypany's views on use of the Langley fighters were accepted by the battle cab, and Arnold and Marr approved scrambling the two fully armed Langley fighters on alert and a third F-16 armed only with guns.²²⁸

On duty on the morning of September 11, 2001, at the Air National Guard detachment at Langley Air Force Base, were the senior and junior alert pilots, Maj. Dean Eckmann, a traditional Guardsman and commercial airline pilot, and Maj. Brad "Lou" Derrig, a full-time Guardsman. On their schedule was a local training mission with Langley fighters from the First Fighter Wing, scheduled for a noon takeoff. After they received Nasypany's battle stations order, they were joined—as the result of an unprecedented order given by an officer in the NEADS battle cab—by the supervisor of flying, Capt. Craig "Borgy" Borgstrom, a full-time Guardsman.²²⁹

Nasypany ordered the Langley designated alert fighters scrambled and headed toward the Washington, D.C., area, under the call signs Quit 25 and 26, with full-time Guardsman Borgstrom being added as the pilot of a third fighter, Quit 27. The three Langley F-16s were airborne at 9:30 a.m. EDT.²³⁰ Borgstrom later recalled that the Quit flight had "no mission on takeoff."²³¹

Nasypany's original scramble order called for the Langley fighters to proceed on a 010 heading, flight level 290.²³² But standard scramble procedures at Langley Air Force Base called for a takeoff to the east, toward Warning Area 386,²³³ to get air defense fighters to altitude quickly and to avoid very heavy local airport traffic. With these and other considerations in mind, and not knowing about any additional hijackings or problematic aircraft, Langley Tower personnel entered a flight plan that directed the Quit flight to a heading of 090 for 60, or due east for sixty miles, flight level 290.²³⁴ Eckmann later estimated that the Quit flight traveled east for forty-five miles before FAA air traffic controllers got them headed north, but the route as captured by radar indicated that the distance was sixty-nine nautical miles.²³⁵

Within a few minutes of the Langley fighters' takeoff, NEADS weapons desk personnel noticed that the Quit flight was off course and was not traveling in accordance with the scramble order. They immediately directed a navy air traffic controller at Giant Killer to tell the Langley pilots to contact the NEADS air

defenders on an auxiliary frequency and to redirect the flight toward Baltimore Washington International Airport, with a view to intercepting the phantom, presumed southbound, American Airlines Flight 11.²³⁶

American Airlines Flight 77

During a telephone call about American Airlines Flight 11 from the FAA’s Washington Center to the Northeast Air Defense Sector,²³⁷ the center’s operations manager happened to mention to the air defenders that American Airlines Flight 77 was missing. The manager did not describe the flight as a hijack. Less than four minutes later, American Flight 77 crashed into the Pentagon.²³⁸ (See Table 5 below.)²³⁹

Table 5 American Airlines Flight 77 and 9/11 Commission Timeline (all times are EDT)	
Event	9/11 Commission Timeline
Takeoff (wheels off)	0820
Last routine communication	0851
Likely takeover	Between 0851 and 0854
First sign of trouble	0854
Transponder turned off	0856
FAA believes flight in distress	0856–0900
FAA notifies NEADS	0934: FAA tells NEADS AAL 77 was missing
Fighter scramble order	
Fighters airborne	
Airline impact time: Pentagon	0937:46
Elapsed time: FAA believes flight in distress until FAA notifies NEADS	34–38 minutes
Elapsed time: FAA notification to NEADS until crash	3 minutes 46 seconds

American Airlines Flight 77, a Boeing 757-223,²⁴⁰ was scheduled to depart from Washington Dulles International Airport at 8:10 a.m. EDT on a nonstop flight to Los Angeles International Airport. It pushed back from the gate at 8:09 a.m. and lifted off at 8:20 a.m. Aboard were a pilot, first officer, four flight attendants, and fifty-eight passengers, including five al Qaeda terrorists.²⁴¹ The flight proceeded normally until 8:51 a.m., when the cockpit crew made its last routine radio communication with Indianapolis Air Traffic Control Center. The hijackers attacked shortly thereafter: by 8:54 a.m., the aircraft was making a slight turn to the south, away from its assigned course. Three minutes later,

someone in the cockpit turned off the transponder, and that individual or another—understanding the plane’s internal communication system better than had the hijackers aboard American Airlines Flight 11—announced to the passengers over the plane’s intercom that the flight had been hijacked. Ground control did not hear that communication. John Thomas, the Indianapolis Center controller tracking American Flight 77, noticed that the aircraft had deviated from its flight path and that the data tag disappeared. He could not find a primary radar return. Thomas, and soon thereafter, American Airlines dispatchers, tried repeatedly and unsuccessfully to contact the cockpit crew of American Flight 77 by radio. He and others at the center looked for the aircraft along its projected flight path and to the southwest, where it had started to alter course, but they did not look to the east. At this point, he did not know about the crashes at the World Trade Center or about any of the day’s hijackings. He believed that American Flight 77 had gone down after suffering either a catastrophic mechanical or electrical failure, or both. Indianapolis Center contacted the Air Force Rescue Coordination Center at Langley Air Force Base at 9:08 a.m. and asked the service to search for a crashed airplane.²⁴²

Meanwhile, the hijacker-pilot had further adjusted the aircraft’s course, and the plane flew eastward, undetected for thirty-six minutes. Indianapolis Center personnel never saw the flight turn to the east. Initially, for more than eight minutes after the loss of its transponder, the flight’s primary radar information was not displayed to Indianapolis Center controllers, in part because of poor radar coverage in its flight area. When American Flight 77 reappeared in primary radar coverage, a few minutes before Indianapolis Center contacted the Air Force Rescue and Coordination Center, Indianapolis Center controllers did not see it: they thought that the plane had crashed or was still heading west. By 9:20 a.m., Indianapolis Center staff had learned that other aircraft had been hijacked that morning, and they began to think that American Flight 77 might have been as well. Information and concerns about the flight’s status passed from the Indianapolis manager to the FAA Command Center at Herndon, to FAA field facilities, and even to FAA headquarters in Washington, D.C., but no one thought to ask for military assistance, and no one contacted the Northeast Air Defense Sector. The Herndon command center did alert the terminal control facility at Dulles International Airport at 9:21 a.m. After several of its controllers found, at 9:32 a.m., an unidentified primary radar target traveling fast and east, Dulles notified Reagan National Airport, and FAA staff at both airports alerted the U.S. Secret Service.²⁴³

At about 9:34 a.m., as NEADS air defenders told a navy air traffic controller at Giant Killer to redirect the Langley pilots toward Baltimore, with a view to intercepting what was thought to be a southbound American Airlines Flight 11, NEADS identification desk personnel learned in a telephone call from the operations manager at Washington Center that Indianapolis Center had lost contact with American Airlines Flight 77. This, in fact, had happened forty minutes earlier, but during that time, the FAA had not so informed NEADS. During the phone call, American Flight 77 was not described as a possible hijack.²⁴⁴

Just over a minute later, Boston Center told NEADS personnel that an unidentified aircraft—later determined to be the missing and presumed crashed American Airlines Flight 77—was six miles southeast of the White House, flying low and moving away.²⁴⁵ Given the speed at which airliners travel, this meant, as Nasypany later recalled, that a possible attack was seconds away from the White House.²⁴⁶ This threat ratcheted up the efforts of the NEADS air defenders to expedite the change of course for the Langley fighters and to get them over the Washington, D.C., area and to the White House as quickly and directly as possible.²⁴⁷ Nasypany, working with his weapons and surveillance teams, took the unusual step of declaring AFIO, authorization for interceptor operations,²⁴⁸ a rarely used process by which the NEADS air defenders could take, from FAA controllers, “immediate control of the airspace to clear a flight path for the Langley fighters.”²⁴⁹

Almost exactly sixty minutes elapsed from the time NEADS personnel first learned from FAA air traffic controllers of the possible hijacking of American Airlines Flight 11 until Nasypany declared AFIO. During that hour, the NEADS air defenders had been dealing with five possible or actual aviation emergencies. The first was the hijacked American Airlines Flight 11, thought by some to have been the plane that hit the North Tower of the World Trade Center but now reportedly still airborne.²⁵⁰ The second was the crash of a still-unidentified, still-unconfirmed plane at the North Tower. The third was the hijacking and crash of United Airlines Flight 175 at the South Tower. The fourth was the report that American Airlines Flight 77 was lost, that is, missing. The fifth was this latest report of an unidentified, low-flying aircraft moving away from the White House. Unbeknownst to anyone in the country—and perhaps even to the planners of the hijackings themselves, who may have intended additional hijackings—the actual attacks would be over in less than thirty minutes. But the reports of additional potential and suspected hijacks were only just beginning.

Immediately after the NEADS air defenders learned of the presence of the unknown deviating aircraft over Washington, D.C., the tracker technician who had been assigned by Nasypany to monitor the airspace over the general capital area spotted on radar what NEADS personnel believed was the errant plane. He established a primary radar track on the aircraft, Bravo 032, and observed it losing altitude. But the technician lost it when the track faded quickly.²⁵¹

Nasypany directed the technician to get a Z-point, or coordinate, on the now-vanished aircraft and then asked where the Langley fighters were located.²⁵² The flight was, in fact, in Warning Area 386 and heading north, approximately 150 miles away from Washington, D.C. Unbeknownst to Nasypany and the NEADS air defenders and the Langley pilots, Eckmann, Derrig, and Borgstrom, the unidentified aircraft—American Airlines Flight 77—had slammed into the west side of the Pentagon at 9:37:46 a.m. EDT.²⁵³ Its demise was confirmed by the crew of an unarmed National Guard C-130H cargo aircraft, which had spotted the flight shortly before impact. That crew, en route to Minnesota, would also report on the crash of United Airlines Flight 93, less than thirty minutes later.²⁵⁴

Seeking to expedite the arrival of the Langley fighters to the capital to intercept

the unidentified aircraft, which was believed to still be airborne, Nasypany told his subordinates on the operations floor, “We need to get those back up there—I don’t care how many windows you break!”²⁵⁵ The mission crew commander later explained that his words were meant as “a direction for the Langley fighters to achieve supersonic speed.”²⁵⁶

Because of limited communications, a mix-up in passing coordinates, and other issues, NEADS personnel could not fully or immediately implement Nasypany’s intention or his declaration of authorization for interceptor operations. Northeast Air Defense Section weapons technicians controlling the Langley flight, for example, had initially to relay communications—including heading and squawk information—through another aircraft and were not speaking directly with flight lead Eckmann, Quit 25, until several minutes after Nasypany’s AFIO declaration.²⁵⁷

The NEADS air defenders first learned about the attack on the Pentagon from CNN about twelve minutes after American Airlines Flight 77 plowed into the west side of the building.²⁵⁸ Also at 9:49 a.m. EDT, NORAD commander Gen. Ralph E. Eberhart “directed all air sovereignty aircraft to battle stations, fully armed.”²⁵⁹ But NEADS personnel were unaware of this order, at least initially. Still working with his standard four air alert aircraft, Nasypany again wondered about the location of the Langley fighters and twice expressed direction to place the Otis flight “over NCA [National Capital Area] now[.]”²⁶⁰ But according to radar data, the Langley fighters did not arrive over Washington, D.C., until about 10:00 a.m. EDT.²⁶¹ Just under five minutes later, Quit 25 confirmed, in response to a NEADS query, that there was in fact “smoke coming from the Pentagon[.]”²⁶²

United Airlines Flight 93

NEADS operations center personnel were not aware that United Airlines Flight 93 had been hijacked until just over four minutes after it had slammed into an abandoned strip mine²⁶³ in Pennsylvania. Word of United Airlines Flight 93’s last known latitude and longitude came during a call from a military liaison attached to the Federal Aviation Administration who was himself unaware that the aircraft had crashed. Twelve minutes after the crash, in the course of a call initiated by the Northeast Air Defense Sector, the Federal Aviation Administration informed the air defenders that the flight had gone down at an unknown location northeast of Camp David.²⁶⁴ (See Table 6 on next page.)²⁶⁵

United Airlines Flight 93, a Boeing 757-222,²⁶⁶ was scheduled to depart from Newark Liberty airport at 8:00 a.m. EDT on a nonstop flight to San Francisco International Airport. It pushed back from the gate at 8:00 a.m. but did not lift off until 8:42 a.m. Aboard were a pilot, first officer, five flight attendants, and thirty-seven passengers, including four al Qaeda terrorists. The flight proceeded normally for its first forty-six minutes in the air, and the last routine communication between the flight deck and John Werth, the air traffic controller at Cleveland Air Route Traffic Control Center responsible for the flight, came at 9:25 a.m. At that point, the cockpit and cabin crews knew nothing of the morning’s three hijackings or of the explosions in New York City and at the Pentagon. At 9:28 a.m., while the

Table 6
United Airlines Flight 93 and 9/11 Commission Timeline
(all times are EDT)

Event	9/11 Commission Timeline
Takeoff (wheels off)	0842
Last routine communication	0926–0927
Likely takeover	0928
First sign of trouble	0928:17
FAA believes flight in distress	0934
Transponder turned off	0941
FAA notifies NEADS	1007: FAA tells NEADS UAL 93 was hijacked 1015: FAA tells NEADS UAL 93 had crashed
Fighter scramble order	
Fighters airborne	
Airline impact time: Shanksville, PA	1003:11
Elapsed time: FAA believes flight in distress until FAA notifies NEADS	33 minutes

aircraft was flying at 35,000 feet over eastern Ohio, the hijackers attacked the cockpit crew. A struggle ensued. Just two minutes earlier, Jason Dahl, the pilot of United Flight 93, had sent an ACARS* message asking his United dispatcher, Ed Ballinger, to confirm Ballinger’s immediately preceding message warning the flight deck crew to “Beware any cockpit intrusion—Two a/c [aircraft] hit World Trade Center.”²⁶⁷

Within less than a minute of Dahl’s ACARS message to Ballinger, Werth at Cleveland Center received, from an unknown origin, two radio transmissions. The first contained sounds of a physical struggle and declarations of “Mayday,” and the second, shouts of “Hey get out of here” and sounds of screaming.²⁶⁸ The aircraft’s altitude suddenly dropped 700 feet. Werth began to contact other planes on his frequency to determine the source of the transmissions, and he continued to try to contact United Flight 93. A third radio transmission came over the frequency at 9:32 a.m.: “Keep remaining sitting. We have a bomb on board.”²⁶⁹ Like Mohammed Atta, the hijacker-pilot of American Airlines Flight 11, Ziad Jarrah, now at the controls of United Flight 93, attempted to communicate with the passengers on the plane’s intercom but ended up speaking to air traffic controllers on the ground. Werth told his supervisor that he thought the plane had been hijacked. Within two minutes, the information traveled up the chain of command to the command center at Herndon and then to FAA headquarters.²⁷⁰

*Aircraft Communications and Reporting System, an e-mail system between in-flight cockpit crew and ground personnel.

There the information remained. Cleveland Center personnel, still tracking the United flight, asked the Herndon command center at about 9:36 a.m. if anyone had asked the military to send fighters to intercept the errant plane and even offered to contact a local military base. The command center refused the offer, saying that FAA senior leaders had to make the decision to request military assistance and that they were discussing the matter. Eventually, Cleveland Center personnel took matters into their own hands and contacted the NEADS air defenders, but by then, United Airlines Flight 93 had already crashed. Meanwhile, thirteen minutes after Cleveland Center's initial inquiry about military involvement, the command center suggested to headquarters that someone there should probably decide, within the next ten minutes, whether to ask the military to scramble aircraft. Discussions at headquarters were ongoing between the deputy director for air traffic services and Monte Belger, the acting deputy administrator.²⁷¹

The hijackers, however, had turned off the transponder aboard United Flight 93, but not until 9:41, two minutes after a fourth radio transmission from Jarrah. The hijacker-pilot had intended to tell the passengers to remain seated and that the hijackers were returning to the airport to lodge their "demands," but this time, too, he pushed the wrong button and ended up again speaking to John Werth at Cleveland Center. Werth located the plane's primary radar return and tracked it as it altered course to the east and then to the south.²⁷²

At the same time that the *Quit* flight reached the nation's capital, and unbeknownst to NEADS personnel and the Langley pilots, the fourth and last plane hijacked on the morning of September 11 was in its final minutes of flight. Passengers and surviving crew aboard United Airlines Flight 93 had already begun an assault on the cockpit in an attempt to wrest control of the plane from the four hijackers who had commandeered the aircraft a little more than thirty minutes earlier.²⁷³ The plane crashed in a field near Shanksville, Pennsylvania, at 10:03:11 a.m. EDT.²⁷⁴ The NEADS air defenders did not learn until over three minutes later, in a telephone call from Cleveland Center's military liaison, that Flight 93 had even been hijacked.²⁷⁵

Delta Airlines Flight 1989

NEADS personnel had, however, heard about another possible hijack. Minutes after receiving the report of an unidentified aircraft near the White House and hearing Nasypany's AFIO declaration, NEADS identification technicians learned from the FAA military liaison at Boston Center of the possible hijacking of Delta Airlines Flight 1989, which was then flying south of Cleveland, Ohio.²⁷⁶ Its intentions were unknown, and it fit the profile of known hijacks up to this point on September 11. Like American Airlines Flight 11 and United Airlines Flight 175, the Delta plane was a Boeing 767 and had departed Boston's Logan Airport just minutes after the American and United flights, full of fuel for a transcontinental journey, to Los Angeles in the case of Flight 1989.²⁷⁷ But Delta Airlines Flight 1989, despite its similarities to the first two commandeered aircraft, was not a hijack at all. Its transponder had not been turned off or altered, and so FAA and NEADS personnel could find and track it easily; its cockpit crew

maintained communications with FAA air traffic controllers; and its alterations in course were a result of controllers' instructions to avoid colliding with the now-errant United Airlines Flight 93, the hijacking of which FAA staff were aware but of which military personnel remained in the dark.²⁷⁸

In accordance with NEADS antihijacking protocol checklists, NEADS personnel did two things with respect to Delta Airline Flight 1989 that were not done in connection with any of the aircraft hijacked on September 11. First, as they had done with more traditional hijackings in the past and in accordance with NEADS antihijacking protocol, the NEADS air defenders designated Delta Airlines Flight 1989 a "Special 15" classification to aid in its tracking. Second, they not only established a track on the Delta flight, Bravo 089, but they also "forward told" the flight's track to NORAD.²⁷⁹ Under agreed-upon procedures of the FAA and the Department of Defense, whenever a hijacking occurred within radar coverage of one of the NORAD air defense sectors, the sector would forward—or "forward tell"—reports on the position of the errant plane to the Cheyenne Mountain Operations Center.²⁸⁰

As Delta Airlines Flight 1989 continued south of Toledo and then over Detroit, heading toward Chicago—raising a concern about a possible attack on Sears Tower—Nasypany and his air defenders were contacting other Air National Guard bases in the Great Lakes region and beyond—beginning with Toledo, Syracuse, Duluth, and Selfridge—to inquire about scrambling fighters. With the two Otis fighters over New York City, and the three Langley fighters heading toward Washington, D.C., Nasypany and Marr had to look beyond this small complement to ask for assistance from units that were not part of the nation's air defense alert force. NEADS personnel mentioned, first, the 180th Fighter Wing, an Ohio Air National Guard unit based at Toledo Express Airport, as a possible source for additional aircraft, and the wing got two F-16s airborne at 10:17 a.m. EDT. Nasypany quickly obtained an offer from the 127th Wing, a Michigan Air National Guard unit at Selfridge Air National Guard Base, of two F-16s that were in the air on a training mission, on which they had already expended their ordnance.²⁸¹ Cleveland Center personnel then asked about which fighters were being sent to intercept Delta Airlines Flight 1989 and how long it would take. With fighters at Duluth unavailable, Nasypany called his counterpart at the Western Air Defense Sector, who agreed to bring two armed fighters up at Fargo.²⁸²

By 10:00 a.m., as a result of concerns over the status of Delta Airlines Flight 1989, two Selfridge fighters were already airborne, and Toledo and Fargo promised two more each. Also available to Nasypany would soon be two F-16s, with guns, from Springfield, Ohio, that were returning from deployment at the Alpena Combat Readiness Training Center, as well as fighters from the Atlantic City Air National Guard.²⁸³ Before ten minutes had passed, Nasypany's direct contact with the Western Air Defense Sector resulted also in an offer of two additional fighters at Sioux City, Iowa.²⁸⁴

Meanwhile, Delta Airlines Flight 1989's transponder continued to function properly, and NEADS and FAA personnel continued to follow its flight path.

It was, thus, the first questionable flight of the morning that might actually be intercepted by aerial forces—at least two of which had weapons aboard—before something untoward happened. It remained unclear, however, what if anything the pilots of those fighters should or could do if Flight 1989 proved to be a hijack or if it showed hostile intent. Seeking guidance from the battle cab as to rules of engagement, Nasypany asked, “That special track over the ... lake right now [Delta Airlines Flight 1989], so what are you gonna do with it, if it is [hijacked]... [?] What are we gonna do, I[’ve] got to give my guys direction[.]”²⁸⁵ This question remained unresolved for the entire attack period and for some time beyond.

At the same time that Nasypany and the battle cab were discussing what orders to pass to fighter pilots being scrambled against Delta Airlines Flight 1989, the NEADS identification section was learning from Cleveland Center that the flight was in fact not hijacked. An identification team member had called the center to tell controllers there that two fighters each from Selfridge and Toledo had been scrambled in response to the Delta flight. She was surprised to learn from a center staffer that the Delta pilot was not being hijacked and was landing at Cleveland airport “as a precaution because he took off from [Boston Logan.]”²⁸⁶

The simultaneous nature and speed of the 9/11 attacks made it increasingly difficult for the NEADS air defenders to keep an accurate count of the number of suspected hijackings. Misinformation about American Airlines Flight 11 being still airborne and about the possible hijacking of Delta Airlines Flight 1989 contributed to the fog of war. The pace of events slowed very briefly after the news from Cleveland Center that Flight 1989 was going to land without incident. But NEADS staff had at most only a few minutes’ respite before they received a report from a NORAD unit in Canada that a Canadian commercial airliner, a possible hijack possibly out of Montreal, might be headed south toward Washington, D.C.²⁸⁷ In the NEADS battle cab, Marr initially wanted New York Air National Guard fighters at Hancock Field, Syracuse, New York, to be sent against the Canadian flight.²⁸⁸

These plans changed quickly, however, when, within seconds, the NEADS air defenders faced a confirmed threat against a commercial aircraft much closer to home. Immediately after speaking with a Canadian NORAD staffer about the Canadian flight, a NEADS identification technician received from the military liaison at Cleveland Center a confirmed report of a bomb on board a non-transponding aircraft, United Airlines Flight 93. The military liaison asked about the possibility of redirecting to the last known location of the United flight the fighters from Selfridge and Toledo that had been scrambled against Delta Airlines Flight 1989. The terrible irony of this request was that, unbeknownst to Cleveland Center, United Airlines Flight 93 had crashed near Shanksville, Pennsylvania, more than three minutes earlier, at 10:03:11 a.m. EDT.²⁸⁹

Shortly thereafter, Nasypany received from the Syracuse Air National Guard unit a commitment to launch four fighters, with hot guns, in connection with the hunt for United Airlines Flight 93 and Delta Airlines Flight 1989.²⁹⁰ But a NEADS identification technician then learned from the FAA’s Washington Center that United Airlines Flight 93 had crashed.²⁹¹ The Syracuse fighters deployed at 10:44

a.m. EDT, more than forty minutes after Flight 93 crashed and more than fifteen minutes after the North Tower collapsed.²⁹²

The Immediate Post-Attack Period

The attacks of September 11, 2001, ended with the downing of United Airlines Flight 93, but no one knew that at the time. Nasypany, among others, had been concerned, after the strikes in New York City, that additional planes departing from Boston might be hijacked,²⁹³ and, later in the morning, that further attacks might be launched, in a cascading fashion, across the western time zones and perhaps overseas. Reports of additional possible hijackings and other suspicious incidents did continue for hours and even days thereafter.²⁹⁴

Just after Lt. Col. Timothy “Duff” Duffy and Maj. Daniel S. “Nasty” Nash were scrambled, six additional unarmed Otis F-15s had taken off on a training run to Warning Area 105. As they were flying over Martha’s Vineyard, Lt. Col. Jonathan Treacy, the commander of the 102d Fighter Wing’s 101st Fighter Squadron, ordered them to return to Otis immediately.²⁹⁵ By about 10:20 a.m., after Treacy had briefed the returning pilots about additional expected threats, a NEADS weapons controller called Otis Air National Guard Base on the scramble line and told personnel there to get all fighters in the air immediately. However, maintenance crews had discovered after the fighters returned from their training run that two of the six F-15s needed mechanical repairs before they could fly again. The four others—after all were refueled and at least some were armed—received orders to scramble and to establish combat air patrols over Boston. Thereafter, two of those fighters proceeded under orders to New York City “to work with, and then relieve” Duffy and Nash.²⁹⁶

District of Columbia Air National Guard F-16s of the 113th Wing, 121st Fighter Squadron, became involved in air defense operations over Washington, D.C., in the post-attack period. The 121st Fighter Squadron, based at Andrews Air Force Base, Maryland, was not an air defense alert unit.²⁹⁷ But its personnel nevertheless responded when, about twenty minutes after American Airlines Flight 77 hit the Pentagon, the squadron received a White House request for a combat air patrol over the nation’s capital.²⁹⁸ The first of the Andrews fighters was airborne at 10:38 a.m. EDT, about thirty-five minutes after United Airlines Flight 93 crashed in Pennsylvania and ten minutes after the North Tower collapsed. The actual request for the Andrews F-16s had come from the U.S. Secret Service, not from within the military chain of command, and the fighters were dispatched without the foreknowledge of NEADS, NORAD headquarters, or the military personnel at the National Military Command Center at the Pentagon. Unbeknownst to those entities, most of the Andrews pilots scrambled on September 11 operated under instructions—given by the Secret Service to the 113th Wing commander, Gen. David Wherley—that directed pilots “to protect the White House and take out any aircraft that threatened the Capitol.” Wherley took this guidance to mean that the pilots were to fly “weapons free,” that is, the shoot-down decision rested in the cockpit, specifically with the lead pilot, and he passed these orders to those pilots

who took off at and after 10:42 a.m. EDT. These rules of engagement were quite different from those fighters launched under NORAD direction and are indicative of the chaos and turbulence engendered by the 9/11 attacks.²⁹⁹

Epilogue

The scope, complexity, and outcome of the 9/11 attacks were shocking and, seemingly, new and unprecedented. However, much about the terrorist operation—its connections with previous acts of Islamist terrorism, its perpetrators, their motivations, their tactics, and their choice of targets—was not.

Of the nineteen hijackers, fifteen were Saudi nationals; two were United Arab Emirati nationals; one was a Lebanese national; and one, their leader, was an Egyptian national. The last, Mohammed Atta, was the operational head of al-Qaeda's 9/11 "martyrdom operation" and the hijacker-pilot of American Airlines Flight 11, which crashed into World Trade Center 1, the North Tower, in the first attack.³⁰⁰ Behind the 9/11 hijackers stood a wider circle of instigators, planners, and accomplices, including Islamist regimes in Sudan and later in Afghanistan that gave al-Qaeda safe harbor.

Even as the 9/11 attacks were unfolding, observers noted parallels to previous attacks planned by Osama bin Laden and executed by his al-Qaeda network,³⁰¹ particularly the coordinated, nearly simultaneous bombings of two U.S. embassies in Kenya and Tanzania on August 7, 1998. Those attacks had come eight years to the day after Operation Desert Shield began and the first U.S. forces—F-15 fighters from Langley Air Force Base, Virginia—arrived in Saudi Arabia to protect the kingdom against a possible invasion by Saddam Hussein.³⁰² In the eyes of bin Laden and other Islamists, U.S. and other non-Muslim coalition forces were modern-day crusaders desecrating holy soil, and the United States was replacing the collapsing Soviet Union as the enemy of Islam and as a threat to the region.³⁰³

Bin Laden's war against the United States had started earlier in the decade, when his rhetoric may have inspired, and al-Qaeda support may have facilitated, several prominent jihadist attacks against U.S. persons and interests. These deadly operations included the December 1992 hotel bombings in Aden, Yemen; the February 1993 bombing, masterminded by Ramzi Yousef, of the World Trade Center;³⁰⁴ the plot of May and June 1993, aided by Omar Ahmad Abdul Rahman, to destroy other landmarks in New York; the October 1993 killing of 18 U.S. soldiers in the Battle of Mogadishu, Somalia; the December 1994 explosion aboard a commercial jet flying from Manila to Tokyo, another of Yousef's plots, which killed one passenger; the November 1995 car bombing of the Saudi national guard facility in Riyadh, which killed five Americans; the June 1996 truck bombing of the U.S. sector of Khobar Towers housing complex in Dhahran, Saudi Arabia, which killed 19 members of the U.S. Air Force's 4404th Wing (Provisional) and wounded 500 more; and the November 1997 suicide attack and execution-style murders of 58 foreign tourists and 4 Egyptians at Queen Hatshepsut's temple near Luxor, Egypt.³⁰⁵

By mid-summer 1996, al-Qaeda was focusing less on supporting terrorist operations carried out by allied groups and more on executing actions supervised

by bin Laden or his senior aides.³⁰⁶ Bin Laden's fatwas, or religious rulings, of August 23, 1996³⁰⁷ and February 23, 1998³⁰⁸ declared war against the United States and his intention to launch attacks against U.S. military, civilians, and allies anywhere in the world. Thereafter, the U.S. government became increasingly aware of bin Laden's involvement in, and al-Qaeda's responsibility for, several deadly plots against the United States. These operations included the August 1998 East Africa embassy bombings, which injured 4,500 people and killed 224, including 12 Americans; planned attacks during the millennium period in the United States and elsewhere, including a bombing plot against Los Angeles International Airport that was thwarted with the December 1999 apprehension of Ahmed Ressam at Port Angeles, Washington; the January 2000 aborted suicide bombing against the U.S.S. *The Sullivans* in Aden; and the October 2000 suicide bombing of the U.S.S. *Cole* in Aden, which killed 17 U.S. sailors and injured 39 others.³⁰⁹

The 9/11 attacks were in some ways a traditional terrorist operation, launched on a country considered by radical Islamists to be their religion's archenemy. Bin Laden intended the attacks to devastate U.S. military power by destroying its foundation, the U.S. economy.³¹⁰ In an interview with the Arabic-language news network al-Jazeera in October 2001, bin Laden spoke proudly about the impact of the 9/11 attacks and the destruction of the World Trade Center towers:³¹¹ "The values of this Western civilization under the leadership of America have been destroyed. Those awesome symbolic towers that speak of liberty, human rights, and humanity have been destroyed. They have gone up in smoke."³¹²

But behind bin Laden's comments lay a view of history and of the world that he shared with several generations of radical Islamists. In their moral universe, time is compressed, and military victories and defeats, historical humiliations and triumphs of centuries past, are part of their everyday outlook.³¹³ These notions were far removed from the experience of most Americans. In a speech on September 20, 2001, to a joint session of Congress and the nation, President George W. Bush spoke for many of his fellow citizens when he asked, "[W]hy do they hate us?"³¹⁴

In the two decades before September 2001, the threat to U.S. citizens and interests had grown from a brand of terrorism inspired by a fundamentalist, extreme interpretation of Islam. Its adherents viewed God-given Islamic law, *sharia*, as the sole guide for the personal conduct of individuals and for the political behavior of governments. Islamists aimed, by violent means if necessary, to purify the Islamic world of what they considered the corruption, immorality, exploitative practices, and spiritual ignorance of non-Muslims and of secular Muslims. Islamist fundamentalists generally sought to restore the caliphate and revive the religion's traditions and laws; overthrow secular, pro-Western regimes; destroy the Arab-Israeli peace process and the Jewish state; and expel Western nationals, including U.S. military personnel, from the Middle East.³¹⁵

The forty years before the attacks of September 11, 2001, had seen increasingly deadly acts of violence carried out by international terrorist organizations against U.S. military personnel, diplomatic corps, aircraft, citizens, and interests overseas.

But in the 1970s and 1980s, such attacks were relatively infrequent and of limited effect.³¹⁶ Most terrorist groups were fairly small, and they and their state sponsors were motivated by ideology, politics, and domestic agendas.³¹⁷ In 1975, terrorism expert and RAND Corporation analyst Brian Jenkins wrote that “[T]errorists want a lot of people watching and a lot of people listening and not a lot of people dead.” Two decades later, however, Director of Central Intelligence James Woolsey argued that “[T]oday’s terrorists don’t want a seat at the table; they want to destroy the table and everyone sitting at it.”³¹⁸ The new terrorists were usually not just willing but eager to kill themselves as well.

In the intervening period, particularly after the departure of the Soviet Union from Afghanistan in 1989, a new paradigm of terrorism had begun to emerge. In the 1990s, the number of terrorist attacks decreased, but casualties increased. The number of terrorist organizations motivated by religious concerns increased, and their members, disinterested in trying to win over their opponents, viewed violence against their enemies as a sacred act and a divine obligation. Against this background, mass, indiscriminate casualties became a goal.³¹⁹

Exemplifying this new terrorism paradigm were the attacks planned or carried out against symbolic targets in the United States in the early 1990s by followers of Omar Abdul Rahman. The perpetrators, some of whom were U.S. citizens based largely in New Jersey, received religious sanction for their acts from Rahman, training or sanctuary in al-Qaeda–bin Laden facilities, or financial support from bin Laden.³²⁰ Their operations included the November 5, 1990 fatal shooting in Manhattan of Jewish extremist Meir Kahane by El-Sayyid Nosair;³²¹ the first World Trade Center bombing, on February 26, 1993, by Ramzi Yousef and other coconspirators, that killed six people, injured 1,042 others, and caused \$510 million in damage;³²² and the New York City landmarks multiple bomb plot, disrupted by the Federal Bureau of Investigation on June 23, 1993, for which Rahman and other defendants were later tried, convicted, and imprisoned in the United States.³²³

After the 1993 World Trade Center bombing, Yousef fled to the Philippines, where he was joined in the summer of 1994 by his uncle, Khalid Sheikh Mohammed. The two men developed Operation Bojinka, a scheme to blow up, over a two-day period over the Pacific Ocean, twelve passenger 747 aircraft of three major U.S. carriers. Investigations in the Philippines and in the United States later revealed that the plot also involved plans to assassinate President Bill Clinton, at the request of bin Laden; to murder Pope John Paul II; to bomb U.S.-bound cargo planes by detonating explosive-laden jackets smuggled aboard; and to crash an aircraft into the headquarters of the Central Intelligence Agency (CIA).³²⁴

The Bojinka plot, in its less well-known second wave, was later seen to have a strong parallel to the 9/11 attacks.³²⁵ It involved Khalid Sheikh Mohammed’s plan to crash aircraft into targets inside the United States, including, in New York, the World Trade Center; in the Washington, D.C. area, the Pentagon, the Capitol, and the White House; in San Francisco, the Transamerica Tower; in Chicago, the Sears Tower; and an unidentified nuclear plant.³²⁶ The Bojinka scheme to send suicide operatives to train at U.S. flight schools, to commandeer commercial aircraft, and

to fly them into high-profile U.S. targets became the sine qua non of the attacks of September 11, 2001.

In mid-1996, not long after bin Laden arrived in Afghanistan, Khalid Sheikh Mohammed briefed the al-Qaeda chief and his military commander, Mohammed Atef (Abu Hafs al-Masri), on several attack plans he and his nephew had developed in the summer of 1994 as part of the Bojinka plots. One scheme called for suicide hijackers, trained as pilots, to fly airplanes into buildings in the United States. Bin Laden declined Khalid Sheikh Mohammed's proposals. But bin Laden, apparently persuaded by Atef, decided in late 1998 or early 1999 to support the hijacker-pilot plot. The three men met several times in Kandahar in the spring of 1999 to choose targets for what was now called the "planes operation," and bin Laden began selecting suicide operatives.³²⁷

Suicide bombing attacks had sometimes been part of the old terrorism's arsenal, but they were also, increasingly, part of the new. Al-Qaeda operatives commonly referred to suicide attacks as "martyrdom operations."³²⁸ Those who volunteered for these missions believed that they were carrying out religiously justifiable—even obligatory—actions for their faith.³²⁹ The notion of training suicide operatives to kill a passenger jet's flight crew, to take over the controls, and then to use the commandeered plane as a guided missile was in some ways an innovation. However, earlier terrorists had hijacked or attempted to hijack a commercial aircraft intending to crash it into a city.³³⁰

The first such attempt to use a commercial aircraft as a weapon was made on September 5, 1986, by Palestinian suicide operatives hired by Libyan dictator Muammar Gaddafi to hijack Pan American Flight 73 and explode it over Tel Aviv, Israel.³³¹ Disturbed or disgruntled individuals, too, had tried to hijack aircraft in the United States and to use them as weapons. On February 22, 1974, Samuel Joseph Byck tried to hijack Delta Airlines Flight 523, intending to assassinate President Richard M. Nixon by forcing the Delta pilot to crash the plane into the White House.³³² Two decades later, in 1994, three other incidents received wide media coverage. The first, on April 7, involved Auburn Calloway, a Federal Express employee facing a disciplinary hearing, who assaulted the cockpit crew of FedEx Flight 705 in an attempt to gain control of the aircraft and crash it into a FedEx building in Memphis.³³³ In the second, on the night of September 11/12, Frank Eugene Corder flew a stolen Cessna under radar in an attempt to crash the plane into the White House.³³⁴ In the third, on December 24, four members of *Phalange of the Signers in Blood*, a subgroup of the Algerian terrorist organization *Armed Islamic Group*,³³⁵ boarded Air France Flight 8969, then awaiting takeoff from Algiers to Paris. Posing as security agents, armed and wearing Air Algerie identification badges, they checked passengers' passports, quickly closed and locked the doors, shouted "Allah is great!", and took over the aircraft. After the hijackers killed three hostages, Algerian authorities allowed the flight to take off. The hijackers rigged the Airbus A300 with explosives and ordered it flown to Marseille and loaded with twenty-seven tons of fuel, about three times more than what would be required to fly to Paris, their purported destination.³³⁶ On the ground at Marseille, the hijackers killed a fourth hostage on December 26. French

antiterrorism commandos then stormed the plane, killing the hijackers and freeing the passengers. French investigators learned from the surviving hostages and from other sources that the hijackers had planned to blow up the aircraft over Paris or to crash it into the Eiffel Tower.³³⁷ Ramzi Yousef was alleged to have ties to the Armed Islamic Group, and Philippine investigators reportedly found a copy of *Time* magazine's cover story on the foiled attack among his possessions when they searched his Manila bomb-factory apartment in January 1995.³³⁸

Throughout the 1990s, it became more apparent that al-Qaeda was a persistent and formidable adversary; that bin Laden had a longstanding intention to take his war to the United States; and that targets in New York City and the Washington, D.C., area were of particular interest.³³⁹

Al-Qaeda's increasingly ambitious attacks against U.S. persons and interests were similar to those that Rahman called for at the beginning of the decade.³⁴⁰ Officials in the Kahane murder investigation discovered a notebook of Nosair's, dated not later than 1990, that showed Rahman's possible inspiration for the World Trade Center attacks of 1993 and 2001. In it, a passage, probably copied from a speech by Rahman, called for "The breaking and destruction of the enemies of Allah ... by means of destroying exploding [sic], the structure of their civilized pillars such as the touristic infrastructure which they are proud of and their high world buildings which they are proud of and their statues which they endear and the buildings [in] which gather their head[s], their leaders..."³⁴¹

The evidentiary trail left after the first World Trade Center bombing in 1993³⁴² and a remark by Ramzi Yousef also suggested that the al-Qaeda network intended to attack targets in New York City and to return, most particularly, to the World Trade Center. Following his capture in Pakistan on February 7, 1995, Yousef was rendered that day to the United States aboard a U.S. Air Force aircraft.³⁴³ Authorities then flew him on an FBI helicopter to the Metropolitan Correctional Center in lower Manhattan. Along the way, one of the accompanying SWAT men had Yousef's blindfold removed and said, as they were flying alongside the World Trade Center, "You see, it's still standing." Yousef replied, "It wouldn't be if we had had more money."³⁴⁴

The destruction of the twin towers, for which Yousef had hoped and planned, was realized in the "planes operation" proposed by Khalid Sheikh Mohammed, supported by Mohammed Atef, and accepted by bin Laden. When the three men met in the spring of 1999 to select targets, Khalid Sheikh Mohammed suggested the World Trade Centers, to complete the work his nephew had begun.³⁴⁵ This time, the attackers would have more money. The appeal of the World Trade Center towers as targets for Islamist terror was constant and inalterable, from Rahman's call in 1990 to explode America's "civilized pillars" and "high world buildings" until Mohammed Atta and Marwan al-Shehhi crashed American Airlines Flight 11 and United Airlines Flight 175 into them on the morning of September 11, 2001.

Atef was killed in a U.S. air strike near Kabul, Afghanistan, in November 2001.³⁴⁶ Khalid Sheikh Mohammed was captured in Rawalpindi, Pakistan, in March 2003 and was then held in U.S. custody at Guantánamo Bay, Cuba.³⁴⁷ Bin Laden was killed in Abbottabad, Pakistan, by U.S. special forces in May

2011.³⁴⁸ Al-Qaeda's general command announced in mid-June 2011 that Ayman al-Zawahiri (b. 1951), bin Laden's longtime deputy, would take over as head of the network.³⁴⁹

Despite these setbacks and other losses and almost ten years after the 9/11 hijackings, al-Qaeda and allied groups remained keenly interested in attacking high-value U.S. targets, including commercial and general aviation. A dual U.S.-Yemeni citizen, Anwar al-Awlaki, and the Yemen-based organization, Al-Qaeda in the Arabian Peninsula (AQAP),³⁵⁰ were linked to the Christmas Day 2009 attempted bombing of Northwest Airlines Flight 235 over Detroit by Umar Farouk Abdulmutallab; to the October 2010 bomb plot against U.S. and other cargo and passenger planes; and to the May 2010 failed car bombing in New York's Times Square by another U.S. citizen, Faisal Shahzad.³⁵¹ Al-Awlaki had also been connected to three of the hijackers of American Airlines Flight 77 and to Nidal Malik Hasan, later a U.S. Army major and psychiatrist accused of thirteen counts of premeditated murder in the November 2009 massacre at Fort Hood, Texas.³⁵²

A decade after the attacks of September 11, 2001, the "new type of war" that had confronted NEADS air defenders that morning and the resulting new mission for U.S. Air Force pilots, the possible shoot-down of a U.S. passenger aircraft, were no longer new. Given the continuing and evolving terrorist threat against aviation, it was unlikely that either the war or the mission would end in the near future.

Notes

The shortened citation 9/11 Commission refers to the National Commission on Terrorist Attacks Upon the United States.

Unless otherwise indicated, all memoranda for the record (MFRs) refer to those prepared by the 9/11 Commission's Team 8, whose members investigated the national response to the attacks, including the air defense response. These MRFs summarize witness interviews (intvws) conducted by members of Team 8 and are held at the National Archives & Records Administration (NARA), in Record Group (RG) 148: Records of Commissions of the Legislative Branch, 1928–2007, Center for Legislative Archives, Washington, D.C.

The shortened citation *Final Report* refers to *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States* (Washington, D.C.: U.S. Government Printing Office, 2004).

The shortened document-collection citation *Electronic Briefing Book* refers to The National Security Archive, The September 11th Sourcebooks, National Security Archive *Electronic Briefing Book*, identified by book number and document number.

1. Listed as al-Qaeda in John L. Esposito, editor in chief, *The Oxford Dictionary of Islam* (Oxford: Oxford University Press, 2003), p 252.
2. Lawrence Wright, *The Looming Tower: Al-Qaeda and the Road to 9/11* (New York: Alfred A. Knopf, 2007), pp 72 and 393–94 (endnote for p 72 about the lack of definitive information on bin Laden's date of birth). The White House, President Barack H. Obama, Office of the Press Secretary, Remarks by the President on Osama Bin Laden, The White House, East Room, Washington, D.C., May 2, 2011, 11:35 p.m. EDT [<http://www.whitehouse.gov/the-press-office/2011/05/02/remarks-president-osama-bin-laden>, accessed May 2, 2011].
3. Wright, *The Looming Tower*, pp 235–36, 307–308.
4. Dan Eggen and Vernon Loeb, "U.S. Intelligence Points To Bin Laden Network," *Washington Post*, Sep 12, 2001, p A1.
5. Early in the afternoon of Sep 11, 2001, Senator Chuck Hagel (R-Neb.) told reporters that the 9/11 attacks were "the second Pearl Harbor". Quote of Hagel in Jake Tapper, "Bush, challenged," Salon.com, Sep 12, 2001 [<http://www.salon.com/politics/feature/2001/09/11/bush/print.html>, accessed Jun 12, 2008].
6. Michael Grunwald, "Bush Promises Retribution; Military Put on Highest Alert," *Washington Post*, Sep 12, 2001, p A1.
7. Information on the security of the U.S. civil aviation system from *Staff Monograph on the Four Flights and Civil Aviation Security*, 9/11 Commission Staff Report dated Aug 26, 2004, 2d version, released by the DoJ on Sep 12, 2005, Part II: "Civil Aviation Security and the 9/11 Attacks," p 53f., and p 102, endnote 426 [<http://www.archives.gov/legislative/research/9-11/staff-report-sept2005.pdf>, accessed Mar 3, 2008; <https://nsarchive2.gwu.edu/NSAEBB/>

NSAEBB148/911%20Commission%20Four%20Flights%20Monograph.pdf, accessed Oct 26, 2017]. (The 2d version contains less redacted information than did the 1st version, released on Jan 28, 2005.) Additional information from Michael Bronner, “9/11 Live: The NORAD Tapes,” *Vanity Fair*, Aug 2006 [<http://www.vanityfair.com/politics/features/2006/08/norad200608>, accessed May 1, 2008]; Scot J. Paltrow, “Government Accounts of 9/11 Reveal Gaps, Inconsistencies,” *Wall Street Journal Online*, Mar 22, 2004 [http://online.wsj.com/article_print/0,,SB107991342102561383,00.html, accessed Mar 21, 2004]; “September 11: Chronology of terror,” CNN.com, Sep 12, 2001, posted 12:27 p.m. EDT [<http://archives.cnn.com/2001/US/09/11/chronology.attack/index.html>, accessed Sep 5, 2007]; Andrea Stone, “Pentagon’s ‘primary mission’ now homeland defense,” *USA Today*, Sep 30, 2001, updated 10:07 p.m. E[DT] [<http://www.usatoday.com/news/sept11/2001/09/30/pentagon-review.htm>, accessed Jul 9, 2008]; *Quadrennial Defense Review Report*, Department of Defense, Sep 30, 2001 [<http://www.comw.org/qdr/qdr2001.pdf>, accessed Jul 9, 2008]; and Dana Milbank, “White House Staff Switches Gears,” *Washington Post*, Sep 17, 2001, p 25. General information from *Final Report*, pp 4, 14, 32, and 33 and p 452, endnote 24, citing NTSB report, “Air Traffic Control Recording—American Airlines Flight 11,” Dec 21, 2001; p 457, endnote 89, citing Flight 93 FDR and CVR data; full details on p 456, endnote 70, NTSB report, “Specialist’s Factual Report of Investigation—Digital Flight Data Recorder” for UAL Flight 93, Feb 15, 2002; FBI report, “CVR from UA Flight #93,” Dec 4, 2003.

8. *Final Report*, p 46 (quote) and p 466, endnote 241, citing NEADS audio file, Identification Technician (ID Tech) position, recorder 1, channel 4, 10:02:22 [a.m. EDT]. In another source, Bianchi’s words are rendered as “A new type of war, that’s what it is.” Quote from “9/11 NEADS Tape Transcription, DRM 1, DAT 2, Channel 4, ID Op,” transcribed by Janet S. Dickens from the audiotapes provided [by the 9/11 Commission] to Alderson Reporting, p 39, n.d. [<http://www.scribd.com/doc/14142075/NYC-Box-3-Neadsconrnorad-Fdr-Transcript-Neads-Channel-4-Id-Op>, accessed Dec 11, 2009]. SMSgt Steve Bianchi was working as an MCC Tech at NEADS on Sep 11, 2001. MFR of the intvw of Steve Bianchi of NEADS, 10/27/2003, ARC Identifier 2610368 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00769.pdf>, accessed Jan 27, 2009].

9. White House, transcript, “The Vice President appears on Meet the Press with Tim Russert,” Camp David, Md., Sep 16, 2001 [<http://www.whitehouse.gov/vicepresident/news-speeches/speeches/vp20010916.html>, accessed Aug 27, 2008].

10. A future longer work will include an updated epilogue and will discuss in greater detail these and other topics:

The hijackers. Their tactics and the complexity, speed, nature of the attacks.
The FAA. When did the FAA determine that a flight had been hijacked, and when did the FAA so inform NORAD/NEADS? How the FAA viewed and verified hijacking: Common Strategy; dependence upon clues from pilots.

The personal/professional experience of the ATCs and supervisors; degree of knowledge of if not hijacking protocol at least of existence of NORAD/NEADS. The inertia at FAA HQ. The lack of knowledge of hijacking protocol on the part of senior leadership; lower levels of management and working-level employees took the initiative. Several ATCs had had experience as USAF ATCs.

The USAF/NORAD/NEADS. The state of the air defense system: where was the threat; technology available; the size and heavy use of the airspace; force size and resources devoted.

Interagency. The tradition/experience of interagency cooperation/coordination. FAA and NORAD: exercises; past hijackings; communications.

Fog of war: Senior civilian and military leadership. Misinformation and miscommunication. A great handicap: from the media (on which everyone, up to the highest levels, depended); from the FAA Centers to NEADS, etc. The lack of coordination/communication: Airlines-FAA-NORAD-NMCC (absent)-SECDEF (absent)-many senior leaders absent or unreachable.

11. Lynn Spencer, author of *Touching History: The Untold Story of the Drama That Unfolded in the Skies over America on 9/11* (New York/London/Toronto/Sydney: Free Press, 2008) pointed out the importance of analyzing who, specifically, at NEADS was notified, when, and by whom at FAA, again, specifically. Intvw, Dr. Priscilla D. Jones with Lynn Spencer, Apr 3, 2009, Air Force Historical Studies Office (AFHOH), Bolling AFB, D.C.

12. North American Aerospace Defense Command, "NORAD History," n.a., n.d. [<http://www.norad.mil/AboutNORAD/NORADHistory.aspx>, accessed Nov 12, 2013]. Leslie Filson, *Air War Over America: Sept. 11 alters [sic: the] face of [sic: the] air defense mission* (Tyndall AFB, Fla.: Headquarters 1st [sic] Air Force, Public Affairs Office, 2003), pp v, 5, 6, 24, 34, 42, 50, 52, and 71.

13. *Ibid.*, p v. Ted Jackovics, "Post-9/11 air defense gaps leave cities on fringes of response time," *Tampa Tribune*, TBO.com, Tampa Bay Online, Apr 19, 2010 [<http://www2.tbo.com/content/2010/apr/19/post-911-air-defense-has-gaps/news-politics/>, accessed Apr 12, 2011].

14. MFR of a visit to 119th Fighter Wing, U.S. Air Force, 10/7/2003, ARC Identifier 2610272 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00677.pdf>, accessed Oct 27, 2009]; MFR of an intvw with Donald J. Quenneville, USAF, 1/7/2004, ARC Identifier 2610515 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00916.pdf>, accessed Oct 27, 2009]. *Final Report*, p 17.

15. U.S. General Accounting Office, National Security and International Affairs Division, Report to Congressional Committees, *Continental Air Defense: A Dedicated Force Is No Longer Needed*, GAO/NSIAD-94-76, May 3, 1994, Richard Davis, Director, National Security Analysis, pp 4, 9, 14–16, quotes on p 15.

16. *Ibid.*, p 2.

17. *Ibid.*, p 1.

18. *Ibid.*, pp 1 and 2, quote on p 2.

19. On Nov 27, 2002, President George W. Bush signed Public Law 107-306, the legislation establishing the National Commission on Terrorist Attacks

Upon the United States, more commonly known as the 9/11 Commission. The commission closed on Aug 21, 2004. Thomas H. Kean and Lee H. Hamilton, with Benjamin Rhodes, *Without Precedent: The Inside Story of the 9/11 Commission* (New York: Alfred A. Knopf, 2006), pp 34–40, 350; and 9/11 Commission website frozen on Sep 20, 2004, at 12:00 a.m. EDT, and now a federal record managed by NARA [<http://govinfo.library.unt.edu/911/archive/index.htm>, accessed Dec 20, 2007]. With respect to the end date of the 9/11 Commission, cf., U.S. Department of Transportation (DoT), Office of the Secretary of Transportation, Office of Inspector General (OIG), “Results of OIG Investigation of 9/11 Commission Staff Referral,” Aug 31, 2006, Project ID: CC-2006-085, attaching a memorandum from Todd J. Zinser, Acting Inspector General, to the [unnamed] Acting Secretary, Federal Aviation Administrator, Aug 31, 2006, subj: ACTION: Results of OIG Investigation of 9/11 Commission Staff Referral. The Zinser memorandum cites Daniel Marcus, 9/11 Commission general counsel, referral letter to the DoD and DoT Inspectors General, Jul 29, 2004, as stating that the 9/11 Commission would “sunset” on Aug 26, 2004 [<http://www.oig.dot.gov/item.jsp?id=1881>, accessed Nov 19, 2007].

20. *Final Report*, “Notes,” p 449. Kean and Hamilton, *Without Precedent*, p 257.

21. *Final Report*, pp 4, 7, 8, 10, 14. *Staff Monograph on the Four Flights and Civil Aviation Security*, 9/11 Commission Staff Report dated Aug 26, 2004, 2d version, released by the U.S. Department of Justice on Sep 12, 2005, Part I: “‘We Have Some Planes’: The Four Flights—a Chronology,” pp 6, 7, 15, 18, 19, 24, 28, 29, 34, 35, 36, 46 [<http://www.archives.gov/legislative/research/9-11/staff-report-sept2005.pdf>, accessed Mar 3, 2008; <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB148/911%20Commission%20Four%20Flights%20Monograph.pdf>, accessed Oct 26, 2017]. “9/11 Commission Records,” web page, NARA [<http://www.archives.gov/research/9-11-commission>, accessed Feb 11, 2008]. Federal Aviation Administration (FAA), FAA Registry, Aircraft, N-Number Inquiry Results, as follows:

For American Airlines Flight 11: http://registry.faa.gov/aircraftinquiry/NNum_Results.aspx?NNumbertxt=334AA.

For United Airlines Flight 175: http://registry.faa.gov/aircraftinquiry/NNum_Results.aspx?NNumbertxt=612UA.

For American Airlines Flight 77: http://registry.faa.gov/aircraftinquiry/NNum_Results.aspx?NNumbertxt=644AA.

For United Airlines Flight 93: http://registry.faa.gov/aircraftinquiry/NNum_Results.aspx?NNumbertxt=591UA.

All accessed Sep 29, 2009, after being brought to author’s attention by Mike Williams (of 911myths.com) email to P. D. Jones, Sep 29, 2009, 1:04 p.m. EDT.

22. Philip Shenon, *The Commission: The Uncensored History of the 9/11 Investigation* (New York and Boston: Twelve, 2008), p 118. Department of Defense (DoD), Inspector General [IG], memorandum from Shelton R. Young, Deputy Inspector General for Intelligence, to the [unnamed] Under Secretary of Defense for Intelligence, Sep 12, 2006, subj: Report on Review of Testimony to

the National Commission on Terrorist Attacks Upon the United States (Report No. 06-INTEL-12), and referring to a Mar 2004 letter written to the 9/11 Commission by the commanding general of NORAD. The unnamed general, who was in fact Gen Ralph E. Eberhart, USAF, acknowledged that the 9/11 Commission's revised timeline was accurate.

23. *Final Report*, pp 20 and 21, and p 458, particularly endnotes 115 and 116, citing FAA memo, "Full Transcript; Aircraft Accident; AAL11; New York, NY; September 11, 2001," Apr 19, 2002, p 5, and FAA and NEADS intvws. Bronner, "9/11 Live: The NORAD Tapes."

24. Rountree fielded the phone call from the FAA's New York Center on Long Island. Bronner, "9/11 Live: The NORAD Tapes," quote from ID Tech SA Stacia Rountree at 9:03:17 a.m. [EDT]. *Final Report*, p 23 and p 460, endnote 134. The 9/11 Commission relied here on FAA and NEADS intvws, rather than on the NEADS operations floor audio files, the sources for Bronner's article.

25. *Final Report*, p 26 and p 461, endnote 148, citing NEADS audio file, ID Tech position, channel 7, 9:21:10 a.m.

26. Bronner, "9/11 Live: The NORAD Tapes," NEADS audio tape, 8:56:31 a.m. [EDT].

27. Bronner, "9/11 Live: The NORAD Tapes." *Final Report*, p 27 and p 461, endnotes 151 and 154, citing NEADS audio files and intvws; and 9/11 Commission analysis of FDR [flight data recorder], air traffic control, radar, and Pentagon elevation and impact site data.

28. "Scene of utter destruction," *Pittsburgh Tribune-Review*, Sep 12, 2001 [http://www.pittsburghlive.com/x/pittsburghtrib/s_12940.html, accessed Sep 24, 2008]. *Final Report*, pp 30 and 31, and p 462, endnotes 171, 173, and 174, citing NEADS audio files and log book.

29. *Final Report*, Chapter 1, "'We Have Some Planes.'" Email, Miles Kara to Priscilla D. Jones, Jun 6, 2011, 5:36 p.m. EDT, in author's possession, noting that AAL 11 impact time was "between 1 and 2 radar sweeps earlier than the NTSB [National Transportation Safety Board] time" [of 8:46:40]. "September 11: Chronology of terror," CNN.com/U.S., Sep 12, 2001, 12:27 p.m. EDT (1627 GMT) [<http://edition.cnn.com/2001/US/09/11/chronology.attack/>, accessed Jul 3, 2018].

30. MFR, 119th Fighter Wing visit. According to the *Final Report*, this fifth aircraft was an unarmed training jet.

31. Early media reports and government agency news releases on the nature, timing, and effectiveness of the air defense response launched on the morning of Sep 11, 2001, were often incomplete, imprecise, misleading, or inaccurate. Despite their often problematic nature, these preliminary reports and releases, together with the faulty timelines presented by the FAA and NORAD in the days following the attacks and in public testimony months and years later, had a substantial effect on public opinion. By the time the 9/11 Commission began its investigations in early 2003, public views of the air defense response had hardened significantly. Factual errors in early news reports, government statements, and public testimony on this matter were not easily corrected, and

the resulting misperceptions on the part of the public were not easily revised. However, as the years passed, the print and internet publication of and extensive media commentary on the commission's staff reports, public hearings, and the 9/11 Commission's *Final Report* offered the public an opportunity to garner a more accurate understanding of the attacks and of the air defense response they provoked. Notable in this regard also were the OIG reports of the DoT and DoD, published in complete or redacted versions beginning in Aug 2006.

32. *Final Report*, p 20 and pp 458–59, endnotes 115–120, citing, e.g., 9/11 Commission intvws of CONR, NEADS, Otis Air National Guard Base, and FAA personnel; and NEADS audiotapes. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 8:37:52 a.m. [EDT].

33. *Final Report*, pp 26–27 and p 461, endnotes 148–150, citing NEADS intvw and audio files: ID Tech position, channel 7, 9:21:10 a.m. EDT; mission crew commander, channel 2, 9:21:50 and 9:22:34 a.m. EDT.

34. John Raidt, “Memo for Record,” re: FAA Ops [Operations] Center [a.k.a. Washington Operations Complex (WOC), FAA Headquarters] Visit, date of visit: Jun 4, 2003 [<http://www.scribd.com/doc/17053249/T8-B1-FAA-Command-Center-Briefing-6403-Fdr-3-MFRs-and-2-Withdrawal-Notices-710>], accessed Nov 3, 2009].

35. *Final Report*, p 45.

36. Robert D. McFadden, “U.S. Details Careful Plan Of Hijacker,” *New York Times*, Feb 13, 1993, section 1, p 23 [<http://www.nytimes.com/1993/02/13/nyregion/us-details-careful-plan-of-hijacker.html>], accessed Mar 24, 2009]. The hijacking of Lufthansa Airlines Flight 592 was the first trans-Atlantic act of air piracy since Sep 1976. 9/11 Commission, undated, unsigned miscellaneous working papers re flights, response tables, timelines: information on Lufthansa Airlines Flight 592 and table comparing Lufthansa Airlines Flight 592 and American Airlines Flight 11, made available on the internet by Scribd.com [<http://www.scribd.com/doc/13723810/T8-B16-Misc-Work-Papers-Fdr-4-Stapled-Pgs-Re-Flights-Response-Tables-Time-Lines-Summary-134>], accessed May 27, 2009]. *Criminal Acts Against Civil Aviation 1993*, annual report (Washington, D.C.: FAA, Office of Civil Aviation Security), p 28.

37. MFR of the intvw of Robert Marr of NEADS, 1/23/2004, ARC Identifier 2610366 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00767.pdf>], accessed Jan 21, 2009]. Spencer, *Touching History*, pp 26–27.

38. MFR of the NEADS briefing with Shelley Watson, Stacie Roundtree [sic: Stacia Rountree], [Maureen] Dooley, Fred Davies of NEADS, 10/27/2003, ARC Identifier 2610357 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00762.pdf>], accessed Jan 21, 2009]. This MFR actually covers Robert Marr's initial briefing to 9/11 Commission staff.

39. Duffy later told 9/11 Commission staff that another lieutenant colonel, Ramsey [first name not indicated], was the lead on the Lufthansa scramble. MFR of an intvw with Timothy Duffy of the United States Air Force, 1/7/2004, ARC Identifier 2610514 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00915.pdf>], accessed Jun 18, 2009]. Intvw, Troy Johnson and Bruce Stewart (First Air

Force History Office (1 AF/HO)) and Dr. Mary Dixie Dysart (AFHRA/RS) with Col Tim Duffy, Tyndall AFB, Fla., Aug 12, 2009. Spencer, *Touching History*, p 29. Michael D. Doubler, *The National Guard and the War on Terror: The Attacks of 9/11 and Homeland Security* (Washington, D.C.: National Guard Bureau, Office of Public Affairs, Historical Services Division, May 1, 2006), p 22.

40. McFadden, "U.S. Details Careful Plan Of Hijacker." MFR of the intvw with James Fox of NEADS, 10/29/2003, ARC Identifier 2838506 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01256.pdf>, accessed Jun 19, 2009].

41. 9/11 Commission, working papers, Lufthansa Airlines Flight 592 and American Airlines Flight 11.

42. MFR of the intvw of Joe McCain of NEADS, 10/28/2003 (intvw continued on 1/20/2004), ARC Identifier 2610356 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00761.pdf>, accessed Feb 3, 2009].

43. Spencer, *Touching History*, p 26.

44. Chairman of the Joint Chiefs of Staff Instruction [CJCSI], "Aircraft Piracy (Hijacking) and Destruction of Derelict Airborne Objects," CJCSI 3610.01A, Jun 1, 2001 [http://www.dtic.mil/doctrine/jel/cjcsd/cjcsi/3610_01a.pdf, accessed Aug 19, 2008]. This instruction canceled CJCSI, "Aircraft Piracy (Hijacking) and Destruction of Derelict Airborne Objects," CJCSI 3610.01, Jul 31, 1997.

45. FAA order, "Special Military Operations," Order 7610.4J, effective Nov 3, 1998; includes changes effective Jul 3, 2000, and Jul 12, 2001: Chapter 7. Escort of Hijacked Aircraft, Section 1. General, Paragraph 7-1-1. Purpose [<http://web.archive.org/web/20011122232504/www.faa.gov/ATpubs/MIL/Ch7/mil0701.html>, accessed Apr 1, 2009].

46. *Ibid.*, Ch 7, Para 7-1-1, Subparas a., b., and c.; and Para 7-1-2. Requests for Service.

47. FAA order, "Air Traffic Control," Order 7110.65M, effective Oct 28, 1999; includes change effective Jul 12, 2001: Chapter 10. Emergencies. Direct quotes from Section 1. General, Paragraph 10-1-3. Providing Assistance [<http://web.archive.org/web/20010710181612/www.faa.gov/ATpubs/ATC/Chp10/atc1001.html>, accessed Apr 1, 2001]. Ch 10. Emergencies, Section 2. Emergency Assistance, Paragraph 10-2-1. Information Requirements; Paragraph 10-2-5. Emergency Situations; and Paragraph 10-2-6. Hijacked Aircraft [<http://web.archive.org/web/20010820151925/www.faa.gov/ATpubs/ATC/Chp10/atc1002.html>, accessed Apr 1, 2009].

48. As the CJCSI of Jun 1, 2001, in particular made clear, the chains of command were lengthy. Information about a confirmed hijacking and any request from the FAA for military assistance from NORAD had to pass through several layers of notification and approval, from the air traffic control level up to and down from the office of the secretary of defense. *Final Report*, pp 17 and 18 and p 458, endnote 102, citing, e.g., FAA report, "Crisis Management Handbook for Significant Events," Feb 15, 2000. FAA order, "Air Traffic Control," Order 7110.65M, Ch 10. Emergencies, Section 2. Emergency Assistance, Para 10-2-6. Hijacked Aircraft. MFR of the intvw of Terry Biggio of the FAA,

9/22/2003, ARC Identifier 2610753 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01153.pdf>, accessed Jan 27, 2009].

49. MFR of the intvw of Paul Worcester of the USAF, 10/14/2003, ARC Identifier 2610513 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00914.pdf>, accessed Oct 27, 2009].

50. Among others, MFRs of the intvws of Jeffrey Philips of the FAA, 9/25/2003, ARC Identifier 2610227 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00633.pdf>, accessed Feb 4, 2009] and of Anthony Schifano of the FAA, 9/24/2003, ARC Identifier 2610229 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00635.pdf>, accessed Feb 5, 2009].

51. Boston Air Route Traffic Control Center (ARTCC) traffic management unit supervisor Daniel D. Bueno, an FAA veteran of almost 20 years, recalled that before 9/11, he had never trained for a scenario involving a NORAC [no radio communication] hijack. MFR of the intvw of Daniel D. Bueno of the FAA, 9/22/2003, ARC Identifier 2610739 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01139.pdf>, accessed Jan 27, 2009].

52. MFR of the intvw of William Dean of the FAA, 9/22/2003, ARC Identifier 2610745 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01145.pdf>, accessed Jan 30, 2009].

53. Before the 9/11 attacks, FAA training programs required for air traffic controllers, such as the Dynamic Simulation (DynSim) and computer-based instruction courses (CBI), were predicated on the notion that pilots would be able to communicate with controllers in hijack situations. In fact, in pre-9/11 FAA hijack exercise simulations, pilots were able to inform air traffic controllers of their circumstances by verbally confirming transponder code “7500” for hijackings, “7600” for malfunctioning transponders, and “7700” for emergencies. MFR of the intvw of Toby Miller of the FAA, 9/22/2003, ARC Identifier 2610744 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01144.pdf>, accessed Feb 4, 2009]. MFR, Biggio intvw.

In the hijack scenarios included in the annual or twice-a-year courses, air traffic controllers received from pilots the standard hijack code and were not required to determine, through any other means, whether or not a hijack was underway. MFR of the intvw of John Werth of the Cleveland ARTCC, 10/1/2003, ARC Identifier 2609744 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00158.pdf>, accessed Feb 9, 2009].

54. *Final Report*, pp 4–5 (American Airlines Flight 11), p 7 (United Airlines Flight 175), p 8 (American Airlines Flight 77), and p 11 (United Airlines Flight 93).

55. MFR, Biggio intvw.

Air traffic control staff at Boston ARTCC, some of whom had USAF experience, disagreed about the applicability of FAA Dyn-Sim and CBI hijack training for air traffic controllers to the circumstances of the 9/11 attacks and about whether training scenarios included multiple hijacks and FAA-NORAD intercept procedures. One Boston ARTCC air traffic control supervisor told 9/11 Commission staff that while DynSim training programs usually had a

yearly hijack scenario, the scenarios included neither multiple hijacks nor a single hijack that required controllers to vector a military fighter in response. MFR of the intvw of Shirley Kula of the FAA, 9/22/2003, ARC Identifier 2610752 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01152.pdf>, accessed Feb 3, 2009]. The Boston ARTCC operations manager in charge agreed that training exercises had not required air traffic controllers to practice FAA-NORAD intercept procedures. In his view, no pre-9/11 planning, simulated training scenario, or real-life scenario mirrored the circumstances of the attacks, but Boston ARTCC controllers on duty that day were experienced, seasoned professionals who had, over the years, developed the instincts to deal successfully with a variety of crisis situations. MFR, Biggio intvw. But one of their colleagues, a Boston ARTCC air traffic controller with USAF experience, implied that, in fact, the yearly FAA training was relevant to the 9/11 attacks. He told commission staff that he believed that “multiple [hijack] situations are practiced in the DynSim and CBI training, and also believes that a situation with the multiple factors that occurred on 9/11 has been practiced.” MFR of the intvw of Richard Beringer of the FAA, 9/22/2003, ARC Identifier 2610741 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01141.pdf>, accessed Jan 27, 2009].

Air traffic control staff at New York ARTCC generally agreed about the inapplicability of FAA hijack training for air traffic controllers to the circumstances of the 9/11 attacks. A New York ARTCC air traffic control operations supervisor with 23 years’ air traffic control experience told commission staff that all of his training scenarios dealt with single, not multiple, hijacks. MFR of the intvw of Charles Alfaro of the FAA, 9/30/2003, ARC Identifier 2610763 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01163.pdf>, accessed Jan 26, 2009]. Another New York ARTCC air traffic controller recalled that the hijacking content in DynSim exercises was not extensive and that training scenarios were “vastly different” from the 9/11 hijackings. All pre-9/11 training was based on the pilot remaining in control of the aircraft. In some scenarios, the pilot might employ a code word or even explain the situation when possible. MFR of the intvw of Lorraine Barrett of the FAA, 10/1/2003, ARC Identifier 2610774 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01174.pdf>, accessed Jan 27, 2009].

56. MFR of the intvw of Steven Roebuck of the FAA, 9/22/2003, ARC Identifier 2610743 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01143.pdf>, accessed Feb 5, 2009].

57. MFR, Roebuck intvw.

58. MFR, Beringer intvw.

Rosenberg, one of the longest serving FAA employees on 9/11 and one of the traffic management unit supervisors at the New York ARTCC that morning, had worked as a USAF air traffic controller before becoming an FAA controller in 1969. MFR of the intvw of Rosenberg [no first name indicated] of the FAA, 10/1/2003, ARC Identifier 2610768 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01168.pdf>, accessed Feb 5, 2009].

59. Boston ARTCC traffic management unit supervisor Daniel D. Bueno

recalled that before 9/11, there had not been such a joint FAA-NORAD simulation or exercise. MFR, Bueno intvw.

However, his Boston ARTCC colleague, military operations specialist Colin Scoggins, a former F-4 crew chief, believed that a joint FAA/military exercise conducted “in 1995 or 1996 ... involved a military scramble to escort a hijacked aircraft, and the fighter was unable to intercept.” MFR of the intvw of Collin [sic] Scoggins of the FAA, 9/22/2003, ARC Identifier 2610747 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01147.pdf>, accessed Feb 5, 2009].

60. Richard Byard, a 17-year veteran air traffic controller and controller in charge at the Indianapolis ARTCC on 9/11, had participated, in the years before the attacks, in annual training-simulator exercises involving hijack situations. In none of the exercises did Byard encounter a suicide hijacker. MFR of the intvw of Richard Byard of the FAA, 9/24/2003, ARC Identifier 2610222 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00628.pdf>, accessed Jan 27, 2009].

According to John Werth, a 30-year veteran air traffic controller at the Cleveland ARTCC on 9/11 who was briefly involved in the search for United Airlines Flight 175 and American Airlines Flight 77, and who handled both Delta Airlines Flight 1989 and United Airlines Flight 93, FAA training exercises did not prepare controllers for multiple hijackings or for suicide hijackings, and no one ever discussed such a scenario or possibility. MFR, Werth intvw.

61. *Staff Monograph on the Four Flights and Civil Aviation Security*, Part II, p 53.

62. *Ibid.*, directly quoting FAA briefing, Office of Civil Aviation Security, “The Transnational Threat to Civil Aviation,” 2001 CD-ROM Terrorism Threat Presentation to Aviation Security Personnel at Airports and Air Carriers, Slide 24, as cited in the *Staff Monograph* on p 102, endnote 424.

63. *Final Report*, Chapter 8, “The System Was Blinking Red,” p 264 and p 535, endnote 47, citing FAA briefing, Office of Civil Aviation Security, “The Transnational Threat to Civil Aviation,” Slide 24 [https://9-11commission.gov/report/911Report_Ch8.pdf, accessed Aug 20, 2007].

64. Quotes from MFR of the intvw of Don Dillman of American Airlines, 11/18/2003, ARC Identifier 2609594 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00008.pdf>, accessed Feb 2, 2009].

65. FAA order, “Air Traffic Control,” Order 7110.65M, Ch 10. Emergencies, Section 1. General, Para 10-1-1. Emergency Determinations, Subpara c.

66. FAA order, “Air Traffic Control,” Order 7110.65M, Ch 10. Emergencies, Section 2. Emergency Assistance, Para 10-2-1. Information Requirements, Subpara a.

67. FAA order, “Air Traffic Control,” Order 7110.65M, Ch 10. Emergencies, Section 1. General, Para 10-1-2. Obtaining Information.

68. FAA order, “Air Traffic Control,” Order 7110.65M, Ch 10. Emergencies, Section 2. Emergency Assistance, Para 10-2-6. Hijacked Aircraft.

69. John Werth, Cleveland ARTCC, directly quoted in MFR, Werth intvw.

70. *Final Report*, p 16 and p 457, endnote 95, citing FAA Boston [Air Route Traffic Control] Center site visit (Sep 22–24, 2003). The full citation for this

document is as follows: MFR of the staff visit to Boston [Air Route Traffic Control] Center [Nashua, N.H.], New England Region [Burlington, Mass.], of the FAA, 9/22/2003, ARC Identifier 2610754. MFR, Werth intvw. MFR, Biggio intvw.

The views of ten-year veteran New York ARTCC air traffic controller Mark Merced, through whose airspace American Airlines Flight 11 passed on September 11, 2001, were typical. He told 9/11 Commission staff that, prior to the 9/11 attacks, “he would have expected the pilot of a hijacked aircraft to covertly communicate the situation by using a hijack transponder code ... or through a verbal code.” Further, “it was often that an aircraft would not be in constant contact with the air traffic controller, and that this was no reason to assume the aircraft was undergoing a hijack.” Additionally, in the event of a lost transponder signal, “an air traffic controller would have ... [thought] that there was something electrical wrong with the aircraft.” If an aircraft deviated from its planned course, he “would have thought that there was an emergency and the pilot was headed for the nearest airport.” Finally, the authority to notify the military [to request an escort] or [the FAA command center at] Herndon rested not with the air traffic controller but with the supervisor for his or her area. MFR of the intvw of Mark Merced of the FAA, 10/1/2003, ARC Identifier 2610767 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01167.pdf>, accessed Feb 4, 2009].

Charles Alfaro, a 23-year veteran air traffic controller and operations supervisor at the New York ARTCC, had a slightly different take on the standard protocol. In his experience, incidents involving lost transponders occurred about one a month and were not cause for alarm. Nevertheless, controllers would inform their supervisors immediately. The combination of a loss of communications and a loss of transponder was much less frequent, occurring about once a year. The combination of a loss of communications, loss of transponder, and a significant course deviation was “very rare.” Alfaro was one of the few air traffic controllers who were reinstated and continued an FAA career after being fired by President Ronald Reagan in 1981. MFR, Alfaro intvw.

Kevin Delaney, a 22-year veteran air traffic controller, military operations specialist, and quality assurance office supervisor at the New York ARTCC, believed that a controller would associate, at least initially, even the combination of course deviation, loss of communications, and loss of transponder with an electrical or mechanical failure. A malfunctioning transponder alone might lead to a drastic course deviation. However, the possibility of a hijack “would eventually ‘creep’ back into the controller’s thought process.” MFR of the intvw of Kevin Delaney of the FAA, 9/30/2003, ARC Identifier 2610766 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01166.pdf>, accessed Jan 30, 2009].

71. FAA order, “Air Traffic Control,” Ch 10. Emergencies, Section 2. Emergency Assistance, Para 10-2-6. Hijacked Aircraft, Subpara b. Among others, MFR, Philips intvw; MFR, Schifano intvw. MFR of the intvw of Randy Kath of the FAA, 9/25/2003, ARC Identifier 2610224 [[69](http://media.nara.gov/9-</p></div><div data-bbox=)

11/MFR/t-0148-911MFR-00630.pdf, accessed Feb 3, 2009]. MFR, Alfaro intvw. See also other MFRs: Hartling (ATC notifies supervisor for the area); Jiricek (ATC notifies first line supervisor, who “takes steps from there.”); and Dean (ATC responds “to signals from the cockpit ... by relaying the information to the supervisor.”).

72. *Final Report*, p 458, endnote 102, citing, e.g., David Bottiglia intvw (Oct 1, 2003) and FAA report, “Crisis Management Handbook for Significant Events,” Feb 15, 2000. MFR, Alfaro intvw.

73. *Final Report*, p 18 and p 458, endnote 103, citing FAA regulations, Special Military Operations, Requests for Service, Order 7610.4J, paras. 7-1-1, 7-1-2 (2001); DoD memo, CJCS instruction, “Aircraft Piracy (Hijacking) and Destruction of Derelict Airborne Objects,” Jun 1, 2001.

74. *Final Report*, p 18 and p 458, endnote 104, citing, e.g., Ralph Eberhart intvw (Mar 1, 2004); Alan Scott intvw (Feb 4, 2004). MFR, Marr intvw.

75. FAA order, “Special Military Operations,” Order 7610.4J, Ch 7. Escort of Hijacked Aircraft, Section 2. Escort Procedures, Para 7-2-3. Vectors.

76. *Final Report*, p 18.

77. Kean and Hamilton, *Without Precedent*, pp 265, 267.

78. Miles Kara, a retired U.S. Army colonel and former 9/11 Commission Team 8 staff member, pointed out the military aspects of the 9/11 attacks in his insightful research paper, “A Framework for Analysis,” article on his 9-11 Revisited website, n.d. [http://www.oredigger61.org/?page_id=10, accessed Sep 30, 2009].

79. *Final Report*, pp 20 and 21, and p 458, particularly endnotes 115 and 116, citing FAA memo, “Full Transcript; Aircraft Accident; AAL11,” p 5, and FAA and NEADS intvws. See also Bronner, “9/11 Live: The NORAD Tapes.”

80. *Final Report*, pp 1–2, 4–7. Emails, Miles Kara to P. D. Jones, Jun 6, 2011, 5:36 p.m. and 10:19 p.m. EDT; and Jun 7, 2011, 1:20 p.m. EDT.

81. AAL ignored an instruction to climb.

82. Tabular information on all four flights’ transponders from the *Final Report*, p 454, endnote 54, citing FAA report, “Summary of Air Traffic Hijack Events: September 11, 2001.”

83. Perhaps a typographical error. Shown as 1224:56 [UTC] [0824:56 a.m. EDT] in Joseph A. Gregor, “Specialist’s Report,” Air Traffic Control (ATC) Recording: American Airlines Flight 11, Dec 21, 2001. National Transportation Safety Board (NTSB), Vehicle Recorders Division, Washington, D.C. *Electronic Briefing Book* No. 196, posted Aug 11, 2006, Doc 5 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB196/doc05.pdf>, accessed Apr 30, 2008].

84. Precise time not mentioned in the *Final Report*. Source here is FAA, “Summary of Air Traffic Hijack Events, September 11, 2001,” Sep 17, 2001, 6:30 a.m., *Electronic Briefing Book* No. 165, posted Sep 9, 2005, Doc 7. [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB165/faa7.pdf>, accessed Apr 24, 2009]. Time shown as 08:26:30 a.m. EDT in Jim Ritter, Chief, Vehicle Performance Division, “Flight Path Study—American Airlines Flight 11,” Feb 19, 2002. NTSB, Office of Research and Engineering, Washington, D.C.

Electronic Briefing Book No. 196, posted Aug 11, 2006, Doc 1 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB196/doc01.pdf>, accessed Apr 30, 2008].

85. Time shown as 1233:59 [UTC] [0833:59 a.m. EDT] in Gregor, “Specialist’s Report,” ATC Recording: AAL 11. *Electronic Briefing Book* No. 196, Doc 5.

86. FAA Registry, Aircraft, N-Number Inquiry Results: N334AA [AAL 11]. Don Dillman of American Airlines told 9/11 Commission staffers that American Airlines Flight 11 was a Boeing 767-200. MFR, Dillman intvw.

87. *Final Report*, p 4 and p 452, endnotes 22–24, citing, e.g., American Airlines documents, 9/11 Commission analysis of NTSB and FAA air traffic control and radar data, and NTSB reports on air traffic control recordings.

88. American Airlines Flight 11 took a 20-degree turn as instructed. MFR, Kula intvw.

89. This section is based on the *Final Report*, pp 18–20, and p 458, endnotes 106 and 107, citing intvws of Boston ARTCC staffers Peter Zalewski, Terry Biggio, Colin Scoggins, and Daniel Bueno; and FAA memo, “Full Transcript; Aircraft Accident; AAL11” [http://www.9-11commission.gov/report/911Report_Ch1.pdf, accessed Aug 20, 2007].

90. The “guard” frequency was an open emergency frequency “used for the entire Boston Center airspace.” Direct quote from MFR, Kula intvw.

91. Peter Zalewski and several of his Boston Center colleagues later told 9/11 Commission staffers that American Airlines Flight 11 was actually a “NORAC”—not “NORDO”—aircraft. A pilot of a NORDO (“no radio”) aircraft was in control of the plane but was unable, perhaps because of malfunctioning radio equipment or other technical reason, to communicate with air traffic controllers. A pilot of a NORAC (“no radio communication”) aircraft had a working radio but was deliberately not communicating with controllers. MFR of the intvw of Peter Zalewski of the FAA, 09/22/2003, ARC Identifier 2610750 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01150.pdf>, accessed Feb 9, 2009]. MFR, staff visit to Boston Center. Schippani’s name is listed as Jonathan Schippani in DoT, FAA, “Report of Aircraft Accident,” Report Date: Nov 13, 2001; Report No. ZBW-ARTCC-148; Reporting Facility: Boston (ZBW) ARTCC; Aircraft Type and Identification: Boeing 767-200 (B762), AAL11; Date/Time of Accident (GMT): Sep 11, 2001, 1246 UTC. *Electronic Briefing Book* No. 165, posted Sep 9, 2005, Doc 6 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB165/faa6.pdf>, accessed Apr 29, 2008].

92. MFR, Zalewski intvw. MFR, Schifano intvw. Shirley Kula, an air traffic controller supervisor working a radar associate position on 9/11, told 9/11 Commission staff that “it was usual to have a NORAC (no radio communication) airplane in that sector”. MFR, Kula intvw.

93. DoT, FAA, “Report of Aircraft Accident,” Nov 13, 2001. MFR, Zalewski intvw. MFR of the intvw of Brazilino Martens [spelled Martins in above-mentioned DoT, FAA, “Report of Aircraft Accident,” Nov 13, 2001] of the FAA, 9/22/2003, ARC Identifier 2610755 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01155.pdf>, accessed Feb 3, 2009]. MFR, Kula intvw. MFR,

Beringer intvw.

94. 9/11 Commission, unmarked, undated draft chapter 7, “A New Kind of War: The Four Flights, the Attacks, and the Defense of the Homeland on September 11,” [pp 7–9]. RG 148, NARA, citing transcript ZBW-ARTCC-148, 20R, at 5-7 and 6-7. MFR of the intvw of John Hartling of the FAA, 9/22/2003, ARC Identifier 2610738 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01138.pdf>, accessed Feb 2, 2009]. DoT, FAA, Lucius V. Free, Support Specialist, Training/Quality Assurance, Boston ARTCC, Memorandum, ZBW [Boston]-ARTCC-148, AAL11, subj: Information: Full Transcript; Aircraft Accident; AAL11; New York, NY; September 11, 2001; from Boston ARTCC to Aircraft Accident File ZBW-ARTCC-148, Jan 28, 2002, attaching transcript covering the Boston ARTCC Kingston Sector, Sector 20, Radar Position [John Hartling] from 1231–1244 UTC, Sep 11, 2001, information from transcript at 1237:40 (U.S. Air Flight 583) and 1238:05 (United Airlines Flight 175) UTC [8:37:40 and 8:38:05 a.m. EDT] [<http://www.scribd.com/doc/14142132/T8-B3-Boston-Center-John-Hartling-Fdr-Transcript-Boston-ARTCC-Kingston-Sector-20-Radar-Position-12311244-UTC-Pgs-211-of-11-Total-in-File>, accessed Jul, 20, 2009].

95. According to the FAA, the final transponder return from AAL 11 was at 1220:48 UTC (8:20:48 EDT). Coordinated Universal Time (UTC) is the international time standard. It is the current term for what was commonly referred to as Greenwich Mean Time (GMT). On Sep 11, 2001, UTC time was four hours ahead of Eastern Daylight Time. The 9/11 Commission rounded up that time to 8:21 a.m. EDT. DoT, FAA, “Report of Aircraft Accident,” ZBW-ARTCC-148. *Final Report*, p 18.

96. DoT, FAA, “Report of Aircraft Accident,” Nov 13, 2001. DoT, FAA, “Summary of Air Traffic Hijack Events,” Source: AAT-20, *Electronic Briefing Book* No. 165, Doc 7. *Final Report*, pp 16, 18. MFR, Martens intvw. Don Phillips, “Radar screen blip raised suspicions[: Unidentified jet’s transponder had been deactivated],” *Washington Post*, Sep 12, 2001 [<http://www.chicagotribune.com/news/nationworld/chi-0109120177sep12,0,6023488.story>, accessed Apr 23, 2009].

97. Because the primary target had been tagged, “the data block of the last known information stayed with the primary.” MFR of the intvw of Joseph Cooper of the FAA, 9/22/2003, ARC Identifier 2610740 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01140.pdf>, accessed Jan 30, 2009].

It is unclear whether Boston Center controllers manually, or their computers automatically, gave a data tag to the AAL 11 primary target. Peter Zalewski explained to the 9/11 Commission staff “that when a transponder goes off the computer will *automatically* attribute a data tag with a call sign to the primary.” MFR, Zalewski intvw.

However, William Dean told staffers that “When tagging a primary, ... the ATC [air traffic controller] must *manually* select the primary target, and associate a data block with that target.” MFR, Dean intvw.

In any event, AAL 11 “received a flight data tag and was under primary

tracking” while it was still in the center’s Area C airspace. MFR of the intvw of Alan Miller of the FAA, 9/22/2003, ARC Identifier 2610737 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01137.pdf>, accessed Feb 4, 2009].

98. Bronner, “9/11 Live: The NORAD Tapes.”

99. “Radar shows plane headed straight for Pentagon,” *USA Today*, Associated Press, Sep 21, 2001, updated 12:38 p.m. E[DT] [<http://www.usatoday.com/news/nation/2001/09/21/plane-pentagon.htm>, accessed Apr 24, 2009]. Matthew L. Wald, “Controllers Say Flow of Information on Hijacked Planes’ Course Was Slow and Uneven,” *New York Times*, Sep 13, 2001 [<http://www.nytimes.com/2001/09/13/national/13AVIA.html?pagewanted=print>, accessed May 13, 2009].

100. Despite Kevin Delaney’s experience in the military operations specialist position at New York ARTCC during Desert Storm (1990–1991), “he was not aware that certain military radar facilities could read altitude on a primary target.” MFR, Delaney intvw.

101. Bronner, “9/11 Live: The NORAD Tapes.” “Transcripts from Voice Recorder, 11 September 2001, 1227Z[Zulu or UTC]-1417Z, Northeast Air Defense Sector (NEADS), Rome, NY,” DRM 1, Dat 2, Channel 4 ID1—OP Position [<http://www.scribd.com/doc/18664001/T8-B20-NEADS-Trip-2-of-3-Fdr-Transcript-NEADS-Rome-NY-DRM-2-Dat-2-Pg-183-ColorCoded>, accessed Oct 7, 2009].

102. *Staff Monograph on the Four Flights and Civil Aviation Security*, Part I, p 10.

103. *Final Report*, pp 18–19 and p 458, endnotes 107 and 108, citing DoD radar files, 84th Radar Evaluation Squadron, “9/11 Autoplay,” n.d.; and Peter Zalewski and John [sic: Jon or Jonathan] Schippani intvws (Sep 22, 2003).

104. DoT, FAA, Karen L. Goff, Quality Assurance Technician, Boston ARTCC, Memorandum, ZBW [Boston]-ARTCC-148, AAL11, subj: Information: Full Transcript; Aircraft Accident; AAL11; New York, NY; September 11, 2001; from Boston ARTCC to Aircraft Accident File ZBW-ARTCC-148, Feb 15, 2002, attaching transcript covering the Boston ARTCC Boston Sector, Sector 46, Radar Position [Peter Zalewski] from 1204–1240 UTC, Sep 11, 2001, direct quote from transcript [<http://www.scribd.com/doc/13950352/T8-B3-Boston-Center-Peter-Zalewski-Fdr-ARTCC-Transcript-Sector-46-Re-AA-11-We-Have-Some-Planes>, accessed Oct 6, 2009].

105. *Staff Monograph on the Four Flights and Civil Aviation Security*, Part I, p 10.

106. DoT, FAA, Goff memo, Feb 15, 2002, attaching transcript, Boston Sector, Sector 46, Radar Position [Zalewski], direct quote from transcript.

107. Ritter, “Flight Path Study—American Airlines Flight 11,” *Electronic Briefing Book* No. 196, Doc 1.

108. DoT, FAA, Goff memo, Feb 15, 2002, attaching transcript, Boston Sector, Sector 46, Radar Position [Zalewski], direct quote from transcript.

109. *Final Report*, p 6.

110. The descent began at 8:37:30 a.m. EDT and was flown at an average rate

of about 3,200 feet/minute. Ritter, “Flight Path Study—American Airlines Flight 11,” *Electronic Briefing Book* No. 196, Doc 1.

111. During a twenty-five-minute call to personnel at the American Airlines Southeastern Reservations Office in Cary, North Carolina, AAL 11 coach cabin attendant Betty Ong said that no announcements were made over the public address system aboard the plane. Federal Bureau of Investigation (FBI), memorandum from Charlotte [North Carolina], Raleigh Resident Agency, to Director’s Office, Attn: SIOC, dated Sep 13, 2001. FBI, FD-302s reflecting intvw of Vanessa Dias Minter, dated and transcribed Sep 12, 2001; and of Michael Woodward, dated Sep 11, 2001, transcribed Sep 12, 2001 [Both documents: <http://www.scribd.com/doc/24393263/T7-B13-Flight-Call-Notes-and-302s-Folder-Entire-Contents>, accessed Jan 4, 2010].

112. *Staff Monograph on the Four Flights and Civil Aviation Security*, Part I, p 10. *Final Report*, p 6.

113. *Final Report*, pp 7 and 21 and p 454 and 459, endnotes 42 and 122. Direct quote from transcript of aircraft-ground communication from takeoff to accident time on Sep 11, 2001, in Gregor, “Specialist’s Report,” ATC Recording: United Airlines Flight 175, Dec 21, 2001. NTSB, Vehicle Recorders Division, Washington, D.C. *Electronic Briefing Book* No. 196, posted Aug 11, 2006, Doc 7 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB196/doc07.pdf>, accessed Apr 30, 2008]. Immediately thereafter, at 8:42 a.m. EDT, Bottiglia passed the information from UAL 175 to Boston Center radar associate William Dean. DoT, FAA, “Report of Aircraft Accident,” Nov 13, 2001. MFR of the intvw of David Bottiglia of the FAA, 10/01/2003, ARC Identifier 2610771 <http://media.nara.gov/9-11/MFR/t-0148-911MFR-01171.pdf>, accessed Jan 27, 2009].

114. *Staff Monograph on the Four Flights and Civil Aviation Security*, Part I, p 10. MFR, Zalewski intvw.

115. *Final Report*, p 19. MFR of the intvw of Robert Jones of the FAA, 9/22/2003, ARC Identifier 2610742, [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01142.pdf>, accessed Feb 3, 2009]. MFR, Biggio intvw. Biggio’s notification to the Regional Operations Center (ROC) came at about 9:03 a.m., according to the *Staff Monograph on the Four Flights and Civil Aviation Security*, Part II, p 15, citing Peter Zalewski intvw, Sep 23 [sic: 22], 2003. But in his intvw, Zalewski said nothing about Biggio or anyone else alerting the ROC. MFR, Zalewski intvw.

116. *Final Report*, p 458, endnote 102. MFR, Biggio intvw.

117. Direct quote from MFR, staff visit to Boston Center. MFR, Bueno intvw.

118. Personnel Statement, FAA, Boston ARTCC, ZBW-ARTCC-148, AAL11, Daniel D. Bueno, Sep 11, 2001 [<http://www.scribd.com/doc/14142139/T8-B3-Boston-Center-Terry-Biggio-Fdr-Dan-Bueno-FAA-Personnel-Statement-and-Handwritten-Notes>, accessed Oct 15, 2009].

119. At FAA headquarters, for example, the head of Civil Aviation Security Intelligence (ACI) told the Civil Aviation Security Operations (ACO) duty officer at 8:45 a.m. that the Washington Operations Center (WOC) was reporting that American Airlines Flight 11 “may have an intruder in the cockpit.” Air

traffic controllers had no radio contact with the aircraft, but the “pilot is keying the microphone and threatening comments are overheard.” FAA, “Executive Summary Chronology of a Multiple Hijacking Crisis September 11, 2001,” Sep 17, 2001. *Electronic Briefing Book* No. 165, posted Sep 9, 2005, Doc 5. [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB165/faa5.pdf>, accessed Apr 29, 2008].

120. MFR of the intvw of Robert C. McLaughlin of the FAA, conducted by Team 7, 6/03/2004, ARC Identifier 2610312 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00717.pdf>, accessed Feb 3, 2009].

121. At 8:35 a.m. EDT, the Washington Operations Center at FAA headquarters received a call from ANE/Barry O’Connor [Regional Operations Center operations officer] about the possible hijacking of AAL 11, indicating that the “pilot [was] keying mike” and that there was an “intruder in cockpit”. DoT, FAA, “Chronology [FAA Headquarters] ADA-30 [McKie], Operations Center: Terrorist Attacks NY-DC 9/11/01”. *Electronic Briefing Book* No. 165, posted Sep 9, 2005, Doc 1 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB165/faa1.pdf>, accessed Dec 13, 2007]. O’Connor had apparently just received from Terry Biggio of Boston Center the report that the pilot of AAL 11 “keyed mike while threat was being made in the cockpit” and, further, that the “Crew ... turned transponder off.” DoT, FAA, New England Regional Operations Center daily log, Sep 11, 2001. *Electronic Briefing Book* No. 165, posted Sep 9, 2005, Doc 2 [<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB165/faa2.pdf>, accessed Dec 13, 2007].

122 Mark Clayton, “Controllers’ Tale of Flight 11,” *Christian Science Monitor*, Sep 13, 2001 [<http://www.csmonitor.com/2001/0913/p1s2-usju.html>, accessed Apr 30, 2008]. Eric Lichtblau, “Aboard Flight 11, a Chilling Voice,” *Los Angeles Times*, latimes.com, Sep 20, 2001 [<http://web.archive.org/web/20010929230742/http://latimes.com/news/nationworld/nation/la-092001hijack.story>, accessed Feb 20, 2009].

123. MFR, Toby Miller intvw.

124. MFR, Jones intvw. MFR, staff visit to Boston Center.

125. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST: air surveillance technician], 13:03:07 [9:03:07 a.m. EDT], 13:04:30–13:04:58 [9:04:30–9:04:58 a.m. EDT], direct quote at 13:04:58 [9:04:58 a.m. EDT].

126. MFR, Bueno intvw.

127. DoT, FAA, “Report of Aircraft Accident,” Nov 13, 2001.

128. MFR of the intvw of Jon Schippani of the FAA, 9/22/2003, ARC Identifier 2610749 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-01149.pdf>, accessed Feb 5, 2009]. MFR, Bottiglia intvw.

129. MFR, staff visit to Boston Center.

130. MFR, Alfaro intvw.

131. MFR, Bueno intvw. MFR, Biggio intvw. MFR of site visit to FAA to listen to audio of the FAA, 6/12/2003, ARC Identifier 2609835 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00243.pdf>, accessed Feb 5, 2009]. DoT,

FAA, “Summary of Air Traffic Hijack Events,” *Electronic Briefing Book* No. 165, Doc 7. Personnel Statement, FAA, Boston ARTCC, Bueno, Sep 11, 2001.

Personnel Statement, FAA, Boston ARTCC, ZBW-ARTCC-148, AAL11, Terry Biggio, Sep 15, 2001 [<http://www.scribd.com/doc/13950370/T8-B3-Boston-Center-Terry-Biggio-Fdr-FAA-Personnel-Statement>, accessed Oct 15, 2009].

132. DoT, FAA, Karen L. Goff, Quality Assurance Technician, Boston ARTCC, Memorandum, ZBW [Boston]-ARTCC-148, AAL11, subj: Information: Full Transcript; Aircraft Accident; AAL11; New York, NY; September 11, 2001; from Boston ARTCC to Aircraft Accident File ZBW-ARTCC-148, Apr 19, 2002, attaching transcript covering the Boston ARTCC Boston TMU [Traffic Management Unit] Severe Weather Position [Daniel D. Bueno] from 1222–1250 UTC, Sep 11, 2001. See 1228:45–1229:34 UTC [8:28:45–8:29:34 a.m. EDT] [<http://www.scribd.com/doc/13950333/T8-B3-Boston-Center-Colin-Scoggins-Fdr-ARTCC-Transcript-TMU-Severe-Weather-Position-AA-11>, accessed Jul 20, 2009].

133. *Final Report*, p 19; p 458, endnotes 111 and 112.

134. Personnel Statement, FAA, Boston ARTCC, Bueno, Sep 11, 2001. Personnel Statement, FAA, Boston ARTCC, ZBW-ARTCC-148, AAL11, Colin Scoggins, Sep 20, 2001 [<http://www.scribd.com/doc/13950342/T8-B3-Boston-Center-Colin-Scoggins-Fdr-Chronology-of-Events-and-FAA-Personnel-Statement-Wasnt-in-a-Rush-Went-to-the-Credit-Union-First>, accessed Oct 15, 2009]. John Farmer, *The Ground Truth: The Untold Story of America under Attack on 9/11* (New York: Riverhead Books, 2009), p 117. In a teleconference with Herndon Command Center, Bueno told New York TRACON (N90) traffic management unit at 8:40:39 a.m. EDT [1240:39 UTC] that Boston Center believed that AAL 11 was “in the descent” and that that was why the plane was losing speed “very rapidly”. DoT, FAA, Goff memo, Apr 19, 2002, attaching transcript, Boston TMU Severe Weather Position [Bueno], direct quote from transcript at 1240:39 [8:40:39 a.m. EDT].

135. MFR, staff visit to Boston Center.

136. MFR, Bueno intvw.

137. This is suggested by DoT, FAA, Goff memo, Apr 19, 2002, attaching transcript, Boston TMU Severe Weather Position [Bueno]. See 1234:33–1234:56 UTC [8:34:33–8:34:56 a.m. EDT].

138. *Ibid.*, direct quotes from 1235:18 UTC [8:35:18 a.m. EDT] and 1235:14 UTC [8:35:14 a.m. EDT], respectively. Spence made the assurances to Bueno beginning at 1235:24 UTC [8:35:24 a.m. EDT]. Goff’s memo and the Severe Weather Position transcript refer to Cape TRACON as Cape Approach. MFR of the intvw of Steven Walsh of the FAA, 9/30/2003, ARC Identifier 2609848 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00256.pdf>, accessed Feb 9, 2009]. MFR of the intvw of Tim Spence of the FAA, 9/30/2003, ARC Identifier 2609846 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00254.pdf>, accessed Feb 5, 2009]. Personnel Statement, FAA, Boston ARTCC, Bueno, Sep 11, 2001.

139. MFR, Walsh intvw.

140. Filson, *Air War Over America*, p 51. MFR, Marr intvw. MFR, Quenneville intvw.

141. Spencer, *Touching History*, p 22.

142. Direct quote from Personnel Statement, FAA, Boston ARTCC, Scoggins, Sep 20, 2001.

143. Dean told 9/11 Commission staffers that Boston Center could contact NEADS “in less than 15 seconds, but [he] noted that getting in touch with NEADS and communicating the urgency of the situation, then getting an actual response[, were] ... two very different timetables.” Direct quotes from MFR, Dean intvw.

144. Transcribed from audiotape links in Bronner, “9/11 Live: The NORAD Tapes.” See also “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 14, 12:37:24 [8:37:24 a.m. EDT].

Bronner shows the Cooper-Powell exchange beginning at 8:37:52 a.m. EDT. According to the 9/11 Commission, the NTSB determined that the NEADS clock was 25 seconds slow on the morning of Sep 11. This should have meant that the Cooper-Powell exchange began at 8:37:49, but commission records show it beginning at 8:37:52. 9/11 Commission staff excerpts of various transcripts relating to AAL 11, n.d. [<http://www.scribd.com/doc/18664546/T8-B21-NEADS-Floor-2-of-3-Fdr-Excerpts-From-TapesTranscripts-Re-AA-11-282>, accessed Oct 28, 2009].

The FAA time stamp on this exchange “is within a few seconds of the NEAD [sic] time stamp, an approximate 15 second variation.” The FAA tape of the Cooper-Powell and the Cooper-Deskins conversations “makes up for [the loss of the NEADS tape damaged in transcription] ... for the period 8:39:45–8:41:42. That period accounts for Major [Dawne] Deskins trying to establish a location for AA11 [American Airlines Flight 11] and confirms that she is talking to Joe [Joseph] Cooper. ...” MFR, site visit to FAA.

145. MFR, McCain intvw.

146. MFR, Cooper intvw. MFR, Fox intvw.

147. Bronner, “9/11 Live: The NORAD Tapes.” MFR, McCain intvw.

148. See, e.g., MFR of the intvw of Dawne Deskins of NEADS, 10/30/2003, ARC Identifier 2610377 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00778.pdf>, accessed Feb 2, 2009]; and Bronner, “9/11 Live: The NORAD Tapes.”

149. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, e.g., at 13:08:23 and 13:09:37 [9:08:23 a.m. and 9:09:37 a.m. EDT].

150. MFR, Deskins intvw.

151. Direct quotes from “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 14, 12:39:00–12:39:35 [8:39:00–8:39:35 a.m. EDT].

152. Bronner, “9/11 Live: The NORAD Tapes.” MFR, Deskins intvw.

153. The Otis tower was staffed by contractors, not by military personnel. MFR, Walsh intvw. Spence estimated that he made his calls between 8:36 and 8:40 or 8:41 a.m. MFR, Spence intvw.

154. Spence, at Cape TRACON, did not recall whom he spoke with at the operations desk. MFR, Spence intvw. Spence was back on the phone with Dan Bueno at 1243:08 UTC [8:43:08 EDT] and told him that Otis required a NEADS authorization; Bueno replied that Boston Center was already working with NEADS personnel to that end. And indeed, Spence was able to tell Bueno seconds later that Panta 45 and 46 would be airborne soon. In the meantime, as Bueno explained to Spence, Boston Center staff had already contacted the NEADS air defenders. DoT, FAA, Goff memo, Apr 19, 2002, attaching transcript, Boston TMU Severe Weather Position [Bueno]. See 1243:08–1243:32 UTC [8:43:08–8:43:32 a.m. EDT].

155. “[Otis] Historian’s Report for Sept. 11, 2001, By TSgt Bruce Vittner,” n.d. [<http://www.scribd.com/doc/13653185/T8-B16-Miles-Kara-Work-Files-Otis-Langley-1-of-2-Fdr-Historians-Report-for-Sept-11-2001-by-TSgt-Bruce-Vittner>, accessed Jul 16, 2009].

156. MFR of the intvw of Michael Kelly of the U.S. Air Force, 10/14/2003, ARC Identifier 2610511 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00912.pdf>, accessed Jun 25, 2009].

157. As noted above, Joseph Cooper had called TSgt Jeremy Powell. MFR, Spence intvw.

The Otis Command Post log gives 8:38 a.m. [EDT] as the time for the call to Woody, and according to Vittner, “[Otis] Historian’s Report,” the call to Woody was made by Otis Tower. In fact, however, the call to Woody had to have begun earlier, because according to the NEADS transcript, Kelly’s call to McCain began at 12:38:15 UTC [8:38:15 a.m. EDT]. Kelly told Vittner and 9/11 Commission staffers that he gave the NEADS number to Boston Center, but Spence told commission staffers that Kelly gave *him* the NEADS number. Spence’s phone call with the NEADS staffer ended at 8:41 a.m. EDT. Both sides of many of the communications among FAA employees and between FAA and NEADS personnel were recorded on Sep 11, 2001. But the calls that Spence, for example, made on a commercial telephone that day were not recorded, at least on his end. This accounts for a five-minute gap in the transcript of his recorded communications after his conversation with Daniel Bueno. MFR, Spence intvw. Vittner, “[Otis] Historian’s Report.” MFR, Kelly intvw.

Spence told 9/11 Commission staffers that Otis Tower gave him a telephone number for either the Otis base operations desk or for the supervisor of flying desk, and that someone at one of those desks gave him the number for NEADS. Vittner’s report indicates that, in fact, the base operations desk was involved in both actions. Michael Kelly’s MFR supports Vittner’s report.

158. MFR, Kelly intvw. Spencer, *Touching History*, p 155.

159. 9/11 Commission staff concluded that “According to available transcripts[,] the Cooper call directly to NEADS [Powell] and the Otis tower call [sic: Kelly at Otis Command Center] to NEADS [McCain] based on Bueno’s call reached NEADS at nearly the same time, approximately 0838 EDT.” MFR, staff visit to Boston Center. Cooper called Powell at 8:37:24 a.m. EDT, and Kelly called McCain at 8:38:15 a.m. EDT. Sources are as follows, respectively:

“Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 14, 12:37:24 [8:37:24 a.m. EDT] and DRM 2, Dat 2, Channel 2 MCC-OP, 12:38:15 [8:38:15 a.m. EDT].

160. DoT, FAA, Francis A. MacDonald, Jr., Air Traffic Manager, Cape TRACON, Memorandum, subj: Information: Partial Transcript; Presidential 9/11 Commission Inquiry; from Manager, Cape TRACON, K90-1, to Presidential 9/11 Commission, Oct 10, 2003, attaching transcript covering the Cape TRACON Supervisor’s position from 1229–1253 UTC, Sep 11, 2001. See 1241: 32 [8:41:32 a.m. EDT] [http://aal77.com/faa/faa_atc/otis/5%20K90%206%20PARTIAL%20TRANSCRIPTS%203%20POSITIONS%20FLIGHT%20DATA,%20SUPERVISORS%20CONSOLE,%20HIGH%20AR.PDF, accessed Nov 4, 2004].

161. Direct quote from MFR, Spence intvw.

162. MFR, Duffy intvw. Transcript, Johnson-Stewart-Dysart intvw of Duffy. Spencer, *Touching History*, pp 27–28. MFR of the intvw of Daniel S. Nash of the U.S. Air Force, 10/14/2003, ARC Identifier 2610510 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00911.pdf>, accessed Nov 10, 2009]. Filson, *Air War Over America*, p 50.

163. Vittner, “[Otis] Historian’s Report.” Direct quote from transcript, Johnson-Stewart-Dysart intvw with Duffy.

164. Direct quote from transcript, Johnson-Stewart-Dysart intvw with Duffy.

165. Transcript, Johnson-Stewart-Dysart intvw with Duffy. Vittner, “[Otis] Historian’s Report.” Matt Viser, “Two pilots revisit their 9/11,” *Boston Globe*, boston.com, Sep 11, 2005 [http://www.boston.com/news/local/Massachusetts/articles/2005/09/11/two_pilots_revisit_their_911/, accessed Aug 19, 2008]. Spencer, *Touching History*, pp 28–30.

166. Transcript, intvw, Johnson-Stewart-Dysart with Duffy. Filson, *Air War Over America*, p 50.

167. Direct quote from transcript, intvw, Johnson-Stewart-Dysart with Duffy.

168. MFR, Nash intvw. Vittner, “[Otis] Historian’s Report.” Viser, “Two pilots revisit their 9/11.”

169. Direct quote from transcript, Johnson-Stewart-Dysart intvw with Duffy. 9/11 Commission undated, unsigned transcript of audiotaped intvw, Leslie Filson, with Lt Col Tim Duffy, n.d. The transcript is followed by typed notes of Filson’s intvw with Duffy, Oct 22, 2003 [<http://www.scribd.com/doc/18740499/T8-B22-Filson-Materials-Fdr-Lt-Col-Tim-Duffy-Intvw-Typed-Notes-321>, accessed Jan 7, 2010]. MFR of the intvw of Ng, [FNU] [first name unknown] and Stiers, [FNU] [first name unknown] of the U.S. Air Force, 10/14/2003, ARC Identifier 2610512 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00913.pdf>, accessed Jun 26, 2009]. The first names of these Otis ANGB crew chiefs are, however, known: the USAF global address list indicates that Ng is SMSgt Wing K. Ng and that Stiers is probably TSgt James Stiers.

170. 9/11 Commission staff concluded that “According to available transcripts[,] the [Joseph] Cooper [Boston Center] call directly to NEADS [TSgt Jeremy Powell] and the Otis tower call [sic: TSgt Michael Kelly at Otis

Command Center] to NEADS [MSgt Joe McCain] ... reached NEADS at nearly the same time, approximately 0838 EDT.” MFR, staff visit to Boston Center. Cooper [Boston Center] called Powell [NEADS] at 8:37:24 a.m. EDT, and Kelly [Otis Command Center] called McCain [NEADS] at 8:38:15 a.m. EDT. Sources are as follows, respectively: “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 14, 12:37:24 [8:37:24 a.m. EDT] and DRM 2, Dat 2, Channel 2 MCC-OP, 12:38:15 [8:38:15 a.m. EDT].

171. MFR, Duffy intvw. Transcript, Johnson-Stewart-Dysart intvw with Duffy. Spencer, *Touching History*, pp 27–28. MFR, Nash intvw. Filson, *Air War Over America*, p 50. Vittner, “[Otis] Historian’s Report.”

172. Direct quote from MFR of Watson, Roundtree [sic: Rountree], Dooley, Davies briefing, actually covering Marr’s initial briefing to 9/11 Commission staff.

173. Direct quote from MFR of the intvw with Col Randy “Cat” Morris during a Continental U.S. Region (CONR) field site visit, 2/3/2004. This intvw is among those included in MFR of the intvw of Don Arias of CONR, 2/4/2004, ARC Identifier 2609758 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00172.pdf>, accessed Jan 21, 2009]. 9/11 Commission, “Second public hearing of the National Commission on Terrorist Attacks Upon the United States,” May 22–23, 2003, Washington, D.C., 9/11 Commission archived website [<http://govinfo.library.unt.edu/911/hearings/hearing2.htm>, accessed Feb 27, 2008]. Transcript, Panel 1 (September 11, 2001: The Attacks and the Response), Day 2 (Civil Aviation Security) [May 23, 2003] of the 2d public hearing of the 9/11 Commission, unsworn testimony of Maj Gen Larry Arnold, USAF (Ret) [http://www.9-11commission.gov/archive/hearing2/9-11Commission_Hearing_2003-05-23.htm, accessed Sep 11, 2007] and [http://www.9-11commission.gov/archive/hearing2/9-11Commission_Hearing_2003-05-23.pdf, accessed Jan 18, 2008].

174. Direct quote from MFR of the intvw of Randy Morris of the Air Operations Center (CONR), 2/2/2004, ARC Identifier 2609764 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00173.pdf>, accessed Feb 4, 2009].

175. MFR of the intvw with Gen Larry Arnold during a CONR field site visit, 2/3/2004. This intvw is among those included in MFR, Arias intvw. “Second public hearing of the National Commission on Terrorist Attacks Upon the United States,” Transcript, Panel 1, Day 2, Arnold’s unsworn testimony.

Maj Robert Del Toro, the CONR intelligence officer on 9/11, had a somewhat different recollection. He told 9/11 Commission staff that Arnold was informed about the hijacking when he and Arnold were in the small VTC room, just off of the battle cab dais. Arnold and Del Toro had just been discussing a “just concluded conference about the Russian exercise”. MFR of the intvw of Jim Millovich and Robert Del Toro of CONR, 2/4/2004, ARC Identifier 2609757 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00171.pdf>, accessed Feb 4, 2009].

176. “Second public hearing of the National Commission on Terrorist Attacks Upon the United States,” Transcript, Panel 1, Day 2, direct quotes from Arnold’s

unsworn testimony.

177. MFR, Marr intvw.

178. Vittner, “[Otis] Historian’s Report.” Bronner, “9/11 Live: The NORAD Tapes.”

179. After receiving the initial hijack notification from Boston Center, NEADS identification and surveillance personnel worked with Boston Center staff in an ongoing effort to locate AAL 11 on NEADS radar, using the “Zoom 64” radar scope, the center for which was John F. Kennedy airport. And they continued in their endeavors in the minutes before Marr’s order to battle stations for the Otis fighters, up to and after Nasypany’s scramble order, and, for a time, together with FAA personnel at Boston and New York Centers, even after the doomed flight crashed. MFR of the intvw of Jeremy Powell of NEADS, 10/27/2003, ARC Identifier 2610367 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00768.pdf>, accessed Feb 5, 2009]. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position: see, e.g., 12:46:59–12:53:44 [8:46:59–8:53:44 a.m. EDT].

180. Direct quote from MFR, Arnold intvw, included in MFR, Arias intvw. Filson, *Air War Over America*, p 56. Leslie Filson, handwritten notes of her intvw of Robert Marr, n.d. [<http://www.scribd.com/doc/18740474/T8-B22-Filson-Materials-Fdr-Col-Bob-Marr-Intvw-Handwritten-Notes>].

181. If, however, “the fighters had had a track, then Marr would have expected Nasypany to look to the Battle Cab for direction.” Direct quotes from MFR, Marr intvw.

182. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 12:45:00 [8:45:00 a.m. EDT]. MFR of the intvw of Kevin J. Nasypany of NEADS, 1/22/2004 [Intvw continued on 1/23/2004.], ARC Identifier 2610370. [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00771.pdf>, accessed Jan 21, 2009].

183. This was probably Canadian naval officer Capt Mike Jellinek, second in command to Maj Gen Eric A. Findley, Canadian Forces, the CMOC battle staff director and NORAD director of operations.

184. “Second public hearing of the National Commission on Terrorist Attacks Upon the United States,” Transcript, Panel 1, Day 2, Arnold’s unsworn testimony. MFR, Arnold intvw, included in MFR, Arias intvw. Filson, *Air War Over America*, p 56.

Lt Gen Rick Findley, CF [Canadian Forces], told 9/11 Commission staff that he and other NORAD staff learned that the FAA had asked for assistance for an ongoing hijack. This information had come from NEADS personnel to CONR personnel to the NORAD Air Warning Center, which was embedded in the NORAD Battle Management Center and the Command Center at Cheyenne Mountain Operations Center. MFR of NORAD field site visit and intvw with Rick Findley of Canadian Forces, 3/1/2004, ARC Identifier 2610388 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00789.pdf>, accessed Nov 18, 2009]. “Embassy Row: Deter, detect, defend,” *Washington Times*, May 9, 2008 [<http://www.washingtontimes.com/news/2008/may/09/embassy-row-16680850/print/>,

accessed Nov 20, 2009].

185. “9/11: The World Remembers,” CNN American Morning, transcript of intvw by CNN correspondent Jonathan Freed of Lt Gen Eric A. “Rick” Findley, CMM, MSC, CD, Canadian Forces, aired Sep 11, 2006, 6:00 E[DT]T [<http://transcripts.cnn.com/TRANSCRIPTS/0609/11/ltn.02.html>, accessed Nov 20, 2009]. Findley became NORAD deputy commander in chief, succeeding Lt Gen Kenneth R. (Ken) Pennie, CMM, CD, Ph. D, Royal Canadian Air Force/Canadian Forces, on Jul 14, 2003, and served until Aug 2, 2007. North American Aerospace Defense Command, NORAD News, Devin Fisher, “Findley assumes NORAD Deputy Commander in Chief role,” NORAD and USNORTHCOM public affairs, Jul 14, 2003 [<http://www.norad.mil/Newsroom/Article/578035/findley-assumes-norad-deputy-commander-in-chief-role/>, accessed Aug 10, 2017].

Pennie became NORAD deputy commander in chief on Aug 8, 2001, and, as noted above, served until Findley replaced him. Royal Canadian Air Force, “Lieutenant-General K. R. Pennie, CMM, CD Ph. D,” biography, n.d. [but during his tenure as NORAD deputy commander-in-chief] [http://www.iafnc.org/Earlier_Year_Files/Past_Speakers/2002_Lieutenant_General_K_R_Pennie_CMM_CD_Ph_D/Speaker_Pennie.html, accessed Aug 10, 2017].

Findley was succeeded by Lt Gen Joseph J. Charles. “Charlie” Bouchard, OC, CMM, MSC, CD, CF, who served from Aug 2, 2007 until Jul 10, 2009. Bouchard had been the CONR deputy commander and was in the CONR air operations center, Tyndall AFB, on 9/11. NORAD, NORAD News, Gail Braymen, “New NORAD deputy commander takes office,” NORAD and USNORTHCOM Public Affairs, Aug 2, 2007 [<https://web.archive.org/web/20110718111745/http://www.norad.mil/News/2007/080207.html>, accessed Aug 10, 2017]. NORAD, Directorate of Public Affairs, Headquarters, NORAD, Biography, “J. J. C. (Charlie) Bouchard, CMM, CD, Canadian Forces,” current as of Aug 2007 [https://web.archive.org/web/20110409045905/http://www.norad.mil/leaders/bouchard_english_bio.pdf, accessed Aug 10, 2017].

Bouchard was succeeded by Lt Gen J. Marcel Duval, CMM, CD, Canadian Forces Air Command, who served from Jul 10, 2009 until Aug 15, 2011, when he was succeeded by Lt Gen Thomas J. Lawson, CMM, CD, CF, who served until he was named chief of defence staff, CF, on Aug 27, 2012. NORAD, NORAD News, NORAD and USNORTHCOM Public Affairs, “Change of Office ceremony for NORAD Deputy Commander,” Aug 15, 2011 [<http://www.norad.mil/Newsroom/Article/578483/change-of-office-ceremony-for-norad-deputy-commander/>, accessed Aug 18, 2017] Meagan Fitzpatrick, “Lt.-Gen. Tom Lawson ‘honoured’ to be named top general,” CBC [Canadian Broadcasting Corporation] News, Aug 27, 2012, 9:26 a.m. ET, last updated Aug 27, 2012, 9:29 p.m. ET [<http://www.cbc.ca/news/politics/lt-gen-tom-lawson-honoured-to-be-named-top-general-1.1274602>, accessed Aug 18, 2017].

Lawson was succeeded by Lt Gen Alain Parent, CMM, CD, CF, who served from Sep 4, 2012 until Jul 1, 2015, when he was succeeded by Lt-Gen Pierre St-Amand, CMM, CD, CF. NORAD, NORAD News, NORAD

and USNORTHCOM Public Affairs, “New NORAD Canadian Deputy Commander,” Sep 4, 2012 [<http://www.norad.mil/Newsroom/Article/578566/new-norad-canadian-deputy-commander/>, accessed Aug 18, 2017]. North American Aerospace Defense Command, “Lieutenant-General Pierre St-Amand, CMM, CD,” official biography, n.d., but current as of Jul 1, 2015 [<http://www.norad.mil/Leadership/Article-View/Article/712951/lieutenant-general-pierre-st-amand-cmm-cd/>, accessed Aug 18, 2017].

186. According to Excerpt, “9/12, 2001,” from Desmond Morton, *A Military History of Canada*, Random House, Inc., 2009 [<http://www.randomhouse.com/catalog/display.pperl?isbn=9781551991405&view=excerpt>, accessed Nov 20, 2009], Jellinek telephoned NORAD’s commander [Eberhart]. According to another source, NEADS called Jellinek to get scramble approval from the NORAD commander, Gen Ralph E. Eberhart, and Findley “quickly approved the fighters’ launch.” William B. Scott, “Exercise Jump-Starts Response to Attacks,” *Aviation Week & Space Technology*, Jun 3, 2002.

Jellinek was, apparently, on the line with NEADS personnel when he saw, live on CNN, the second aircraft—later determined to be United Airlines Flight 175—crash into World Trade Center 2. He asked them if that was the hijacked aircraft they had been dealing with; they said yes. Scott Simmie, “‘Northern Guardian’: The Scene at NORAD on Sept. 11,” *Toronto Star*, Dec 9, 2001 [<http://www.oilempire.us/norad.html>, accessed Nov 20, 2009].

187. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 8:52:40 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 12:53:16–12:54:04 [8:53:16–8:54:04 a.m. EDT] and 12:54:57–12:55:58 [8:54:57–8:55:58 a.m. EDT].

188. DoT, FAA, MacDonald memo, Oct 10, 2003, attaching transcript covering the Cape TRACON HIGH Arrival position. See 12:50:59 [8:50:59 a.m. EDT]. TSgt Jeffrey Richmond, assistant air surveillance technician, the top position in surveillance at NEADS, noted at 8:57:55 a.m. EDT that the Otis fighters were airborne at 8:52. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST], 12:55:55 [8:57:55 a.m. EDT]. *Final Report*, p 20, indicating that radar files showed that the Otis fighters were airborne at 8:53, and p 459, endnote 120, citing DoD radar files, 84th Radar Evaluation Squadron, “9/11 Autoplay,” n.d.

A slide prepared by 9/11 Commission Team 8 staff member Miles Kara on the Otis scramble indicates that the Panta flight took off at 8:52:25 a.m. EDT. Kara’s work was based on the aforementioned DoD radar files. Kara kindly gave Dr. Jones a copy of the Otis scramble slides on May 27, 2009. “Otis Scramble, Take Off, Lacking a Mission, 0852–0903 EDT,” slide 2, prepared by Miles Kara, n.d. [<http://www.scribd.com/doc/13723849/T8-B16-Otis-Langley-and-AF1-Fdr-2-of-2-Radar-Maps-Otis-Scrambles-129>, accessed May 27, 2009].

189. *Final Report*, p 20 and p 459, endnote 119, citing various NEADS audio files and 9/11 Commission intvws of NEADS and Otis personnel.

190. Direct quote from Kevin Dennehy, “‘I thought it was the start of World War III,’” *Cape Cod Times*, Aug 21, 2002 [<http://archive.capecodonline.com/>

special/terror/ithought21.htm, accessed Dec 8, 2009].

191. Direct quote from MFR, Roebuck intvw. See also Timeline prepared by Miles Kara entitled “Panta 45 and 46 Scramble,” entry for 8:46:21, transmission from ZBW 18RA [Boston Center radar associate position] [<http://www.scribd.com/doc/18664568/T8-B21-NEADS-Floor-3-of-3-Fed-Time-Line-Panta-45-and-46-Scramble-289>, accessed Dec 8, 2009].

192. MFR, Fox intvw.

193. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 12:57:09–12:59:03 [8:57:09–8:59:03 a.m. EDT], direct quote at 12:57:09 [8:57:09 a.m. EDT].

194. DoT, FAA, Karen L. Goff, Quality Assurance Technician, Boston ARTCC, Memorandum, subj: Information: Full Transcript Request for the National Commission on Terrorist Attacks Upon the United States [9/11 Commission]; from Boston ARTCC to 9/11 Commission, Oct 7, 2003, attaching transcript covering the Boston ARTCC Cape Sector, Sector 18, Radar Position [name unknown] from 1254–1330 UTC, Sep 11, 2001. See 12:55:22–12:55:38 [8:55:22–8:55:38 a.m. EDT] (Cape Sector-Duffy exchange); 13:01:17 [9:01:17 a.m. EDT] (Duffy to Cape Sector); and 13:01:26 [9:01:26 a.m. EDT] (Cape Sector to Duffy) [<http://www.scribd.com/doc/13653219/T8-B20-Miles-Kara-Work-Files-NEADS-Trip-3-of-3-Fdr-Transcript-Boston-ARTCC-Cape-Sector-Sector-18109>, accessed Nov 3, 2009]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 12:57:09–12:59:03 [8:57:09–8:59:03 a.m. EDT]. *Final Report*, p 20 and p 459, endnote 120, citing a variety of NEADS and FAA audio files.

195. Bronner, “9/11 Live: The NORAD Tapes,” quote from ID [Identification] Tech[nician] SrA Stacia Rountree at 9:03:17 a.m. EDT. Rountree fielded the phone call from the FAA’s New York Center on Long Island. See also *Final Report*, p 23 and p 460, endnote 134. The 9/11 Commission relied here on FAA and NEADS intvws, rather than on the NEADS operations floor audio files, the source for Bronner’s *Vanity Fair* article.

196. UAL 175 was a Boeing 767-222, according to FAA Registry, Aircraft, N-Number Inquiry Results: N612UA [UAL 175]. Don Dillman of American Airlines told 9/11 Commission staffers that UAL 175 was, like AAL 11, a Boeing 767-200. MFR, Dillman intvw.

197. *Final Report*, p 7 and p 454, endnotes 40–41, citing, e.g., United Airlines, FAA, and NTSB reports and documents.

198. *Final Report*, pp 7, 21.

199. *Ibid.*, pp 1–2, 7–8.

200. DoT, FAA, “Summary of Air Traffic Hijack Events,” Source: AAT-20, Timelines: AAL 11 and UAL 175, *Electronic Briefing Book* No. 165, Doc 7. MFR, Bottiglia intvw. MFR, Marr intvw. MFR, Nasypany intvw. *Final Report*, pp 7, 21–22, and 23 and pp 459–60, endnotes 125–130 and 134, citing various FAA memos, reports, and transcripts of audio files; and four intvws with NEADS personnel. Farmer, *The Ground Truth*, p 142.

201. *Final Report*, p 22.

- 202.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:03:17 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, direct quote at 13:03:20 [9:03:20 a.m. EDT].
- 203.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:04:50 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:08:42 [9:08:42 a.m. EDT].
- 204.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, direct quote at 9:03:52 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, direct quote at 13:04:04 [9:04:04 a.m. EDT].
- 205.** “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:04:15–13:07:47 [9:04:15–9:07:47 a.m. EDT].
- 206.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:07:20 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:07:47–13:07:59 and 13:09:00, direct quote at 13:07:59 [9:07:47–9:07:59 and 9:09:00, direct quote at 9:07:59 a.m. EDT]. *Final Report*, pp 23–24.
- 207.** Direct quote from Bronner, “9/11 Live: The NORAD Tapes.” “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:08:49–13:08:58 [9:08:49–9:08:58 a.m. EDT].
- When communicating with the Battle Cab, Nasypany spoke on a secure phone to either the fighter officer or to the battle commander, Col Robert Marr. In his MFR, Marr referred to the fighter officer as Daniels. In his MFR, Lt Col Mark E. Stuart referred to the fighter officer as Lt Col Brian Daniels. But note that, according to his MFR (endnote 248), Ian Sanderson was in the NEADS battle cab that day, starting his training in the fighter officer position. MFR, Nasypany intvw. MFR, Marr intvw. MFR of the intvw of Mark E. Stuart, NEADS, 10/30/2003, National Archives Identifier 2610378, Series: Memorandums for the Record, 2003–2004, National Archives Identifier: 2524787, Creator: 9/11 Commission, 11/27/2002–8/21/2004 [<https://www.archives.gov/files/declassification/iscap/pdf/2012-042-doc22.pdf>, accessed Aug 3, 2017].
- 208.** Direct quote from Bronner, “9/11 Live: The NORAD Tapes.”
- 209.** *Final Report*, p 24 and p 460, endnote 137, citing NEADS audio file and Marr and Arnold intvws.
- 210.** Direct quotes from MFR, Nasypany intvw.
- 211.** “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 69 MCC-OP, 13:10:09–13:11:35 [9:10:09–9:11:35 a.m. EDT].
- 212.** Direct quote from Bronner, “9/11 Live: The NORAD Tapes.”
- 213.** *Ibid.*
- 214.** *Final Report*, p 24 and p 460, endnotes 138–140, citing 9/11 Commission analysis of FAA radar data and air traffic control transmissions; and FAA intvw, timeline, and report, “Summary of Air Traffic Hijack Events,” Sep 17, 2001.
- 215.** *Ibid.*, pp 10 and 29.
- 216.** The Panta flight exited the holding pattern at 9:13 a.m. EDT, flew to

Manhattan, and reached New York City at 9:25 a.m. EDT. *Final Report*, p 24 and p 460, endnote 136, citing Nash and Duffy intvws.

217. *Final Report*, p 22 and p 460, endnote 130, noting that the 9/11 Commission “determined that the impact time was 9:03:11 based on ... [its] analysis of FAA radar data and air traffic control software logic.”

218. In more than five hours flying over New York, Duffy and Nash “escorted about 100 aircraft out of the area before returning to Otis”, according to Susan Rosenfeld and Charles J. Gross, *Air National Guard at 60: A History*, Air National Guard, PA07-721, n.d., p 36. Duffy and Nash flew combat patrols over New York for four and a half hours, and Majs Martin Richard and Robert Martyn worked with them and then relieved them, according to Vittner, “[Otis] Historian’s Report.” Lynn Spencer identified Maj Robert Martyn’s call sign as “Bam Bam”, but she did not mention Maj Richard Martin or his call sign. Spencer, *Touching History*, p 245. Duffy and Nash were relieved at 12:30 p.m. EDT by “Bam Bam and Opis”, according to MFR, Duffy intvw.

Duffy told Leslie Filson that other Otis fighters arrived at about 12:30 p.m. EDT. 9/11 Commission transcript of intvw, Filson with Duffy, followed by typed notes of intvw, Filson with Duffy. Another pair of fighters [from Otis AFB] arrived at about 11:00 a.m. EDT, according to MFR, Nash intvw.

219. MFR, Duffy intvw. MFR, Nash intvw.

220. Direct quote from transcript, Johnson-Stewart-Dysart intvw with Duffy.

221. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST], 13:20:57 [9:20:57 a.m. EDT]. *Final Report*, p 26 and p 461, endnote 148, citing NEADS audio file, ID Tech position, channel 7, 9:21:10 a.m. The 9/11 Commission was unable to identify the source of the inaccurate FAA HQ report about AAL 11 [p 26]. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:21:37 a.m. [EDT].

222. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:22:05 [9:22:05 a.m. EDT]. *Final Report*, p 26 and p 461, endnote 149, citing NEADS audio file, Mission Crew Commander, channel 2, 9:21:50 a.m. EDT. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:21:50 a.m. [EDT].

223. Direct quote from MFR, Nasypany intvw.

224. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, direct quote at 13:22:05 [9:22:05 a.m. EDT]. *Final Report*, p 26 and p 461, endnote 149, citing NEADS audio file, Mission Crew Commander, channel 2, 9:21:50 a.m. EDT. Bronner, “9/11 Live: The NORAD Tapes,” direct quote from NEADS audio tape, 9:21:50 a.m. [EDT].

225. One of Nasypany’s staffers passed along the news that the fighter officer told them to “forget the tail chase”. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, direct quote at 13:25:47 [9:25:47 a.m. EDT] [background voice].

226. Marr later recalled that he was concerned about the “low reliability” of the report from Boston Center, because AAL 11, said to be heading south, would have been out of Boston Center’s radar range. Direct quotes from MFR, Marr intvw.

227. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:27:04 [9:27:04 a.m. EDT] [background voice].

228. Bronner, “9/11 Live: The NORAD Tapes.” *Final Report*, p 465, endnote 238, citing Craig Borgstrom intvw (Dec 1, 2003).

Marr recalled directing the Langley fighters to battle stations, but he did “not recall considering a scramble”. But shortly thereafter, he said he scrambled the Langley F-16s to protect Washington, D.C. Direct quote from MFR, Marr intvw.

229. MFR of the intvw of Craig Borgstrom, Langley Air Force Base site visit intvws, 12/1/2003 [<http://www.scribd.com/doc/19057171/DH-B2-Langley-MFRs-Fdr-12103-MFR-Craig-Borgstrom>, accessed Mar 1, 2010]. MFR of the intvw of Brad Derrig, Langley AFB site visit intvws, 12/1/2003 [<http://www.scribd.com/doc/19057167/DH-B2-Langley-MFRs-Fdr-12103-MFR-Brad-Derrig>, accessed Mar 1, 2010]. MFR of the intvw of Dean Eckmann, Langley AFB site visit intvws, 12/1/2003 [<http://www.scribd.com/doc/19057174/DH-B2-Langley-MFRs-Fdr-12103-MFR-Dean-Eckmann>, accessed Mar 1, 2010].

According to Borgstrom, he was ordered to join Eckmann and Derrig at battle stations over the telephone by a “NEADS officer”. After the three were scrambled, TSgt Jeremy Powell at NEADS learned after the fact that the three were airborne. Realizing that he did not pass the battle stations order to Borgstrom, Powell concluded that “The officers in the battle cab” did so. Spencer, *Touching History*, pp 118, 148. Filson, *Air War Over America*, p 63.

230. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP. Nasypany told Maj James Fox to “scramble Langley, head them towards the Washington area.” [Direct quote at 13:22:47 (9:22:47 a.m. EDT).] In the conversation that followed, the Langley call signs were identified as Quit 25 and 26 [13:24:20 (9:24:20 a.m. EDT)], that is, “Quit, Quebec, uniform, india, tango, 25, 26.” [Direct quote at 13:24:23 (9:24:23 a.m. EDT).] Seconds after the Quit flight took off, Nasypany noted, “I’m gonna have three fighters out of Langley.” [Direct quote at 13:30:41 (9:30:41 a.m. EDT).] MFR, Nasypany intvw. The scramble “order was processed and transmitted to Langley AFB at 9:24. Radar data show the Langley fighters airborne at 9:30.” Direct quote from *Final Report*, p 27. Borgstrom later recalled that “He started basically about the same time as the other two [Eckmann and Derrig].” Direct quote from MFR, Borgstrom intvw.

231. MFR, Borgstrom intvw.

232. The Quit flight lead, Dean Eckmann, told 9/11 Commission staff that the scramble instructions also included “max[imum] subsonic speed, which he said was unusual.” Direct quote from MFR, Eckmann intvw. Other sources, however, made no mention of speed being indicated on the flight strip; and others maintained that the Langley pilots were told, at a later point, to go max subsonic.

233. Robert Marr told 9/11 Commission staffers that Langley fighters were routinely scrambled to Warning Area [Whiskey] 306. But Marr’s recollection was apparently faulty: SSgt William Huckabone, the NEADS weapons technician handling the Langley fighters, clearly referred to “Whiskey 386” in

an exchange with the navy air traffic controller at Giant Killer. MFR of Watson, Roundtree [sic: Rountree], Dooley, Davies briefing, actually covering Marr's initial briefing to 9/11 Commission staff. Bronner, "9/11 Live: The NORAD Tapes," direct quote from NEADS audio tape, 9:34:12 a.m. [EDT], italics added.

234. MFR, Nasypany intvw. *Final Report*, p 27 and p 461, endnote 153, citing Eckmann intvw and FAA transcripts of communications between Quit 25 [Eckmann] and Peninsular Radar and East Feeder Radar positions. MFR of a visit to 119th Fighter Wing, Detachment One, Langley AFB, an intvw with Marsh Ljelvik, 10/07/2003 [<http://www.scribd.com/doc/20954109/Mfr-Nara-t8-Dodusaf-119th-Fighter-Wing-Visit-10703-00677>, accessed Mar 1, 2010]. MFR of a meeting with Langley Tower Personnel [Kevin Griffith and Raymond Halford] of the U.S. Air Force, 10/6/2003, ARC Identifier 2610271 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00676.pdf>, accessed Mar 8, 2010]. MFR of the intvw with Dwayne Acoff and with Robert Lugaro, Langley AFB site visit intvws, 12/1/2003 [<http://www.scribd.com/doc/19057175/DH-B2-Langley-MFRs-Fdr-12103-MFR-Dwayne-Acoff-and-Robert-Lugaro>, accessed Mar 8, 2010]. MFR of the Norfolk TRACON visit with John Harter, Michael Strother, and William Casson of the FAA, 12/1/2003, ARC Identifier 2610392 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00793.pdf>, accessed Mar 8, 2010].

235. MFR, Eckmann intvw. 9/11 Commission, Langley AFB radar maps for Sep 11, 2001, slide entitled "Quit 25: Langley Scramble, Peninsula Sector, Norfolk TRACON 0930-0932 EDT," prepared by Miles Kara, n.d. [<http://www.scribd.com/doc/18663367/T8-B16-Otis-Langley-AF-One-1-of-2-Fdr-Slides-Radar-Maps-Langley-Scramble-Order-136?autodown=pdf>, accessed Sep 17, 2009].

Craig Borgstrom, too, did not believe that the Quit flight traveled 60 miles east; he thought that the Langley fighters had turned north more quickly. MFR, 119th Fighter Wing visit, Ljelvik intvw.

236. SSgt William Huckabone was the first NEADS air defender to notice that the Quit flight was off course. Bronner, "9/11 Live: The NORAD Tapes," NEADS audio tape, 9:34:12 a.m. [EDT]. Nasypany later recalled "that the traffic at Norfolk Approach would explain the initial trajectory, but once it became clear the fighters were out of Norfolk Approach air traffic[,] the NEADS Weapons desk noticed the fighters were not turning per the scramble order, and became immediately involved." Direct quote from MFR, Nasypany intvw. "Transcripts from Voice Recorder," NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:34:17–13:35:00 [9:34:17–9:35:00 a.m. EDT]. *Final Report*, pp 27 and 461, endnote 150, citing NEADS audio file, Mission Crew Commander, Channel 2, 9:22:34 [sic] a.m. EDT. The correct time is indicated in the following: "Transcripts from Voice Recorder," NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:34:19–13:35:01 [9:34:19–9:35:01 a.m. EDT] and confirmed at DRM 2, Dat 2, Channel 3 SD2-TK, 13:34:19–13:35:01 [9:34:19–9:35:01 a.m. EDT].

The course alteration was not accomplished immediately. Radar maps

show the Quit flight beginning a left-hand turn to the north just after 9:37:50 a.m. EDT. Undated slides prepared by Miles Kara entitled “Langley Scramble: Takeoff and Approach to Washington[,] D.C.” and “Quit 25: Langley Scramble, Washington Center” [<http://www.scribd.com/doc/18663367/T8-B16-Otis-Langley-AF-One-1-of-2-Fdr-Slides-Radar-Maps-Langley-Scramble-Order-136?autodown=pdf>, accessed Sep 17, 2009].

237. It is clear from the NEADS transcripts that the phone call about the missing AAL 77 came from Washington Center to NEADS, not the other way around, as stated in the *Final Report* and in Bronner, “9/11 Live: The NORAD Tapes.” All three sources, however, make clear that Washington Center’s notification to NEADS was rather offhand and came by chance. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 13:32:23–13:35:25 [9:32:23–9:35:25 a.m. EDT]; see also DRM 2, Dat 2, Channel 2 MCC-OP, 13:34:23, 13:34:25 [9:34:23, 9:34:25 a.m. EDT] [background voice]. *Final Report*, Chapter 1, p 27 and p 461, endnote 151, citing NEADS audio file, ID Tech position, channel 5, 9:32:10 and 9:33:58 a.m. EDT. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:34:01 a.m. [EDT].

238. Bronner, “9/11 Live: The NORAD Tapes.” *Final Report*, p 27 and p 461, endnotes 151 and 154, citing NEADS audio files and intvws; and 9/11 Commission analysis of FDR [flight data recorder], air traffic control, radar, and Pentagon elevation and impact site data.

239. *Final Report*, pp 2–4, 8–10 and p 454, endnote 52, citing American Airlines records.

240. FAA Registry, Aircraft, N-Number Inquiry Results [AAL 77].

241. *Final Report*, pp 2–4, 8–10 and p 454, endnotes 52 and 53, citing American Airlines report and other documents.

242. *Ibid.*, pp 8–10, 24.

243. *Ibid.*, pp 9–10, 24–25, 27.

244. Again, it is clear from the NEADS transcripts that the phone call about the missing AAL 77 came from Washington Center to NEADS, not the other way around, as stated in the *Final Report* and in Bronner’s *Vanity Fair* article. All three sources, however, make clear that Washington Center’s notification to NEADS was rather offhand and came by chance. See endnote 236.

245. The plane was later that morning identified as AAL 77. In the weeks after the attacks, radar analysis of its flight revealed that the plane veered away from the White House and headed towards the Pentagon. But NEADS technicians had “no way of knowing this in the moment.” Bronner, “9/11 Live: The NORAD Tapes.”

246. *Ibid.*, NEADS audio tape, 9:35:41 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 13:36:19–13:36:20 [background voice].

247. Bronner, “9/11 Live: The NORAD Tapes,” wrote that, at NEADS, “the ... word of a plane six miles from the White House ... [set] off a frenzy.”

248. *Ibid.*, NEADS audio tape, 9:36:23 a.m. [EDT]. “Transcripts from Voice

Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:36:37–13:37:38 [9:36:37–9:37:38 a.m. EDT]. HQ North American Aerospace Defense Command, NORAD Regulation 55–7, 6 Jul 1990, “Operations: Airborne Surveillance of Hijacked Aircraft.” [<http://www.fas.org/spp/military/docops/norad/reg55007.htm>, accessed Mar 16, 2010].

249. *Final Report*, p 27 (direct quote); p 461, endnote 152, citing NEADS audio files, ID Tech position, channels 5 and 7, and Mission Crew Commander, channel 2; and Nasypany intvw (Jan 22–23, 2004). Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:36:23 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:36:37–13:37:34 [9:36:37–9:37:34 a.m. EDT]. Farmer, *The Ground Truth*, p 196, text and quotes from MCC [mission crew commander, i.e., Nasypany] transcript, at 9:39:59–9:40:04 a.m. EDT.

Author and pilot Lynn Spencer defined the authorization for interceptor operations (AFIO) somewhat differently than did the 9/11 Commission in its *Final Report*. According to Spencer, this declaration “is one method for the military to override the FAA’s authority over the airspace. ... [and] gives the military emergency authority to enter FAA-controlled airspace without permission, taking over the responsibility for aircraft separation.” Spencer, *Touching History*, p 113.

The NEADS senior director of the weapons section on 9/11, Maj James Fox, later recalled that the very unusual declaration of AFIO “is a statement that the pilots are excepting [sic: accepting] all responsibility for any air incident resulting from the pilots clearing their own airspace.” Direct quote from MFR, Fox intvw.

In any event, under the 1990 NORAD regulation, AFIO was “*not* used for intercept and airborne surveillance of hijacked aircraft within the CONUS [Continental United States].” Direct quote from NORAD Regulation 55–7, 6 Jul 1990, “Operations: Airborne Surveillance of Hijacked Aircraft,” italics added.

The record is rather unclear as to the level of authorization required for the AFIO declaration on 9/11. Ian Sanderson, who was in the NEADS battle cab that day, starting his training in the fighter officer position, opined that a declaration of AFIO “would have involved a conversation by Marr with CONR.” MFR of the intvw of Ian Sanderson of NEADS, 10/29/2003, ARC Identifier 2610375. MFR, Stuart intvw.

Speaking to 9/11 Commission staffers, Nasypany did “not recollect if he recommended the Battle Cab authorize an AFIO order, or if he did so himself. He noted that[,] post[-]9/11[, authorization] to declare AFIO must come from a ‘higher authority’.” Direct quote from MFR, Nasypany intvw.

Marr, on the other hand, told the commission staffers that he could delegate authority as necessary and “that he supported Nasypany’s decision to direct the Langley fighters to declare AFIO.” Marr pointed out that “as of 9/11 it [AFIO] was an extraordinary measure to be implemented,” and stated that he neither remembered “declaring AFIO himself” nor “being advised that AFIO was declared on 9/11.” Direct quotes from MFR, Marr intvw.

250. Almost exactly an hour after the impact at 1 World Trade Center, NEADS mission crew commander Nasypany exhorted his team, “We’ve got to find that American Airlines [11]. ... [H]e is the key, he is the key to this whole thing[.]” Transcripts of NEADS tapes prepared by Miles Kara, times approximate: DRM 3, Dat 2, Channel 8, Rm 112, direct quote at 9:46:47 a.m. EDT [<http://www.scribd.com/doc/13723863/T8-B20-Miles-Kara-Work-Files-NEADS-Trip-2-of-3-Fdr-NEADS-CDs>, accessed Jul 20, 2009].

The status of AAL 11 was uncertain even after the strike at the Pentagon. Just before UAL 93 crashed in Pennsylvania, a NEADS identification staffer was trying to get confirmation as to whether or not Flight 11 had hit the Pentagon almost thirty minutes earlier, and if not, “[was] it headed somewhere else[?]” “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, direct quote at 14:02:13 [10:02:13 a.m. EDT].

251. The primary radar track, Bravo 032, of what was later determined to be AAL 77 faded over Washington, D.C., at 9:38 a.m. EDT. *Final Report*, p 27 and p 461, endnote 154, citing NEADS audio file, Mission Crew Commander, channel 2, 9:38:02; Deskins intvw. MFR, Nasypany intvw. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:37:46–13:37:59 [9:37:46–9:37:59 a.m. EDT]; and DRM 2, Dat 2, Channel 15 [AST], 13:36:29–13:38:11 [9:36:29–9:38:11 a.m. EDT]. Transcripts, NEADS tapes, Kara, times approximate: DRM 1, Dat 2, Channel 17 TT [Tracker Technician] OP, 9:33:55–9:38:35 a.m. EDT; DRM 1, Dat 2, Channel 18 TT TK, 9:35–9:40 a.m. EDT; and DRM 3, Dat 2, Channel 8, Rm 112, 9:37:26–9:38:00 a.m. EDT. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:37:56 a.m. [EDT].

252. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:37:56 a.m. [EDT].

253. Transcripts, NEADS tapes, Kara, times approximate: DRM 3, Dat 2, Channel 8, Rm 112, 9:38:34 a.m. EDT. *Final Report*, p 27 and p 461, endnote 154, noting that “The estimated time of impact of [American Airlines] Flight 77 into the Pentagon is based on Commission analysis of FDR, air traffic control, radar, and Pentagon elevation and impact site data.”

254. *Final Report*, pp 25–26, 30.

255. Bronner, “9/11 Live: The NORAD Tapes,” direct quote from NEADS audio tape, 9:38:50 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:37:46–13:41:45 [9:37:46–9:41:45 a.m. EDT]. *Final Report*, p 27. Transcripts, NEADS tapes, Kara, times approximate: DRM 3, Dat 2, Channel 8, Rm 112, 9:37:26–9:38:00 a.m. EDT, and 9:38:56 a.m. EDT: “Have to go super to get there, if need be. I don’t care how many windows you break.”

256. Direct quote from MFR, Nasypany intvw.

257. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 3 SD2-TK, 13:36:35–14:04:44 [9:36:35–10:04:44 a.m. EDT]; and DRM 2, Dat 2, Channel 15 [AST], 13:37:25, 13:39:17, and 13:39:19 [9:37:25, 9:39:17, and 9:39:19 a.m. EDT]. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:36:23 a.m. [EDT].

258. Nasypany told 9/11 Commission staffers that the first notice NEADS received came from a CNN report “at approximately 9:48 a.m.” Direct quote from MFR, Nasypany intvw.

Transcripts of NEADS audio files indicate that NEADS personnel became aware of the Pentagon strike at approximately 9:49 a.m. EDT. The NEADS air surveillance technician [probably TSgt Jeffrey Richmond] told Nasypany at 9:49:11 a.m. EDT that the Pentagon had been hit. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST], 13:49:11 [9:49:11 a.m. EDT]. Nasypany noted at 9:49 a.m. EDT that CNN was reporting that the Pentagon had just been hit. Transcripts, NEADS tapes, Kara, times approximate: DRM 3, Dat 2, Channel 8, Rm 112, 9:49 a.m. EDT. An unidentified background voice pointed out at 9:50:59 a.m. EDT, “Well[,] it’s on there [referring to television coverage], the Pentagon has been hit. . . .” “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, direct quote at 13:50:59 [9:50:59 a.m. EDT]. Alfred Goldberg, Sarandis Papadopoulos, Diane Putney, Nancy Berlage, and Rebecca Welch, *Pentagon 9/11*, Defense Studies Series (Washington, D.C.: Historical Office, Office of the Secretary of Defense, 2007), pp 16–17.

259. Direct quote from *Final Report*, p 38 and p 463, endnote 200, citing DoD transcript, Air Threat Conference Call, Sep 11, 2001.

260. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, direct quote at 13:51:37 and at 13:51:55 [9:51:37 and 9:51:55 a.m. EDT].

261. *Final Report*, p 465, endnote 238, citing radar data. Undated slide prepared by Miles Kara entitled “Langley Scramble: Proceeds to CAP Point.” [<http://www.scribd.com/doc/18663367/T8-B16-Otis-Langley-AF-One-1-of-2-Fdr-Slides-Radar-Maps-Langley-Scramble-Order-136?autodown=pdf>, accessed Sep 17, 2009].

262. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 3 SD2-TK, 13:36:35–14:04:44, direct quote at 14:04:44 [9:36:35–10:04:44 a.m. EDT].

263. “Scene of utter destruction,” *Pittsburgh Tribune-Review*.

264. *Final Report*, pp 30 and 31, and p 462, endnotes 171, 173, and 174, citing NEADS audio files and log book.

265. *Ibid.*, pp 4, 10–14, 28, 29 and p 455, endnotes 62 and 63, citing United Airlines and FAA documents and records.

266. FAA Registry, Aircraft, N-Number Inquiry Results [UAL 93].

267. *Final Report*, pp 4, 10. James M. Klatell, “Flight 93 Controller Looks Back,” CBS News, Sep 10, 2006 [<http://www.cbsnews.com/stories/2006/09/10/september11/main1992171.shtml>, accessed Apr 14, 2011].

268. *Final Report*, p 11 (quoting United Airlines Flight 93 pilot or first officer), p 28 and p 456, endnote 71, citing NTSB, FBI, and FAA reports on cockpit voice recorder and flight data recorder. Klatell, “Flight 93 Controller Looks Back,” CBS News.

269. *Final Report*, p 28 (quote) and p 461, endnote 160, citing FAA memo.

- 270.** *Ibid.*, p 28.
- 271.** *Ibid.*, pp 29, 30.
- 272.** *Ibid.*, p 29 (quote) and p 461, endnote 163, citing FAA memos and audio file. Klatell, “Flight 93 Controller Looks Back,” CBS News.
- 273.** The passenger revolt aboard United Airlines Flight 93 began at 9:57 a.m. EDT. *Final Report*, p 13 and p 457, endnote 85, citing FBI reports of investigation, intvws of recipients of calls from UAL 93, and data from Flight 93 FDR and CVR [flight data recorder and cockpit voice recorder, respectively].
- 274.** *Ibid.*, p 30. The impact time for UAL 93 is supported by FAA and NTSB documents and by 9/11 “Commission staff’s analysis of radar, the flight data recorder, the cockpit voice recorder, infrared satellite data, and air traffic control transmissions.”
- 275.** The FAA military liaison at Cleveland ARTCC told a NEADS identification technician at approximately 10:07 a.m. EDT that Flight 93 had a bomb on board. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 14:06:38 [10:06:38 a.m. EDT]. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 10:07:16 a.m. [EDT]. *Final Report*, p 30 and p 462, endnote 171, citing NEADS audio file, ID Tech, channel 5, 10:07 a.m.
- 276.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:40:57 a.m. [EDT]. Farmer, *The Ground Truth*, pp 194–95, quoting ID Tech transcript (Rountree), at 9:39:33–9:40:29 a.m. EDT.
- 277.** [DoT,] Research and Innovative Technology Administration, Bureau of Transportation Statistics, Detailed Statistics: Departures [[http://www.bts.gov/xml/ontimesummarystatistics/src/dstat/OntimeSummaryDepatures\[sic\]Data.xml](http://www.bts.gov/xml/ontimesummarystatistics/src/dstat/OntimeSummaryDepatures[sic]Data.xml), accessed Sep 14, 2009.] NEADS identification technicians originally believed that DAL 1989 was traveling to Las Vegas but later realized that it was bound for Los Angeles. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 13:41:11 [9:41:11 a.m. EDT]. Farmer, *The Ground Truth*, pp 194–95, quoting ID Tech transcript (Rountree), at 9:39:33–9:40:29 a.m. EDT. MFR of the intvw of HUNTRESS Personnel of the Department of Defense [NEADS], 1/27/2003, ARC Identifier 2610364 [<http://media.nara.gov/9-11/MFR/t-0148-911MFR-00765.pdf>, accessed Feb 2, 2009]. Spencer, *Touching History*, p 127.
- 278.** Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 9:40:57 a.m. [EDT]. MFR, McCain intvw, information from intvw that was continued on 1/20/2004. *Final Report*, pp 27–28 and p 461, endnotes 155 and 156, citing Joseph Cooper intvw and NEADS audio files, ID Tech position, recorder 1, channel 7, 9:41 a.m. [EDT] and Mission Crew Commander position, channel 2, 9:42:08 a.m. [EDT]. “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 13:41:08–13:45:57 [9:41:08–9:45:57 a.m. EDT]; and DRM 2, Dat 2, Channel 15 [AST], 13:41:20–13:48:46 [9:41:20–9:48:46 a.m. EDT].
- 279.** As noted earlier in the text, the NEADS air defenders also established—but did not “forward tell” to NORAD—a track, Bravo 032, on the unidentified

aircraft moving away from the White House, later determined to be AAL 77. Miles Kara has pointed out that “To ‘forward tell’ is to link a known track to a specific radar in such a manner that the track can be seen by NORAD echelons above NEADS. ... The Air Threat Conference Call is conclusive concerning what was forward told. When asked for an update NORAD informed the Conference at 9:44 [a.m. EDT] that the only other hijacked plane it knew about was Delta 1989. There was no mention of United 93 or any other aircraft.” Miles Kara, “9-11: Delta 1989,” article on his 9-11 Revisited website, n.d. [<http://www.oredigger61.org/?cat=18>, accessed Mar 26, 2010]. NEADS checklists for the following job titles: mission crew commander/technician [MCC/T Checklist #5, Subj: Hijacked Aircraft, Jul 16, 2001]; air surveillance officer/technician [Checklist #1, Subj: Aircraft Emergency/Hijack/Deviation Procedures, Jul 26, 2001]; senior director/technician [SD/SDT Checklist #6, Subj: Hijacked Checklist, Oct 4, 1997]; tracking technician [Checklist #1, Subj: High Interest Tracks, Jul 30, 2001; and Checklist #2, Subj: Special Interest Tracks, Jul 30, 2001] [<http://www.scribd.com/doc/14141988/NYC-Box-2-NEADS-Transcript-Rome-NY-Fdr-Checklist-NEADS-Response-to-Aircraft-Emergency-Hijack495>, accessed Oct 22, 2009]. MFR, HUNTRESS personnel intvw. MFR, McCain intvw, information from intvw that was continued on 1/20/2004.

280. To facilitate NORAD tracking, it was critical that the victimized aircraft’s transponder transmit, or “squawk,” Mode 3/A, code 7500, the recognized hijack code. FAA order, “Special Military Operations,” Order 7610.4J, Ch 7. Escort of Hijacked Aircraft, Section 4. Forwarding Information, Para 7-4-2. Position Reports Within NORAD Radar Coverage.

281. Syracuse had reportedly canceled all of its flying for the morning; Duluth was engaged in night-flying missions. And so there was no one available at present. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:42:16–13:47:57 [9:42:16–9:47:57 a.m. EDT]. John Farmer places these communications at 9:44:34–9:47:44 a.m. EDT. Farmer, *The Ground Truth*, pp 200–202, text and quotes from MCC [mission crew commander, i.e., Nasypany] transcript. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST], 13:50:56–13:51:14 [9:50:56–9:51:14 a.m. EDT]. Bronner, “9/11 Live: The NORAD Tapes,” especially NEADS audio tape, 9:54:54 a.m. [EDT] regarding the offer of assistance from the Selfridge flight officer. Filson, *Air War Over America*, p 75, citing wing records as to departure time.

282. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:52:24–13:59:28 [9:52:24–9:59:28 a.m. EDT].

283. *Ibid.*, DRM 2, Dat 2, Channel 2 MCC-OP, 13:59:41–14:01:43 [9:59:41–10:01:43 a.m. EDT] (Selfridge, Toledo, Fargo, and Alpena) and 14:04:14 [10:04:14 a.m. EDT] (Atlantic City). Penny Carroll, “Selfridge, not Hollywood: A look back at 9-11,” *The Wolverine Guard*, Fall 2006 [http://www.michigan.gov/documents/dmva/Fall_06_179624_7.pdf, accessed Sep 17, 2009]. The two fighters from Alpena expected to be in the air at 10:15 a.m. EDT. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 14:05:32–14:05:43 [10:05:32–10:05:43 a.m. EDT].

- 284.** “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 14:06:10–14:06:16 [10:06:10–10:06:16 a.m. EDT].
- 285.** The response of the battle cab was not recorded, but it is clear that leadership there did not pass shoot-down authority to Nasypany. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 13:59:41–14:00:10 [9:59:41–10:00:10 a.m. EDT], with direct quotes at 14:00:13 and 14:00:22 [10:00:13 and 10:00:22 a.m. EDT].
- 286.** *Ibid.*, DRM 1, Dat 2, Channel 4 ID1—OP Position, 13:58:01–14:00:09 [9:58:01–10:00:09 a.m. EDT], direct quote at 13:59:39 [9:59:39 a.m. EDT]. DAL 1989 diverted to Cleveland airport at 10:05 a.m. EDT and landed there at 10:18 a.m. EDT. DoT, FAA, “Daily Record of Facility Operation,” FAA Form 7230-4 (1-94), Date: 9/11/2001, Location: Oberlin, OH, Identification: ZOB, Type Facility: ARTCC, Operating Position: Watch Supervisor, Air Traffic Manager: Richard Kettell [<http://www.scribd.com/doc/14353833/T8-B15-Hijacked-Airplaner-2-of-3-Fdr-UA-93-DOT-FAA-Report-of-Aircraft-Accident-and-Daily-Record-of-Facility-Operation>, accessed Jul 23, 2009].
- 287.** “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 14:01:53–14:01:58, 14:02:22–14:02:46, 14:05:43–14:05:57 [10:01:53–10:01:58, 10:02:22–10:02:46, 10:05:43–10:05:57 a.m. EDT]; and DRM 1, Dat 2, Channel 4 ID1—OP Position, 14:03:41–14:05:32 [10:03:41–10:05:32 a.m. EDT]. Bronner, “9/11 Live: The NORAD Tapes.”
- 288.** *Ibid.*, DRM 2, Dat 2, Channel 2 MCC-OP, 14:05:43–14:05:57 [10:05:43 – 10:05:57 a.m. EDT]. Spencer, *Touching History*, p 223.
- 289.** “Transcripts from Voice Recorder,” NEADS, DRM 1, Dat 2, Channel 4 ID1—OP Position, 14:06:28–14:10:53 [10:06:28–10:10:53 a.m. EDT]. *Final Report*, p 30. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 10:07:16 a.m. [EDT].
- 290.** UAL 93 was presumed to be over or in the vicinity of York, Pennsylvania, and DAL 1989’s Mode 3 had just faded over Cleveland. The United flight had, in fact, crashed; the Delta flight had landed safely at Cleveland airport and was not, as Nasypany thought, heading back east after turning around near Cleveland. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 2 MCC-OP, 14:12:03–14:14:12 [10:12:03–10:14:12 a.m. EDT].
- 291.** *Ibid.*, DRM 1, Dat 2, Channel 4 ID1—OP Position, 14:14:09–14:15:23 [10:14:09–10:15:23 a.m. EDT]; and DRM 2, Dat 2, Channel 2 MCC-OP, 14:14:29–14:15:50 [10:14:29–10:15:50 a.m. EDT]. Bronner, “9/11 Live: The NORAD Tapes,” NEADS audio tape, 10:15:00 a.m. [EDT].
- 292.** Michael D. Sallah and Joe Mahr, “Toledo’s Air Guard called to defend U.S. on Sept. 11,” *Toledo Blade*, toledoblade.com, Dec 9, 2001 [<http://www.toledoblade.com/apps/pbcs.dll/article?Date=20011209&Category=NEWS28&ArtNo=112090036&Ref=AR>, accessed Jan 6, 2009].
- 293.** “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 69 MCC-OP, 13:09:00–13:09:10 [9:09:00–9:09:10 a.m. EDT].
- 294.** *Ibid.*, DRM 2, Dat 2, Channel 2 MCC-OP, 13:58:24–13:58:53 [9:58:24–9:58:53 a.m. EDT]. Filson, *Air War Over America*, pp 71, 73.

- 295.** This according to Maj. Martin Richard, presumably. Vittner, “[Otis] Historian’s Report.” Filson, *Air War Over America*, p 50. Spencer, *Touching History*, p 244. By 9:20 a.m. EDT, NEADS surveillance personnel knew that the additional fighters had been recalled. “Transcripts from Voice Recorder,” NEADS, DRM 2, Dat 2, Channel 15 [AST], 13:20:30 [9:20:30 a.m. EDT].
- 296.** Vittner, “[Otis] Historian’s Report.” Spencer, *Touching History*, pp 243–47. MFR, Duffy intvw.
- 297.** Rosenfeld and Gross, *Air National Guard at 60*, p 38.
- 298.** *Final Report*, pp 27, 38, and 40; p 463, endnote 201, citing DoD transcript, Air Threat Conference Call, Sep 11, 2001; p 464, endnote 213, citing 9/11 Commission staff’s meeting with President Bush and Vice President Cheney (Apr 29, 2004).
- 299.** *Ibid.*, p 44; also p 465, endnotes 235 and 236, citing, e.g., David Wherley intvw (Feb 27, 2004) and USSS memo, Beauchamp to AD-Inspection, September 11 experience, Feb 23, 2004.
- 300.** CIA, “DCI [Director of Central Intelligence George J. Tenet’s] Testimony Before the Joint Inquiry into Terrorist Attacks Against the United States,” unclassified version, Jun 18, 2002 [https://www.cia.gov/news-information/speeches-testimony/2002/dci_testimony_06182002.html, accessed Mar 2, 2011]. “Official: 15 of 19 Sept. 11 hijackers were Saudi,” Associated Press, *USA Today*, Feb 6, 2002, updated 06:29 a.m. ET [<http://www.usatoday.com/news/world/2002/02/06/saudi.htm>, accessed Mar 2, 2011]. Al-Qaeda operatives commonly referred to suicide attacks as “martyrdom operations.” Daniel Benjamin and Steven Simon, *The Age of Sacred Terror: Radical Islam’s War Against America* (New York: Random House Trade Paperbacks, 2003), p 28.
- 301.** Eggen and Loeb, “U.S. Intelligence Points To Bin Laden Network.” United Kingdom, Her Majesty’s Government, Official Site of the Prime Minister’s Office, September 11 attacks—Culpability document, *Responsibility for the Terrorist Atrocities in the United States, 11 September 2001—An Updated Account*, May 15, 2003, pp 2, 3 [<http://webarchive.nationalarchives.gov.uk/+/number10.gov.uk/archive/2003/05/september-11-attacks-culpability-document-3682>, accessed Mar 7, 2011].
- 302.** DoD, American Forces Press Service, National Guard Bureau, “The Operation Desert Shield/Desert Storm Timeline,” Aug 8, 2000, from the 1991 “Defense Almanac” [<http://archive.defense.gov/news/newsarticle.aspx?id=45404>, accessed Jun 11, 2018]. Wright, *The Looming Tower*, p 270. Tom Cooper, with Brig Gen Ahmad Sadik (IrAF), “Iraqi Invasion of Kuwait, 1990,” Sep 16, 2003, 03:02, Air Combat Information Group, Arabian Peninsula & Persian Gulf Database [http://www.acig.org/artman/publish/article_213.shtml, accessed Mar 16, 2011]. Fred Kaplan, “US Forces Arrive in Saudi Arabia,” *Boston Globe*, Aug 9, 1990 [<http://www.highbeam.com/doc/1P2-8186448.html>, accessed Mar 16, 2011].
- 303.** Wright, *The Looming Tower*, pp 158, 159; Benjamin and Simon, *The Age of Sacred Terror*, pp 105–107. *Final Report*, p 57. Randall D. Law, *Terrorism: A History* (Cambridge, UK/Malden, Mass.: Polity Press, 2009), p 299.

- 304.** The date of the World Trade Center bombing, Feb 26, 1993, was the second anniversary of Kuwait's liberation by U.S. and coalition forces following its invasion by Saddam Hussein. Phil Hirschhorn, "Top terrorist convictions upheld," CNN.com, Apr 4, 2003, posted 2335 GMT [<http://edition.cnn.com/2003/LAW/04/04/terrorism.yousef/>, accessed May 18, 2011]. Kuwait celebrates Feb 26 as Liberation Day. Holidays Around the World, "Kuwait Celebrates Liberation Day," n.a., n.d. [<http://aglobalworld.com/holidays-around-the-world/kuwait-liberation-day/>, accessed Aug 18, 2017]. Timeanddate.com, "Liberation Day in Kuwait," n.a., 2017 [<https://www.timeanddate.com/holidays/kuwait/liberation-day>, accessed Aug 18, 2017].
- 305.** Wright, *The Looming Tower*, pp 188–89, 202, 204–205, 235–36, 246, 255–58; Law, *Terrorism*, pp 302–303, 304; *Final Report*, pp 60, 67; Benjamin and Simon, *The Age of Sacred Terror*, p 224. Memorandum for Air Force Chief of Staff and Secretary of the Air Force from 12AF/CC James F. Record, Lt Gen, USAF, Oct 31, 1996, attaching Lt Gen James F. Record, "Independent Review of the Khobar Towers Bombing" [<http://www.au.af.mil/au/awc/awcgate/khobar/recordf.htm>, accessed Apr 5, 2011]. John L. Esposito, *Islam: The Straight Path* (New York/Oxford: Oxford University Press, 2005), p 262.
- 306.** *Final Report*, p 67.
- 307.** Osama bin Laden, "Declaration of War against the Americans Occupying the Land of the Two Holy Places," Aug 23, 1996 [<http://www.mideastweb.org/osamabinladen1.htm>, accessed Jan 14, 2011].
- 308.** "Text of Fatwa Urging Jihad Against Americans—1998," *Al-Quds al-Arabi*, London, Feb 23, 1998, translation from the Arabic under the headline "Text of World Islamic Front's Statement Urging Jihad Against Jews and Crusaders" [<http://www.mideastweb.org/osamabinladen2.htm>, accessed Jan 14, 2011].
- 309.** Tenet's testimony before the Joint Inquiry, Jun 18, 2002. Wright, *The Looming Tower*, pp 270–72, 297–98, 299–300, 319–20. Phil Hirschhorn, "Four embassy bombers get life," CNN.com, Oct 21, 2001, posted 10:58 a.m. EDT (1458 GMT) [<http://edition.cnn.com/2001/LAW/10/19/embassy.bombings/>, accessed May 18, 2011]. Esposito, *Islam: The Straight Path*, p 262.
- 310.** Benjamin and Simon, *The Age of Sacred Terror*, p 156, citing Osama bin Laden videotape released Dec 27, 2001, accessed by the authors at www.fas.org/irp/world/para/ladin_122701.pdf.
- 311.** *Ibid.*, pp 156–57.
- 312.** *Ibid.*, p 157, directly quoting Osama bin Laden intvw with Tayseer Alouni, Afghanistan, al-Jazeera, Oct 2001; translation accessed by the authors at www.cnn.com/2002/WORLD/asiapcf/south/02/05/binladen.transcript/.
- 313.** *Ibid.*, pp 156–61.
- 314.** Direct quote from The White House, President George W. Bush, Office of the Press Secretary, Address to a Joint Session of Congress and the American People, United States Capitol, Washington, D.C., Sep 20, 2001, 9:00 p.m. EDT [<http://www.whitehouse.gov/news/releases/2001/09/print/20010920-8.html>, accessed Jun 12, 2008]. Peter Ford, "'Why do they hate us?'" *Christian Science*

Monitor, Sep 27, 2001 [<http://www.csmonitor.com/2001/0927/p1s1-wogi.html>, accessed Feb 11, 2011].

315. *Final Report*, p 2; Kenneth Katzman, *Terrorism: Near Eastern Groups and State Sponsors, 2001*, Congressional Research Service (CRS), The Library of Congress, report no. RL31119, Sep 10, 2001 (revised Feb 13, 2002), p CRS-2 [http://www.mipt.org/pdf/crs_r/31119.pdf, accessed Jan 8, 2008]. David Zeidan, “The Islamic Fundamentalist View of Life as a Perennial Battle,” *Middle East Review of International Affairs* [MERIA] *Journal*, vol 5, no 4 (Dec 2001) [<http://meria.idc.ac.il/journal/2001/issue4/jv5n4a2.htm>, accessed Feb 4, 2011].

316. Benjamin and Simon, *The Age of Sacred Terror*, p 220.

317. U.S. Congress, *Report of the Joint Inquiry into the Terrorist Attacks of September 11, 2001: Joint Inquiry into Intelligence Community Activities before and after the Terrorist Attacks of September 11, 2001*, Report of the U.S. Senate Select Committee on Intelligence and U.S. House Permanent Select Committee on Intelligence together with additional views. Filed Dec 20, 2002. S. Rept. 107–351 and H. Rept. 107–792, 107th Congress, 2d Session. Washington, D.C.: U.S. Government Printing Office, 2002 [<http://purl.access.gpo.gov/GPO/LPS34039>, accessed Nov 20, 2007]. Part 2: Narrative—The Attacks of September 11, 2001, p 193 [<http://www.gpoaccess.gov/serialset/creports/pdf/part2.pdf>, accessed Jun 16, 2008].

318. *Ibid.*, p 193, quoting Jenkins and Woolsey.

319. *Ibid.*, p 193. Benjamin and Simon, *The Age of Sacred Terror*, p 221. Law, *Terrorism*, p 278.

320. In May 1993, the FBI learned “from a foreign source” that bin Laden was providing financial backing for Rahman’s efforts at jihad and, specifically, for the Islamist cell involved in a plot to attack New York City landmarks. Wright, *The Looming Tower*, pp 3, 177, 181–82, quote on p 3. On Oct 8, 2002, a report by Eleanor Hill, staff director of the Joint Inquiry Staff assisting the Senate Select Committee on Intelligence and the House Permanent Select Committee on Intelligence in their inquiry into the 9/11 attacks, revealed that bin Laden had helped to pay for Nosair’s legal defense. U.S. Congress, Joint Inquiry into Intelligence Community Activities before and after the Terrorist Attacks of September 11, 2001, *Joint Inquiry Staff Statement, Part I*. Eleanor Hill, Staff Director, Joint Inquiry Staff. Sep 18, 2002 [<http://i.cnn.net/cnn/2002/ALLPOLITICS/09/18/intelligence.hearings/intel.911.report.pdf>, accessed Sep 19, 2007]. Greg B. Smith, “Bin Laden Bankrolled Kahane Killer Defense,” *New York Daily News*, Oct 9, 2002, 8:06 a.m. [http://www.nydailynews.com/archives/news/2002/10/09/2002-10-09_bin_laden_bankrolled_kahane_.html, accessed Mar 8, 2011]. Benjamin and Simon, *The Age of Sacred Terror*, pp 4–5.

321. Benjamin and Simon, *The Age of Sacred Terror*, p 6.

322. *Ibid.*, pp 7–14. Wright, *The Looming Tower*, pp 176–79, 236. *Final Report*, pp 71–72. Law, *Terrorism*, pp 301–302.

323. Wright, *The Looming Tower*, pp 176–79. Benjamin and Simon, *The Age of Sacred Terror*, pp 15–19. *Final Report*, pp 71–72. Law, *Terrorism*, p 302.

324. Wright, *The Looming Tower*, pp 235–36. Benjamin and Simon, *The Age of*

- Sacred Terror*, pp 20–25, 449. *Final Report*, pp 73, 147. U.S. Congress, *Report of the Joint Inquiry*, p 192.
- 325.** Wright, *The Looming Tower*, pp 235–36. Benjamin and Simon, *The Age of Sacred Terror*, pp 20–25. *Final Report*, p 73. U.S. Congress, *Report of the Joint Inquiry*, p 192. Brendan Lyons, “Terrorist Foretold 9/11 Towers Plot,” *Albany Times-Union*, Sep 22, 2002 [<http://www.highbeam.com/doc/1G1-157545047.html>, accessed Apr 11, 2011]. “Western Intel Knew bin Laden’s Plan Since 1995—German Paper,” Agence France-Press, Dec 8, 2001 [<http://s3.amazonaws.com/911timeline/2001/afp120801.html>, accessed Apr 11, 2011].
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- 327.** Wright, *The Looming Tower*, pp 235–36, 307–308. *Final Report*, pp 73, 147, 149, 153–55, 276. Tenet’s testimony before the Joint Inquiry, Jun 18, 2002.
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- 329.** *Ibid.*, pp 28–29. Wright, *The Looming Tower*, pp 217–19.
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- 337.** *Final Report*, p 345. Wald, “A Nation Challenged,” Oct 3, 2001. Thomas Sancton, “Anatomy of a Hijack,” *Time*, Jun 24, 2001, originally published Jan 9, 1995 [<http://content.time.com/time/magazine/article/0,9171,163487,00.html>, accessed Jan 31, 2011, and <http://content.time.com/time/magazine/article/0,9171,982288,00.html>, accessed Aug 9, 2017, respectively].
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- 340.** Benjamin and Simon, *The Age of Sacred Terror*, p 4.
- 341.** *Ibid.*, p 6, quoting passage from Nosair’s notebook.
- 342.** *Ibid.*, pp 7–10, 12–14.
- 343.** Acting on a tip from an operative-turned-informant, Pakistani soldiers and U.S. agents from the Drug Enforcement Administration, the State Department Bureau of Diplomatic Security, and the FBI apprehended Ramzi Yousef at an Islamabad bed-and-breakfast owned by bin Laden on the morning of February 7, 1995. Agents raced him to an airstrip and a “specially equipped [U.S. Air Force 707]” for transport to the United States. Benjamin and Simon, *The Age of Sacred Terror*, pp 24–25, 237 (quote); Wright, *The Looming Tower*, pp 204–205.
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