

The Other Atomic Bomb Commander: Colonel Cliff Heflin and his “Special” 216th AAF Base Unit





Darrell F. Dvorak

The Distinguished Service Medal is earned for “exceptionally meritorious service to the government in a duty of great responsibility, in combat or otherwise.” The U.S. Air Force’s third-most prestigious award, it is rarely given to airmen lower than major general, but it was awarded to Col. Clifford J. Heflin upon his retirement in 1968 after thirty-one years of service. Heflin was recommended for the DSM primarily because he had commanded two vital, top secret and highly successful projects in World War II. Few people—military or civilian—knew about those commands at the time, and even fewer knew about them when Heflin died in 1980. The story of his first command began to emerge in 1985 but remains little known, and the story of his second command is remembered only by his immediate family. Both deserve to be universally known because together they change the prevailing narrative of the Army Air Forces (AAF) role in the atomic bombing of Japan. This paper is based on Heflin’s private records, overlooked primary sources, and prior scholarship. It addresses three key questions: Why was Heflin chosen for a top command in the atomic bomb project; what were his specific contributions to that project; and why has his story been overlooked?

After almost seventy years, “The Manhattan Project” is widely recognized as the codename for the massive, top secret U.S. effort to develop and use atomic bombs in World War II.¹ Less well known is the unprecedented authority wielded by one man, Army Maj. Gen. Leslie Groves, who was Manhattan’s Commanding General from June, 1942 to August, 1945. He later remarked, “No officer I ever dreamed of had the free hand I had in this project; no theatre commander ever had it and I know of no one [else] in history who has had such a free hand.”² As biographer Robert Norris described it, Groves used his authority to build a “juggernaut” and drove “it forward, ever faster, racing toward the finish.”³ The juggernaut Groves drove was centered on the AAF.

Over several months in mid-1944, Groves and AAF Commanding General Henry H. (“Hap”) Arnold met to define the AAF’s responsibilities. In March, they agreed that:

*The AAF would organize and train the requisite tactical bomb unit, which, for reasons of security, must be as self-sustaining as possible and exercise full control over delivery of bombs on the targets selected. Manhattan would receive from the AAF whatever assistance it needed in ballistic testing of bombs and air transportation of materials and equipment.*⁴

The author, Darrell F. Dvorak, is indebted to Dr. Daniel F. Harrington, historian with the U.S. Strategic Command, and Dr. Robert Standish Norris, Senior Fellow for Nuclear Policy with the Federation of American Scientists and author of the definitive biography of General Leslie R. Groves, Commanding General of the Manhattan Project, for their professional critiques of, and many suggestions for, this paper, as well as to members of Heflin’s family who provided his original records and relevant memories.

Dvorak is a retired business executive and a son-in-law of the late Col. Heflin. He has a BS from Georgetown University and an MBA from the University of Chicago. Dvorak has published dozens of business-related articles, but this is his first history paper, which began simply as a record for Heflin’s family of his service in World War II.



Further sessions between Groves and Arnold in July and August conceptually defined two key organizations, a “tactical bomb unit,” designated the 509th Composite Group, and a “section” of Manhattan, codenamed Project Alberta, whose mission was:

*... the completion of design, procurement and preliminary assembly of [bomb] units which would be complete in every way for use with active [nuclear] material; continuation of a test program to confirm in so far as possible without using active material the adequacy in flight of the components and assembled [bomb] units; and preparation for overseas operations against the enemy.*⁵

In short, Alberta (also known as Project A) was to ensure that U.S. nuclear science was *weaponized* into functional bombs that could be accurately dropped by bomber aircraft specially configured for them, and that the bomb crews were successfully trained, deployed and provisioned for their missions. Alberta was the culmination of Manhattan, integrating years of work that by mid-1945 became focused at three primary venues:

Los Alamos Laboratory in New Mexico (code-named Site Y and also referred to as Project Y

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(Right) Col. Clifford J. Heflin(left) and Col. Paul W. Tibbets at Wendover AAFB.

(Left) Maj. Gen. Leslie R. Groves.



GROVES RELENTLESSLY SOUGHT THE BEST PEOPLE FOR MANHATTAN, REGARDLESS OF MILITARY NORMS

and Project), where the scientific work of designing, igniting, controlling and packaging the nuclear devices was carried out under Manhattan's scientific director, Dr. J. Robert Oppenheimer. About 6,000 personnel, most of them scientists or engineers, were stationed there.

Wendover AAF base in Utah (codenamed Kingman and also referred to as Site K and W-47), the home of the AAF units that would undertake the ballistics work, train for the bombing missions, provide dedicated air transportation for Alberta, and implement overseas operations. More than 2,500 airmen were stationed there.

Tinian AAF base, on one of the Marianas islands in the South Pacific (codenamed Destination), where the aircraft, crews, support personnel, atomic bombs and supplies were marshaled, and from which the bombing missions to Japan were launched. About 1,400 men from the 509th and Alberta were stationed there.

Groves relentlessly sought the best people for Manhattan, regardless of military norms. In mid-1943, he selected Navy Captain William S. "Deak" Parsons to lead the Los Alamos Ordnance and Engineering Division under Oppenheimer, because he believed Parsons was the best ordnance officer in the U.S. military. Later, in March, 1945, Parsons became Officer-in-Charge of Project Alberta, a measure of Groves's high confidence in him.⁶ Parsons's

deputy was another naval ordnance expert, Commander Frederick L. Ashworth, who spent most of his time at Wendover. Together they integrated the work at Los Alamos and Wendover to produce the bombs.⁷ Groves, Parsons and Ashworth became as important to Heflin as his AAF chain of command.

In early September, 1944, twenty-nine year old Lt. Col. Paul W. Tibbets was selected by Arnold to be commanding officer of the 509th, primarily because Tibbets was an excellent bomber pilot, had combat experience, and for more than a year had been test-piloting and training crews to fly the new B-29 bomber. But the choice troubled Groves, largely because Tibbets's command experience was relatively limited.⁸ In a 1970 oral history interview, Groves bluntly expressed his opinion of Tibbets:

"[Tibbets] was superb [as a pilot], but he had no officer capabilities, at all... I don't think that you could call him a field commander...Yes, at the time, I wanted [a more mature officer to head the 509th] but I wasn't going to interfere with what Arnold wanted ... it was a mistake to have somebody who was quite that young to be the head of [a Group] that was going to develop..."⁹

The 509th would quickly "develop" into a free-standing organization of 1,800 airmen in eight units, a larger and more operationally diverse group than anything Tibbets had ever commanded. Groves undoubtedly would have done something to



Col. Heflin as Carpetbagger commanding officer in 1944. (Photo courtesy of the 801st/492nd Organization.)

at least offset Tibbets's weakness, but no *explicit* records have been located detailing how he tackled the problem. However, several immediate developments appear to have addressed Groves's concerns.

The earliest may have been cryptically recorded in Groves's "diary" for September-October 1944.¹⁰ On September 18, 1944, Groves asked to meet Arnold in connection with a disturbing report he had received from one of his science advisors, and in quick succession, Groves saw Arnold; talked with Parsons regarding Tibbets's "administrative difficulties;" talked with and then met Tibbets; and on October 19, again met with Tibbets along with Parsons, two science advisors, and the head of Manhattan security. For the remainder of 1944, Groves's diary does not record more about the subject which, suggests that Tibbets's "administrative difficulties" were solved or in the process of being solved.

Also in October, two of the first specially-configured B-29s ("Silverplate" models) were assigned to Wendover's 216th AAF Base Unit (Special) for use in drop testing Los Alamos atomic bomb designs.¹¹ This was an unusual role for a base unit, which typically would only manage base-related functions, and may be the reason that the 216th was designated "Special," but it is possible that the assignment decision pre-dated Tibbets's selection. The last

development was that, sometime in the eight days between October 26 and November 2, a new base commander for Wendover was selected. This officer, a full colonel since May, 1944, was fully qualified to take on a broad range of operational duties that otherwise would have been handled by Tibbets's 509th or another operational unit.¹²

Three days after Groves's seemingly pivotal October 19 meeting, Col. Clifford Heflin ended a 12-month assignment as the first commander of the 801st/492nd Bombardment Group, nicknamed the Carpetbaggers. Based in England, this unique, top secret unit had worked in concert with the U.S. Office of Strategic Services (OSS), led by legendary Gen. William "Wild Bill" Donovan, to help build disparate French resistance groups into an effective sabotage and guerrilla force. The Carpetbagger/OSS objective was to help the French resistance to "harass, disrupt and divert" the German army's defense against the Allies' D-Day invasion.¹³ Following Carpetbagger successes early in 1944, Gen. Dwight D. Eisenhower, Supreme Commander of the Allied Expeditionary Force, ordered Lt. Gen. Carl Spaatz, Commanding General of U.S. Strategic Air Forces in Europe, to increase the size of Heflin's unit, which quickly grew to a force of 3,000 airmen, sixty-four B-24 bombers and several C-47s.¹⁴ The Carpetbaggers' hazardous, low-level, moon-lit night missions across the English Channel steadily expanded from dropping supplies, to also dropping agents and saboteurs, and then landing behind German lines to rescue downed Allied airmen. Each new mission required bomber modifications and innovative flying tactics; each was first piloted by Heflin.¹⁵ By mid-September, 1944, the unit had completed 1,800 missions in support of 13,500 resistance fighters, while suffering the loss of twenty-five aircraft and more than 200 crew members.¹⁶ The Carpetbaggers were later awarded a Presidential Unit Citation for "extraordinary heroism in action against an armed enemy," and Heflin was personally honored with several prestigious awards from the AAF and from General Charles DeGaulle's Free French Forces.¹⁷ Moreover, recognition of Heflin and the Carpetbaggers went well beyond their medals. In April, 1944, Heflin had "received full authority to accept or reject missions for the Carpetbaggers. No other group officer in the Eighth Air Force had such full control over his operations."¹⁸ Heflin's AAF Officer Efficiency Report for the period rated him "Superior," the highest possible rating, and described him as a "strong and able leader [who] inspires loyalty and commands respect of superiors. Forceful, discerning, keen, self-reliant and efficient, he is, also, courageous and possessed of sound judgment."¹⁹ After the war, it was recognized that the Carpetbaggers had inaugurated a strategic change in air warfare: "Airpower not only brought the air war to the enemy in his heretofore secure rear areas, it now brought the ground war into his own backyard as well;"²⁰ and Carpetbagger operations marked "the origin of special operations as a role of American airpower."²¹ Members of the British 7th Special Operations Squadron "trace their lineage as

An aerial view of Wendover in 1945 (Photo courtesy of the 457th Bomb Group Association.)



EISENHOWER,... ORDERED LT. GEN. CARL SPAATZ,... TO INCREASE THE SIZE OF HEFLIN'S UNIT, WHICH QUICKLY GREW

Air Force special operators back to the "Carpetbaggers" and a painting entitled "Carpetbaggers" hangs in tribute at their Royal Air Force base.²² Regrettably, although several accounts of the Carpetbaggers are now available, Heflin never contributed to them because only one (see note 18) was written while he was alive.²³

Returning to the U.S. on October 23, 1944, Heflin expected to begin a well-earned leave. Instead, he was called to Second Air Force headquarters in Colorado Springs, Colorado, and told to report immediately to Wendover.²⁴ His flight records show that he was transferred to the 216th and, on October 26-27 and 30-31, flew a P-47 for fifteen hours and eight landings. This activity is consistent with Heflin traveling to meet, and pass muster with, senior AAF and Manhattan officials in Washington, D.C. and Los Alamos. Perhaps tellingly, Groves's diary for November 2, 1944, records: "Capt. Parsons called [Groves]... advised that he has met the new CO [commanding officer] and approves."²⁵ Then, for most of November and December, Heflin took his overdue leave (and relocated his wife and two infant daughters to Wendover) before taking command of the 216th on January 19, 1945.²⁶ He was twenty-nine years old.

How and when Heflin was brought to the attention of Arnold and/or Groves is not certain, but he had come to the attention of Generals Spaatz and Doolittle several times and Arnold may have solicited their recommendations. In any event, Heflin's qualifications were a remarkably tight fit with the needs of the atomic bomb project. He had served twelve months as CO of a brand new, very large, highly secret, and operationally diverse AAF bomber unit. He had organized, trained and led that unit to accomplish an air combat mission never

before attempted, a mission that required close coordination with a separate, top secret, non-military organization and also required innovative flying tactics and aircraft modifications. He was regarded by his superiors and subordinates as an exceptional officer, one who became available at the precise time he was needed.

By itself, being CO of Wendover was a large responsibility. The base covered 1.8 million acres and was understood to be the world's largest gunnery and bombing range, so Heflin's task was akin to being responsible for all the government, municipal and business activities of a small city.²⁷ Heflin's work probably was complicated in that he may have had to replace 800 airmen who had been transferred from the 216th to the 509th upon its December 17 activation.²⁸ But even more challenging, Heflin immediately became responsible for the first of several operational assignments in support of Project Alberta, beginning with ballistics testing of the atom bombs.

The emerging atom bomb designs presented unique problems to ensure that they would follow predictable flight paths and detonate at predetermined heights.²⁹ The only practical ballistics program at the time was to produce and test inert, cement-weighted, dummy bomb designs, in a recurring cycle of *technology development—bomb design—B-29 modification—dummy production—dummy drop testing—technology development* shared between Los Alamos, Wendover and B-29 vendors.³⁰ Alberta historian, Norman Ramsey, wrote:

In these tests, [dummy bomb] units approaching more and more closely to the final model were tested for ballistics information, for electrical fusing infor-



Loading drop test units before the advent of hydraulic lifts. (Photo courtesy of Historic Wendover Airfield.)

HEFLIN'S OTHER BALLISTICS PROGRAM ASSIGNMENT WAS TO ORGANIZE A NEW ORDNANCE UNIT WITHIN THE 216TH TO WORK WITH LOS ALAMOS IN PRODUCING THE TEST BOMBS FOR FTS TO DROP

mation, for flight tests of electrical detonators, for test of the aircraft release mechanism, for vibration information, for assembly experience, for temperature tests, etc.³¹

In early February, 1945, Heflin began organizing a Flight Test Section (FTS) led by Major Clyde “Stan” Shields, who twelve months earlier had piloted the first Silverplate prototype in the initial drop tests at Muroc Army Air Base (now Edwards AFB). For the seven months of FTS drop testing, Shields kept a candid “Daily Diary” of activities. As shown in the timeline below, the diary reveals that drop testing got off to a slow start due to personnel shortages and various other problems. Heflin worked each of these matters until, beginning in May, 1945, and aided by an expanded fleet of nine B-29s, test drops ramped up to a hectic pace in June and July.

1945 Drop Testing Timeline³²

- Feb 3** Tibbets and Heflin lead meeting re: forming a test unit of the 216th composed of 5 B-29s, 3 flight crews, 5 maintenance crews, 2 loading crews and staff.
- Feb 4** Heflin and Shields pilot drop tests for 8 hours over 2,000 miles.
- Feb 24** Tibbets and Shields agree that four B-29s and “flying personnel” of the 509th’s 393rd Bombardment Squadron will be available for drop tests.
- Mar 9** Heflin and Shields visit Inyokern (California) bombing range to assess parallel FTS operations; Heflin “did not seem favorably impressed.”
- Mar 14** Tibbets, Heflin and Shields discuss various FTS matters; regarding new crews, Heflin says “If they can’t produce, back they go to 2nd AF.”
- Mar 25** Shields is notified that FTS will get the first five of the latest model B-29s, which can readily operate above 30,000 feet.
- Apr 24** Tibbets, Heflin, Shields, Parsons and Ashworth meet and decide that a separate bombing practice program (“pumpkins”) will

“eliminate the necessity of trying to work [the 393rd] into the test program.”

- May 2** “The [393rd’s] bombing [at Inyokern] was not satisfactory, their records were not tabulated correctly, and the data gained was not reliable.”
- May 17** Due to expanded testing, it “is impossible to operate with present [crews].”
- May 24** Ashworth reports to Parsons that drop testing is going well.³³
- Jun 10** FTS “is receiving additional... five (5) test crews...”
- Jul 3** Tibbets, Heflin and Shields depart for Los Alamos “to discuss certain problems with Project people there.”
- Jun-Jul** FTS conducts 24 drop tests in June and 30 in July;³⁴ the last of these confirm that all Fat Man components are working.
- Aug 2** “...we can get [Fat Man] inside of 300 feet from 32,000 [ft.] 90% of the time;” for Little Boy “we should be able to promise inside of 200 feet.”

Shields’s final diary entry seems intended to document that he and FTS successfully carried out their important assignment, which combat use of the bombs soon confirmed.

Heflin’s other ballistics program assignment was to organize a new ordnance unit within the 216th to work with Los Alamos in producing the test bombs for FTS to drop. It was designated the Special Ordnance Attachment (SOD) and commanded by Capt. Henry Roerkohl. However, although it had been decided in mid-January, 1945, to establish the unit, it took until May to become fully manned (about 200 airmen), so in the interim, two other units briefly worked with Los Alamos. The first, dating back to September, 1944, was identified as a “security unit of the 216th,”³⁵ but the author has not located any details. The other unit, the First Ordnance Squadron (FOS) of the 509th, was activated on March 6, 1945, and its work overlapped with SOD until early May, when FOS began departing for Tinian (where it would assemble the live bombs). Due to the bombs’ evolving designs, unique shapes and massive weights, producing the test bombs required creation of new tools, assembly procedures, and material handling equipment, all configured to efficiently load the test bombs into the evolving Silverplate B-29 designs. As would be expected, SOD’s ability to produce the dummy bombs mirrored that of FTS drop tests by ramping up to peak productivity in June and July. The following timeline has been constructed from several sources.

Ordnance Timeline³⁶

- Sep 1944** Ordnance operations at Wendover begin with personnel from Los Alamos and “the security organization” of the 216th. (Auditor, 10)
- Jan 17, 1945** Meeting of “representatives from the 509th,” FOS, Parsons and Ashworth; decision to establish “a separate ordnance detachment”

Observer caravan to drop test target area. (Photo courtesy of Historic Wendover Airfield.)



THE RECOMMENDATION FOR HEFLIN TO RECEIVE HIS DSM WOULD CITE AS ONE REASON HIS "HIGHLY SUCCESSFUL FLIGHT TESTING OF THE ATOMIC BOMB"

- stationed at Wendover to supply drop test units and "train replacements for overseas functions of the First Ordnance Squadron." (Auditor, 12)
- Mar 1945** "The manning of the 216th's Special Ordnance Detachment... appears to have begun when Capt. Harley D. Kuster was assigned... as Supply Officer." (Auditor, 14)
- Mar-Apr 1945** "It is probable that [FOS] was intended to handle its shipments of overseas kit and organizational equipment, and that [SOD] was intended to handle all other supply, warehousing and property... [but] the division of responsibilities between the [FOS] and [SOD] at [Wendover] was not well defined." (Auditor 14, 19)
- Apr 21, 1945** Ashworth reports to Parsons that Roerkohl is "catching on," and "there's no question" that Roerkohl and Kuster "will be perfect."
- May 2, 1945** Capt. James Rowe is appointed Project Officer reporting to Roerkohl. SOD assumes full control of ordnance work at Wendover. (Rowe, 27)
- May 10, 1945** Last FOS personnel depart from Wendover's ordnance facility; FOS has no further drop test responsibilities. (Rowe, 52)
- May 12, 1945** Ashworth tells Parsons that the manning of both SOD and FOS ordnance units is still "not good."
- May-Jul 1945** In three months, SOD assembles 71 drop test bombs. (Rowe, 175-176)

Four weeks after Little Boy was dropped and four days after Japan's September 2 surrender, Oppenheimer sent Heflin a memo that expressed his personal appreciation for the contributions of Heflin and his men to the ballistics program. And sixty years after the war ended, Ashworth said:

My job at Los Alamos was to supervise and coordinate the work of the engineers in the testing at Wendover of bomb components then being developed at Los Alamos... I was able to run interference for

*them with the Base Commander, Colonel Heflin, and I think in useful ways. That wasn't difficult either because Colonel Heflin was one fine Air Force Officer.*³⁷

The recommendation for Heflin to receive his DSM would cite as one reason his "highly successful flight testing of the atomic bomb."³⁸ Yet today, Heflin, Shields and Roerkohl remain unknown to history, and one official USAF source credits Tibbets with the ballistics testing.³⁹

Heflin's third unusual assignment was to improve the performance of a unit key to serving Alberta's immense logistics needs.⁴⁰ In December, 1944, an air transportation unit was organized within the 509th "designed to fulfill one important need: the rapid transportation of project personnel and supplies from point to point within the states and from the states to the overseas base."⁴¹ Flying cargo planes, it was designated the 320th Troop Carrier Squadron (TCS), but commonly called "the Green Hornet Line" or "the airline." Initially under the command of Major Charles Sweeney (who later piloted the Nagasaki mission), the 320th had a rocky start due to crew and equipment shortages; provisioning Tinian to host 1400 men; and operating relatively ad hoc, without regular schedules or cargo priorities. As shown in the timeline below, by April, 1945, Heflin and the 509th's then-deputy CO worked on the 320th's problems. Less than a month later, the unit came under Heflin's command, reporting to Shields, as the major movement of hundreds of men to Tinian was underway.⁴²

320th TCS Timeline⁴³

- Dec 17 44** 320th TCS activated, operating three C-54s and four C-47s.
- Jan 6 45** Sweeney assumes command of the 320th.

FOR A COMBAT VETERAN LIKE HEFLIN, HIS DIVERSE "REAR ECHELON" DUTIES DISCUSSED ABOVE MAY HAVE BEEN A WELCOME RESPITE, BUT HIS SIXTH TASK RAISED THE ANTE

Apr 21 45 Ashworth tells Parsons that "Ludke (sic) and Col. Heflin worked up a schedule [for the 320th] to start immediately."⁴⁴

May 8 45 "No decision reached on when [FTS] can take over the transports."

May 14 45 "[FTS] took over transport operations... The necessary crews were procured through 2nd Air Force. It is hoped that the abuses prevalent in the past will be eliminated... Scheduled runs will be used when possible."

Jun 10 45 "...receiving additional... six transport crews... Our payload is not large enough to handle all the freight and passengers it is necessary to move."

Jun 14-25, 45 Shields meets with 320th crews "to amplify the policies, schedules, security, etc. concerning transport operations... and put it on a paying basis."

Jul 26-28 45 Nuclear components for Little Boy and Fat Man depart from Kirtland Army Air Field for Tinian on five of the 320th's C-54s and three Silverplate B-29s.

Aug 45 Personnel and supplies begin to return from Tinian

The change of command to Heflin and Shields presumably worked, because the 509th's official history praises the 320th for transporting more than 500 airmen to Tinian "quickly and efficiently,"⁴⁵ and Alberta's official history says the unit "contributed greatly to the ability of Project A to beat its schedules in combat use of the Atomic Bomb."⁴⁶

It is significant that each of the four units discussed above (the 216th's Base Unit, Flight Test Section, and Special Ordnance Detachment, and the 509th's 320th Troop Carrier Squadron), were undermanned when Heflin assumed command. This required that Heflin spend considerable time working with 2nd Air Force to acquire qualified airmen. But in addition, it appears that Heflin also had a major role in manning some of the 509th's other seven units. For most of Heflin's post-WWII career, he commanded various bases, groups and wings, requiring that he have available an up-to-date biography suitable for public release. Those biographies from 1953, 1962 and his 1968 retirement survive, and each notes his role in "organizing" the 509th. His final biography, included in a program provided to guests at his May, 1968 retirement ceremony, says that he "took command of the air base at Wendover, Utah, and *the overall responsibility for organizing the 509th Composite Group and the ballistics testing of the atomic bombs [emphasis added].*" In military parlance, "organizing" typically means assembling personnel for a unit, not necessarily commanding it, and there are several reasons to believe the claim is accurate, beginning with the fact that it was an official Air Force document.⁴⁷

For a combat veteran like Heflin, his diverse "rear echelon" duties discussed above may have been a welcome respite, but his sixth task raised the ante. On July 16, 1945, only three weeks before the first atomic bomb would be dropped on Hiroshima, Oppenheimer supervised Project Trinity, the world's

first explosive test of a nuclear device, at a remote site in New Mexico about 260 miles from Los Alamos. Much has been written about Trinity and its urgent objectives,⁴⁸ including that a failed test might have postponed dropping Little Boy until Fat Man finally worked. Among several methods to organize and measure the test results, two B-29s were to simulate a bombing run over Ground Zero, observe the explosion and resulting "cloud," and drop pressure gauges and other sensors attached to small parachutes.⁴⁹ Two B-29s from Shields's fleet were dispatched to Kirtland on July 10, and six days later he⁵⁰ and Heflin⁵¹ each piloted one. In addition to the flight crews, the planes carried several important Alberta passengers, including Parsons. But because of great uncertainties about the bomb's destructive power, these flights were considered potentially so dangerous that Oppenheimer tried to dissuade one of his physicists, future Nobel laureate Luis Alvarez, from going as an observer. In a memo to Secretary of War Henry L. Stimson, Groves described what happened to the B-29s:

*Because of bad weather, our two B-29 observation airplanes were unable to take off as scheduled from Kirtland... and when they finally did get off, they found it impossible to get over the target because of the heavy clouds and the thunder storms. Certain desired observations could not be made and while the people in the airplanes saw the explosion from a distance, they were not as close as they will be in action. We still have no reason to anticipate the loss of our plane in an actual operation although we cannot guarantee safety [emphasis added].*⁵²

Heflin and the others were fortunate that the storm precluded flying over the explosion because they would have been in the middle of the unexpectedly huge blast: "A red ball of fire burst through the undercast, mushrooming into an enormous multi-colored cloud. It raced past the bombers' altitude of 25,000 feet until it reached more than 40,000 feet, eight miles up into the sky."⁵³ The successful Trinity test gave a green light to complete ballistics testing and then send to Tinian Fat Man casings and nuclear inserts for arming the bombs. Heflin would have the central role directing their transport.

The 6,000-plus mile trip from Los Alamos to Tinian involved several legs, beginning with truck transport from Los Alamos to Kirtland, where the cargo was loaded into aircraft from Wendover and flown to one of several military air fields near San Francisco, and then hopped through several intermediate Pacific bases before arriving at Tinian. The following timeline lists major air transport events to Tinian following the Trinity test until the end of the war.

1945 Bomb Transports to Tinian

Jul 26 Three Green Hornet C-54s carrying Little Boy components and two carrying Fat Man components depart Kirtland for Tinian.

Jul 28 Three Fat Man pre-assembly units

TIBBETS DISCUSSED HEFLIN AT LEAST TWICE, BUT ONLY WHEN SPECIFICALLY ASKED ABOUT HEFLIN AND WHEN HIS REPLY WAS LIKELY TO REMAIN RELATIVELY PRIVATE FOR SOME TIME

depart Kirtland for Tinian on two B-29s from the 509th and one from the 216th's FTS.

Aug 3-4 Heflin convinces Parsons's deputy, Navy Capt. Ralph Larkin, that an experienced B-29 crew from Tinian is necessary to transport nuclear components for additional Fat Man bombs that are expected to be ready beginning August 14.⁵⁴ Groves separately expresses agreement.⁵⁵

Aug 6 Little Boy dropped on Hiroshima.

Aug 7 Arnold's office cables Generals Spaatz and Nathan Twining on Tinian that "neither Heflin nor I believe replacement airplanes should be used" to transport additional Fat Man nuclear components, "Because of greenness of crews, readiness dates of items, and completion of training dates of [new] crews... request you return two Project B-29's to [Heflin] to meet his delivery date. Advise immediately you (sic) concurrence with this plan or alternate suggestion."⁵⁶

Aug 9 Fat Man dropped on Nagasaki.

Aug 10 Groves advises Marshall that nuclear components for the second Fat Man bomb are expected to "ship from New Mexico 12 or 13 August." Marshall responds that another bomb "is not to be released on Japan without express authority" [from President Truman].

Aug 11 Tibbets later recalls that "...we had another weapon at Wendover, Utah. I sent word to Cliff [Heflin]... because I had already talked to Cliff and we had a thing between us. I was to invite him to come on out and visit and take a look. If he was to come and visit and take a look, he was supposed to bring that weapon in that airplane."⁵⁷

Aug 14 Japan accepts Allies' terms of surrender.

Aug 17 Via teletype, Parsons and Ramsey advise Oppenheimer and Larkin that, "although they are completely ready" three more Fat Man bombs "will not be dropped due to surrender agreement. An active sphere for [pre-assembly unit F-32], it is also assumed, will not be sent."

Sept 2 Japan signs Instrument of Surrender aboard the *USS Missouri*.

The belated public admission that there was a third atomic bomb generated several theories about where the B-29 shipment of the "active sphere" was stopped: before leaving Los Alamos; before being loaded at Kirtland; before departing Wendover for San Francisco; or at a base near San Francisco preparing to depart for Tinian. But to Heflin's family, there is a more important open issue: whether Heflin would not only fly the sphere to Tinian (as Tibbets said), but also pilot the possible third bombing mission.

The story of the third bomb may have first appeared publicly in March, 1968 in an eleven-part series in the *Chicago Tribune* about Tibbets and the atomic bomb project. Appearing fourteen years before publication of the first of Tibbets's several autobiographies, the series was described as Tibbets's "exclusive... uncensored... personal...

behind-scenes" story.⁵⁸ Near the end of the series, a brief paragraph says "Heflin... had been chosen to fly [bomb] No. 3 and he was stopped at Hamilton, Cal. (near San Francisco), in his B-29, which he was flying to Tinian August 14... carrying in his plane the plutonium required to complete the assembly of Fat Man No. 2, which would have been the third nuclear bomb." This might have been the first public mention of a third bomb, but it undoubtedly was the first public mention of Heflin and his connection to Manhattan. The entire series, including Heflin's role, arguably depended on Tibbets as the primary, if not exclusive, source. (Although Tibbets had retired from the Air Force two years before the series was published, Heflin did not retire until two months afterwards, and likely was not at liberty to talk to the journalist. Also the Heflin paragraph contained several glaring errors unlikely to have come from Heflin.)

Heflin's flight records show that, on August 10, he piloted a B-25 for 3:30 hours with two landings, and then on August 11, piloted a B-25 for 3:20 hours, again with two landings. At the time, for reasons of security, flights between Kirtland and Wendover always included a stop at an intermediate airfield so that flight plans never showed a connection to Los Alamos. Thus, Heflin's records are consistent with him flying to Kirtland, then returning the next day to Wendover to await Tibbets's call (as Tibbets said). But the dates appear to be a few days early and Heflin never piloted a B-29 anywhere in August.

Regarding a third bombing mission, years later, Tibbets several times said that he would pilot it because General Curtis E. LeMay, Chief of Staff to Spaatz, ordered him to do so. Yet, in Tibbets's 1985 oral history interview quoted above, he claimed that Heflin would carry the plutonium over 6,000 miles to Tinian but, implausibly, only because Heflin wanted to "take a look" at thirty-nine square miles of desolate real estate. Heflin told his immediate family that he would have piloted a third mission, but in light of LeMay's order, perhaps Heflin would have been Tibbets's co-pilot.⁵⁹

The Tibbets-Heflin relationship is worth further comment. In the fifty-one years from the surrender of Japan until his death in 2007, Tibbets was interviewed for publication many times and authored four autobiographies (1982-1998), but he never mentioned Heflin, never commented on a Wendover base commander, and never acknowledged that someone not part of the 509th led several important AAF tasks in Project Alberta. However, beginning about 40 years after the Japanese surrender, Tibbets discussed Heflin at least twice, but only when specifically asked about Heflin and when his reply was likely to remain relatively private for some time. In the first (the 1985 interview cited above), Tibbets said:

Cliff Heflin... was an upperclassman of mine at the flying school. He was a class ahead of me. I had to have a base commander at Wendover, Utah, that knew how to run things and run things right. There



HEFLIN HAD FOR SEVERAL YEARS BEEN ON THE "GENERAL'S LIST" ... BUT LEMAY BLOCKED HIS PROMOTION

is a tough SOB and one of the finest guys you have ever met. Cliff was a non-nonsense individual. He was a terrific person. Even though he was considerably senior to me, he told [2d AF CO Maj. Gen. Uzal G.] Ent he'd be happy to come up and be subordinate to me to run the air base. It didn't bother him a bit.⁶⁰

And thirteen years later, in a 1998 exchange of letters with an admirer who asked about Heflin, Tibbets replied: "[Heflin] was a close personal friend who I requested to be my base commander at Wendover."⁶¹ For several reasons, both of Tibbets's claims are highly doubtful.⁶² And, provocatively and perhaps mischievously, Heflin in his only public interview is quoted as saying that Tibbets commanded the 509th "under me."⁶³

However, available evidence suggests their relationship was akin to "separate and equal," with neither one reporting to the other. Neither Shields's Daily Diary nor the Heflin-Larkin transcript referenced above reveal one deferring to the other. And the Parsons-Ashworth transcript dated April 21, 1945, records that, when discussing the need for an alternate liaison officer when Ashworth was not available, Parsons described the role as "spokesman [to] that gang up there [at Wendover] that you're working with now, to Tibbets and his crowd and Heflin and his crowd," someone who would be "spending time on political things and refereeing" issues between them.⁶⁴ Whatever the reality, Tibbets and Heflin remained connected for another twenty-one months after the war ended.

Heflin continued as Wendover CO until he was relieved on October 22, 1945, and eleven days later became CO of the Roswell, New Mexico, AAF base (designations: 238th AAF Base Unit and 427th AAF Base Unit). A few days later, on November 6, the 509th began departing Tinian for their new base at Roswell, so Heflin and Tibbets briefly reprised their Wendover relationship. On January 22, 1946, Tibbets was assigned as technical advisor to the Bikini Bomb Project testing atomic bombs in the South Pacific, leaving Heflin as the remaining

senior officer with reasonably first-hand knowledge about the 509th, so he may have helped integrate the unit into the newly formed Strategic Air Command. Then, in August, 1946, he and Tibbets were sent to attend the Air Command and Staff School at Maxwell field in Alabama, where they remained until June, 1947. It was the last time they were assigned together.

Heflin served more than 30 years as a USAAF/USAF officer. In the post-war period, he held a variety of operational, base and headquarters staff positions in the U.S. and overseas, and continued to forge a record as an outstanding pilot, officer and commander. Heflin's regular six-month ERs reveal the following:

He was consistently graded "Superior", the highest possible rating.

Beginning January, 1952, his assignments were authorized for general officers, and his evaluators were exclusively general officers.

In his ER dated December, 1952, he for the first time was deemed "qualified" for promotion to Brigadier General.

Six years later, in his ER dated August, 1958, he was recommended for "early promotion" to Brigadier General.

Four years later, after repeated recommendations for promotion to BG, Lt. General James E. Briggs wrote in Heflin's July, 1962 ER that Heflin's promotion was "past due" and he should be promoted "for the good of the Air Force".

Heflin's June, 1964 ER was the last to recommend his promotion to BG. What happened? Heflin son-in-law and USAF Colonel Donald Elliott (Retired), whose career briefly overlapped with Heflin's, today confirms what Heflin told his family: Heflin had for several years been on the "General's List" (composed of colonels whom a board of general officers had screened and confirmed as qualified for promotion to brigadier general) but LeMay blocked his promotion and later removed him from the list. The reason dated back to 1953, when Heflin commanded a wing based at Stead Air Force Base, Nevada, and disciplined an officer in a more severe manner than LeMay (on whose staffs the officer had twice served) had "suggested."⁶⁵ Thereafter, for almost another decade, the disgraced officer badgered LeMay,⁶⁶ who blamed Heflin.

In 1968, Heflin retired, after 31 years of exemplary service, still a colonel. If he had been promoted to general, perhaps his story would have emerged much sooner. But in any event, he was honored by a retirement ceremony equivalent to that of a general officer and awarded his last and most significant honor, the DSM. The recommendation for the award read in part:

Colonel Heflin organized and commanded the first American OSS unit to work with the British effort in underground warfare in World War II. He commanded the 801st Bomb Group and later the 492nd Bomb Group to support the underground activities.

THE REASON DATED BACK TO 1953, WHEN HEFLIN COMMANDED A WING...AND DISCIPLINED AN OFFICER IN A MORE SEVERE MANNER THAN LEMAY...HAD "SUGGESTED"

On his return to the United States from the [European Theatre of Operations], he was assigned as Commander of Wendover AFB...In addition to the highly successful flight testing of the bomb, other activities he directed with distinction in support of the Manhattan Project included the development of the "Green Hornet" Air Transport Detachment...⁶⁷

LeMay had retired three years earlier.

The stories of Heflin's World War II commands, although still incomplete, suggest that he was among the most consequential AAF officers of that period, and his contributions to the atomic bomb project, while not as glamorous as dropping the bombs, arguably were as important to the project's success. In 1980, twelve years after retiring, Heflin died, having belatedly received recognition from the Air Force but, as yet, little from history. ■

NOTES

1. Manhattan was a five year, \$25+ billion (2011 dollars) project involving more than 160,000 workers at dozens of scientific, industrial and military locations. Yet the project was so secret that Harry Truman did not know about it until he became President – only four months before the bombs were dropped. Perversely, blanket secrecy didn't prevent spies from quickly stealing atomic technology, but it arguably diminished the scope, depth and accuracy of subsequent accounts of the project's history.

2. Robert S. Norris, *Racing For The Bomb: General Leslie R. Groves, The Manhattan Project's Indispensable Man* (South Royalton VT: Stereoforth Press, 2002.) p. 614.

3. Norris, p. 183.

4. Norris, p. 521.

5. Norman Ramsey and Raymond L. Brin, eds., "Atomic Energy Act of 1946: Nuclear Weapons Engineering and Delivery, Vol. 23: History of Project A." *National Nuclear Security Administration: NNSA Service Center*. (1946), p.16, www.doeal.gov/FOIADocs/RR00119.pdf (accessed Jan. 5, 2011)

6. Parsons was also mostly overlooked by history until the publication of *Target Hiroshima: Deak Parsons and the Creation of the Atomic Bomb* by Albert B. Christman (Annapolis: US Naval Institute Press, 1998).

7. Ashworth and Parson talked regularly by telephone, resulting in a cache of historically important transcripts: Parsons-Ashworth Transcripts, Ashworth, "Cdr. Frederick L. Ashworth (USN) Collection." *Manhattan Project Heritage Preservation Association*. 1945-1947. www.mphpa.org/classic/COLLECTIONS/CG-FASH/Pages/FASH_Gallery_01.htm (accessed Jan. 15, 2011). These transcripts reveal that discussions between the two officers were typically open and frank. Parsons and Ashworth each flew one of the atomic bombing missions as "weaponers" who armed the bombs immediately before dropping. Later, Parsons was awarded a Distinguished Service Medal and other high honors, and Ashworth a Legion of Merit, and both achieved Admiral rank.

8. Tibbets had led individual bomber squadrons, served as Operations Officer of the 97th Bombardment Group, and served on the staff of Twelfth Air Force's Assistant Chief of Staff for (bomber) Operations. F.J. Bradley, *No Strategic Targets Left*. (Paducah, KY: Turner Publishing Company, 1999). p. 94. Tibbets mentions the last two assignments in his several autobiographies but doesn't specify his command titles; for example: Paul W. Tibbets, *Flight of the Enola Gay*. (Columbus, Ohio: Mid Coast Marketing, 1997). pp. 69-70, 121.

9. General Leslie R. Groves, Oral History Transcript, April 3, 1970, Murray Green Collection, Box 66, Folder 3, USAF Academy, pp. 12, 46-7. Groves may not have shared his opinion with Arnold, and he did not include it in his book about the Manhattan Project, *Now It Can Be Told* (New York: Harper & Row, 1962).

10. General Leslie R. Groves, Papers of Leslie R. Groves:

Diaries, (College Park, National Archives Gift Collection), RG 200, Box 5, Files 1-4. A note from Groves dated August 23, 1960, accompanies the diaries, and explains that they were intended to keep him informed regarding telephone calls received in his absence from his office; are incomplete as to persons he saw in his office and very incomplete as to persons he saw outside of his office; and are also incomplete because of "our general practice to minimize written records...for reasons of security." The diaries were usually kept by one of Groves's assistants, Jean O'Leary, recorded in abbreviated form and often used codenames or otherwise oblique references for topics, people and places.

11. Richard H. Campbell, *The Silverplate Bombers: A History and Registry of the Enola Gay and Other B-29s Configured to Carry Atomic Bombs*. (Jefferson, NC: McFarland & Company, Inc., 2005). p. 12.

12. Admiral Frederick L. Ashworth, *Frederick L. Ashworth: United States Navy: An Autobiography*. (Walla Walla, WA: Northwest Library Bindery, 2001.) pp. 157, 171. As related by Ashworth, another factor may have been at work: Groves seemed to always have a backup for key personnel. "[Groves] always insisted on having a spare for everything... I became the spare for Parsons." See also: Norman Ramsey, #9531 Smithsonian Videohistory Program: Manhattan Project: Session Seventeen: Project Alberta: Collection Division Five; Stanley Goldberg, Interviewer; June 5, 1990. (Washington, D.C.: The Smithsonian Institution, 1990.) p. 10.

13. Major Bernard V. Moore II, "The Secret Air War Over France: USAAF Special Operations Units in the French Campaign of 1944." *School of Advanced Airpower Studies: Air University* (May 1992): 5.< <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA425597>> (accessed 18 January 2011). pp. 1-5.

14. Moore, pp. 13-25. The political background to Eisenhower's decision to support OSS/Carpetbagger operations is described by Arthur L. Funk, "Churchill, Eisenhower and the French Resistance," *Military Affairs*, (February, 1981): pp. 29-33.

15. Lt. Col. Dik Alan Daso, The Air Force Historical Association, *U.S. Air Force: A Complete History* (Washington, D.C.: Universe Publishing, 2006), p. 196.

16. Wesley F. Craven and James L. Cate, eds., "Supporting Operations: Chapter 14: Air Support for the Underground." *The Army Air Forces in World War II: Vol. 3: Europe: January 1944 to May 1945* (Washington D.C.: Office of Air Force History, 1983), pp. 498-502.

17. Among Heflin's AAF awards were the Legion of Merit with one Oak Leaf Cluster; the Distinguished Flying Cross with one Oak Leaf Cluster (from Lt. General Carl Spaatz, then Commander of the Strategic Air Forces in Europe); and the Air Medal with one Oak Leaf Cluster (from Lt. General James "Jimmy" Doolittle, then Commander of the Eighth Air Force). At a ceremony in Paris on Sep. 7, 1945, Heflin received the French *Ordre National de la Légion d'honneur* ("National Order of the

- Legion of Honor”), France’s highest award, and the *Croix de Guerre* (“Cross of War”) from General Marie Pierre Joseph Francois Koenig, DeGaulle’s head of the resistance, and later military governor of Paris. Sources include Heflin’s personal papers and copies of brief articles in two French newspapers published Sep. 10, 1944.
18. Major Harris G. Warren, “Special Operations: AAF Aid to European Resistance Movements, 1943-1945.” *Combined Arms Research Library: Digital Library* (June 1947): pp. 32-50. <<http://cgsc.contentdm.oclc.org/cgibin/showfile.exe?CISOROOT=/p4013coll8&CISOPTR=3298&filename=3308.pdf>> (accessed Feb. 2, 2011). p. 172.
19. Officer Efficiency Report: Heflin, Clifford J. (Cheddington, England: U.S. Army Air Force, Jan-Jun 1944), prepared by Edmund Hill, commanding general of the 8th Air Force Composite Command, and concurred with by the 8th Air Force’s Commanding General, James (“Jimmy”) Doolittle. Heflin’s papers contain no ER for the Jul-Dec, 1944 period, likely because he was between assignments and commanding officers.
20. Moore, p. 41.
21. Moore, p. 2. Also see Col. Michael E. Haas, “Apollo’s Warriors: US Air Force Special Operations During the Cold War.” (Maxwell Air Force Base, Alabama: Air University Press, 1997). pp. 1-9. <http://ebooks.gutenberg.us/AU_Press_Collection/Books/Haas/Haas.pdf> (17 January 2011), and the U.S. Special Forces Role of Honor website, which has a picture gallery of Carpetbaggers personnel, including Heflin: <http://www.specialforcesroh.com/gallery.php?action=viewcat&sort=n&id=63>. The Carpetbaggers are further honored with two plaques in the cemetery at the U.S. Air Force Academy; a small museum in Harrington, England; and several small monuments in France.
22. Major Justin R. Hoffman, “To Hell With The Paperwork: Deciphering the Culture of the Air Commandos” (Monterey, CA: Naval Postgraduate School, 2008), 59. <http://edocs.nps.edu/npspubs/scholarly/theses/2008/Dec/08Dec_Hoffman.pdf> (accessed Jan. 16, 2011).
23. The most thorough accounts are *Spies, Supplies and Moonlit Skies, Vols. I and II* by Thomas L. Ensminger, (Bloomington, IN: Xlibris Corporation, 2004 and 2009) and *Carpetbaggers: America’s Secret War in Europe*, by Ben Parnell (Austin: Eakin Press, 1987).
24. Tom McGuire, “Reno Man Recalls His Role in Helping to End WWII,” *Reno Evening Gazette*, Aug. 6, 1976, pp. 1-2. An original of this interview is among Heflin’s personal records and copies are available from the author.
25. Wendover’s CO position apparently had been vacant since the end of May, 1944, when Lt. Col Arthur W. Kellond was relieved. “History, Headquarters, 216 Army Air Forces Base Unit,” IRISNUM 00179513, United States Air Force Historical Research Agency, Maxwell AFB, Alabama.
26. According to Heflin’s two ERs for 1945 (wherein he was again rated Superior), while at Wendover he was under the command of Col. Claude E. Duncan, 2nd Air Force Chief of Staff, and when later assigned to Roswell he under the command of Brigadier General J.K. Lacey, then 2nd Air Force Commander.
27. Barbara J. G. Johnson, “Department of the Interior National Park Service: Historic American Building Survey: Wendover Air Force Base.” *The Library of Congress: American Memory*. (1992). 15-16. <<http://memory.loc.gov/pnp/habshaer/ut/ut0200/ut0288/data/ut0288.pdf>> (accessed Jan. 16, 2011). Wendover had 668 buildings, including public works such as power, sewage, communications, etc., as well as “barracks, officers quarters, an administration building, a signal office, two ordnance warehouses, a dispensary, three ammunition storehouses...a 300-bed hospital, gymnasium, swimming pool, library, post exchange, chapel, cafeteria, bowling alley, two theatres, guard house, consolidated mess hall, and 361 housing units for married officers and civilians.”
28. Unit Historian, 509th Composite Group, “History of the 509th Composite Group” (1945) p.9. Air Force Historical Research Agency. <<http://www.afhra.af.mil/shared/media/document/AFD-080128-037.pdf>> (accessed Jan. 15, 2011).
29. Unlike those of conventional bombs, the ballistics characteristics of atom bombs could not be fully tested because the technology was evolving; their very existence had to remain secret until use in combat; their large size, massive weight and, in the case of Fat Man, highly unusual shape had few parallels with traditional ballistics. Because of their explosive force, they would be dropped from 30,000 feet and targeted by visual sighting, not radar.
30. Ashworth, p. 158. As Ashworth described it, “Each weekend, a program of ‘component testing’ to be carried out the next week at Wendover would be worked up at Los Alamos. The scientists and engineers who would conduct these tests would fly from Albuquerque to Wendover on Monday morning, spend the week running the tests and return to Albuquerque and the laboratory on Friday afternoon to prepare for the next week’s tests. I would go with them to assist by ‘supervising and coordinating’ their work.”
31. Ramsey and Brin, p. 13.
32. Except where noted, the timeline is taken from Major Clyde S. Shields, “Daily Diary For Flight Test Section.” 216th Army Air Forces Base Unit, Headquarters Wendover Field, Wendover, Utah. February 2, 1945 – August 2, 1945. The diary is organized by dates, not page numbers. The author’s copy, now part of Heflin’s papers, came courtesy of Carl Posey, who in turn received a copy from author Richard H. Campbell (see endnote 11).
33. Parsons-Ashworth Transcript dated April 24, 1945.
34. Shields’s Diary records that drop tests were conducted at six military sites. For the June-July period, 31 were at Wendover, 16 at Sandy Beach, CA (Salton Sea), three at Inyokern, and two each at unknown locations coded as Llama and T.
35. Manhattan Project: Fiscal and Audit Files, Auditor’s Working Papers, Audit MDE-228-46, (College Park, National Archives and Records Administration, Records of the Army Staff), RG 319, Box 8, Folder “Dropping the Bomb.” Because the report pages are not numbered, citations refer to the paper’s numbered paragraphs.
36. Citations are from: Manhattan Project Audit report’s numbered paragraphs; Parsons-Ashworth Transcripts on the dates shown; and page numbers from James Les Rowe, *Project W-47* (Livermore, CA: JA A RO Publishing, 1978).
37. Robert and Emilia Krauss, eds., *The 509th Remembered: A History of the 509th Composite Group as Told by the Veterans Themselves, 509th Anniversary Reunion, Wichita, Kansas, October 7-10, 2004* (Buchanan, MI: 509th Press, 2005.). p. 16.
38. Wayne Thomis, “First Atom Raid Leader to Tell His Story For Tribune Readers.” Chicago Tribune Archives. (1968) p. 1. <<http://pqasb.pqarchiver.com/chicagotribune/advancedsearch.html>> (accessed 4 March 2011).
39. The Official Site of the U.S. Air Force: Information: Biographies: Brigadier General Paul W. Tibbets Jr. <<http://www.af.mil/information/bios/bio.asp?bioID=7387>> (accessed Jan. 20, 2011)
40. Personnel based at one of the three primary venues and Washington, D.C. frequently had to meet in person; materiel of various types and sometimes massive amounts had to be transported between venues; and movements to Tinian accelerated as August approached. Adding difficulty, the remote locations of the three primary venues offered no convenient public transportation; long-distance communications were limited to telephony, telegraphy and radio technologies; and all movements and communications were constricted by top secret protocols.

41. Unit Historian, History of the 509th Composite Group, p. 2.
42. Despite some accounts, the 320th did not officially deploy to Tinian but remained stationed at Wendover, undoubtedly in part because of greater transport needs in the U.S. See 509th Composite Group: 509th Pictorial Album – 1945: 320th Troop Carrier Squadron. pp. 24, 31, 45. <<http://www.mphpa.org/classic/CG/509th-Yearbook/Pages-2/CGP-509YB-184.htm>> (accessed Jan. 20, 2011)
43. Unless otherwise noted, quotations are from Shields's Diary of each respective date.
44. Parsons-Ashworth, p. 3 of Apr 21, 1945 transcript. Transcripts of May 12 and 24 also discuss Heflin's role with the Green Hornets. At the time, the 509th's deputy CO was Lt. Col. Carl Luetcke, who later was reassigned due to a security violation, and his name apparently expunged from most Project Alberta records.
45. Unit Historian, History of the 509th Composite Group, p. 22.
46. Ramsey and Brin, p. 18.
47. Heflin's retirement ceremony was presided over by his chain of command, making it unlikely that Heflin would have falsified the official program. Regarding his Carpetbagger service, the bio modestly only says that Heflin "formed another group which delivered supplies and agents for the OSS," suggesting his biographies did not inflate his responsibilities. Tibbets and Sweeney were still on active duty when Heflin's bios were available but apparently never challenged them. Given all of Wendover's manpower needs, it simply would have been most efficient to have one officer controlling the requests piling up at 2nd Air Force.
48. Major objectives of Trinity included determining whether Fat Man's fissile material and triggering "package" would actually work; measuring Fat Man's actual destructive capability (pre-Trinity, predictions of the bomb's explosive power varied widely and were significantly underestimated); measuring Fat Man's performance and power as a guide to remaining development and design work for the bomb and the Silverplate B-29s; making last minute adjustments for training the crews who would fly the bombing missions; and assessing the impact on the crews and B-29s from the explosion and resulting nuclear "cloud," especially with respect cloud's size, shape, direction and gamma ray (radiation) intensity.
49. Richard B. Frank, *Downfall: The End of the Imperial Japanese Empire* (New York: Random House, Inc., 1999), pp. 253-54.
50. Stephen Walker, *Shockwave: Countdown to Hiroshima*. (New York: HarperCollins Publishers, 2005), p. 325.
51. McGuire, p. 1. As well, Heflin's flight record for July 16, 1945 shows that he piloted a B-29 for three hours, two of which were at night, which is consistent with all accounts of Trinity's delayed timing. On a related note, Heflin flew 20 of 31 days in July, totaling 60 hours and 34 landings, the most of any of his 10 months at Wendover; and during those 10 months he piloted 12 aircraft, including the B-29 and the Green Hornet's C-46, C-47, and C-54 as well as the B-17, B-24, B-25, A-26, P-47, P-51, C-43 and C-45.
52. General Leslie R. Groves. "Gen Groves' Memorandum Describing First Nuclear Test in New Mexico." *Public Broadcasting Service: American Experience: Truman: July 18, 1945*. <http://www.pbs.org/wgbh/amex/truman/psources/ps_memorandum.html> (accessed Jan. 15, 2011)
53. Walker, p. 68.
54. Robert S. Norris Papers, Hoover Institution Archives, Stanford, CA. Transcript: "Captain Larkin to Colonel Heflin, 3 August 1945." In the transcript, Heflin insists that only an experienced B-29 crew, all of whom are on Tinian, should fly the mission, with new crews at Wendover used only as backup. Heflin wants to use Shields's crew and plane, but Tibbets wants to keep them at Tinian, to which Heflin replies "no soap because it would cause us more trouble than it would be worth." Larkin says he will cable Parsons to ask that Shields's crew "be returned without delay." Heflin will try to have a backup crew from Wendover with an "experienced pilot."
55. Groves Diary, August 4, 1945, Groves to Col. William P. Fisher.
56. Norris papers, labeled RG 77, Entry 3, Folder: Incoming Telecoms Kirkpatrick. On July 1, 1945, Arnold activated a new command structure with Spaatz as Commanding General, U. S. Army Air Forces in the Pacific, and on August 2, Lt. Gen. Nathan F. Twining assumed command of the 20th Air Force, replacing LeMay, who became Spaatz's Chief of Staff.
57. Paul W. Tibbets, Jr., "U.S. Air Force Oral History Interview." #K239.0512-1634. United States Air Force Historical Research Agency, Maxwell AFB, Alabama, Feb. 7, 1985, p. 30.
58. Wayne Thomis, "First Atom Raid Leader to Tell His Story For Tribune Readers." Chicago Tribune Archives. (1968) 2. <<http://pqasb.pqarchiver.com/chicagotribune/advancedsearch.html>> (accessed Mar. 4, 2011).
59. In Heflin's only interview (McGuire), he does not mention a third atomic bomb, which could be explained by the fact that public knowledge of more than two bombs did not become widespread until after 1980, so Heflin may not have felt free to comment.
60. Paul W. Tibbets, Jr. "U.S. Air Force Oral History Interview." #K239.0512-1634. p. 14.
61. Paul Tibbets and Paul Filipkowski. "The Paul Filipkowski Collection: Photo MPP-PFIL-077. *The Manhattan Project Preservation Association, Inc.* (1988). p. 1. <<http://www.mphpa.org/classic/COLLECTIONS/MP-PFIL/Pages/MPP-PFIL-077.htm>> (accessed Mar. 5, 2011).
62. There is no evidence that, from their brief training overlap in 1937 until late in 1944, the two officers had any contact likely to foster a "close personal" friendship. In order to request Heflin, Tibbets would have to have known that Heflin was available, which seems unlikely because the Carpetbaggers were a secret operation and Tibbets had no "need to know" about either the unit or Heflin. At the time Heflin became Wendover CO in January, he had been a full Colonel for eight months whereas Tibbets had just been promoted, so their military differential was a matter of rank, not merely seniority. If Heflin had agreed to be subordinate to Tibbets, it would not only have been extraordinarily unusual but presumably also worth at least a footnote in one of Tibbets's several books. It is most likely that Heflin was interviewed by General Williams, not General Ent, because Ent had been seriously injured in an aircraft accident in Texas on October 11, and Williams, who would assume command of 2nd AF on October 28, was in D.C. October 26 and probably met with Groves the next day. Unfortunately, Tibbets only made his claims long after the deaths of principals who might corroborate them: Ent died in 1948, Arnold in 1950, Parsons in 1953, Groves in 1970, and Heflin in 1980.
63. McGuire, pp. 1-2.
64. Parsons-Ashworth, 1-3 of the Apr. 21, 1945 transcript.
65. A September 18, 1953, front page article in the *Nevada State Journal* announced that Colonel D.G. Stampados, deputy commander of Heflin's Wing, had been relieved of duty by Heflin pending an investigation into Stampados's stealing \$4,000 (more than \$33,000 in today's dollars) in funds donated by the Reno, Nevada Chamber of Commerce to sponsor a local road race. According to Col. Elliott, instead of a court martial, LeMay wanted Heflin to allow Stampados to retire quietly, but Heflin relieved Stampados of duty, publicly describing it as for "the good of the service."
66. The Papers of Curtis LeMay, Box A4, Stampados file. Manuscript Division, Library of Congress, Washington, D.C.
67. McGuire, pp. 1-2.