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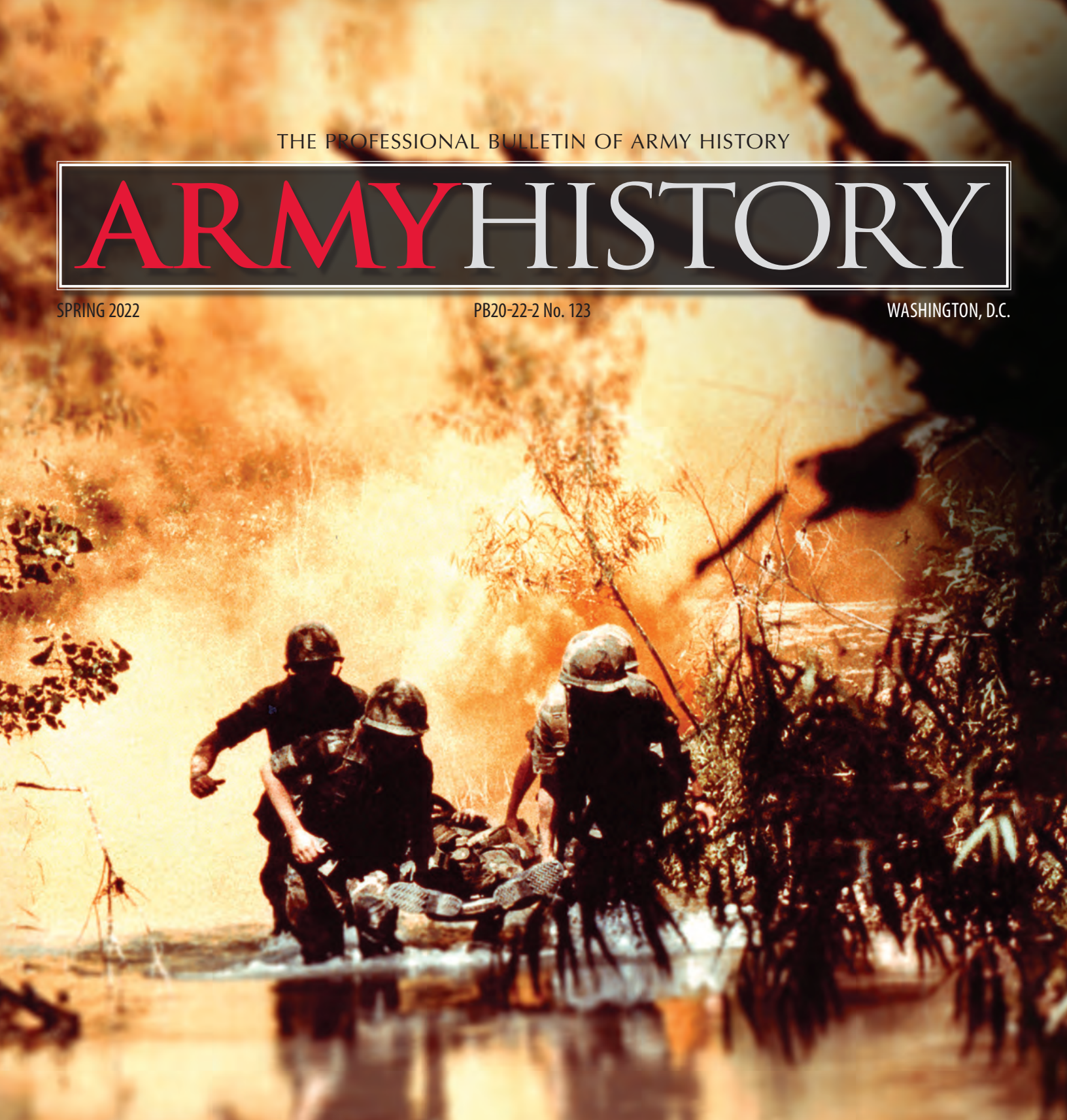

AIR BRIDGE TO THE ALLIES

ESTABLISHING U.S. ARMY AIR FORCES TRANSATLANTIC MOVEMENT IN WORLD WAR II

BY JOHN M. CURATOLA

THE EVOLUTION OF COMBAT MEDIC TRAINING FOR THE FUTURE BATTLEFIELD

BY GRANT T. HARWARD

ARMY HISTORY

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Front cover: Active duty trainees and reservists carry a simulated casualty under cover of smoke during a field training exercise at the end of the Basic Medical Specialist Course in 1984. *(AMEDD Center of History and Heritage)*

Back cover: A view of the Transportation Museum's rail pavilion *(U.S. Army Transportation Museum)*

EDITOR'S JOURNAL

In this Spring 2022 issue of *Army History*, we are excited to present our readers with two interesting articles, a top-notch crop of book reviews, an examination of a rare artifact, and a look at the U.S. Army Transportation Museum.

The first article, by John Curatola, a history professor at the Army's School of Advanced Military Studies, examines the development and implementation of an Allied air bridge over the Atlantic Ocean. Part of Operation Bolero, the buildup of troops and materiel in the United Kingdom for the eventual invasion of mainland Europe, the air bridge played an integral part in ferrying planes, personnel, and equipment over the treacherous and U-boat infested waters of the Atlantic. Included in this effort was the construction of airfields and bases along the route to provide stopover and navigational waypoints. Curatola deftly describes the harrowing journey as planes, crews, and passengers successfully battled the elements and the limits of technology to establish an air bridge that would help the Allies achieve ultimate victory.

The second article, by Center of Military History historian Grant Harward, looks at the evolution of combat medic training since the late twentieth century. Studying how the Army reshaped the training of medics based on how it thought the next war would be fought, Harward shows how preparations for the potential mass casualty battles of an imagined third world war left the Army somewhat unprepared for the insurgency-type wars it was asked to fight in the early twenty-first century. Through adaptation and a restructuring of the Army's medical training programs, the Army hopes to produce flexible combat medics ready to tackle whatever kind of war the Army might face in the future.

As we round out the second year of the COVID–19 pandemic, I thank my coworkers for their patience and adaptability. Everyone on the small team here that publishes *Army History* has dealt with different struggles during this period, but my teammates have never missed a beat. As the recent invasion of Ukraine has shown, the importance of military history and its applicability to today's Army cannot be understated. Army publications such as *Military Review*, *Parameters*, *Veritas*, and *Army History* provide valuable information not just for enlisted soldiers and junior officers, but also for Army senior leaders both in and out of uniform. We here at *Army History* strive to provide content that not only entertains but also educates. Knowledge of the Army's history can be a powerful tool for decision makers at all levels.

I remind our readers that we are not currently accepting article submissions, but we hope to reopen our call for them with either the Summer or Fall 2022 issue. At the moment, we have a wealth of articles under review here and we want to ensure that our potential authors receive prompt responses from the *Army History* team.

BRYAN J. HOCKENSMITH
MANAGING EDITOR

AH SPRING 2022 ARMY HISTORY

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THE CHIEF'S CORNER

CHARLES R. BOWERY JR.

MOBILIZING FOR HISTORY

"War, despite the immediacy of its demands for action, stimulates an awareness of history."[1] So began an article in the January 1944 issue of the *American Historical Review* about preparations underway across the United States government to write histories of World War II. The author's sentiments are still relevant today, seventy-five years later, as the Center of Military History begins to research and write official histories of U.S. Army operations around the world after 11 September 2001. To their immense credit, government officials and historians began organizing the post–World War II historical effort as early as 1941, and the Army in particular mobilized a remarkable effort to chronicle its global operations in the now-famous Green Books. The twenty-first-century counterpart to this series, nicknamed the Tan Books, is underway now. Researching and writing these official histories mark the end of a process that, ideally, has begun with command and unit historians, who create the primary source records for these authoritative accounts. Historian Arthur Schlesinger wrote to Archibald MacLeish, the Librarian of Congress, in September 1941 about the command historian's role:

> I should like to see a "historian" or "archivist" attached to every wartime agency, who would not only see to it that the routine records are preserved, but that additional ones are created. This official would make his own memoranda at staff meetings; encourage officials to discuss their problems with him; try to get them to keep a personal journal of their daily doings; and, in general, seek to capture data which might throw light on the behind-the-scenes workings of the organization.[2]

This is a neat summary of the unheralded work of the command historian, who can be not only a chronicler and keeper of institutional memory, but also a valuable staff officer who thinks critically and offers deep expertise.

The Army makes history in its daily operations around the world, and not just in combat operations. Five Military History Detachments and a number of command historians mobilized and deployed to document the Army's role in responding to the COVID–19 pandemic, and Military History Detachments are deployed today in multiple areas of operations to create records of training, joint and combined operations, and security force assistance. Much of this record is classified, and in order to turn these documents into unclassified official histories, the Department of Defense must invest in declassification programs. Otherwise, we run the risk of producing official histories decades after they have ceased to be relevant to current programs, challenges, and national discourses. Part of CMH's mission as the Army's historical office is to advocate for all of these capabilities. They are all key components of a mobilization to educate, inspire, and preserve.

AH

Notes

1. "Plans for the Historiography of the United States in World War II," *American Historical Review* 49, no. 2 (Jan 1944): 243.
2. Ibid., 244.

NEWS NOTES

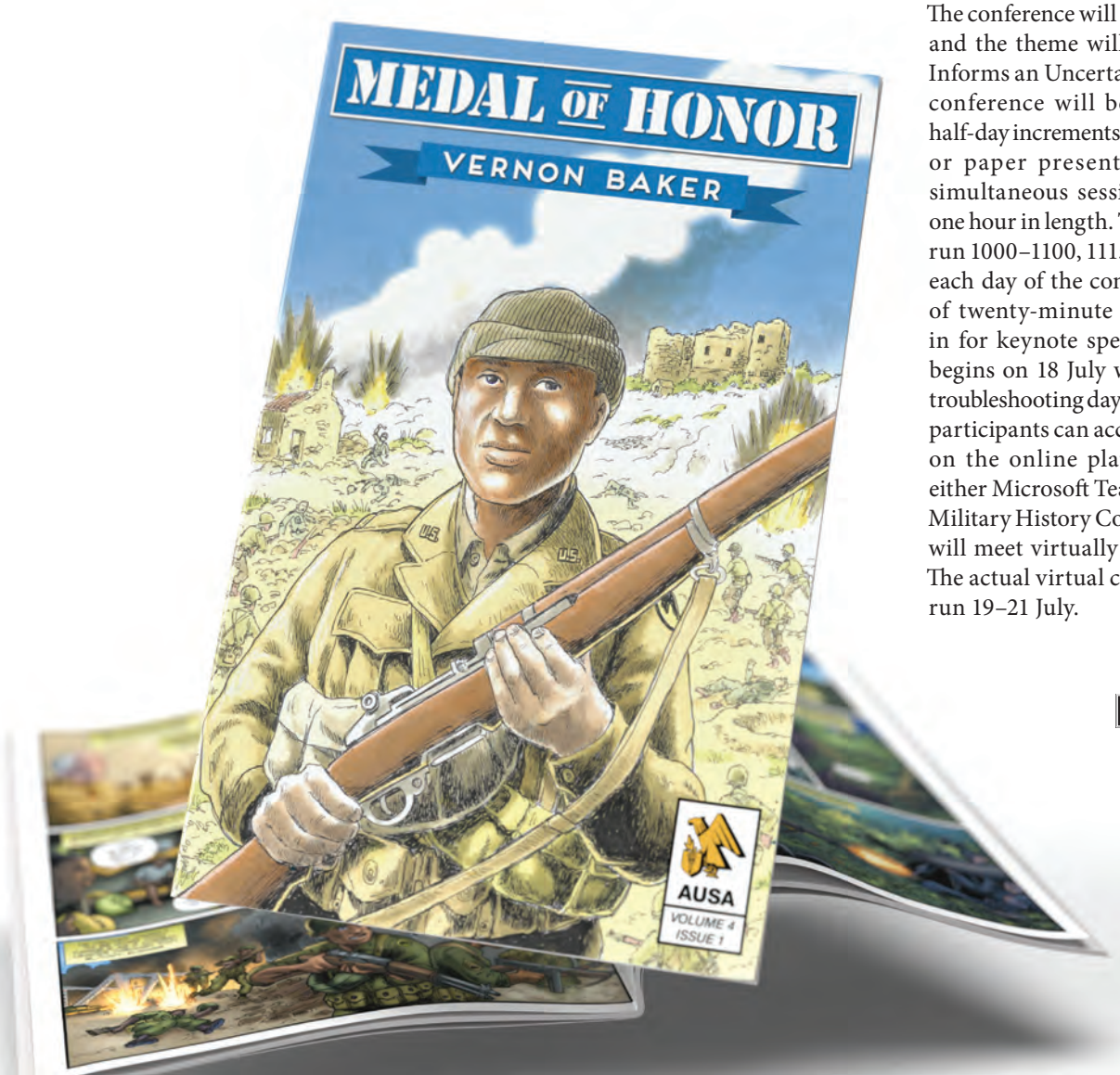
New Publication From AUSA

The Association of the United States Army (AUSA) recently released the latest addition to its Medal of Honor series of graphic novels with *Medal of Honor: Vernon Baker*. First Lt. Vernon Baker led his weapons platoon in an assault on Castle Aghinolfi, a German strongpoint in the mountains of Italy, in April 1945. Baker eliminated three machine gun positions, an observation post, and a dugout during the daylong battle. For his actions, he received a Distinguished Service Cross, which was upgraded more than fifty years later when seven African American service members were awarded the Medal of Honor for their service in World War II.

These full-color digital books are created by a talented team of professionals from the comic book industry, and the details are vetted by professional historians. Each eight-page issue profiles a true American hero, bringing to life the daring deeds and gallantry in action that distinguished these individuals "above and beyond the call of duty."

The series started in October 2018 with the release of *Medal of Honor: Alvin York* to commemorate the centennial of York's heroic actions in World War I. To date, a dozen issues have been published, honoring such heroes as Audie Murphy, Mary Walker, Daniel Inouye, Henry Johnson, and Roy Benavidez.

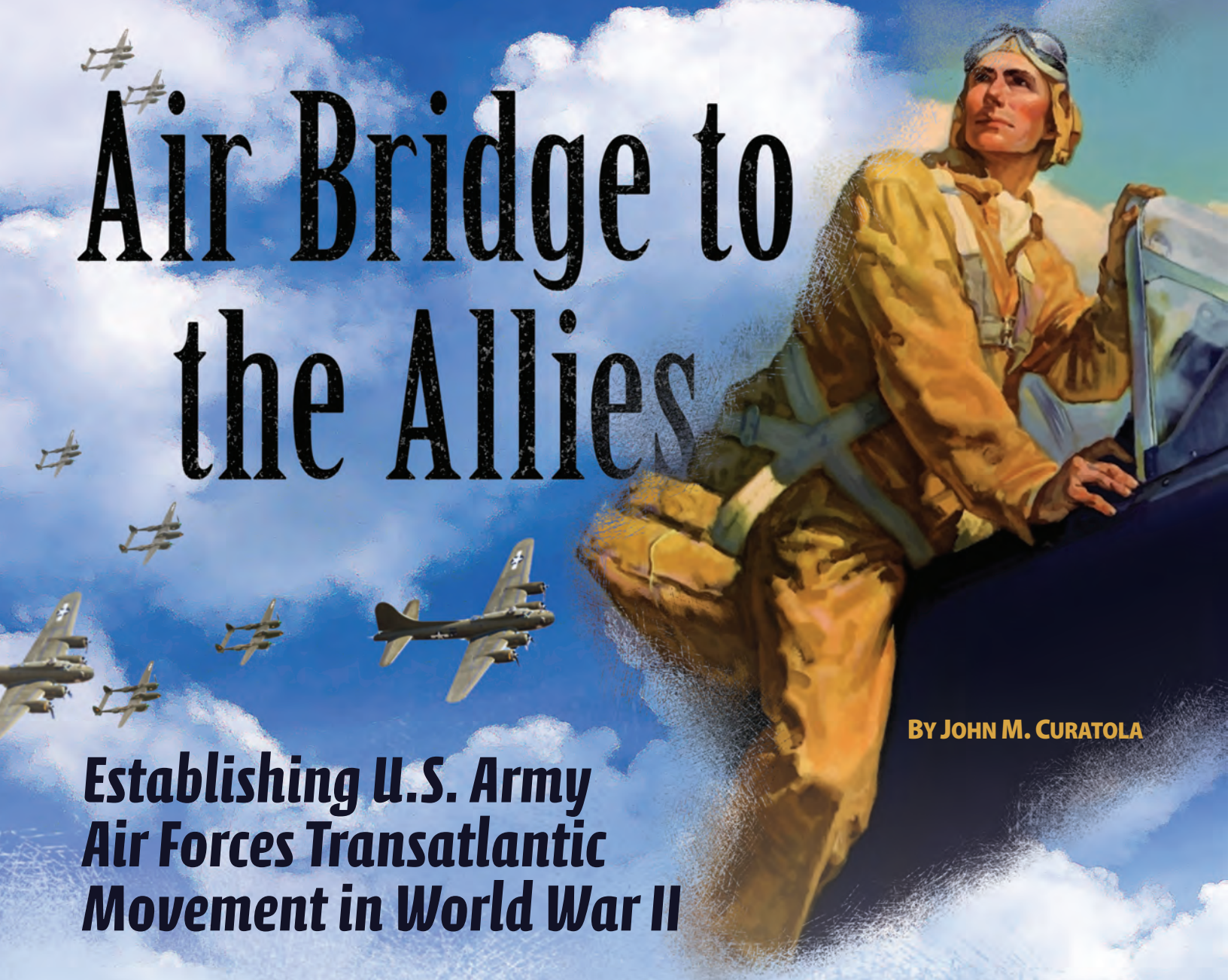
People can view the work or download a free copy at www.ausa.org/baker.



Correction to Previous CAH News Note

In the Winter 2022 issue of *Army History*, we announced the upcoming Conference of Army Historians (CAH). Because of the ongoing COVID–19 pandemic, this conference will not be held in person, but instead will be presented as a virtual event. The conference will be held 18–21 July 2022, and the theme will be "Evolving History Informs an Uncertain Future." The virtual conference will be conducted in three half-day increments with panels, workshops, or paper presentations occurring in simultaneous sessions of approximately one hour in length. The hourly sessions will run 1000–1100, 1115–1215, and 1300–1400 each day of the conference, with a couple of twenty-minute plenary events added in for keynote speakers. The conference begins on 18 July with an administrative troubleshooting day to ensure all conference participants can access the virtual sessions on the online platform (which will be either Microsoft Teams or ZoomGov). The Military History Coordinating Committee will meet virtually at 1400 that same day. The actual virtual conference sessions will run 19–21 July.

Air Bridge to the Allies



Establishing U.S. Army Air Forces Transatlantic Movement in World War II

By John M. Curatola

On 15 July 1942, a formation of six Lockheed P–38s and two B–17s from the U.S. Army Air Forces (USAAF) made its way across the northern Atlantic Ocean, heading for Great Britain.[1] The eight aircraft were among the first units sent to Europe to fight against European fascism as part of Operation BOLERO, the World War II effort to build American combat power in the United Kingdom. Using the call sign "Tomcat Flight," the small P–38 twin-engine fighters were escorted by the larger four-engine B–17 bombers. Each bomber had a navigator and radio operator aboard to shepherd their "little friends" on the long journey. Because this area of the globe was known for its fickle and dangerous weather, aviators generally considered the summer months to be the best time of year to transverse the expanse. Nevertheless, during the third leg of this particular journey, which ran from Greenland to Iceland, the North Atlantic weather lived up to its unpredictable reputation. The formation ran into bad weather, experienced icing, and was unable to continue its eastward journey. The pilots hoped to return to their point of departure at airfield BLUIE WEST 8 in western Greenland, but the P–38s' fuel status showed otherwise.[2] Because ditching in the frigid waters of the North Atlantic would be a death sentence, the crews decided to land on a nearby ice cap on Greenland's east coast.

The P–38s ran out of gas first, and the fuel-starved fighter planes tried to land on what appeared to be a solid sheet of ice. The first plane attempted a normal landing with its gear in the down position. However, when the wheels touched the surface, the plane promptly flipped over.[3] What had appeared to be a frozen sheet of ice was actually a morass of slushy ice warmed by the summer sun.[4] Fortunately, the pilot survived the mishap. Seeing the upturned fighter, the other P–38s decided to make gear-up landings, which would allow them to slide on the semihard surface. First Lt. Harry Smith, another of the P–38 pilots, throttled back his engines, put his fuel selector valve to "cut off," turned off his battery, and stalled his aircraft just as it touched down.[5]

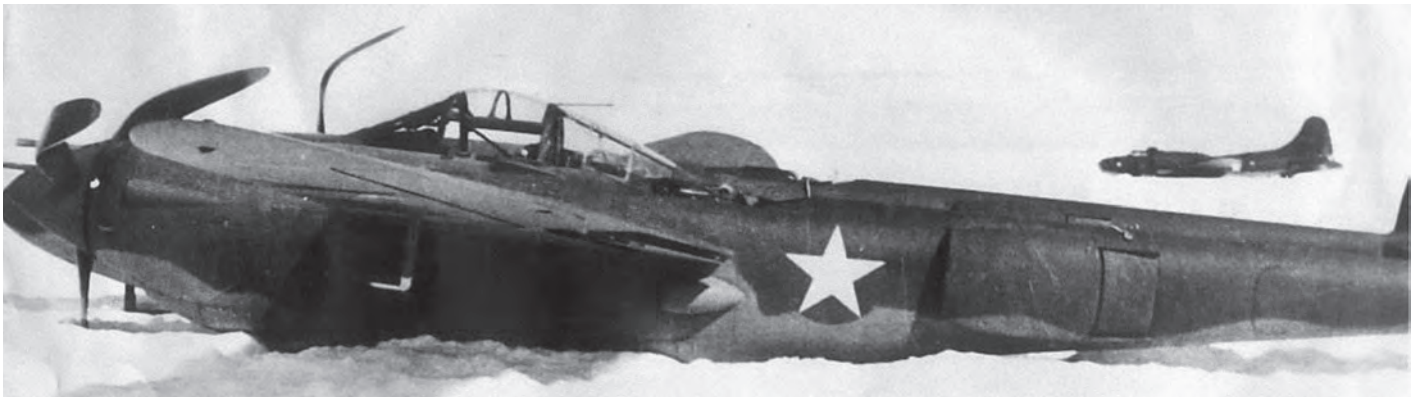
When his plane hit the surface, Smith rode the fighter as if it were a twin-boomed toboggan, coming safely to a stop. He detached his harness and annotated his logbook while the other fighters of the formation landed in the same fashion.[6] The longer range B–17s circled the grounded fighters and radioed their position to rescue personnel. When the bombers ran out of fuel, they also ditched in the same manner. Rescued days later, Lieutenant Smith and the other aircrews lived to tell the account —the largest forced landing in USAAF history—but this incident is only part of a much larger story.[7]

A C–87, fresh off the assembly line, sits on the runway.
(Library of Congress)

Smith and the other members of Tomcat Flight were but a few of the thousands of aircrews that traversed the Atlantic Ocean in support of Allied operations during World War II. The Anglo-American alliance was a strategic center of gravity during the global conflict, with the air bridge a reflection of the close partnership. Flights over the northern Atlantic were a key component of Operation Bolero. However, the transatlantic movement was not limited to just the arctic route. The southern and central Atlantic routes also played significant roles in the delivery of aircraft, personnel, and cargo to every theater of the war and all parts of the globe. Building this bridge was, in itself, an endeavor.

The ensuing Battle of the Atlantic and the Allied naval convoys' struggle with the German U-boat fleets would become the stuff of legend. Historians have given a great deal of attention to this deadly sea battle, but the flight ferry process that linked American production capacity and airpower with allies in all theaters has not received as much scholarly attention. Yet the delivery of the bounty of American manufacturing was a decisive factor in the Allied victory. To move such large numbers of aircraft, the Allies were required to build a successful air bridge across the Atlantic Ocean. At that time, the Atlantic had been crossed by airplanes fewer than one hundred times.[8] Most people doubted that an air bridge could be established. Given the history of interwar transatlantic air travel, the wartime feat was only possible through an international effort and the cooperation of civilian, government, and military organizations.

Airpower is more than just planes and pilots. It is a system with many elements working in unison; the plane is merely the most visible. Similarly, projecting airpower is a complex endeavor. A fleet of aircraft requires numerous bases, with multiple runways, dozens of hangars and buildings, maintenance equipment, and scaffolding. This fleet also needs skilled and competent mechanics, meteorologists, weather stations, air traffic controllers, radio transmitters, spare parts, bulk fuel farms, grease and other lubricants, bowsers, navigation aids and beacons, security measures, and a host of secondary requirements all connected to a healthy national aviation industry.[9] Because of America's late entry into the war, many of these requirements had to be designed, built, and installed quickly so the United States could project American airpower not just from North America, but also for the entire globe, for the duration of the war. Much of the movement to the United Kingdom occurred within the Arctic Circle, where the



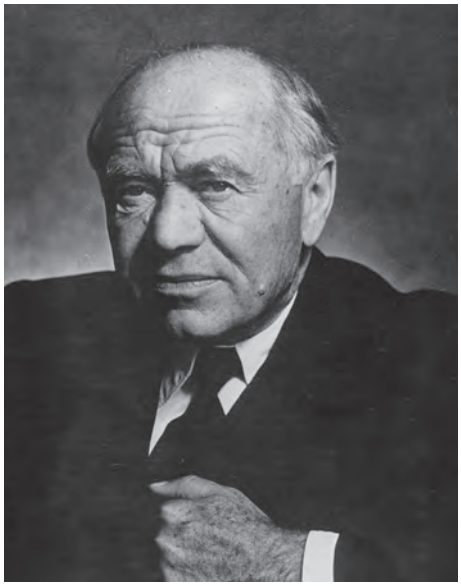
A P–38 and a B–17 from "Tomcat Flight," having crash-landed on Greenland in July 1942
(Courtesy of Lostsquadron.org)

environment and remoteness complicated the simplest functions. Many of these same functions were also required in austere locations in Africa and South Asia that had little in the way of established infrastructure.

Ferrying aircraft via air instead of surface movement was the most expeditious means of getting airframes to overseas theaters. Although surface lift obviously carried more cube and weight compared to airlift, moving planes via ship was exponentially slower. Airframes traveling by boat often took weeks instead of days because of weather, slow sailing speeds, and tactics designed to evade enemy threats. Additionally, in the early years of America's wartime participation, military sealift was at a premium. Finding enough strategic sealift was as problematic as airlift. Much like the American aviation industry, the nation's shipyards also had to increase production to meet the growing wartime need. Flight ferry helped mitigate this problem by precluding the use of ships. Air ferry was often safer in periods of success for German U-boat "wolfpacks" that coordinated attacks on convoys. During the German U-boat crews' "second happy time" in 1942, these pack attacks sent significant amounts of Allied tonnage to the bottom. In that year, aircraft sent via surface suffered a 33 percent loss rate while flight ferry experienced a mere 3.7 percent.[10] Furthermore, planes shipped via sealift required preparation for the journey such as disassembly, cocooning, water proofing, and embarkation. The opposite process occurred upon delivery, thus delaying aircraft employment.

At the beginning of 1940, the United States was keen on maintaining its perceived neutrality in the growing global conflict. Americans delivering aircraft from U.S. factories to belligerent nations was an international political concern. The various interwar isolationist Neutrality Acts passed by the U.S. Congress restricted or prohibited arms sales and deliveries to nations in conflict. Nevertheless, in the late winter, to support the United Kingdom during this first full year of the war, Americans flew newly built planes to multiple airfields adjacent to the Canadian border. In Pembia, North Dakota, part of a farm's acreage was converted to an ad hoc airfield.[11] Aircraft landed on the farmer's makeshift landing strip, taxied within inches of the 49th parallel, and then were towed across the border by Canadian or Royal Air Force (RAF) representatives at Emerson, Manitoba.[12] Because ground equipment and tractors were in short supply, the Canadian ground crews often towed the planes by hand or by a team of horses.[13] The irony of using ancient transportation to move twentieth-century conveyances certainly was not lost on even the most casual observer. When across the border, the planes were refueled and then flown to airfields throughout Canada. This method, though functional, could not meet the increasing needs. By autumn 1941, Neutrality Act restrictions were reduced and the clandestine cross-border operations suspended as Americans openly delivered new aircraft to Canada.

In November 1940, William Maxwell Aitken, Lord Beaverbrook, the Canadian-born British Minister of Aircraft Production, initiated an effort to flight ferry American bombers from the United States to Newfoundland and on to Scotland—a distance of 2,100 miles.[14] The Air Ministry objected and argued that flying planes over the Atlantic was impractical. The ministry believed the best way to transport American-built aircraft overseas was in crates by ship.[15] Despite this objection, and with the full support of Prime Minister Winston Churchill, Beaverbrook established the Atlantic Ferry Organization (ATFERO). Just after the famous Battle of Britain, and with the United Kingdom also fighting the Japanese in Asia, trained military aviators were in short supply. As a result, the ATFERO effort employed the best qualified civilian pilots, navigators, radio operators, and aircrew it could find. Volunteers came

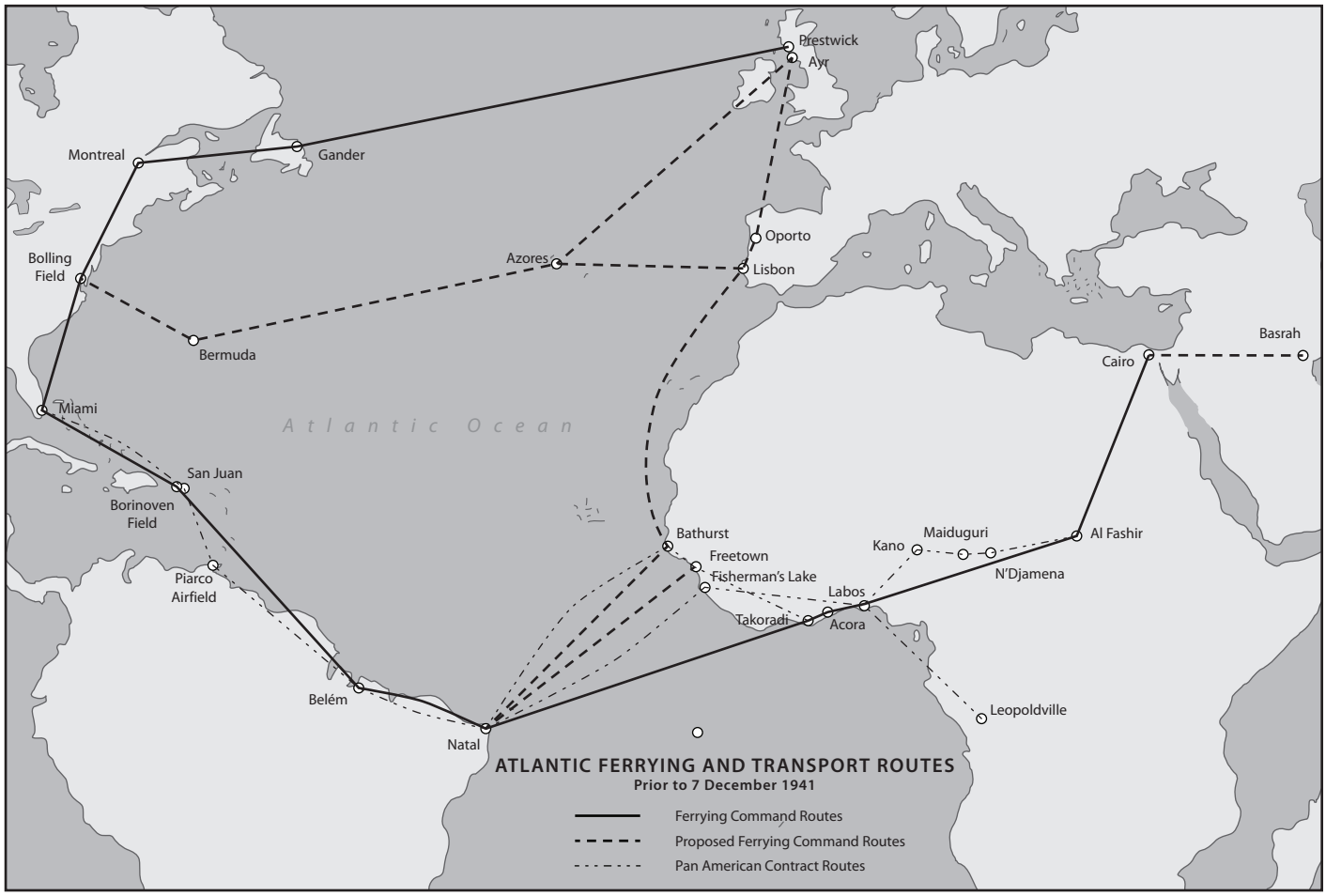


Lord Beaverbrook
(Dutch National Archives)

from various walks of life, including retired British Overseas Airways Corporation captains, bush pilots, barnstormers, crop dusters, and, in some cases, aviators with dubious backgrounds.[16]

As war clouds loomed, Lockheed Aircraft Company signed a contract with the United Kingdom for the delivery of 250 Hudson maritime patrol aircraft. This new design replaced their old Avro Ansons of RAF Coastal Command. As recommended by the Air Ministry, more than 200 airframes were crated up and moved by ship to the United Kingdom by summer 1940.[17] However, as the idea of flight ferry across the Atlantic began

A team of horses pulls a B–18 across the U.S.-Canadian border in 1940.
(Winnepeg Free Press)



to gain traction through Beaverbrook's efforts, Lockheed had yet to deliver the remaining fifty Hudsons. Serendipitously, in September 1940, Lockheed engineers modified the remaining Hudsons for extended range, which would allow the planes to cross the Atlantic. On 10 November 1940, seven Hudsons were staged to leave California for the 2,000-mile transatlantic journey to Gander, Newfoundland. These Lockheed airframes constituted the first ATFERO mission. Ceremoniously, as the planes took off, a military band played "Nearer, My God, to Thee" to mark the inaugural event.[18] Taking off in ten-minute intervals, the aircrews included nine Americans, six Brits, six Canadians, and one Australian, reflecting the nationalities of Allied membership.[19]

The trip, from Newfoundland to Aldergrove, Ireland, was fraught with danger: unpredictable weather, potential for icing, the possibility of mechanical failure, and the challenge of problematic navigation at these latitudes.[20] According to one veteran pilot with thousands of prewar hours flying in Canada, "North of Goose Bay you can throw the map away."[21] Before rudimentary electronic directional aids were in place, and with poor radio reception, dead reckoning was the primary means of navigation.[22] In keeping with its unfortunate name, dead reckoning was more difficult in the upper latitudes because the magnetic variance near the North Pole easily could throw off a compass by as much as thirty degrees. The planes' metal construction compounded this problem, adding another variance in compass deviation based on the type of aircraft.

Weather conditions also increased the potential for navigational error. Determining the plane's wind drift, crab angle, and true air speed without much meteorological support added to the hazards of the journey.[23] Lack of weather observation stations, reports, and other meteorological services meant crews were flying into an unknown environment that was as unpredictable as it was dangerous. Furthermore, navigation by pilotage, that is, using ground features as way points, was limited because much of the flight was over large expanses of open ocean. Even when the route was over a land mass, reference points were distinctly absent. The wilderness and ice offered very few towns, railroads, bridges, roads, or other constructed features to help the crews navigate and triangulate their positions visually.[24]

Departing Gander, the Hudsons flew in a loose formation for safety purposes. However, when they hit a warm front and encountered severe turbulence, the formation broke up, with each crew continuing individually.[25] Other problems surfaced during this first journey. Some individual planes experienced oil leaks, compass failures, and electrical issues.[26] One of the crewmen experienced a case of hypoxia—the loss of consciousness due to oxygen deprivation—which was a regular danger on the northern route because aircraft often flew at higher altitudes to avoid icing conditions. Above 10,000 feet, crews were at risk of hypoxia unless they had supplemental oxygen equipment, which the Hudsons did not have. During these early days of high altitude flying, before the widespread use of oxygen masks, many crews used only a mouth-held tube for supplemental oxygen.

Flying for some ten hours, and despite all the inflight challenges, the seven aircraft successfully made it to Aldergrove. The last Hudson landed by 1200 on 11 November, but

Lockheed Hudsons in British markings. These planes were used for long-range maritime patrol duties early in the war.
(Imperial War Museum)

any feelings of accomplishment quickly were dashed when the aircrews were ordered to return home—by ship!— by 1500 that same day.[27] Dubious security precautions were taken to hide the identities of the ATFERO aircrews while they had lunch at a local hotel. The hotel receptionist was told that the men had just arrived from England, which must have seemed ridiculous. Some of the men were wearing cowboy hats and boots, while others were in parkas.[28] After lunch, the crews embarked the vessel that would take them home. Reportedly, their spirits rose when a member of the ship's company treated them to scotch and sodas.[29]

This sortie was the first of four Hudson movements that winter, and these were the first seven of the almost 15,000 total aircraft that were flown to the British Isles via the North Atlantic route during the war.[30] Over the next few months, this initial flight was followed by the movement of other aircraft, including the first B–24 Liberator bomber in March 1941. Despite these early successes, by April 1941, it became apparent that the ATFERO program was inadequate for the task. Lacking sufficiently trained crews and with a backlog of American-made aircraft needing delivery to the United Kingdom, ATFERO was in a crisis. After observing ATFERO operations in the United States and Canada, Air Vice-Marshal John C. Slessor, head of Air Ministry Planning, wrote to Sir Charles F. A. Portal, Chief of Staff of the RAF:

> The present system whereby we bribe a few American pilots to fly Machines over will not touch the fringe of the problem when we begin to get deliveries in really big numbers. Ultimately we shall want something of the order of at least 1,000 pilots on this job and that as far as I know is a commitment which we have never faced up to in our calculations.[31]

Planes continued to cross the Atlantic, but the lack of aircrews added to the backlogs. The slow return of aircrews from the United Kingdom exacerbated the problem. After delivering a plane, the crew usually took a boat back to the United States or Canada, which could take up to a fortnight. As a result of the shortage and unavailability of qualified crews, in May 1941, east-to-west flights began to return aircrews to the western hemisphere in a timelier manner.[32]

Slessor was not the only officer to note the deficiencies of ATFERO. The controversial former head of RAF Fighter Command, Air Marshal Sir Hugh C. T. Dowding, was on his last assignment before retirement and working with the minister of aircraft production during early ferry operations.[33] While visiting Montreal in April 1941, Dowding wrote Beaverbrook regarding the ATFERO effort. He mentioned his concern that "the organization is built upon an insecure foundation . . . [and] there are competitive requirements for aerodromes,

Air Vice-Marshal Slessor
(Royal Air Force)

Air Chief Marshal Portal
(Dutch National Archives)

Air Marshal Dowding
(Imperial War Museum)

etc between ATFERO and the Canadian Air Force."[34] President Franklin D. Roosevelt, too, expressed his anxiety regarding the ATFERO effort and offered American assistance in the ferry process. The president was eager to help the United Kingdom in its fight against the Axis Powers, despite Britain's lack of financial resources. While his offer was certainly welcome, Roosevelt stipulated that the handover of aircraft had to be made to military personnel.[35] Given Roosevelt's offer, his requirement for military receipt, and the problems with the current ATFERO effort, Churchill took notice. On 20 July 1941, the ATFERO effort officially was handed over and absorbed into RAF Ferry Command, with Air Chief Marshal Sir Fredrick W. Bowhill in charge.[36] By October, the Ferry Command began operations at a large air base near Dorval, Quebec.

Months earlier, on 11 March, the United States had passed the Lend-Lease Act, enabling the USAAF chief, Lt. Gen. Henry H. "Hap" Arnold, to allow American pilots increased participation in the ferrying process.[37] The clandestine cross-border movements were no longer required. On 28 May 1941, President Roosevelt further directed Arnold and the War Department "to cut through all of the formalities that are not legally prohibitive and help the British get this job done with dispatch."[38] Official American participation in the effort meant a more robust and capable ferrying process.

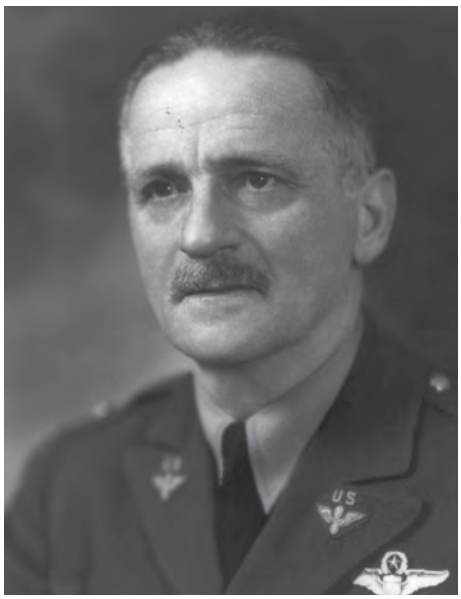
The first official American efforts in the transatlantic air movement were under the direction of Col. Robert Olds. The day after Roosevelt's mandate, 29 May, Olds was assigned as head of the new Air Corps Ferrying Command (ACFC).[39] Olds, no stranger to long distance flying, was a veteran of two goodwill flights to South America, having flown B–17s to Buenos Aires in 1938 and Rio de Janeiro in 1939. For these feats, Olds received the Distinguished Flying Cross, the Harmon and Mackay Trophies, and the Bronze Medal from the International League of Aviators.[40] Tasked by Brig. Gen. Carl A. "Tooey" Spaatz as head of the Air Corps Plans Division, Olds drafted the new command's mission statement for Arnold's approval.[41] After giving the matter some thought, Olds determined ACFC's mission was twofold. First, ACFC was tasked "to move aircraft by air from factories to such terminals as may be designated by [the] Chief of the Air Corps."[42] This was more of a domestic mission, moving planes from factories to various points of overseas embarkation. The second mission included establishment of a military transport service over the Atlantic between the United States and the United Kingdom.[43] The latter part officially came to pass on 30 December 1941, just weeks after the United States' official entry into World War II.

ACFC's first headquarters was set up in the basement of the Munitions Building in Washington, D.C. The room assigned to the new command was a hot, humid, and dark space, with windows unfortunately placed just above the local cafeteria's trashcans. Whatever breeze came through the open windows carried with it the whiff of fetid garbage.[44] With only two regular officers, five reserve officers, one civilian, and one retiree, the small department generated orders and accomplished much of its early staff work by word of mouth, phone calls, or with hand-carried memos.[45] From this humble beginning, the initial ACFC staff established the foundation for a global transportation network, and, over the next thirteen months, the command grew to a force of 11,000.[46] Because the mission and command had grown in both size and responsibility, in June 1942, the USAAF restructured airlift operations under a new organization entitled Air Transport Command (ATC).

While headquarters remained in Washington, ACFC needed field personnel to manage aircraft and aircrew movement, communicate take-off and arrival reports, coordinate with various airfield ground services like maintenance and refueling, and handle billing requirements.[47] To accomplish these tasks, control officers were placed at important locations along established air routes.[48] Given wide latitude and authority,

Henry H. Arnold, shown here as a lieutenant general
(U.S. Air Force)

Robert Olds, shown here as a lieutenant colonel, established Air Corps Ferrying Command and was a veteran of long-range flight. Twice he flew American bombers to South America in the 1930s. For his services, he received the Distinguished Flying Cross and both the Mackay and Harmon Trophies.
(Author's Collection)



General Spaatz
(Library of Congress)

these officers worked with the aircraft and aircrew to dispatch flights, provide weather information and intelligence reports, adjust flight plans, and arrange the return of flight crews once airframes were delivered. Control officers were also located at aircraft factories managing the departure of new airframes and at overseas debarkation sites including Presque Isle, Maine, for the North Atlantic route and Morrison Field in West Palm Beach, Florida, for South Atlantic routes.[49] Given the complexity of the operation, ACFC eventually divided itself into Domestic and Foreign Wings, which respectively managed planes and crews operating either within the United States or internationally.[50]

While ACFC planned air routes and established flight priorities, many airframes required modification based upon the route determined and the anticipated theater of operations. Aircraft operating in desert climes required dust-filtering systems; Pacific-bound planes needed fuel tanks capable of using aromatic petrol; and airframes flying in the European Theater of Operations or arctic regions could not operate without freeze-proof hydraulic systems, special carburetors, heating systems, and dozens of other modifications before the transatlantic journey.[51] This logistical juggling act required establishing special air depots at various locations for post-production modifications. Including the modification process as part of the ferry route further complicated the management of airframes, aircrews, and support facilities.

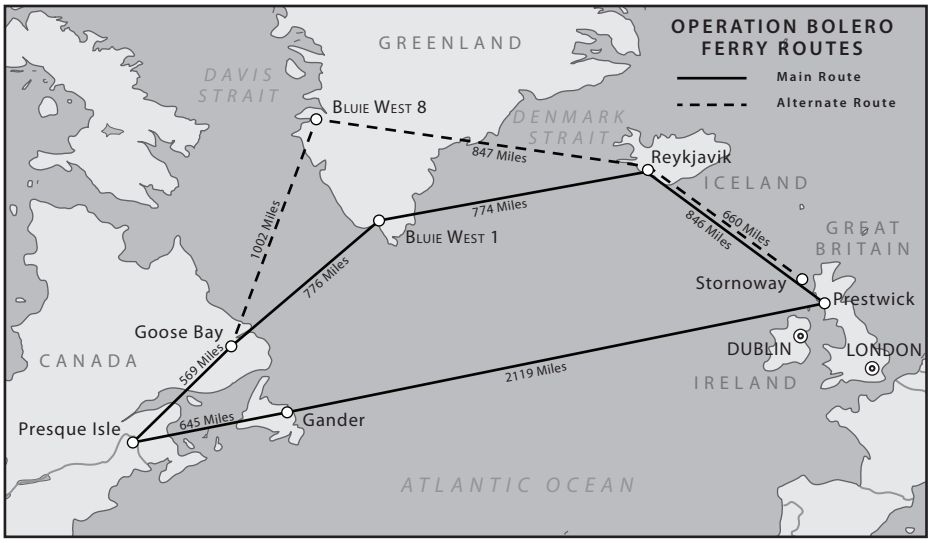
Within one month of the establishment of ACFC, the first U.S. transatlantic operations began. These initial flights carried diplomats between the two continents using modified B–24s with seating for twenty installed in the aircraft's bomb bay spaces.[52] These early shuttle flights, called the "Arnold Line," had operations running from Bolling Field near Washington, D.C., to Montreal, then to Gander, Newfoundland, and across the Atlantic to Prestwick (Ayr), Scotland.[53] Accommodations in the belly of the bomber were hardly plush and usually uncomfortable. On-board heaters often failed, and cold drafts seeped through gaps in the airframe. Only one passenger at a time was permitted to smoke—a hardship at the time—and then only on the flight deck. While initially carrying personnel, mail, and official correspondence, ACFC and its successor organization ATC eventually assumed responsibility for all military air movement over the Atlantic.[54] As the winter months approached, and before the northern ferry route was fully established, the Arnold Line suspended operations by 18 October 1941 after twenty trips. Flying in these latitudes during the winter months before other bases, navigation aids, and aviation support services were established was dangerous, if not suicidal.

Flying as a passenger was also risky. Ferrying aircrews to the United States on a return flight from the United Kingdom, a modified B–24 was heading westward on the northern route when it encountered bad weather. With freezing temperatures and visible moisture, ice accumulated on the plane's surfaces, increasing aircraft weight and impeding lift from the wings. Fighting this dangerous condition for hours, the pilots climbed as high as 20,000 feet in hopes of shedding the ice's additional weight.[55] The B–24's crew donned their oxygen masks in the cold, rarified air. However, the human cargo, sitting in the belly of the aircraft, was without supplemental oxygen. At that altitude, the passengers succumbed to hypoxia and started passing out. The one remaining conscious passenger realized the dangerous condition and notified the flight crew. Recognizing their mistake, the crew descended to a lower altitude with sufficient oxygen.[56] According to one account, after leveling off at 7,000 feet, the passengers cursed the flight crew, but the complaints eventually turned into "muttered prayers and thanks" that no one had been killed.[57]

These early diplomatic movements included flying future U.S. ambassador W. Averell Harriman to the Soviet Union in September 1941 to negotiate American lend-lease support.[58] In addition to moving people, arranging the movement of equipment and materials to the Soviet Union was a key component in the American war effort and also part of the ACFC/ATC mission. Because the Wehrmacht occupied much of Europe in the summer 1941, avoiding German interception required flying Harriman and his staff over 3,100 miles from the United Kingdom by a circuitous route. After take-off from Prestwick, two B–24s carrying the diplomats flew north around Scandinavia, then headed south to Arkhangelsk on the White Sea coastline, and eventually on to Moscow.[59] The aircraft successfully landed in the Soviet capital and delivered Harriman. The flight served as an example of ACFC's reach, flexibility, and daring.

The return flights were even more impressive. Ordered by Colonel Olds, the crews surveyed additional air routes back to the United States during their trip home. Each crew flew a different course. Pilots Maj. Alva L. Harvey and Lt. Louis T. Reichers each began

Air crews, sitting in a C–87, occupy the spaces that normally carried bombs. The C–87s—passenger versions of the B–24 Liberator bombers—were notoriously cold and drafty, with poorly working heaters. However, this was the most efficient way to bring crews back to the United States after having delivered aircraft to the United Kingdom.
(Imperial War Museum)



their respective return journeys flying south to Habbaniyah, Iraq. After this stop in the Middle East, Reichers turned west and took an African–South American–Caribbean route back to the United States.[60] Meanwhile, Harvey turned east and flew over the Hindu Kush to India and then leap-frogged to Burma, Australia, Wake Island, and Hawai'i. Returning to the continental United States, he landed at March Field, California, before returning to Bolling Field via Fort Worth, Texas.[61] In this journey, Harvey and his crew circumnavigated the globe.

At this time, most USAAF pilots trained in single- or twin-engine aircraft, with qualified four-engine flight crews in short supply. As a result, 200 multiengine ferry crews began training at Barksdale Field, Louisiana, to address the deficiency. These new ferry crews moved some 1,350 aircraft from various West Coast factory locations to the eastern seaboard.[62] After Pearl Harbor and the American entry into the war, this ferrying effort expanded appreciably to both the Atlantic and Pacific theaters.[63] Supporting the deployment of heavy bombers overseas as new aircraft came off the Boeing and Consolidated Aircraft Company production lines, the USAAF initiated Project 32. This was a deliberate effort to furnish thirty-two new five-person ferry crews to move the estimated sixteen new bombers coming out of American airplane factories every month.[64] Project 32 was followed by Project 50, the intent of which was to train crews for the new C–54 and C–87 aircraft.[65]

With the shortage of pilots early in the war, female pilots helped in the ferrying process. The brainchild of Nancy H. Love, the first

Jacqueline Cochran
(National Archives)

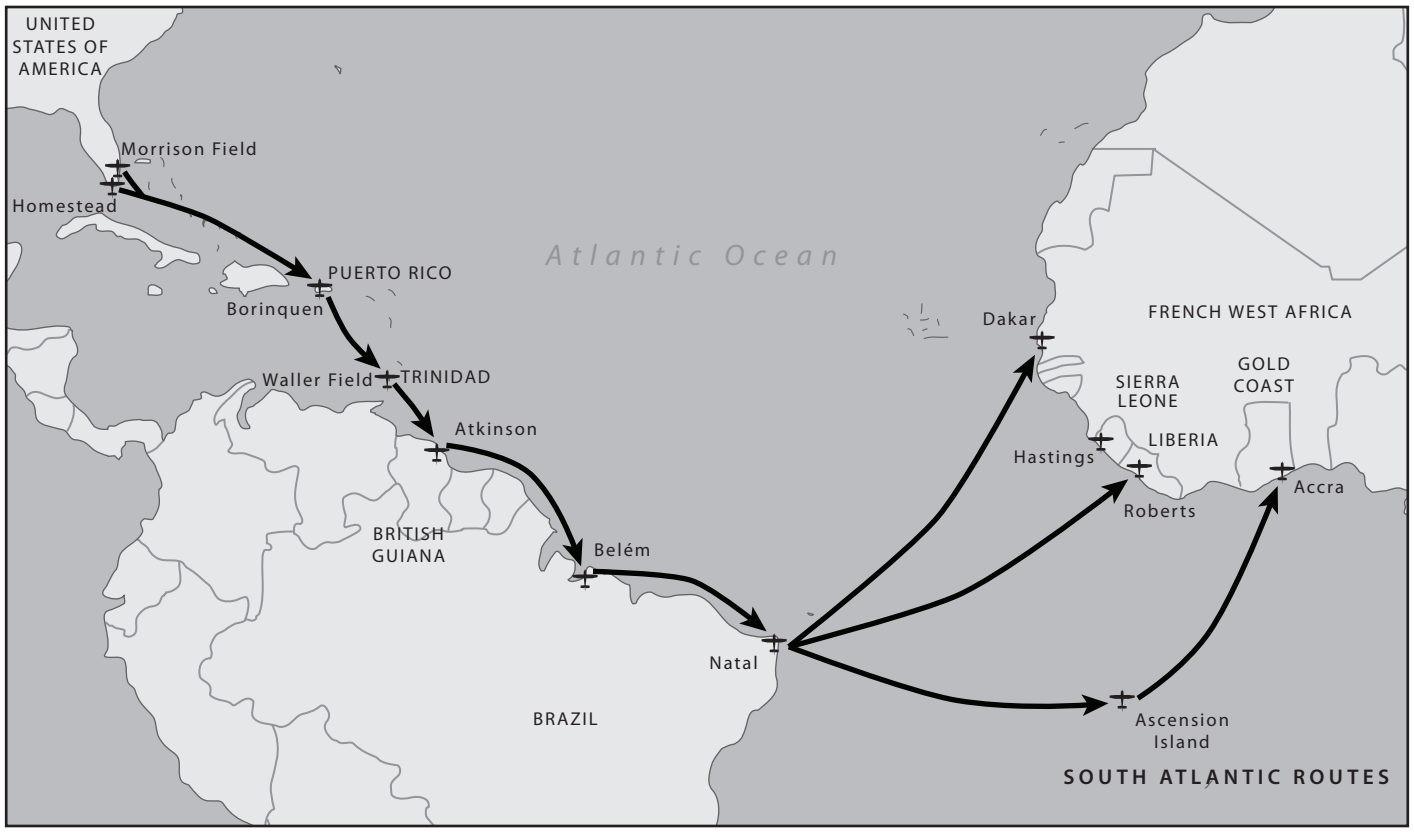
Nancy H. Love, founder of the Women's Auxiliary Ferry Squadron
(Courtesy of Texas Women's University)

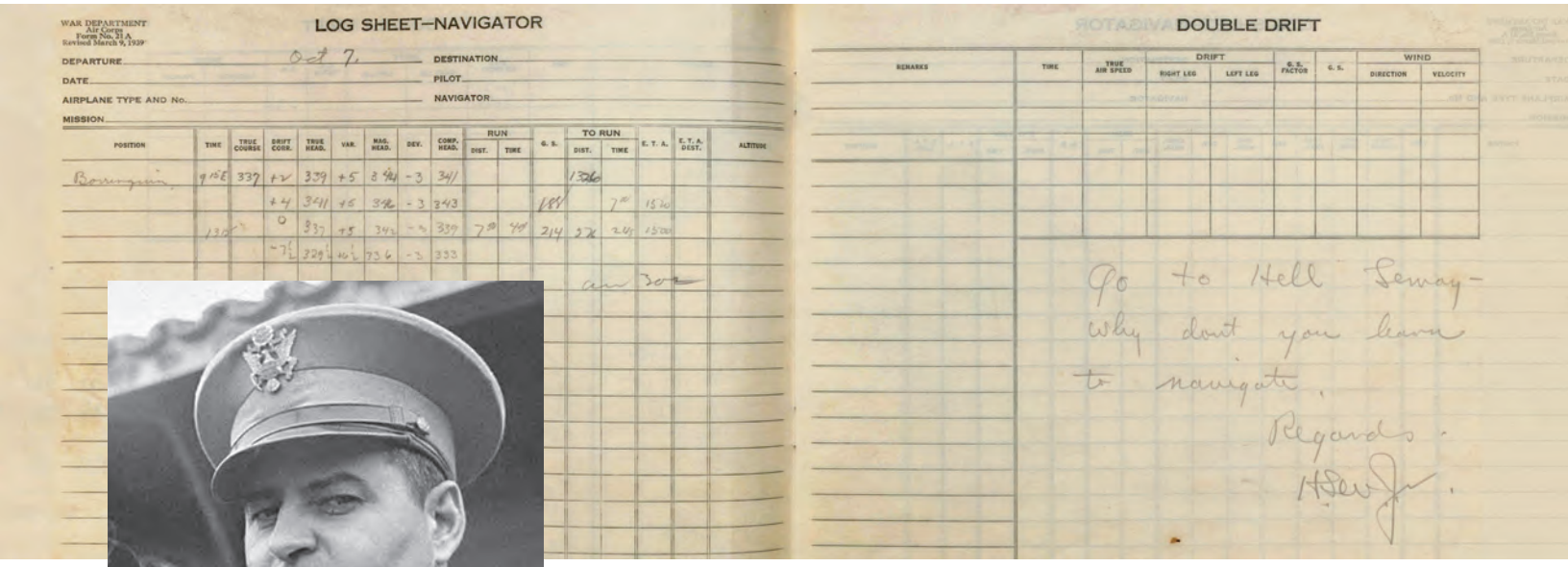
A C–87 aircraft, designed to carry passengers, was used to transport diplomats during the Arnold Line movements of 1941. A plane like this carried Ambassador W. Averell Harriman to the Soviet Union to negotiate the lend-lease agreements.
(Library of Congress)

WASPs, after ferrying B–26 medium bombers. Many crews feared these bombers because of their high landing speeds and wing loading, but the WASPs routinely flew the notorious aircraft.
(U.S. Air Force)

Caleb V. Hayes, shown here as a major general
(U.S. Air Force)

Women's Auxiliary Ferry Squadron (WAFS) was formed on 25 September 1942 at New Castle Army Airfield near Wilmington, Delaware.[66] To be eligible for the program, the women were required to have a high school diploma, a 200 horsepower rating, at least 500 hours of flying time, and a commercial pilot's license.[67] Applicants also had to be between the ages of 21 and 35. Only a few hundred women could meet these requirements, which differed from the requirements imposed upon men. Famous aviator Jacqueline Cochran, who was well connected politically and socially, was placed in charge of the Women's Auxiliary Service Pilots (WASP) School at Sweetwater, Texas, in August 1943.[68] At the peak of the program in April 1944, 303 WASPs served with ATC.[69] Although prohibited from flying overseas or in combat, the WASPs flew every airframe in the USAAF inventory. Of particular note, these pilots often ferried B–26 Marauders and B–29 Superfortresses, two airframes that had developed bad reputations among American aircrews.[70] Prone to crashes, engine failure, and fires, these bombers were dubbed "widow makers," with male flight crews often reluctant to fly them. To counter this perception, Arnold deliberately tasked female crews to deliver





A page from Major LeMay's navigation log from his trip to Africa in October 1941. LeMay was known for his navigation skills, and the comment in the remarks section expresses light-hearted humor at his expense. Despite the signature, the author of the comment remains unknown.
(Library of Congress)

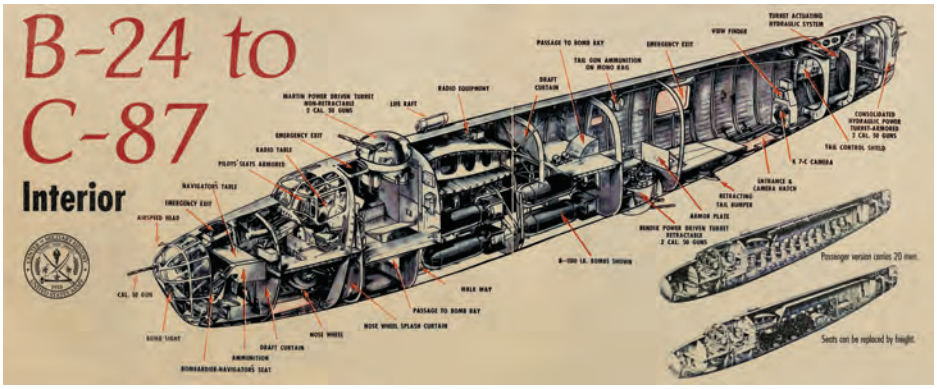
Curtis E. LeMay, shown here as a major general
(U.S. Air Force)

the planes to various bases where they would disembark from their cockpits in full view of men. Despite routinely outperforming their male counterparts, the WASPs were disbanded in 1944, when the number of male pilots in the USAAF was deemed sufficient. Unfortunately, it took decades for their service to receive due recognition.

Ferry pilots flying factory-new machines faced challenges that differed from those faced by combat crews. Coming off the production line, each new airframe required a functional test flight by company and USAAF pilots and crews before it could be used in military service. However, passing the functional test flight did not necessarily mean the plane was free of mechanical bugs or other technical maladies that might not have been discovered in the short initial acceptance flights.[71] Identifying a newly constructed aircraft's defects or technical problems often took more than one hundred hours of flight time. Because ferry crews flew various aircraft, they often had to deal with inflight emergencies with unfamiliar aircraft.

Although the northern Atlantic airway was designated the primary route, the USAAF established other paths between the oceans. Even before the attack on Pearl Harbor on 7 December 1941, the ACFC established a secondary, southern route linking the two hemispheres.[72] Providing aircraft and supplies to Africa and Asia, this airway connected the continental United States to Puerto Rico, the cities of Belém and Natal in Brazil, and various airfields in western Africa. Pioneering the route was Lt. Col. Caleb V. Hayes, who, like Olds, had extensive experience in long-range flying operations. Assisting him was a young Maj. Curtis E. LeMay, already a well-respected navigator, who later become famous for fire-bombing Japan and his unwavering support for strategic bombardment. By November 1941, the first ferried deliveries were made to Cairo by ACFC via the southern route, and a month later, the path was extended all the way to Al Basrah, Iraq.[73]

While the northern route from Presque Isle to the United Kingdom covered 2,700 miles, the southern route was considerably longer. The distance from Miami to Brazil's Natal bulge alone was 4,000 miles. However, flying over the Caribbean, aircrews could rely on a number of islands and airstrips for emergency landings or unscheduled diversions. Crossing the narrowest part of the Atlantic, crews landed at Freetown in Sierra Leone, Liberia, or Bathurst in the modern-day country of The Gambia.[74] By 1942, the route also included Ascension Island, which facilitated the movement of twin-engine aircraft while adding more flexibility for both aircrews and ACFC planners.[75] The British, who owned Ascension Island, allowed the United States to build a 6,000-foot runway and supporting air base



(Library of Congress)

The uniform hat for Air Transport Command civilians was cut of the same material and style as its military counterpart, but it had different insignia. Instead of the national eagle, the Wright brothers' monument is at the center of the wings, with the ATC acronym across the top.
(U.S. Air Force)

Cyrus R. Smith, shown here as a major general
(National Archives)

on the small, isolated island. While the island was not necessarily hard to find, as the airfield had a navigation beacon, pilots flying the route joked, "If I don't hit Ascension, my wife will get a pension."[76] This south Atlantic route became more important as weather conditions precluded most aircraft from flying the northern route.[77]

The first B–17s for the U.S. 8th Air Force in the United Kingdom were dispatched on this route flying via Marrakesh.[78] Once across the Atlantic, planes were ferried to points north or continued across the African continent to Cairo. Many aircraft continued east to the China-Burma-India Theater. After the liberation of North Africa and Sicily in 1943, a third route was established, which took a mid-Atlantic trek to Bermuda, the Azores, then into the Mediterranean.[79] As early as 1942, this southern transatlantic route was used to supply the Soviet Union with 102 B–25 medium bombers.[80]

Not all movement was done by military crews and aircraft. Given the demand for long-range airframes and crews, civilian airlines took part in the transatlantic effort.[81] At the beginning of U.S. involvement in the war, ACFC had only eleven B–24s in its livery, along with a few dozen twin-engine aircraft.[82] The bulk of long-distance transport aircraft in the United States in 1941 belonged to civilian airlines. On 13 December, just days after the attack on Pearl Harbor, President Roosevelt issued an executive order authorizing Secretary of War Henry L. Stimson emergency authority to leverage civilian airlines in support of the war effort.[83] After meeting with federal business entities early on, both private business entities and civilian airlines allowed the military to gain access to large civilian flying boats and cargo aircraft, including five Boeing Clipper planes, two Martin flying boats, and five Boeing Stratoliners.[84] Eventually, the military drafted half the domestic airliner fleet and about a quarter of the international airliners for wartime use. The civilian-military airlift cooperation was an important element in the success of overseas and domestic movement.

Not only did the civilian airframes support the war effort, but a third of the airlines' personnel also served. In 1942, civilian carriers provided 87 percent of air transportation.[85] This percentage dropped by almost a third each year of the war and, by 1945, it stood at just 19 percent.[86] Civilian crews wore uniforms, although they were somewhat different from their military counterparts. Cut in the same manner as Army officers' uniforms, civilian uniforms had no rank insignia. Instead, their caps were emblazoned with distinctive wings and the letters "ATC." Unlike their military counterparts, civilian crews were paid airline wages.[87] While many aircrews retained their civilian status, forty-seven top executives of the major airlines left civilian employment for a commission in the military services.[88] Notably, the president of American Airlines, Cyrus R. Smith, was commissioned a colonel, eventually became a major general, and served as the deputy commander for ATC.[89] Furthermore, many of the civilians working for ATC faced the same hazards as their uniformed counterparts, and approximately 200 of them became casualties.[90]

In January 1942, Northeast Airlines moved supplies to Presque Isle and Goose Bay and eventually to other bases, including some in the United Kingdom.[91] Transcontinental, Western Air, and American Airlines also provided lift support to various points along the northern route. Along the southern route, Pan American Airways not only provided airlift services, but also served as an agent of the U.S. government by overseeing the Airport Development Program and establishing aviation-related facilities in foreign countries.[92] This was especially important in a key location like Brazil that was apprehensive of the Allies using its airfields for military purposes.[93] Pan American was so efficient in developing the southern route that it was open in sixty-one days.[94] Given the efforts of the civilian airline industry, one USAAF general officer admitted, "If it had not been for their [the airlines'] wholehearted spirit of cooperation, it would have been nearly impossible as anything can be impossible for us to carry out the job in the way it has been done."[95]

Pan American's efforts were especially helpful with the first major movement of bomber aircraft deploying to the China-Burma-India Theater. Called Project X, this movement leveraged the southern route and utilized the bases built and funded by

An aerial view of BLUIE WEST 1
(U.S. Air Force)

Pan American in both South America and Africa. Undertaken in mid-December 1941, Project X planned to supply the majority of fifteen LB–30s and sixty-five B–17s to various points in South Asia.[96] Intended to help Lt. Gen. Douglas MacArthur defend the Philippines from the Japanese invasion, this flight was accomplished in two echelons. Traveling almost around the globe, the planes took a lengthy route, flying across the Atlantic to Khartoum, Cairo, Habbaniyah, Karachi, and then India.[97] When it became apparent the U.S. defense of the Philippines would fail, the aircraft flew on to Darwin, Australia, to await further tasking. When the North African Campaign against the German Afrika Corps and Field Marshal Erwin Rommel started, the southern route was utilized for the movement of 120 B–34s, 153 A–28s, 45 B–26s, and 80 A–30s, flown by RAF, USAAF, and Pan American aircrews.[98]

Developing the northern route not only required new airfields and infrastructure, but also myriad other services, including meteorological support. As arctic air moving south mixed with tropical masses moving north, stationary fronts with ice, turbulence, and thunderstorms often emerged unexpectedly.[99] To aid aviators in avoiding such hazards, weather stations with radio communications and forecasters were required. Before the war, surface vessels often radioed weather conditions, but after hostilities began, surface vessels obeyed radio silence and quit reporting. Occasionally, U.S. Coast Guard cutters stationed along the route helped, but ACFC required a more permanent solution.[100] Eventually, the USAAF established a weather support network from Maine to Iceland, with the first station opening at Gander Lake, Canada, in March 1941.[101] Weather support became an international effort as it also included Canadian and Danish stations.[102] For the eastern part of the route, the United Kingdom provided similar meteorological support for inbound aircraft.

Execution of Operation BOLERO required airfield establishment and improvement. Building bases in Canada, Iceland, and the United Kingdom was relatively simple as those locations could be reached by rail, ship, or road network. However, Greenland was a different matter. After receiving approval from the exiled Danish government in April 1941, American forces began to prepare landing sites on the island.[103] Despite the lack of transportation infrastructure, in spring 1941, the United States began building a 5,000-foot airfield code named BLUIE WEST 1 (BW-1) near the town of Narsarsuaq on the west coast of Greenland.[104] The first planes landed at BW-1 in early 1942. While building BW-1, the U.S. Coast Guard surveyed another potential airfield 500 miles to the north.[105] Construction on this second site began in October. Providing a second, equally long airstrip in Greenland, BLUIE WEST 8 (BW-8) became operational in spring 1942.[106] Initially intended as an alternate to BW-1 for meteorological and overflow considerations, over time BW-8 experienced better flying weather, which caused their roles to reverse somewhat. BW-1 and BW-8 were, respectively, 770 and 845 miles from Reykjavik, Iceland, and a similar distance from Goose Bay, Canada.[107] Traveling the route was now feasible by modern, multiengine airframes. To aid in navigation and provide updated weather information while flying to BW-8, the USAAF built BLUIE WEST 9 just off the western coast of Greenland on Simiutak Island. Additionally, the U.S. built other bases on the island. BLUIE EAST 2 at Ikateg was established in late 1942 on the eastern coast of Greenland, with a 5,000-foot runway.[108] Complementing these bases, an emergency

Converted Trans World Airlines Stratoliner, "Apache," after becoming the first aircraft to land at BLUIE WEST 8, 20 April 1942
(World War II Database)

P–38F Lightnings refuel in Iceland on their way to Britain.
(National Archives)

landing field, designated Bluie West 4 (also known as Teague Field in honor of a pilot who crash-landed there), was built in the summer of 1942.[109]

Furthermore, the Newfoundland airfield of Goose Bay was improved by the addition of rolled gravel to the landing strip. In addition, the United States provided infrastructure support at the base to house American personnel and provide maintenance spaces, fuel farms, and other aviation-related services.[110] By June 1942, a 6,000-foot steel-planked runway was in place with two more under construction.[111] More bases were added to the route with Dow Field at Bangor, Maine, along with the construction of Meeks and Patterson Fields near Reykjavik, Iceland, in early 1942.[112] Just as Bolero began to ramp up with the movement of the 8th Air Force, ACFC worked with Northeast Airlines to install radio range navigation beacons with improved communication facilities from the United States to Scotland.[113]

Much of this work was done in order to build up American forces in Europe for both Operation Roundup, an early plan for the assault of the European continent via the English Channel, and Operation Pointblank, the strategic bombing effort over Germany. The USAAF's 8th Air Force spearheaded the strategic bombing effort in the European Theater of Operations from its bases in the United Kingdom. Anxious to prove the efficacy of the newly framed concept of daylight strategic bombardment, the USAAF sent the first formations to England via the northern route in summer 1942. By 1943, as American production ramped up and made more airframes available, greater infrastructure support and improved conditions enabled the Army to use the route year round. That same year, more than 3,000 bombers, mostly B–17s, took the northern route to the United Kingdom. As facilities and conditions in the north improved, the Marrakesh–United Kingdom route initially used by the 8th Air Force bombers became less relevant.[114]

When ATC, commanded by Lt. Gen. Harold L. George, absorbed ACFC, it assumed responsibility for all operations, facilities, and services along the overseas routes.[115] Simultaneously, 8th Air Force planners believed they had authority over all of their aircraft flying to Europe. As a result, there was a need to deconflict responsibilities between the two commands.[116] 8th Air Force personnel were unfamiliar with the region and the unique requirements of flight ferry operations, but were still responsible for their command's deployment overseas. Given this situation, commanders decided that all lead aircraft for 8th Air Force formations during the transatlantic flight ferry process would be flown by ATC personnel. This unique arrangement resulted in a substantial drop in the accident rate.[117] In 1942, 4.12 percent of aircraft on the northern route were wrecked or lost, but by 1943, that number dropped to only 1.14 percent.[118]

Key to the expedient movement of both airplanes and cargo was the use of a "conveyor belt method" of operations, which involved flying a set number of aircraft at determined intervals. This approach helped reduce congestion at airfields and facilitate the workload of ground support personnel.[119] For example, instead of eight aircraft showing up at once at a given location, two of the eight might land at a two-hour interval. This interval allowed ground crews to refuel and service the plane while the aircrew checked weather or updates for the next leg. When the first pair of planes launched, the next set of aircraft arrived. Had all eight aircraft arrived simultaneously, each would have waited for servicing from ground personnel, thus wasting time by sitting still.[120] Of course, this schedule was subject to change due to weather, mechanical problems, or in-flight emergencies. However, use of this basic process maximized ground crews' availability and the use of associated facilities at the air bases. It also reduced congestion in the airways, the traffic pattern, and on the runways, taxiways, and parking aprons.

The unsung heroes in the northern route were, of course, the ground crews and mechanics who worked for days at a time in subzero temperatures. With temperatures in the negative 30s and 40s, maintenance crews worked in shifts to allow their frozen hands and faces time to warm up. Given the tight spaces and tolerances in airframes and engines, working with gloves on was a problem, especially with smaller parts. Exposed skin succumbed to frostbite quickly and would freeze to metal parts. Mechanics often wore scarves over their noses and mouths to prevent their lungs from freezing. Work efficiency dropped; what normally took ten minutes might now take an hour.[121]

Initial units, not individual aircraft, sent to the United Kingdom via the northern route were the 97th Bomb Group, the 1st and 31st Pursuit Groups, the 5th Photo Reconnaissance Squadron, and the 5th Air Depot Group.[122] Coinciding with the air movement, the majority of these units' men and ground equipment went by surface transport from New York City.[123] Because only skeleton crews ferried the planes to Europe, these

General George
(U.S. Air Force)

aviators were trained for combat missions rather than long-range ferry operations. Before making the long journey, the crews had received special training at Grenier Field, New Hampshire, and Dow Field, Maine, earlier that spring.[124] Later, a unit of C–47s from the 60th Transport Group was added. Conversely, the 31st Fighter Group's single-engine P–39s were determined unsuitable for the transatlantic trek and were shipped by surface.[125] Only weeks later, some of these crews would be in combat. On 17 August, the 97th made the first U.S. heavy bomber raid of the war, attacking the Sotteville railyards in Rouen, France, with British Spitfires providing cover.[126]

The B–17s and P–38s took off from Presque Isle on 23 June 1942 and all successfully landed at Goose Bay. Days later, they headed for the Bluie West stations. Nine B–17s reached their destinations, six turned back, and three were forced to land on the Greenland coast. However, by 1 July, the first USAAF tactical aircraft landed at Prestwick, Scotland.[127] By the end of August, 386 aircraft had crossed the North Atlantic, and by the end of the year, 920 had attempted the journey, with 882 eventually reaching their intended termini.[128] The USAAF was especially concerned about the small P–38 fighters making the journey. Fortunately, 173 of the 186 twin-engine airframes made it to the United Kingdom.[129] Although the USAAF had estimated an overall 10 percent loss rate for such an operation, the actual loss rate was only 5.2 percent.[130] This is an impressive record for the time, especially because these aircraft were piloted by combat crews and not ferry pilots.

As American planes headed east and reached British airspace, combat aircrews were often unfamiliar with British air traffic control procedures. In order to facilitate communication and the safety of these newly arriving aircraft, the Americans suggested that they should control the airway all the way into Britain.[131] While this was certainly an unusual request of a sovereign state, the armament would facilitate the USAAF's arrival. In addition, the United States requested two airfields to receive the incoming units, and asked that they be staffed only by American ground crews and other personnel. Understanding the need, the British not only accepted the proposal, but also granted the Americans four airfields.

By 1943, the air war over Europe became a grim affair, with heavy bomber losses averaging 10 percent per mission. At this rate, statistically, the bomber crews would not survive to complete their required twenty-five missions. More and more replacement personnel and machines were needed. Various aircrews operated the planes flying the northern route to the United Kingdom. Twenty-seven percent of the tactical units' planes were flown by their assigned crews, 38 percent flown by replacement crews, and the remaining 35 percent were flown by ATC personnel.[132] The 38 percent represents the ferocity of the air war in 1943 and the tragic costs paid by these fliers. Interestingly, a full third of combat aircraft deploying to the United Kingdom were flown by ATC crews.

By the end of the war, ATC had grown from a small group of people in a dank, odor-filled room to a global transportation system that scheduled, managed, and tracked 3,705 aircraft, supported by more than 200,000 military personnel and 100,000 civilians.[133] The command's global reach exceeded 160,000 miles, or six times the circumference of the earth. Each month, its personnel flew a total of 50 million miles.[134] In 1944 alone, the last full year of the war, ATC crews flew over 600 million miles—equivalent to 25,000 trips around the earth's equator.[135] As the conflict ended, ATC aircraft were crossing the Atlantic at a rate of one every thirteen minutes and the Pacific at a rate of one every thirty-seven.[136] While all of these impressive statistics include ATC miles for both theaters, the genesis of this global transportation network started in a single ACFC room, with a few officers trying to figure out how to move aircraft from the United States to the United Kingdom.

Tomcat Flight, the initial movement of combat aircraft that traveled the northern route in the summer of 1942, included Lieutenant Smith and his P–38. Forgotten in the larger drama of the war, the B–17s and P–38s that had ditched in the ice were left in place and written off. In the ensuing years, the planes slowly disappeared from sight, swallowed by snow and ice, becoming buried relics of a past war. However, some sixty years later, the story of the ill-fated formation came

First Lt. Harry Smith's P–38 was recovered from Greenland and made airworthy. Newly dubbed "Glacier Girl," the fighter has made celebrated appearances at airshows.
(Courtesy of Planedave.net)

to light again when a group of aviation enthusiasts attempted to recover the now rare airframe.

In 1992, the Greenland Expedition Society located Smith's fighter plane in Greenland using ground-penetrating radar. The plane had shifted in the ice approximately two miles from its original location and was buried twenty-five stories deep under 260 feet of ice.[137] After digging through the various layers accumulated over the past sixty years, the recovery crew reached the abandoned aircraft entombed in ice and rock. Over the next few weeks, piece by piece, they brought the P–38 back to the surface and sent it back to the United States. Starting in 1993, the badly bent aircraft slowly was rebuilt with 80 percent of its original parts.[138] Almost a decade later, in October 2002, the plane emerged from its reconstruction hangar, once again airworthy. With new nose art and now christened "Glacier Girl," Lieutenant Smith's P–38 took to the air. Regularly appearing at air shows, Glacier Girl is now a living testament to the crews who braved the perils of the transatlantic journey, helped defeat fascism, and laid the foundations for an emerging global air transportation network.

Editor's Note

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Dr. John M. Curatola is a professor of history at the U.S. Army School of Advanced Military Studies at Fort Leavenworth, Kansas. He served in uniform for twenty-two years and retired as a U.S. Marine Corps lieutenant colonel in 2009. That same year, he received his doctorate from the University of Kansas. After teaching in the Department of Military History at the Army's Command and General Staff College for eight years, he moved to the School of Advanced Military Studies in 2016. His published works focus on World War II, airpower, and the Cold War. He has given a number of presentations at venues such as the National Archives, public libraries, and on podcasts; serves as a military adviser for the National Geographic Channel; and has been featured in nationally televised lectures on C-SPAN. His work has been published in *World War II Magazine*, the *Marine Corps Gazette*, and the scholarly journal *Vulcan*. His first book, *Bigger Bombs for a Brighter Tomorrow: The Strategic Air Command and American War Plans at the Dawn of the Atomic Age, 1945–1950* (McFarland, 2015), examines the state of the American nuclear monopoly after World War II. His forthcoming book, *Autumn of Our Discontent: Fall 1949 and the Genesis of NSC-68* (Naval Institute Press, 2022), follows the events shaping American national security policy after the surprise of the Soviet Union's first atomic bomb test.

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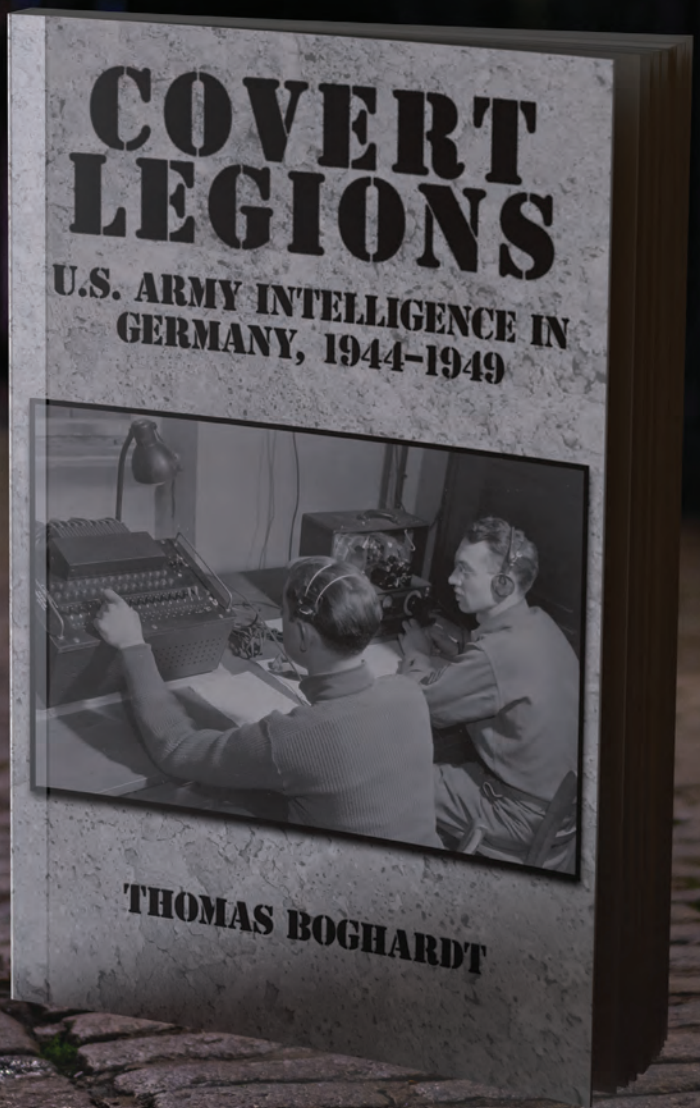

FROM CMH

MUSEUM FEATURE

U.S. ARMY TRANSPORTATION MUSEUM

By Alisha Hamel

The U.S. Army Transportation Museum, located at Fort Eustis, Virginia, provides premier Army history education to soldiers, family members, and the public by creating and maintaining interesting and innovative exhibits, educational platforms, and collections to build esprit de corps and historical understanding. The museum sits on more than five acres of land and includes the 39,366-square-foot museum building, a 13,900-square-foot aviation pavilion, a 15,000-square-foot truck pavilion, an outside marine (boat) park, and a rail yard covered by a 45,000-square-foot pavilion. The museum also has a historical display at Fort Leonard Wood, Missouri, to educate its 88M (Motor Transport Operator) advanced individual training students and has added a new Transportation Museum annex pavilion at Fort Lee, Virginia, to educate transportation officers and students located there.

The Transportation Museum tells the story of Army transportation from the Revolutionary War through a new Futures exhibit. Visitors are immersed in life-sized dioramas as they travel through time in the museum. The Transportation Museum contains many one-of-a-kind artifacts, including the only remaining Vietnam-era gun truck, known as the Eve of Destruction, and the only hovercraft to return from Vietnam. It also contains many experimental vehicles, including a ground-effect machine and pieces of the Avrocar, the only "flying saucer" known to have actually flown.

The museum started in the 1950s as a circus attraction and recruiting tool. By the early 1960s, it was situated in several old warehouses. The current main gallery and administrative building opened in 1976; additions in 2004 and 2012 extended the indoor exhibition and storage area by more than 5,500 square feet. This additional space allowed the staff to update existing exhibits and add exhibits on Operations Enduring Freedom and Iraqi Freedom.

New exhibits include the "Pacific War during WWII," "Vietnam Boat Art," "Army Boats," a Civil War mural, a holographic-type exhibit in the Korea exhibit area, an audio experience in the rail pavilion, and an Army Futures exhibit showcasing a prototype JLTV (joint light tactical vehicle). All videos in the museum were revised and updated in 2021. New artifacts on display include a large aerial map of Fort Eustis, Virginia; a Gama Goat six-wheeled off-road vehicle; and the only PBR (Patrol Boat, Riverine) in the Army Museum Enterprise. The newest exhibit was completed at the end of April 2022 and showcases the role of the Officer Candidate School (OCS) in developing new officers for the Army, especially during Vietnam. Many Vietnam-era Transportation Corps (TC) officers came through the TC OCS School at Fort Eustis from 1966 to 1968.

The Transportation Museum also hosts many classes, retirements, promotions, picnics, and ceremonies, including the awarding of the Bronze Star to Sp4c. Ronald Mallory, the driver of the gun truck involved in the February 1971 firefight in which Sp4c. Larry G. Dahl gave his life to save his fellow soldiers. Specialist Dahl is one of three Transportation Corps soldiers honored in the museum's Medal of Honor exhibit. The museum is open Monday through Saturday, 0900–1630, except for federal holidays.

Alisha Hamel is the director of the U.S. Army Transportation Museum.

The walkway at the entrance to the U.S. Army Transportation Museum includes bricks commemorating the soldiers, organizations, and people that support the museum.

The Delavon C. Clos auditorium is used for promotions, retirements, changes of command and responsibility, classes, offsite meetings, and monthly Brown Bag Lunch lectures.

While serving in DESERT STORM, a unit packed up this full tent and sent it directly to the museum. The exhibit even includes the water bottles and food that the soldiers had with them in theater.

The museum's marine yard includes a breakwater jack, a propeller, an anchor, an Army tugboat, an Army J boat, and a barge amphibious resupply cargo (BARC) vehicle.

BARCs were used to transfer supplies from ship to shore when no port was available. This BARC was used for training at nearby Fort Story and is now the largest Army boat on display at the museum.

Many museum visitors served or rode on Berlin duty train cars, such as the one pictured here on the right, to traverse the Soviet-controlled corridors into Berlin after World War II. *Also pictured:* an ambulance rail car and an Army caboose.

This experimental cargo 6x6 3-ton truck, produced in 1924, is the forerunner of the 2½-ton cargo truck used during World War II.

The truck pavilion tells the story of how vehicles improved over time, starting with the museum's earliest Jeep.

The "Eve of Destruction" is the only gun truck that came back from Vietnam. The Army destroyed all of the other remaining gun trucks in Vietnam because it did not expect to fight another war that required convoy security. Decades later, vehicle manufacturers visited the museum to measure this iconic artifact so they could create the up-armored vehicles used in Iraq and Afghanistan.

The story of the damage to this early example of an up-armored Humvee is told in an audio interview by the soldiers who were in the Humvee when it was hit by an improvised explosive device. Because of the vehicle's armor, there were no casualties among the soldiers riding in it.

The experimental cybernetic walking machine, which may have inspired the *Star Wars* "Imperial walker," was commissioned in 1966 to advance soldiers in the battlefield. It was not put into production because of its excessive use of hydraulic fluid, but the Army learned from it to make better machines.

In December, the museum tells the stories of how soldiers celebrated the holidays during each of the main conflicts. The Bird Dog shown here was used as an observation aircraft during the conflicts in Korea and Vietnam.

This Black Hawk, which flew missions during DESERT STORM, was upgraded to an executive model to be part of the Executive Flight Detachment, a unit of the U.S. Army.

Pattern 1851 Dragoon Frock Coat and Cap

By Robert J. Smith

For the U.S. Army, the 1850s were a period of extensive experimentation in the adoption of weapons, accoutrements, and uniforms. The Pattern 1851 enlisted dragoon frock coat was the product of the Army's desire to replace the Pattern 1833 dragoon coat. The 1833 jacket resembled that of earlier patterns and lagged far behind the latest European styles. The 1833 coat was to be worn on all occasions, as dictated in the *General Regulations for the Army of the United States*. Specifically, the jacket could be worn "on certain duties off parade; to wit: at drills—inspections of barracks and hospitals—courts of inquiry and boards—inspections of articles and necessaries—working parties and fatigue duties—and upon the march."[1] The Pattern 1851 was a radical departure in the look of the dragoon uniform. Inspired by the War Department's desire to update the Army's uniform, the new design exhibited a noticeable French influence. General Orders 31, dated 12 June 1851, noted that for the enlisted, "the uniform shall be a single-breasted frock of dark blue cloth, with the skirt extending one-half the distance from the top of the hip to the bend of the knee."[2] However, issuance of the newly prescribed Pattern 1851 uniform was uneven at best, with units being informed to wear the old pattern until it was no longer serviceable. With the publication of General Orders 1, dated 20 January 1854, the Pattern 1851 frock coat became the regulation uniform for all units comprising the Army's mounted arm.[3]

The single-breasted frock coat retains the previous dragoon coat's orange facings on the stand-up collar, chevrons, and cuffs. The chevrons, constructed of either silk or worsted binding, measure a ½-inch wide and are placed above the elbow. The coat displays a row of nine yellow buttons placed at equal distances. The shoulder scales, worn for full-dress and parade duty, are made of sheet brass and attach to the coat by means of a shoulder stud. The shako (headgear), fashioned out of dark blue cloth, inclines slightly downward from rear to front. The front of the cap features a leather visor that measures 2¼ inches at the center. A chin strap of black leather with a yellow metal buckle adorns the front of the cap. A band of orange cloth encircles the lower portion of the cap, with a 1-inch yellow metal letter of the company (or troop) prominently placed in the center. An orange pompom of 2¼-inch diameter decorates the top of the shako. Below the pompom, measuring 1¾ inches wide, is a yellow metal eagle with wings outstretched, clutching in its talons an olive branch and arrows.

The Pattern 1851 dragoon frock coat and cap were worn by soldiers in the U.S. Army's 1st and 2d Dragoon Regiments. During their twenty-eight-year existence, these regiments served with distinction, guarding the Western territories and earning battle honors in the Mexican War and the Seminoles Campaign of the Indian Wars. The U.S. Cavalry Museum in Fort Riley, Kansas, is privileged to have this beautifully preserved antebellum uniform in its artifact collection.

Dr. Robert J. Smith is the director of the Fort Riley Museum.

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The Evolution of Combat Medic Training for the Future Battlefield

By Grant T. Harward

"We simply can't expect to have absolute Vietnam-type air superiority on a future battlefield. Our combat medics have to provide critical, life support resuscitation and care for several hours in preparation for evacuation by either air or ground ambulances."[1] Other than the reference to Vietnam, this sounds like something Maj. Gen. Dennis P. LeMaster, the commander of the Medical Center of Excellence, could say today; however, Brig. Gen. Robert H. Buker, the commandant of the Academy of Health Sciences (AHS), the forerunner to the Medical Center of Excellence, said it in 1982. The situations facing the Army Medical Department (AMEDD) at the "home of the combat medic" at Fort Sam Houston, Texas, in the post-Vietnam and post–Iraq and Afghanistan periods are analogous. After fighting a counterinsurgency against a guerrilla enemy, the Army refocused on preparing to fight a conventional war against a regular enemy. Today's 68W (Combat Medic Specialist) military occupational specialty (MOS) training is the result of two major overhauls of the 91B (Medical Specialist) MOS directed by the Office of the Surgeon General (OTSG). This article shows how training the combat medic for the future battlefield has developed since 1980.

Background

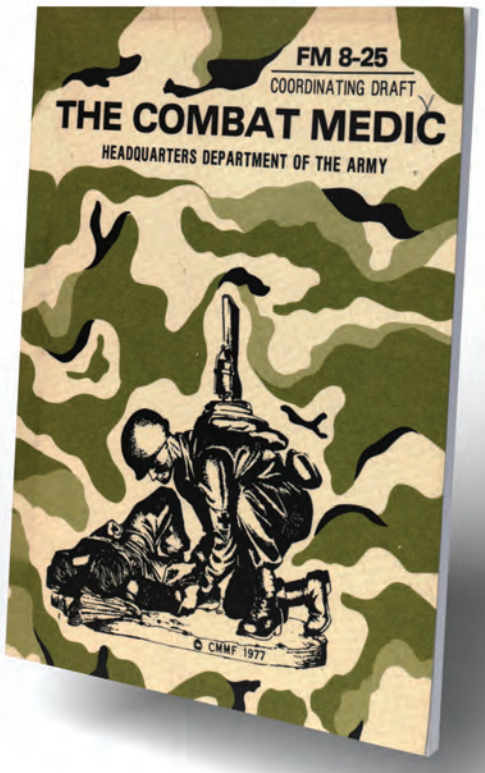
In the Vietnam War era, combat medics were concentrated in the 91B MOS, which was closely associated with the 91A (Medical Corpsman) MOS. After basic training, potential combat medics attended ten weeks of advanced individual training (AIT) before joining the 91A MOS. During AIT, students learned basic healthcare and hygiene as well as how to administer shots; draw blood; start intravenous therapy; administer splints; treat gunshot wounds, head wounds, amputations, shock, and burns; fix shoulder dislocations; perform cardiopulmonary resuscitation (CPR) and tracheotomies; treat venereal diseases and seizures; and suture.[2] Medical corpsmen had only one skill level, 91A10, for privates and privates first class with duties as orderlies or attendants for ambulances, wards, stations, and dispensaries. To enter the 91B MOS, medical corpsmen were required only to serve a minimum period (sometimes as little as three months at the height of the war) in the 91A MOS. There was no separate AIT needed to advance. Medical specialists had two main skill levels: 91B20 for specialists third class, corporals, specialists second class, and sergeants; and 91B30 for specialists first class and staff sergeants. These soldiers received some on-the-job training while performing Skill Level 2 duties as aidmen (already more colloquially known as combat medics), ward specialists, or dispensary assistants or while performing Skill Level 3 duties as senior aidmen, air ambulance aidmen, senior ward specialists, or dispensary specialists. Additional AIT was required to reach the next skill level, 91B40, but Skill Level 4 training primarily focused on instructing sergeants first class in how to supervise other soldiers. (At this time, all Skill Level 5 soldiers in the AMEDD were grouped into the 91Z [Medical Senior Sergeant] MOS.) The 91B duties were

Vietnam-era aeromedical evacuation training at Fort Sam Houston
(U.S. Army)

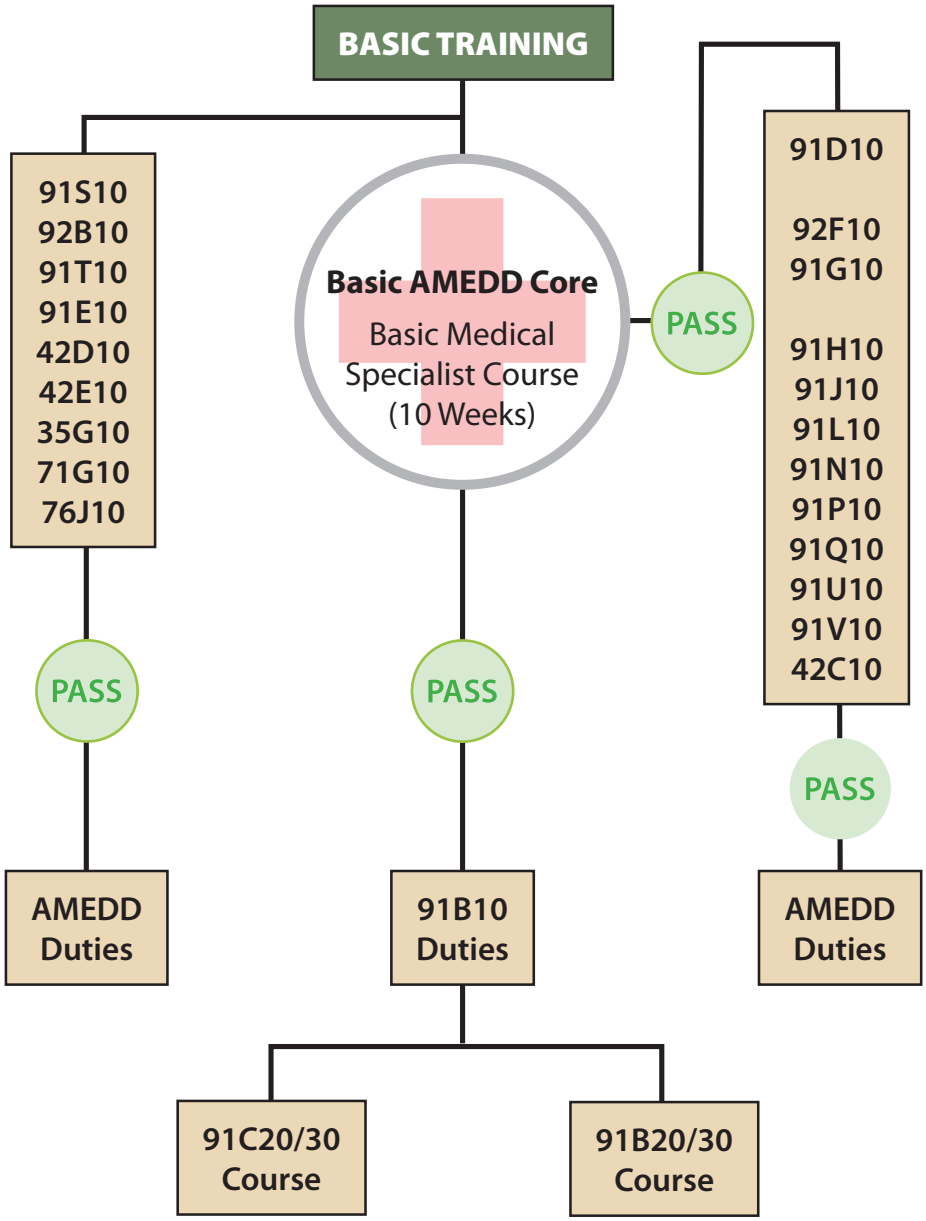
divided into two broad categories: dealing with the field or associated with hospitals. The 91A training was meant to prepare soldiers for either realm.[3]

The separate 91A MOS made sense for a draftee army, when most soldiers left the ranks after fulfilling the mandatory two-year obligation and never became noncommissioned officers (NCOs), but not for the new all-volunteer force after conscription ended in 1973. The OTSG decided to integrate the 91A MOS into the 91B MOS and directed the AHS to overhaul the training for combat medics. In May 1974, all 91A10 medical corpsmen became 91B10 medical specialists. Concurrently, the AHS introduced the 300–91B10 Medical Specialist Course. This eight-week course taught basic medical skills to future combat medics. Soldiers preparing for other MOSs—91C (Clinical Specialist), 91D (Operating Room Specialist), 91S (Preventive Medicine Specialist), 92B (Medical Laboratory Specialist), and 42D (Dental Laboratory Specialist)—also took the 91B10 course as a prerequisite for the AIT in their respective specialties. The AHS also created an accelerated four-week version of the course for licensed registered nurses entering the 91C MOS.[4] In January 1975, the 91B10 course added emergency medical technician (EMT) training to its curriculum. All students received 90 percent of the standard Texas EMT training in 120 hours and earned a certificate for completing the academic EMT requirements. Only the top 20 percent of each 91B10 course qualified to take the remaining forty hours of voluntary on-the-job EMT training to become fully certified.[5] The Army's recently adopted Total Force Policy caused the AHS to rush out an exportable 91B10 course to retrain prior service reserve enlisted personnel to the new civilian EMT standard.

At the same time, NCO training for the AMEDD was restructured. The Army had created the Noncommissioned Officer Education System (NCOES) in 1972, prompting some changes to the Primary Leadership Development Course, which was required for promotion to sergeant. In 1973, the AHS introduced the new eight-week 513–F2 AMEDD NCO Basic Course. It joined the fifteen-week 513–F1 AMEDD NCO Course, now redesignated as the 513–F1 AMEDD NCO Advanced Course.[6] Both courses consisted primarily of leadership training taught by officer instructors, but they also included some MOS-specific technical training taught by NCO instructors. In 1974, the AHS redesignated these two classes as the 6–8–C40 AMEDD NCO Basic (NCOES) Course for promotion to staff sergeant and the 6–8–C42 AMEDD NCO Advanced (NCOES) Course for promotion to master sergeant or first sergeant. They were commonly referred to simply as the Basic NCO Course (BNCOC) and the Advanced NCO Course (ANCOC). Both the BNCOC and the ANCOC were taught in-residence at the AHS by AMEDD personnel. The Sergeants Major Academy rounded out the NCOES, providing training in supervision for promotion to sergeant major. Later, in 1977, the AHS revised the ANCOC. It became a ten-week common



The cover of a 1980 field manual features a drawing of the recently erected Combat Medic Memorial at Fort Sam Houston. The statue and the manual were part of the AMEDD's shift in focus from hospital to field care.
(AMEDD Center of History and Heritage)



A recreation of a 1981 flow chart shows the importance of the expanded Basic Medical Specialist Course, or Basic AMEDD Core, that nearly all recruits in medical MOSs had to take after the introduction of AirLand Battle.
(AMEDD Center of History and Heritage)

base course for all medical MOSs with an extra two weeks of MOS-specific technical training for 91B students.[7]

After the introduction in 1974 of the Enlisted Personnel Management System (the total process supporting the Army's personnel readiness and the soldier's professional development and personal welfare), the OTSG reassessed not just what was being taught but how it was being taught to AMEDD enlisted personnel. The AMEDD adopted Instructional Systems Development (ISD) practices created by the Army. ISD emphasized hands-on training. Instructors taught students only the knowledge they would need for each skill level, in other words, just enough information to perform the job intelligently and safely. "If someone breaks a leg, we are teaching our 91B10 medics how to properly splint the leg without teaching them the whole body system," said Capt. Paul Richter, the administrative officer of the Training Development and Evaluation Directorate at the AHS.[8] ISD also determined what tasks were learned best in a classroom versus in a work setting. ISD instructors were not supposed to be mere lecturers, and ISD students were not supposed to be just listeners. The AHS replaced the 300–91B10 Medical Specialist Course with the 300–91B10 Basic Medical Specialist (ISD) Course in 1978.[9] The new 91B10 course was whittled down from eight weeks to only six by dropping materials that the AHS deemed unnecessary. The course broke down the necessary skills into sixty-five tasks, listed in the critical order to preserve life and give immediate aid. Students had to learn these tasks in succession. (When 91B soldiers progressed to higher skill-level training, they would gain a more sophisticated understanding of the body through new tasks.) NCO instructors, now known as "facilitators of learning," taught mainly from prepared teaching materials, consisting mostly of audiovisual cassettes played on a television, to which they could add from their own experience. Each NCO instructor was assigned fourteen students for the whole ISD 91B10 course and would teach all sixty-five tasks, supervising the performance of each one. The following year, the AHS added a skill qualification test, which evaluated learning through both a performance exam and a written exam.[10] In 1980, an exportable ISD 91B10 course was rolled out to the reserve component. Unexpectedly, just as the AMEDD finished integrating the ISD approach, the Army introduced a new vision that necessitated significant changes to training for combat medics.

Preparing for World War III

In 1981, the Army announced plans to refocus on preparing to fight the Soviet Army in Europe and, more importantly, it received massive new funding to build up and retrain its forces to accomplish this mission. AMEDD planners imagined this future battlefield as a nightmarish place with massive casualties inflicted by newer and deadlier weapons, spread across a wider area than ever before, and without the air supremacy necessary for quick air evacuation by helicopter during the "golden hour"—the first sixty minutes after a major traumatic injury, when prompt medical care is most liable to help a patient survive. Combat medics would have to operate isolated and care for wounded or injured soldiers for many hours before they either could be evacuated by a ground ambulance or the scene became safe enough to transport them by an air ambulance. The OTSG decided to change training for combat medics radically, so the AMEDD could fulfill its mission to conserve fighting

strength in this potentially apocalyptic clash between the United States and the Soviet Union.

In June 1981, the AMEDD announced sweeping changes to the 91B MOS—by then the third largest MOS in the Army, with 17,000 active and 33,000 reserve soldiers—which were designed to improve training and career progression for combat medics. The AHS would expand the 91B10 course dramatically and introduce a 91B30 course to train 91B soldiers to a much higher skill level in field medicine. Furthermore, these "Super B" soldiers would receive more training in nursing tasks, allowing them to take over positions as hospital aids from 91C soldiers. In 1979, 91C courses were also restructured along ISD lines. Previously, clinical specialists started out at Skill Level 2 and became Skill Level 3 licensed practical nurses after forty weeks in the 300–91C30 Clinical Specialist (Practical Nurse) Course. Under ISD, Skill Level 1 was created, requiring completion of the six-week 300–91C10 Clinical Specialist (Primary Technical) Course.[11] Now, the AMEDD planned to eliminate this course and convert 91C10 soldiers to 91B10 soldiers. Additionally, newly trained 91B20 and 91B30 soldiers, primarily in outpatient and ambulatory care facility positions, would replace some 91C20 and 91C30 soldiers.[12] The AHS aimed to train the combat medics to sustain a casualty for up to six (and, later, ten) hours on the future battlefield.

In 1982, the Army introduced AirLand Battle as the doctrine guiding development and training. In October of that year, the AMEDD began the first of a three-phased personnel plan to restructure the 91B MOS over the next two years. Phase 1 converted 91C10 soldiers to 91B10 soldiers. The AHS dropped the 300–91B10 Basic Medical Specialist (ISD) Course and began teaching the 300–91B10 Basic Medical Specialist Course, which had increased in duration from six to ten weeks. This expanded course began with a new four-week general medical orientation, which introduced the topics of emergency procedures, anatomy and physiology, shock and hemorrhage treatment, field sanitation and operations, medical terminology, and mathematics relating to the medical field. The remaining six weeks covered medication; treatments for dysfunctions of circulatory, respiratory, skeletal, neurological, gastrointestinal, and genitourinary systems; control of infection; medical triage; neuropsychiatric disorders; alcohol and drug abuse; head and cold injuries; and nursing procedures. The course culminated in a three-day field training exercise. The AMEDD dubbed this 91B10 course the "Basic AMEDD Core." All soldiers in the AMEDD—including those in 91B, 91C, and twelve additional medical MOSs—were required to complete the course as part of AIT in their respective fields. Recruits who wanted to join the 91C MOS, however, not only had to pass the Basic AMEDD Core but also had to perform 91B10 duties before taking the 91C advanced course. Additionally, the AHS began work on the 91B30 course. "The skills taught will be similar to those of civilian paramedics," reported Lt. Col. Zula Johnston, the deputy chief of the Combat Medical Specialist Division at the AHS. "They will be used in the emergency room for pre-hospital care and in a hospital clinic setting."[13] Until the 91B30 course was finished, the AHS initiated a 91B/91C program, enrolling 91B soldiers into the 91C10 course to provide new training in nursing skills to combat medics.[14]

Medical specialists wear gas masks to practice decontaminating a patient during a simulated chemical attack as part of a field training exercise in 1984. Nuclear, biological, and chemical warfare were a major concern of a possible third world war.
(AMEDD Center of History and Heritage)

The OTSG quickly determined that it would need a way to differentiate between 91B soldiers who had received new training and those who only had old training, so it planned to resurrect the 91A MOS and convert 91B soldiers who had not completed the Basic AMEDD Core course and the forthcoming 91B30 course to the 91A MOS. The AMEDD would reclassify all 91B soldiers who were sergeants or below (except for those trained as Special Forces combat medics) as 91A soldiers. The 91B soldiers who were staff sergeants and above would be grandfathered into the 91B MOS and receive extra training to meet the new standard. As General Buker explained, "The 91A/B is really one career field. We are simply using the difference in MOS rather than a skill identifier to indicate level of training."[15] The 91A MOS would have Skill Levels 1 and 2, whereas the 91B MOS would have Skill Levels 2, 3, 4, and 5. Therefore, after basic training, soldiers would join the 91A MOS for AIT, and then, near the end of their first enlistments, they would choose to take advanced training either in the 91B MOS as a combat medic or in the 91C MOS as a practical nurse. The OTSG confronted a problem that threatened to derail its plans. An initial "Women in the Army" study determined the physical demands for the 91B MOS were "very heavy," which would cause the deputy chief of staff for personnel to restrict women from the MOS. As a result, the OTSG delayed beginning the conversion for a year while it lobbied for another review by personnel experts. Fortunately, a second study reclassified the 91B MOS as "moderately heavy," removing the obstacle.[16]

In the meantime, the AHS started the 300–91B30 Advanced Medical Specialist Course in October 1983. It was open to 91A (promotable) specialists third class, (promotable) corporals, specialists second class, sergeants, specialists first class, and

Students practice intravenous therapy and evaluate injuries on a classmate during a field training exercise in 1984.
(AMEDD Center of History and Heritage)

staff sergeants with fewer than two years at that rank. Even 91C soldiers who had not finished advanced training could opt to take the course—although the AMEDD had invested too much in training the rest as licensed practical nurses to allow them to switch their MOSs. Over sixteen weeks, the 91B30 course taught body systems, anatomy, physiology, pharmacology, medication administration, recognition and treatment of combat trauma forward of the battalion aid station, leadership, and management skills. Lesson plans included emergency medical skills (such as nasogastric intubation, cardiac resuscitation, urinary catheterization, intravenous therapy, and suturing), learning to evaluate patients' illnesses or injuries through a systematic approach, and leadership skills for an NCO. The course concluded with a field training exercise. Instructors taught 91B medical specialists to want and expect jobs that 91C practical nurses alone used to fill. To distinguish between 91B soldiers who had taken the 91B30 course and the rest who had been grandfathered into the MOS, the AMEDD introduced a transitional additional skill identifier (ASI), Y1, for graduates. (This ASI would be dropped once all 91B soldiers took the training.)[17] Separately, the AHS finished an exportable version of the 91B10 course to train National Guard and Reserve combat medics to the new Skill Level 1 standard.

In October 1984, the AMEDD initiated the second part of its three-phased personnel plan. Phase 2 converted soldiers from the 91B MOS to the 91A MOS. It also renamed the three MOSs most affected by the reforms to the combat medic training program. First, the resurrected 91A (Medical Corpsman) MOS became the 91A (Medical Specialist) MOS for combat medics who had not completed their advanced training. Second, the 91B (Medical Specialist) MOS had to change to the 91B (Medical NCO) MOS for combat medics who had been grandfathered in or had finished their advanced training. Third, the 91C (Clinical Specialist) MOS became the 91C (Practical Nurse) MOS for licensed practical nurses specializing in hospital care. Soon after, the 300–91B10 Basic Medical Specialist Course was redesignated as the 300–91A10 Medical Specialist Course, and the 300–91B30 Advanced Medical Specialist Course was renamed the 300–91B30 Medical NCO Course.[18] Concurrently, the AHS finished the exportable 91B30 course to bring the Skill Level 3 training to the reserve component. It also started work on a 91B30 sustainment course for both the active and reserve components. Finally, the 300–91C30 Advanced Practical Nurse Course underwent its first major revision since 1964, expanding in duration from forty to fifty-two weeks. The course consisted of six weeks at the AHS and forty-six weeks at one of six teaching hospitals. The new 91C30 course was taught in modules, each of which included both classroom learning and clinical experience, instead of lumping together all classroom instruction followed by all clinical training.[19] Phase 3, the final part of the personnel plan that would make the 91B30 course a prerequisite before promotion to staff sergeant, never took place—for reasons that will become clear.

The Army's 1986 revisions to AirLand Battle doctrine prompted the OTSG to revise training for the 91A and 91B MOSs once again. In July 1987, the AHS started teaching a substantially altered 91A10 course. It had dropped the four-week general medical orientation (although this remained a prerequisite for other medical MOSs) and replaced it with new and expanded training. The course remained ten weeks long. New

Soldiers in the 91B MOS put classroom instruction into practice at the end of AIT at Fort Sam Houston in 1984.
(AMEDD Center of History and Heritage)

training included control of aidbag medication and supplies, treatment of return-to-duty disorders and minor illnesses, basic physical assessments, management of behavior emergencies, and increased emphasis on the treatment of shock. Expanded training consisted of more anatomy and physiology, CPR training, intravenous skills related to shock and trauma, hands-on practice in casualty extraction, and management of casualties with artificial airways. Finally, all students received American Health Association Basic Life Support C training, and those who passed a test received certification.[20] Because more advanced training was added to the 91A10 course, the AHS revised the 300–91B30 Medical NCO Course, shortening it from sixteen to twelve weeks and redesignating it as the 300–91B20 Medical NCO Course. This course focused on modular medical systems, far-forward care, emergency medical treatment, trauma and paramedic skills, surgical procedures, clinical skills, pharmacology, physical assessment of body systems, infectious diseases, and combat stress disorders.[21] The AHS made new exportable 91A10 and 91B20 courses for the reserve component soon after. The need for combat medics to be prepared to fight a theoretical third world war had pushed advanced training down to lower skill levels in the 91A and 91B MOSs.

Students training for the 91B MOS guide "blinded" patients through an obstacle course during their field training exercise at Fort Sam Houston in 1984.
(AMEDD Center of History and Heritage)

As the OTSG threw more medical technical training at the lower 91A and 91B enlisted ranks, it also moved to improve leadership training for AMEDD NCOs, so they could lead more effectively on the future battlefield. In January 1988, the newly established Medical NCO Academy began teaching the BNCOC and the ANCOC at the AHS. Both courses were overhauled and, for the first time, were taught solely by NCO instructors. The Medical NCO Academy reduced the BNCOC from eight to five weeks and the ANCOC from ten to eight. Temporarily, the BNCOC was not required for promotion to staff sergeant because the Medical NCO Academy had not completed updated versions of the course for all medical MOSs.[22] While the 91A10 course and the 91B20 course created medical professionals who were technically proficient in lifesaving skills, the BNCOC and the ANCOC molded Army professionals with leadership skills.

"Super B" students in the Medical NCO Course carry a patient to an evacuation point during a class casualty exercise at Fort Sam Houston in 1985.
(AMEDD Center of History and Heritage)

In 1989, the AHS tweaked the 91A10 course yet again, this time to incorporate up-to-date EMT training that was recognized by the National Registry of Emergency Medical Technicians (NREMT).[23] As civilian EMT standards periodically would become more demanding, the AMEDD continued to update the EMT aspect of the course in response.

Drawdown

The almost bloodless triumph of the 1991 Gulf War banished the ghosts of Vietnam and proved the Army's focus on AirLand Battle had paid off. Soon after, the Soviet Union's collapse ended the Cold War and accelerated ongoing U.S. military force and budget reductions that Congress had

Combat medics wear full nuclear, biological, and chemical warfare gear during a field training exercise at Salado Creek near Fort Sam Houston in 1986.
(AMEDD Center of History and Heritage)

started several years earlier. The AMEDD was not left unaffected. As no significant adversary seemed to exist that might challenge the United States—the sole remaining superpower—the Army's vision changed. Anticipating a smaller force and fewer casualties in future nonpeer conflicts, the Army cut the number of hospitals worldwide. It was more efficient to airlift the handful of seriously wounded, injured, or sick soldiers to permanent hospitals in the United States than to bring temporary hospitals in theater to treat casualties. The AMEDD still trained for war, but over the next decade, combat medics more often than not supported disaster relief and humanitarian missions, even though they were not specifically trained for such roles.

In October 1991, with all 91B soldiers having received the Super B training, the OTSG again eliminated the 91A MOS, converted 91A soldiers to 91B soldiers, and the 91B (Medical NCO) MOS reverted to the name of 91B (Medical Specialist). The 91B grade structure, which had ranged only from sergeant to sergeant major, expanded to encompass the ranks of private to sergeant major across Skill Levels 1, 2, 3, 4, and 5. The 300–91A10 Medical Specialist Course was renamed the 300–91B10 Medical Specialist Course. At the same time, the AHS integrated the 300–91B20 Medical NCO Course into the 6–8–C40 AMEDD NCO Basic (NCOES) Course, which became the 6–8–C40 (91B Technical Training) AMEDD NCO Basic (NCOES) Course. The new BNCOC was fourteen weeks long: two weeks of leadership training from the old BNCOC, plus twelve weeks of MOS specialty training from the 91B20 course.[24] The post–Cold War era saw few significant changes to combat medic training as the Army and AMEDD were preoccupied with downsizing.

The AHS, reorganized into the AMEDD Center & School (AMEDDC&S) in 1992, made some minor changes to training for combat medics and NCOs at Fort Sam Houston. In 1995, it updated the field training exercise at the end of the 91B10 course to include a more realistic combat scenario.[25] In 1998, the Medical NCO Academy divided the ANCOC into two parts: Phase 1, distance learning (DL), and Phase 2, in-residence training.[26] DL initially was completed through books, but as personal computers became more common and the use of the internet for DL expanded over the next decade, it transitioned to online lessons.

After the drawdown, the Army realized it had too many NCOs and decided to reduce the number to the predrawdown ratio, shrinking the size of the NCO corps in the enlisted force from 50 to 47 percent. No NCO was demoted, but it became somewhat harder for an NCO to be promoted, and some NCO positions were converted to lower grades. Fortunately, the AMEDD was not affected greatly. In fact, four of the sixteen medical MOSs already had the desired NCO balance. The only exception was the 91C MOS. For the first time, the 91C MOS included specialist and corporal authorizations (previously, sergeant had been the lowest rank), which meant that graduates of the 91C30 course would have less of a chance for promotion.[27] The effect that these changes had on the 91C MOS, the belief that future wars would be small-scale, and the repeated humanitarian missions in recent years prompted the OTSG to consider another radical restructuring of the 91B MOS.

The OTSG decided to combine the 91B (Medical Specialist) MOS and 91C (Practical Nurse) MOS into the new 91W (Health Care Specialist) MOS. Maj. Gen. James B. Peake, the commander of the AMEDDC&S, argued, "The 91W initiative, considering the existing numbers of trained personnel, decreasing numbers of medical units in the force structure, assignment flexibility, enhanced course content and promotion opportunity, is clearly the best visible means to correct multiple problems affecting our enlisted forces."[28] This initiative would affect up to 40,000 soldiers in the active and reserve components (the vast majority of whom were 91B soldiers) and make the 91W MOS the second largest in the Army. Former 91C soldiers (less than a tenth of the total affected) who had completed licensed practical nurse schooling would receive the ASI M6 to distinguish them from run-of-the-mill 91W soldiers. (Other ASIs already assigned to the 91C MOS would continue in the 91W MOS, including M3 Dialysis; N3 Occupational Therapy; N9 Physical Therapy; P1 Orthopedic; P2 Ear, Nose, and Throat; and Y6 Cardiovascular.) The centerpiece of 91W training would be more EMT training. All 91W soldiers would receive NREMT-Basic certification, but soldiers could elect to get NREMT-Intermediate or NREMT-Paramedic certification; each level garnered more promotion points. The expanded AIT for the 91W MOS was designed to meet the demands of Force XXI, the Army's latest plan for modernization and reorganization for the new millennium, which included an emphasis on preparing for noncombat missions.[29] The 91B and 91C NCOs who held (promotable) specialist, (promotable) corporal, sergeant, and staff sergeant ranks would be grandfathered into the 91W MOS without additional training.

In October 1999, the 91W Pre-Transition Phase began, which would run for the next two years. During this time, former 91B and 91C soldiers who needed training to meet the new 91W standard could obtain it through a variety of ways. First, 91B soldiers could take NREMT-Basic training, plus a Pre-Hospital Trauma Life Support or a Basic Trauma Life Support course. Second, 91C soldiers could attend NREMT-Basic certification, and if they had already finished their licensed practical nurse schooling, that was enough. If they had not, they could attend the BNCOC ten-week medical track or complete the Trauma Advanced Emergency Medical Services course instead. Finally, any 91B or 91C soldiers who became certified at the NREMT's Intermediate or Paramedic levels would meet the requirement. The 91W soldiers who needed training received the ASI Y2 (which would be removed eventually).[30] Meanwhile, the AMEDDC&S prepared new standardized training for the 91W MOS.

In 2000, the AMEDDC&S assigned M. Sgt. Ricardo Andrade, a 91C soldier in the Texas National Guard, to lead the development of the new 91W training program. "This is the first medical MOS built from the ground up with the Reserve Component in mind," he said. "My position and influence here underscore the AMEDD's commitment to ensuring the success of the 91W in the Army Reserve and National Guard."[31] The AMEDD designed the 91W MOS with the Army's experiences in the previous decade in mind, however, the next decade presented unforeseen challenges to the Army.

Global War on Terrorism

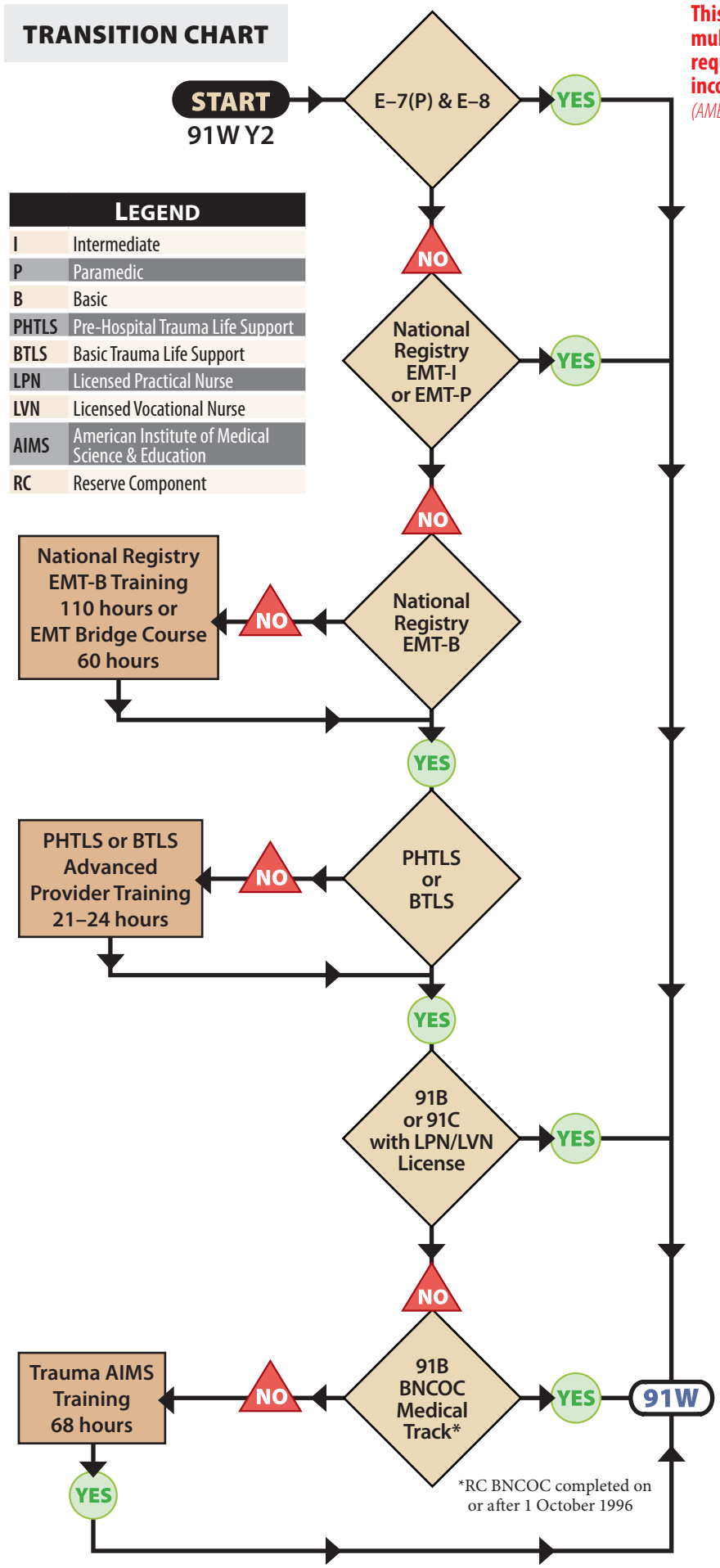
The terrorist attacks on 11 September 2001 occurred just as the AMEDD was about to begin the much-heralded 91W Transition Phase in October 2001, which was planned to last six years for the Regular Army and eight years for the National Guard and Reserve. The OTSG did not deviate from this plan and converted all 91B and 91C soldiers to the new 91W MOS. The Army's apparent successes in toppling both the Taliban in Afghanistan in 2001 and Saddam Hussein's regime in Iraq in 2003 soon transformed into twin drawn-out counterinsurgency campaigns. Fortunately, U.S. forces had air supremacy in both conflicts, so combat medics usually could count on helicopters to air-evacuate wounded, injured, or sick soldiers speedily for treatment in the rear. Nevertheless, the new 91W AIT still prepared soldiers to care for casualties in the field for many more hours beyond the golden hour to which the Army was accustomed.

In October 2002, the AMEDDC&S introduced the 300–91W10 Health Care Specialist Course. It revamped and added six more weeks to the ten-week 300–91B10 Medical Specialist Course. The 91W10 course began with six weeks of EMT training. The next ten weeks covered primary care, evacuation care, and force protection. Overall, it focused on greater proficiency and civilian certification; introduced a modest clinical rotation for the first time; intensified training in lifesaving skills like maintaining the airway and controlling bleeding; and placed increased emphasis on chemical, biological, radiological, nuclear, and high-yield explosives evacuation.[32] Additionally, the field training exercise more than doubled in length to a week. Finally, the 91W10 course adopted the adult learning concept; students were responsible for their own training while instructors checked for proficiency.[33] The AMEDDC&S also scrapped the old module-based training because, after finishing a module, the student moved on and did not review those skills and tasks again. It was replaced with repetitive skills training. Sfc. James Strode, the NCO in charge of the 91W Management Branch at the AMEDDC&S, reported, "What we have learned is, once we taught them the task, they need to repetitively do the task a number of times, embedding the task within a set of more complex tasks along the continuum of training, so at the end of the course they are proficient rather than simply familiar."[34] The 91W10 course also introduced patient simulators: human-sized mannequins that could be programmed to simulate breathing or bleeding to make training even more realistic.[35]

The cover of a 2001 pamphlet detailing the new 91W (Health Care Specialist) MOS, which combined medical specialists and practical nurses, reflects the optimism of the new millennium.
(AMEDD Center of History and Heritage)

The AMEDDC&S made some changes to other courses in 2003 to assist in the 91W Transition Phase. The Medical NCO Academy replaced the 6–8–C40 (91B Technical Training) AMEDD NCO Basic (NCOES) Course with the 6–8–C40 (91W30 Technical Training) AMEDD NCO Basic Course (NCOES), which was five weeks shorter than the previous fifteen-week BNCOC. The Medical NCO Academy also offered the 6–8–C40 (91WY2 Technical Track) AMEDD NCO Basic (NCOES) Course that lasted seven and a half weeks. This version of the BNCOC was designed to minimize the amount of time 91W soldiers spent away from their units. There was an even shorter course, lasting just two and a half weeks, but it required applicants already to have completed NREMT-Basic, Pre-Hospital Trauma Life Support, or Basic Trauma Life Support, and CPR training.[36] Finally, the AMEDDC&S created the 91W sustainment course because everyone agreed that 91W10 graduates needed to be recertified every two years to make sure their EMT training had not atrophied. The 91W Tracking Module, a digital database, made sure each 91W soldier's training was up to date for readiness.

The OTSG announced plans to build upon the computer-based simulation capability for the 91W AIT. The AMEDD would acquire and deploy the Military Medical Microsimulation learning system to more than 150 Army emergency medical services training sites. This program would assist 91W soldiers in learning or refreshing medical cognitive skills at their own pace but at a consistent standard while also reducing face-to-face instruction time. The Military Medical Microsimulation consisted of twenty-five patient scenarios



This re-creation of a 2001 flow chart illustrates the multiple paths 91W soldiers could follow to complete required additional training and emphasizes the incorporation of up-to-date civilian EMT training.
(AMEDD Center of History and Heritage)

divided into advanced life support and chemical, biological, radiological, nuclear, and high-yield explosives modules.[37]

In 2005, the Army realigned MOSs, and the 91 career management field became the 68 career management field. Consequently, the 91W MOS became the 68W MOS. The 91W soldiers converted to 68W in September 2006 for the active component and in August 2007 for the reserve component. All ASIs remained the same in the redesignated 68W MOS.[38]

The war in Iraq had become a serious counterinsurgency campaign by 2006 when the Army updated the Force XXI plan to focus on the brigade as the basic formation for fighting future wars. The OTSG ordered the AMEDDC&S to develop brigade combat team trauma training to familiarize medical personnel with the necessary technical and tactical skills.[39] The 300–68W (BCT3) Course initially lasted five days but it was later expanded to a full week. The class incorporated tactical combat casualty care, emergency medical treatment, and evacuation in a variety of operational combat settings from the point of injury to rear-echelon hospitals. The OTSG also opened the medical simulation training center for soldiers who needed prehospital and field-echelon training. Most of this training had taken place at Fort Lewis, Washington, at the Joint Medical Training Center, but the Army's needs and new funding enabled the OTSG to set up the first medical simulation training center at Fort Lewis, with another eighteen to follow. Training at a medical simulation training center focused on combat lifesaver and combat medic advanced skills. The Combat Lifesaver course offered intermediate training between the minimal first aid training given to the average soldier and the advanced training of the combat medic, so there could be one combat lifesaver per squad to provide lifesaving care if a combat medic was absent. The Combat Medic Advanced Skills Training course validated skills learned by combat medics through realistic combat scenarios. The medical simulation training centers also offered NREMT-Basic full and refresher courses, Basic Life Saver courses, and

the newly developed Individual First Aid Kit 101 class.[40] The surge in fighting in Iraq meant combat medics were soon putting this training into practice in theater.

The AMEDDC&S also altered its training program to better serve the needs of an Army at war. The 300–91W10 Health Care Specialist Course had been redesignated as the 300–68W10 Health Care Specialist Course and the 6–8–C40 (91W30 Technical Training) AMEDD NCO Basic (NCOES) Course had become the 6–8–C40 (68W30 Technical Training) AMEDD NCO Basic (NCOES) Course. It was more than just a name change to the 91W10 course. Although the AIT was not changed significantly, portions of it were revamped to incorporate lessons learned in Afghanistan and Iraq, especially as 60 percent of graduates departed for the battlefield within six months of finishing the 68W10 course. Combat medics were taught how to perform surgical cricothyrotomies to establish emergency airways, how to conduct needle thoracenteses to remove air or fluid from the lungs, and—possibly the single most important change—how to administer tourniquets. Previous AITs had taught combat medics that tourniquets were a tool of last resort because, if applied too tightly or left on too long, tourniquets could cause permanent damage to nerves, muscles, and blood vessels. However, after the introduction of a new tourniquet and new training in its proper use, tourniquets went from taboo to commonplace, saving many lives on the battlefield.[41] The 91W sustainment program was replaced with the Medical Education and Demonstration of Individual Competence program. This consisted of Combat Medic Advanced Skills Training, Basic Life Saver, NREMT-Basic refresher skills training, and (if needed) NREMT-Basic courses.[42] The AMEDDC&S also created mobile training teams to assist with training 68W soldiers. Mobile training teams from the AMEDDC&S would travel to requesting units across the country to teach the BNCOC.[43] This mobile version of the BNCOC was called the 6–8–C40 (68W30 MTT) AMEDD NCO Basic (NCOES) Course. Mobile training teams could also teach Combat Medic Advanced Skills Training, Basic Life Saver, and NREMT-Basic courses. Mobile training cut down the time that 68W soldiers were away from their units for individual training, which in turn increased readiness for deployment to Iraq or Afghanistan.

The redubbed 68W Transition Phase finished on schedule in 2007 for the active component and in 2009 for the reserve component. The OTSG celebrated with a special ceremony at the AMEDDC&S, gathering past and current AMEDD leaders together in early 2010. Lt. Gen. Eric B. Schoomaker, the surgeon general, declared, "The essence of our professionalism and our ethos is embodied in our combat medics."[44] Nonetheless, some believed the OTSG had gone too far by squeezing combat medics, practical nurses, and other hospital specialties all together in the 68W MOS. "Our medics shouldn't be working in hospitals. Our medics should be saving lives on the battlefield," Lt. Col. Paul T. Mayor, the director of the Department of Combat Medic Training at the AMEDDC&S, had argued a few years before.[45] Momentum for another revision to the 68W MOS was already gathering in the AMEDD.

In 2010, the Army ordered a restructuring of the BNCOCs and the ANCOCs across the entire force, renaming the NCO training courses, respectively, the Advanced Leader Course and the Senior Leader Course. The AMEDDC&S introduced the 300–68W30–C45 Advanced Leader Course and the 3–68–C46 Senior Leader Course. The Advanced Leader Course had three phases: Phase 1 was DL online training, Phase 2 was a seven-week leadership course with a situational training exercise that could be completed at the Medical NCO Academy or with a mobile training team, and Phase 3 consisted of two weeks of MOS-specific technical skills training conducted in residence at the Medical NCO Academy. The Senior Leader Course was divided into two phases: Phase 1 was DL online training and Phase 2 was a four-week leadership course with a situation training exercise held at the Medical NCO Academy.[46] Breaking down the Advanced Leader Course and the Senior Leader Course into phases was designed to reduce, again, how much time medical NCOs had to be away from their units for AMEDD-specific training.

A private practices the "fireman's carry" as part of combat medic training at Fort Sam Houston in 2008.
(Department of Defense)

A future combat medic is tested on inserting an advanced airway device at Fort Sam Houston in 2008, exhibiting the new 68W repetitive skills training that replaced old 91B module-based training.
(Department of Defense)

Under the cover of smoke, 68W soldiers practice evacuating litter cases during a field training exercise as part of the Health Care Specialist Course at Fort Sam Houston in 2011.
(AMEDD Center of History and Heritage)

The OTSG announced in 2011 that it would be streamlining the 68W MOS by making new MOSs out of most of its ASIs. The AMEDD found it impossible to manage the promotion of soldiers with ASIs effectively, and this difficulty contributed to shortages in key ASIs. In particular, ASI M6 Practical Nurse shortages were exacerbated because soldiers with advanced training in various hospital jobs sometimes were assigned to "pure" combat medic positions—thus wasting their specialty advanced training. Most importantly, 68W soldiers with ASIs tended to lose the combat medic skills they had learned in AIT after a few years of carrying out duties related to their ASIs.[47] These changes affected 2,500 68W soldiers, over half of whom were practical nurses. In October 2013, the AMEDD converted almost all of the 68W ASIs into MOSs. The 68WM6 became the 68C (Practical Nursing Specialist), the 68WN3 became the 68L (Occupational Therapy Specialist), the 68WN9 became the 68F (Physical Therapy Specialist), the 68WP1 became the 68B (Orthopedic Specialist), the 68WP2 became the 68U (Ear, Nose, and Throat Specialist), the 68WP3 became the 68Y (Eye Specialist), and the 68WY6 became the 68N (Cardiovascular Specialist). Soldiers in these new MOSs no longer had to complete the sixteen-week 68W10 course. Instead, they took an introduction to medicine program, lasting four or five weeks, before going on to the rest of their specialty training. They also did not need to maintain NREMT-Basic certification.[48]

Students practice intravenous therapy as part of the 68W Sustainment Course at Fort Sam Houston in 2011. The higher standard of the MOS meant combat medics needed to recertify every two years.
(U.S. Army)

The 68W MOS retained the ASI F3 Aero Medical Evacuation (Rotary Wing). The AMEDDC&S made minor adjustments to the 68W10 course and wrote an updated 68W critical task list.[49] The 68W MOS had come full circle. After having integrated practical nurses and other hospital specialties with combat medics, the MOS was once more purely for combat medics.

Preparing for Large-Scale Combat Operations

After the United States withdrew from Iraq in 2011 and drew down in Afghanistan in 2014, the Army reassessed the global threat environment. The Army now switched its focus to the rising threats of China and Russia (and, to a lesser extent, North Korea and Iran), and prepared to fight conventional campaigns, instead of irregular warfare. Large-scale combat operations focused on training to fight a near-peer competitor capable of challenging the U.S. military on land and sea and in air, space, and cyberspace. The combat medic of the future would need to sustain life on an increasingly isolated and difficult battlefield.

In December 2016, the 68W (Health Care Specialist) MOS was renamed the 68W (Combat Medic Specialist) MOS, formalizing the colloquial term, to reflect its sole focus on training and developing combat medics.[50] The AMEDDC&S, also known as the Health Readiness Center of Excellence since 2015, transitioned the 300–68W10 Health Care Specialist Course to the 300–68W10 Combat Medic Specialist Course. Nothing changed other than the name. The OTSG also had announced that flight medics and air ambulance NCOs with the ASI F2 would be redesignated flight paramedics and flight paramedic NCOs, respectively, and given the ASI F3, as the AMEDD introduced new flight paramedic standard training lasting thirty-four weeks.[51] The OTSG debated whether the 68W MOS

Teams of combat medics conduct field training at Camp Bullis near Fort Sam Houston in 2013.
(AMEDD Center of History and Heritage)

needed any significant changes to its training program.

After an influential 2017 paper on multidomain battle cited AirLand Battle as a model for change, the Army began preparing for large-scale combat operations with a near-peer adversary. Unlike in counterinsurgency operations, combat medics in large-scale combat operations could not rely on helicopters to air-evacuate casualties because of enemy anti-aircraft defenses and because the potential destruction of global positioning satellites would disrupt navigation. New weapon systems with even greater firepower meant units fighting on the battlefield would have to be dispersed further. Combat medics would be even more isolated and would be required to stabilize casualties for even longer periods. As S. Sgt. Benjamin A. Proctor, a member of the staff at the Medical NCO Academy, put it later, "Since the inception of airpower, the U.S. Military has been able to quickly dominate the skies. In the next near-peer fight, air dominance is not a guarantee. Even with the U.S. Army's rapid MEDEVAC [medical evacuation] capabilities, medics of all levels will need to be better prepared to handle longer evacuation times and the potential complications of long-term patient care on the battlefield of the future."[52] Fortunately, combat medic training had been designed with this in mind since 1982. Consequently, the Health Readiness Center of Excellence only needed to tweak the 68W10 course, not overhaul it.

The OTSG moved forward with other initiatives. AMEDD leaders focused on improving paramedic and flight paramedic training. In 2018, the Health Readiness Center of Excellence announced it was writing a new 68W combat medic textbook to replace ten specialty textbooks that were in use at that time.[53] In 2019, the Medical NCO Academy restructured the Advanced Leader Course and the Senior Leader Course. The 300–68W30–C45 Advanced Leader Course became the 3–68W30–C45 Advanced Leader Course. It consisted of two rather than three phases: Phase 1 remained the same DL portion, but Phase 2 became a five-week in-residence program.[54] The 3–68–C46 Senior Leader Course essentially remained the same, but was reduced from four to three weeks. This change made it possible for National Guard and Reserve NCOs to attend the Advanced Leader Course and the Senior Leader Course; previous versions of both courses had been too long for a normal reserve component training rotation.

The Health Readiness Center of Excellence, which was reorganized into the Medical Center of Excellence in 2019, continued to study how best to train combat medics for large-scale combat operations even in the midst of the COVID–19 pandemic. At the outset of the global health crisis, the Army was not sure if travel to and from installations could continue, and it seemed the training pipeline might be closed off. However, the Medical Center of Excellence created a "safety bubble" by screening (and, later, testing) all soldiers for COVID–19 and requiring two weeks of quarantine before they could begin their AIT. Combat medic training continued much as it had before except for mask and social distancing requirements. In April 2021, General LeMaster proudly announced at a special ceremony, "Today represents [*sic*] the 10,000th soldier that we have shipped

During a field training exercise at Camp Bullis in 2013, 68W soldiers practice conducting a needle thoracentesis to remove air or fluid from the lungs of a casualty.
(AMEDD Center of History and Heritage)

from AIT to the first unit of assignment, anywhere in the world. We have not shipped a single sick soldier, and this is a remarkable achievement."[55] Mass vaccination against COVID–19 only further ensured the supply of combat medics was not interrupted, maintaining Army readiness.

Conclusion

The training for combat medics has taken a number of turns in tandem with the changes in their MOS designation—from 91B (Medical Specialist) in 1974, to 91W (Health Care Specialist) in 2001, to 68W (Health Care Specialist) in 2005, to 68W (Combat Medic Specialist) in 2016. Although there were many reasons for tinkering with or overhauling training over these four decades, three factors stand out as being the most important.

Career progression had a major influence on decisions to change training for combat medics. The transformation into an all-volunteer force after the Vietnam War resulted in the integration of the 91A MOS into the 91B MOS to make it easier to manage promotion for combat medics more centrally. When the OTSG revived the 91A MOS, the goal was to facilitate the identification of Super B soldiers who had the training required for promotion into jobs previously restricted to the 91C MOS. The drawdown after the Cold War reduced opportunities for practical nurses to be promoted, contributing to the decision to merge the 91C and 91B MOSs into the 91W MOS. However, it proved difficult to give equal attention to all the specialties within one MOS. Later, toward the conclusion of the wars in Iraq and Afghanistan, these problems resulted in the OTSG's decision to recreate the 91C MOS and pull practical nurses back out of the 91W MOS. Similarly, career progression played a significant role in changes to the AMEDD NCO training programs.

Combat medics practice administering medical aid before evacuating a mock casualty during training in Germany in 2018.
(Department of Defense)

Future combat medics train while wearing masks at Fort Sam Houston in 2020. The Medical Center of Excellence adapted to the challenges of training during the COVID–19 pandemic, maintaining Army readiness.
(AMEDD Center of History and Heritage)

Doctrine had an even greater influence on combat medic training. Since the introduction of AirLand Battle in 1982, the goal has been to train combat medics to a higher competency so they are capable of not just administering first aid to a wounded soldier but also maintaining a casualty for many hours until evacuation is possible. The need for combat medics with greater skills led to a longer Skill Level 1 course and an additional Skill Level 3 (later reduced to a Skill Level 2) course. However, more time in the classroom meant less time in the field. The demand to have combat medics with their units instead of at Fort Sam Houston resulted in merging the Skill Level 2 course with the BNCOC in 1991. Over the next decade, the BNCOC first was shortened, and then part of it was conducted through DL, to further limit the time soldiers spent away from their units for training. When the OTSG decided in 1999 that it needed a combat medic capable of not just caring for a casualty on the battlefield but also one ready for disaster and humanitarian relief, it again expanded Skill Level 1 training. During the Global War on Terrorism, the immediate needs of the field, plus the fact that combat medics could rely on air evacuation in theater, meant that training for sustained casualty care was somewhat neglected. After the Army's adoption of multidomain battle in 2017, readying combat medics to operate in a dispersed and isolated battlefield without ready air evacuation again became the OTSG's focus.

Civilian standards also shaped military standards. EMT training and skills are constantly developing in the civilian medical system, and the military medical system sometimes struggles to keep up. Many changes to combat medic training over the decades have integrated the latest in civilian paramedic training.

Looking to the future, the Medical Center of Excellence will continue to ensure that combat medics are trained to the high skill level needed for large-scale combat operations with a near-peer competitor. However, it remains likely that combat medics will be called upon to help the Army fulfill other missions such as serving in irregular warfare, advising allies, and providing disaster relief. Therefore, combat medic training will also provide soldiers with the skills they need to succeed in these scenarios. The Medical Center of Excellence will produce skilled, professional, and flexible combat medics who are ready to meet whatever challenges face the Army in the coming decades.

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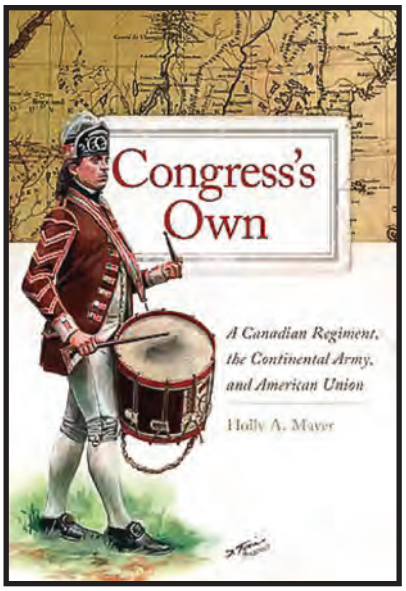


CONGRESS'S OWN: A CANADIAN REGIMENT, THE CONTINENTAL ARMY, AND AMERICAN UNION

By Holly A. Mayer
University of Oklahoma Press, 2021
Pp. xvi, 391. $45

REVIEW BY TIMOTHY C. HEMMIS

Holly A. Mayer's new book, *Congress's Own: A Canadian Regiment, the Continental Army, and American Union,* illuminates a forgotten part of Revolutionary War–era America and the history of the United States Army. The Congress's Own Regiment, more formally known as the 2d Canadian Regiment, was raised from the Canadian borderlands and commanded by Col. Moses Hazen, who held property in both Canada and New England. It originated following the initial American invasion of Canada in 1775, as Canadians who were angry with British authority filled the regiment's ranks. Mayer argues that the Congress's Own Regiment was a microcosm of the Continental Army, as "it was an armed force of peoples from different colonies, countries, classes, ethnicities, and religions united against the authority of Great Britain" (3). Additionally, the regiment became a diverse, borderland community that transcended political borders and frontiers.

In nine chapters, Mayer masterfully tells in great detail the story of the Congress's Own Regiment from its genesis to its disbandment. Using social history, she maps out the evolution of the unit. Early in the conflict, the Second Continental Congress built a network of united colonies to address political grievances. The vision included not just the thirteen colonies that we know today, but all the British colonies in North America. When Congress created the Continental Army on 14 June 1775, it was "a manifestation of an imagined continental community" (20). The Continental Army failed to gain a foothold in Canada because of the ongoing smallpox epidemic and it withdrew to the Hudson River Valley in New York. The 2d Canadian Regiment and its soldiers' families (who were camp followers) became refugees because they were a group without a state, as Canada remained in British hands.

Next, Mayer successfully shows that the regiment had an identity crisis because it had no state to provide money, supplies, and soldiers. Therefore, Congress allowed the regiment to recruit from most of the "states except South Carolina and Georgia" (98). The members of the regiment claimed they came from across the United States—a truly national regiment. They created their own regimental nickname, the Congress's Own. However, this nickname would become a political issue in Congress, as it seemed that this unit was not under any state's control. Other states viewed this regiment as a slippery slope to a strong central government not controlled by any individual state—a concern for those who wanted to limit executive power in favor of a more decentralized political system.

The Congress's Own Regiment had similar issues to the states with recruitment and supplies, but it did the best with what it had. Mayer highlights the regiment's activities on the battlefield, where it took part in the failed attack on Staten Island and the defeat at Brandywine. At Brandywine, Colonel Hazen reported enemy troop movements, but General George Washington discredited the information, which proved to be costly. After the Brandywine campaign, Hazen's regiment wintered at Wilmington, Delaware.

Then, Mayer discusses the Congress's Own Regiment's expedition into Coos Country in northern New England. She explores how the regiment matured and developed as a community during this campaign. The makeup of the regiment community was not just the officers and soldiers, but also the camp followers who were often the family of the soldiers. Mayer, much like in her previous book, *Belonging to the Army*, examines the civilians, including the wives and children, who followed the military into the field. Using pension and military records, she pieces together the regimental community history. As in all groups, there were personal and professional disputes, and these problems even plagued the Old Canadian Regiment's community. These arguments and disagreements bogged down the officers and gave the regiment a poor reputation.

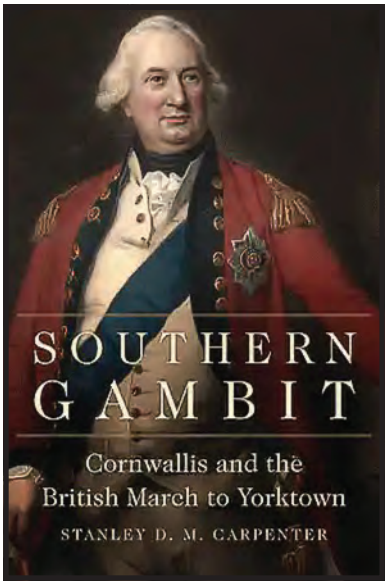
Despite these shortcomings, the war raged on. In late 1781, the regiment ended up at the siege of Yorktown as Washington reassigned it under the command of General Marquis de Lafayette. Some of the regiment took part in the attack on Redoubt Number 10. One of the many great aspects of Mayer's book is the maps, especially the one that details where the regiment was during the battle. After Yorktown, the regiment ended up in Lancaster, Pennsylvania, where it waited for further orders and guarded prisoners of war.

In the last chapter, Mayer discusses how the identity of the regiment still was a divisive topic among the members of the unit. However, after the war, when they filed for pensions, they still believed

themselves to be members of the Congress's Own. Mayer tracks down the veterans from the Congress's Own Regiment in the pension records and tells their stories after the war. Many returned to their borderland homes near the Lake Champlain region, but others moved around, including to Maine and Kentucky (271). Congress often awarded Revolutionary War veterans land bounties as payment of their service. Using veteran records, she shows that there were some success stories, but also tragedy and sufferings. Mayer's *Congress's Own* magnifies a "grittier story of how the Continentals lived and fought within the Revolution's military and political borderlands" as they went from rebels to citizens (286).

Congress's Own is well written and meticulously researched. It provides a fresh view of the Continental Army and an often-overlooked regiment from the Canadian borderlands. As a military history, but also a detailed social history, this book adds to the Continental Army historiography that has been relatively stagnant in recent years. Mayer's analysis of the regimental history and the regiment's growth as an American community could be valuable to leaders today who have soldiers from various backgrounds, including those of different citizenship and immigration statuses. These dynamics are nothing new for the American Army. Mayer's work lays the historical groundwork for discussions of how diversity can be beneficial to the Army and to the republic.

Dr. Timothy C. Hemmis is an assistant professor at Texas A&M University Central Texas in Killeen, Texas. He holds a doctorate in American history from the University of Southern Mississippi.



SOUTHERN GAMBIT: CORNWALLIS AND THE BRITISH MARCH TO YORKTOWN

By Stanley D. M. Carpenter

University of Oklahoma Press, 2019
Pp. xiii, 314. $34.95

REVIEW BY J. BRITT MCCARLEY

With the 250th anniversary of the American War of Independence fast approaching, Stanley D. M. Carpenter's *Southern Gambit: Cornwallis and the British March to Yorktown* comes at an opportune time to better understand the pivotal role of the conflict's 1778–1781 Southern Campaign. In the introduction, Carpenter defines the elements of Great Britain's Southern Strategy as "strategic coherence, strategic leadership, and [both] theory of victory and desired strategic effects" (19). The author catalogs eleven steps to the last two categories, which today's U.S. military also uses for analysis (17–18). Together, these actions relate a hybrid warfare approach in which British Regular and Provincial units would defeat their Continental Army counterparts in detail in a series of potentially decisive conventional engagements to "clear" territory, and then Loyalist forces would "hold" that same ground and supply British forces in the ever-northward drive to reestablish crown rule. After describing a finely spun scenario, Carpenter undermines his interpretation when he claims that the "British campaign to win back the southern colonies ultimately lay beyond a realistic hope of success" (19). Right there, the author introduces a persistent fatalism that sees British activity everywhere in the South as leading relentlessly and inexorably to Yorktown's Surrender Field, British defeat, and American independence.

In Chapters 1 and 2, Carpenter carries British operations from the 1778 Battle of Savannah through the 1780 Siege of Charleston. Beginning with the twin Loyalist defeats at Kettle Creek and Brier Creek, Georgia, in early 1779, the "Southern Strategy started to unravel," as British conventional victories were not accompanied by supporting Loyalist ones (55). This dissonance between tactical British success and Loyalist failure continued to characterize the remainder of the campaign. The author also introduces the theme of disunity of command and effort, which he sees as corrosive of continued British operational success. In this regard, Lt. Gen. Sir Henry Clinton, British commander in chief in North America and in direct command of the 1780 operations against Charleston; his second in command, Lt. Gen. Charles, Lord Cornwallis, himself soon to head the British Southern Campaign; and Lord George Germain, British Secretary of State for America, all created what Carpenter labels "strategic incoherence." This stemmed from Cornwallis's habit of using backchannels to communicate with the secretary, who shared his lordship's preference for conventional maneuver and battle. This produced strategic divergence between Cornwallis and Clinton (55). Overall, Sir Henry focused on the strategic defensive until Britain's global military success might allow reinforcement of North America to defeat the upstart Americans and their French allies.

British success in the Siege of Charleston, the high-water mark of their Southern Campaign, produced "victory fever" (67). For the rest, Carpenter argues, the combination of the British loyalty proclamations, the myth of the Waxhaws Massacre, and the defeat of Loyalist irregulars at Ramsour's Mill permanently alienated Southern public opinion (the proverbial hearts and minds), which the author identifies as the campaign's true center of gravity. Carpenter ends the second chapter with another expression of fatalism: "Like a row of dominoes, the events of the first few months of 1779 followed by the success of Charleston the

following spring set in motion a chain of events that culminated on a Virginia Peninsula over two years distant" (94).

Carpenter uses Chapters 3 and 4 to convey Clinton's departure for the British base of operations in North America at New York City and the effect of Cornwallis's assumption of command of the Southern Campaign. With Clinton absent from the theater of operations, the ambitious earl pursued his preferred conventional "campaign of attrition by a strategic offensive," while imploring Clinton to launch a supporting raid into the Chesapeake Bay area to threaten the Americans' sources of supply and reinforcement emanating from Virginia (104). For a potentially decisive conventional battle, Cornwallis also sought the Continental Army's main force under Maj. Gen. Horatio Gates of 1777 Battle of Saratoga fame. In mid-August 1780, at Camden, South Carolina, "in a single day the earl removed from the field a substantial enemy army and literally the only Continental forces of any consequence south of the middle colonies" (115). For Cornwallis, Camden became the false concept of a single, decisive battlefield victory achieved in as little as one day.

But the Americans fought on, first in partisan bands striking British convoys, then with Patriot militia, and finally as a reconstituted Continental force under Maj. Gen. Nathaniel Greene. From then through April 1781, the Americans fought a series of critical engagements with British forces at King's Mountain and Cowpens, both in South Carolina, and at Guilford Courthouse, North Carolina, the overall strategic effect of which was that Cornwallis, argues Carpenter, "won the Southern Campaign . . . but lost the War of American Independence" for lack of a Camden-like, war-winning triumph (192). Especially for those critical first four months of 1781, Clinton and Cornwallis did not communicate, and by late April, the resulting personal vacuum turned their military relationship into "full-blown antagonism," Carpenter maintains (213). Finally, Cornwallis himself decided to march north to knock Virginia logistically out of the war or at last achieve a Camden-style victory.

In Chapter 5 and the conclusion, Carpenter carries the story of Cornwallis's Southern Campaign from Wilmington, North Carolina, to Yorktown's Surrender Field. Though Clinton and Cornwallis had discussed for some time the role British operations in Tidewater, Virginia, would play in relation to those in the Carolinas and Georgia, his lordship arrived in Petersburg, Virginia, in mid-May 1781 without authorization from the theater commander in New York City. From then on, the earl changed his conduct of the Southern Campaign to ignoring Loyalist hearts and minds, except to indicate by his actions to get out of the way. Instead, he focused on "demonstrating [to Virginia Patriots] that rebellion and support of independence incurred a dreadful economic price," thus inducing thousands of the state's enslaved people to emancipate themselves, "which further undercut the Virginia plantation-and-commodities-based agrarian economy," all to "ensure [that] appropriate behavior became the new key to strategic victory in the South" (232). Throughout, Cornwallis continued to pursue a Camden-style decisive battle and came close to achieving it in early July at the Battle of Green Spring near Williamsburg, but sunset and the fighting qualities of American Continentals deprived him of that achievement.

A feature of his lordship's trek inland from the Tidewater area was correspondence with Clinton that one historian has labeled a "dialogue of the deaf," during which the earl and Sir Henry debated the virtues of the Virginia campaign and whether Cornwallis should withdraw to the crown's local base of operations at Portsmouth and prepare to send reinforcements to New York City to counter the American and French threat there.[1] After abandoning Portsmouth by Clinton's direction, the earl chose the deepwater, former tobacco port of Yorktown. Carpenter claims that "Cornwallis now became simply a garrison commander" and thus "tied himself irrevocably to the defense of the Yorktown post" (235–36). Following months of indecisive conventional campaigning in Virginia against Continental and militia forces under Maj. Gen. Marquis de LaFayette, and after the Royal Navy lost local control of the sea to the French Caribbean fleet operating temporarily in the Chesapeake Bay region, Cornwallis faced a traditional siege on the banks of the York River. Outnumbered two to one, he surrendered his entire Anglo-German force on 19 October 1781. Carpenter maintains that "the contradictory orders from Clinton that changed [Cornwallis's] actions from an aggressive offensive to a passive enclave defense [of Yorktown] had cost him the opportunity to defeat the enemy" (248). With another fatalistic remark, the author ends where he began: "The task [of winning the Southern Campaign and thus the American War of Independence] simply lay beyond the scope of British resource capability and institutional organization of the day" (257).

Carpenter's study is well worth the effort, so long as the reader understands the book's two overarching characteristics. One is a persistent presentism. The author's "theory of victory" and "desired strategic effects" are current among the U.S. military's many analytical structures, and in the book they become Carpenter's yardstick for measuring all Southern Campaign events and outcomes. The author frequently repeats himself to buttress those frameworks. The work's other trait is an equally continuous fatalism. The reader learns early of Carpenter's belief that the British had no hope of winning the Southern Campaign, an interpretive thread woven into the book's fabric to the end. This presentism and fatalism deprive the narrative of both contingency and agency. The arc of the past that is historical chronology was not inevitable. If so, it removes the contingent moment and the individual's agency from history. Finally, this reviewer, who has studied and led Army staff rides to Yorktown for a quarter century, can find nothing in the primary record to support the author's claim that on 19 October Cornwallis "remained at his quarters [in the town] with a case of dysentery" (254). Over the British defeat at Yorktown, his lordship surely was sick at heart if not also in body.

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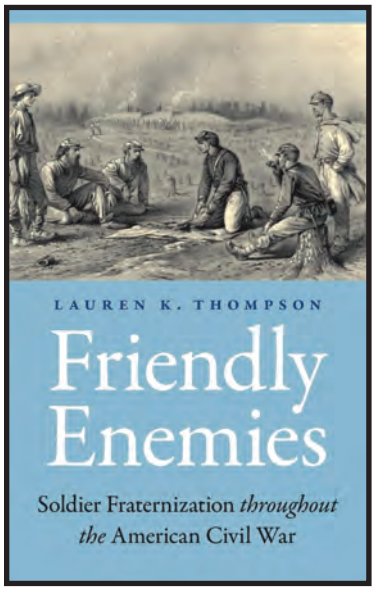
Notes

1. Lee Kennett, *The French Forces in America, 1780–1783*, Contributions in American History, no. 65 (Westport, CT: Greenwood Press, 1977), 124.



FRIENDLY ENEMIES: SOLDIER FRATERNIZATION THROUGHOUT THE AMERICAN CIVIL WAR

By Lauren K. Thompson
University of Nebraska Press, 2020
Pp. xvii, 213. $55

REVIEW BY NATHAN A. MARZOLI

Even those with only a cursory knowledge of the American Civil War are probably familiar with tales of fraternization. A common story is like that of an encounter between 21-year-old Morris Brown Jr., a soldier in the 126th New York, and an unknown Confederate soldier, the first of many such meetings described in Lauren K. Thompson's book, *Friendly Enemies: Soldier Fraternization throughout the American Civil War.* In the fall of 1863, Brown was camped with the Army of the Potomac along the Rapidan River. One morning while on picket duty, a Confederate soldier in the opposing lines saw him eating breakfast. Brown asked the man to come over and share the meal. "Down on the ground went his gun & over he came," Brown told his mother in a letter, "& oh! you ought to have seen him eat & drink coffee." After chatting for some time, Brown wrote that the Confederate soldier "concluded that he would go back & away he went" (1). The following spring, Morris Brown would return to fighting and killing people like his hungry Confederate companion. Why—and how—were Civil War soldiers able to fraternize and then resort to violence once again on the battlefield?

This is the question that Lauren K. Thompson answers in *Friendly Enemies.* Thompson, an assistant professor of history at McKendree University, argues that in both the U.S. and Confederate armies, "the military hierarchy and the harsh realities of warfare caused an identity crisis for citizen soldiers" (2). There were gaps between what the soldiers expected and what they actually experienced; although "men saw military service as a way to strengthen and display their independence," the opposite happened (3). Soldiers therefore used fraternization, which allowed them to "quickly shift their perception of the enemy from one of fear and hatred to one of empathy and commonality," to reassert their own independence and test the boundaries of authority that the army and their own officers placed on them (3). This demonstrates how soldiers could not only remain committed to their cause, but also continue to fight the war on their own individual terms.

Thompson organizes her argument into six thematic and roughly chronological chapters and gives equal weight to both the Eastern and Western theaters. Chapter 1 explains that when people first enlisted, they encountered steep challenges to their individualism. Soldiers managed these challenges by "repeating learned behaviors from antebellum society and tailored them to fit their wartime environment" (11). Chapter 2 focuses on the first widespread instances of fraternization in the war and explores how they occurred. Chapter 3 investigates the exchange of physical items between socializing soldiers, such as coffee and tobacco, while Chapter 4 examines the trade of information, usually in the form of newspapers. Chapter 5 demonstrates how fraternization became a tool for survival when soldiers used informal cease-fires to provide a respite from the unrelenting trench warfare during the latter part of the war. Thompson uses the final chapter to discuss how postwar stories of fraternization, although usually written by veterans with honest intentions, were used by reconciliationists to promote a narrative of sectional unity and to protect white supremacy.

Thompson's book presents an intriguing topic and a substantial addition to the already extensive historiography of the Civil War soldier. The prevalence of fraternization stories in the diaries and letters of Civil War soldiers should have made the historical importance of these episodes much more obvious to scholars. Historians and authors have, at best, included instances of fraternization only as stories in their larger narrative, or at worst, as proof of a Lost Cause–driven emphasis on shared camaraderie and national reconciliation between White soldiers. Through her tremendous research and analysis, Thompson has successfully proven that soldier fraternization served a real purpose for those in both the U.S. and Confederate armies. Perhaps most importantly, she also demonstrates how it was possible for these soldiers to fraternize and yet still maintain their deep-rooted hatred for the other side.

The strength of the book is the author's simple and effective thesis. It is only human nature to attempt to control a situation in which one has no agency, but Thompson skillfully and tactfully has employed this commonsense argument to drag the well-known instances of fraternization out of the "war story" category and into the proper realm of serious scholarship.

Friendly Enemies, like any good historical study, does have its flaws. This reviewer would have liked to see a complete discussion of the 1863 battlefields (in addition to Vicksburg), such as Morris Island, South Carolina, or Knoxville, Tennessee, where extensive trench warfare existed before the final year of the war. Did soldiers on these battlefields also use cease-fires to alleviate the stress of near-constant picket firing? Or did fraternization instead rarely occur, if at all? The absence of discussion of these battlefields makes one wonder if patterns of fraternization were truly as universal as Thompson claims, or if they might have been dependent on the locale and the actual people doing the fighting.

Nevertheless, *Friendly Enemies* is an excellent addition to the voluminous historiography of the Civil War soldier. An interesting and fast-paced read, it stands tall and deserves a space on the bookshelf next to the giants in the field written by Bell Irvin Wiley, Reid Mitchell, James McPherson, Chandra Manning, and many others.

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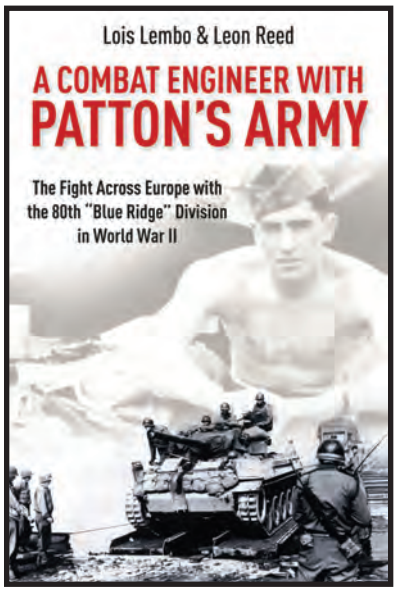


A COMBAT ENGINEER WITH PATTON'S ARMY: THE FIGHT ACROSS EUROPE WITH THE 80TH "BLUE RIDGE" DIVISION IN WORLD WAR II

By Lois Lembo and Leon Reed

Savas Beatie, 2020
Pp. xii, 276. $32.95

REVIEW BY PETER L. BELMONTE

In the historiography of the ground war in World War II, scholars understandably have devoted much attention to infantry and airborne troops. Often overlooked, however, are those troops who supported the infantry. This support ranged from base depots and ports all the way to the front line. Key among such troops were the engineers, especially the engineer combat battalions that supported infantry operations at close hand. This book covers the activities of Sgt. Frank T. Lembo and his unit, the 305th Engineer Combat Battalion (ECB), 80th Infantry Division. Lembo, the New Jersey–born son of Italian immigrants, served in the Army from 1942 until 1946. During this time, he wrote dozens of letters to his fiancée (and, later, wife) Betty Craig, and the authors have used these as a foundation for this story. The authors, Lois Lembo—who is Frank's daughter—and her husband Leon Reed, do a fine job of weaving Frank Lembo's letters into the story of how his battalion supported the 80th Infantry Division during the European campaign in the final year of the war.

The letters are interspersed within a narrative based upon unit diaries, records, and memoirs, and they cover the period from Lembo's training through his time in Europe. The 305th ECB arrived in France, after a brief stay in England, in late July 1944. Assigned with the 80th Infantry Division to Lt. Gen. George S. Patton's Third Army, the 305th participated in combat in Normandy and the Falaise Pocket before joining in the race across France. The 305th supported the crossing of the Moselle River and the move to the German border. In preparation for the crossing of the Seille River, Lembo led his troops on a hazardous reconnaissance mission behind enemy lines, an action for which he received the Silver Star. The 305th also participated in the Battle of the Bulge, including the relief of Bastogne. During the final months of the war, Lembo and his battalion supported still more river crossings in the face of heavy enemy fire. One of the unit's final duties was to assist in the liberation of the concentration camp at Ohrdruf. Although Lembo's letters during this period have not survived, the authors use other sources to capture the horror of what U.S. soldiers saw at the camp. While in combat, Lembo's natural leadership abilities rose to the fore. Promoted to sergeant before the battalion left the United States, in France he was promoted to temporary platoon leader. Lembo was a popular and strong leader, which resulted in his final promotion and commissioning as a second lieutenant and platoon commander in the 305th ECB in March 1945. The book concludes with Lembo's return to the United States and his discharge in 1946, along with a brief examination of his postwar life.

This monograph vividly describes the efforts of the 305th ECB as they assisted the infantry in a variety of combat and other roles. The engineers routinely engaged in such activities as road building and maintenance, mine clearing and planting, bridge building and demolition, culvert building, assault boat operation for river crossings, and sometimes even infantry service. Missing, however, are detailed explanations of Lembo's duties as a platoon leader in an engineer combat battalion. Thus, we do not learn *how* he led his soldiers to accomplish their varied missions, both under fire and in relative safety. There are no detailed descriptions of how engineers erected bridges, built culverts, built and maintained roads, cleared minefields, or the like. Understandably, Lembo did not write about these things to his wife, and readers must be satisfied with the descriptions he did provide.

One interesting aspect of this book is the revelation of the distinction between the engineer combat battalions assigned to a division and those assigned to a corps. The authors quote unit diaries that decry the lack of experience of the latter battalions when they supported Lembo's battalion during combat river crossings. Of course, this is a matter of perspective and may be peculiar to the instances cited, but an examination of these distinctions would be enlightening.

Combat soldiers experienced things that set them apart even from rear echelon soldiers, not to mention the folks back home. Lembo often complained to Betty about what he perceived to be a lack of appreciation or understanding on the home front about what the combat soldiers were experiencing. After digesting Lembo's complaints, readers can get some small idea of the isolation felt by some returning veterans. For them, there was no point in trying to explain what they had been through. Those who had not experienced it could never imagine it, and those who had, had no desire to dwell on such unpleasantness.

The authors include several appendixes that deal with such things as casualty totals, Army mail-handling practices, and the duties of engineer units. Several photographs and maps enhance the text.

The footnotes and bibliography reveal the authors' fine use of primary and secondary sources. The memoirs of other people in the division and unit diaries are very helpful in understanding what the troops went through during the final days of combat in Europe. This book is an excellent illustration of how division-level combat engineer battalions supported their division's operations in World War II. Although it does not contain technical details or the specifics of bridge building, *A Combat Engineer with Patton's Army* is highly recommended as an example of how one battalion supported the U.S. Army's war in Europe and of one soldier's service to his country.

Peter L. Belmonte is a retired U.S. Air Force officer and veteran of Operation Desert Storm. He holds a master's degree in history from California State University, Stanislaus, and has written several books, including *Italian Americans in World War II* (Arcadia, 2001), *Days of Perfect Hell: The U.S. 26th Infantry Regiment in the Meuse-Argonne Offensive, October–November, 1918* (Schiffer, 2015), and *Forgotten Soldiers of World War I: America's Immigrant Doughboys* (with Alexander F. Barnes, Schiffer, 2018).

THE BIG PICTURE: THE COLD WAR ON THE SMALL SCREEN

By John W. Lemza
University Press of Kansas, 2021
Pp. xiii, 274. $24.95

REVIEW BY DONALD A. CARTER

As a young boy, I was obsessed with all things army. In addition to enjoying the traditional toy guns and toy soldiers, I discovered, one Sunday morning, *The Big Picture*, a half-hour television program produced by the United States Army and devoted to promoting the service to the general public. The narrative often went over my 10-year-old head, but the show also presented lots of filmed shots of tanks, guns, and soldiers, much of which I later discerned was actual combat footage. In many ways, *The Big Picture* helped to push me along the way to a career devoted to military service and the U.S. Army.

John Lemza's book gets off to a ponderous start. The introduction and early pages set the stage for the reader to perceive the television program as overt propaganda that promoted a conservative agenda and an exceptionalist interpretation of American values. In the foreword, series editor Stacy Takacs notes that Lemza's analysis explodes the "canard that Americans are reluctant fighters" (viii). As I continued reading, I prepared myself to be condemned for falling for the Army's positive depiction of the service and the American soldier.

Happily, the book quickly leaves the bombast behind and turns instead to a historical overview of how *The Big Picture* came about. Thirteen initial episodes covering the war in Korea prompted leaders throughout the Army to request an expansion of the program's focus to cover broader aspects of the service's history. Episodes such as "The History of Cavalry" and "The Army Reserve Team" soon followed. However, the Army's Public Information Office and the Troop Information Division envisioned a higher purpose for the enterprise. The service had a glorious history, they acknowledged, but that history was not comparable to the Army of today. *The Big Picture* could be used to greater effect by showcasing the modern, atomic-age Army.

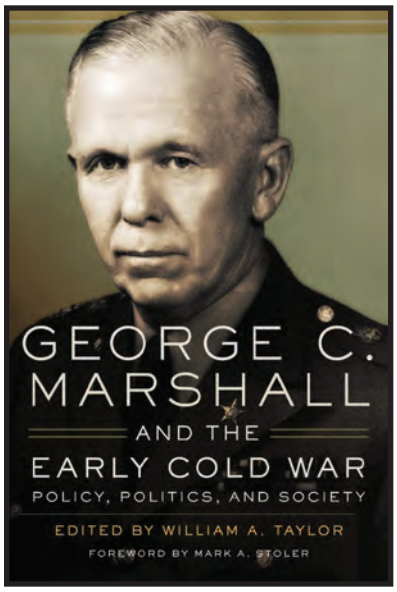
Throughout the 1950s, the Army faced an uphill battle both for public support and for funding from the Eisenhower administration, which based its national defense policy on the Air Force, the Strategic Air Command, and atomic weapons. Through most of the book, the author does a skillful job showing how service leaders used the television program to present their message directly to the American public. Programs about new technology and weapon systems demonstrated how the Army could adapt to the atomic battlefield. Not only was the Army relevant, it was a vital component of America's defense team. More importantly, the author argues, *The Big Picture* presented a human face of the American soldier to the public he represented.

In its later years, the program continued to focus on soldiers and the jobs they did, while also exposing some of the more controversial aspects of military life. Although the series never produced specific episodes devoted to the military's racial integration, episodes throughout the 1960s included numerous scenes showcasing Black soldiers performing their duties alongside White soldiers. In other areas, Lemza quite correctly takes the Army to task, such as for omitting the Japanese-American 442d Regimental Combat Team from its historical coverage and for the stereotypical treatment of Native Americans in episodes that discussed the Army of the frontier.

Ultimately, the Vietnam War spelled the end for the Army's television series. The consistently positive spin that episodes placed upon various combat actions soon ran afoul of the more cynical American public. By 1970, Senators Mike Mansfield and J. William Fulbright accused the Army and the Defense Department of deliberately distorting the progress of the war. *The Big Picture*, Fulbright said, was part of a Pentagon propaganda machine designed to brainwash the American people. Such controversy convinced Army leaders that the program had outlived its usefulness and, in 1971, they ended production.

Despite my early reservations, I believe that the author does an even-handed job of relating the story of *The Big Picture*. Although the prose is a bit dry at times and a little polemical in others, the book is, for the most part, an enlightening and enjoyable read. Lemza includes a catalog of all of the episodes produced during the series' twenty-year run. My only criticism here is the lack of descriptions accompanying the episode titles. One or two sentences per episode could have turned this book into an indispensable reference work. Nevertheless, the volume, just as it is, offers an important contribution to the history of the United States Army in the Cold War.

Dr. Donald A. Carter is a senior historian at the U.S. Army Center of Military History (CMH). He received his PhD in history from the Ohio State University in 1985. He is the author of *Forging the Shield: The U.S. Army in Europe, 1951–1962* (CMH, 2015) and coauthor with William Stivers of *The City Becomes a Symbol: the U.S. Army in the Occupation of Berlin, 1945–1949* (CMH, 2017).



GEORGE C. MARSHALL AND THE EARLY COLD WAR: POLICY, POLITICS, AND SOCIETY

EDITED BY WILLIAM A. TAYLOR
University of Oklahoma Press, 2020
Pp. xxvi, 282. $29.95

REVIEW BY SHANNON GRANVILLE

As both a soldier and a statesman, George C. Marshall had an undeniable effect on the U.S. military effort in World War II and on the worldwide economic and political order that came out of the Allied victory. As the Army's chief of staff from 1939 to 1945, he oversaw the U.S. Army's mobilization for a multifront, global conflict. During his service first as secretary of state and then as secretary of defense for President Harry S. Truman between 1947 and 1951, he helped restructure the postwar U.S. defense establishment, supported Western Europe's economic recovery through the Marshall Plan, and worked to rebuild U.S. military capacity to meet the challenges of war in Korea. Even though Marshall's achievements have received significant scholarly attention, much of the literature has focused on his wartime work and the postwar economic restructuring plan that bears his name. The ten contributors to *George C. Marshall and the Early Cold War,* edited by security studies professor William A. Taylor, seek to fill in the gaps by examining Marshall's contributions to U.S. policymaking in the early Cold War period. In doing so, they demonstrate how Marshall's skills, talents, and personal connections influenced a wide range of policy decisions that would shape his nation's approach to the most pressing questions of the day.

Five of the nine chapters in the book touch on Marshall's contributions to domestic military affairs: the debate over universal military training, postwar policies on the development and use of nuclear weapons, the significant defense reorganization of the 1947 National Security Act, the creation of the independent U.S. Air Force in 1947, and the racial integration of the U.S. armed forces. Four further chapters have a more international angle: U.S. relations with postwar China, the development of the European Recovery Program (more commonly known as the Marshall Plan), the creation of the North Atlantic Treaty, and U.S. involvement in the Korean War. The source notes at the end of each chapter provide helpful jumping-off points for readers to explore the existing literature on each topic. The chapters, overall, treat Marshall evenhandedly, neither giving him excessive credit as a prime decision maker nor downplaying his contributions as a team player. They depict how his managerial skills enabled him to grasp the complex requirements of modern warfare and built his reputation as a capable leader and trustworthy figure. Even in the instances where he failed to achieve his goals, as in his short-lived mission to China to mediate the civil war between the Communists and Nationalists, his failures (as renowned Marshall biographer and editor Mark A. Stoler says in his foreword) "are in many ways as instructive as the successes" (xiii). In the case of China, for example, the United States' contradictory goals for the mission set up Marshall to fail almost from the start. Though critics such as General Douglas MacArthur and Senator Joseph R. McCarthy later lambasted Marshall for his role in the "loss" of China to the Communists, it would have taken more than the efforts of any one diplomat to rescue the United States from its overarching policy failures toward China in the late 1940s.

There are a few frustrating points in the book, mostly in instances where clarity appears to have been sacrificed for brevity. One example appears in the chapter on Marshall's support for universal military training (UMT) as a means of improving national readiness for international conflict or domestic emergencies. In discussing Marshall's work with his special adviser John McAuley Palmer to refine their concept of UMT in the interwar years, one passage reads: "Palmer based many of his ideas [for UMT] on the Swiss system that existed at the time, but he adapted it to suit American democracy" (17). However, the chapter never explains the Swiss system of UMT or describes the ways in which Palmer adapted it. Without this supplementary information, it is difficult for a reader to understand Marshall's approach to UMT or evaluate the reasons why it met with either resistance or indifference in senior U.S. political and military circles. Another missing element, conspicuous by its absence, is any discussion of Marshall's perspectives on the postwar Middle East. Most notably, he did not support President Truman's decision to recognize Israel as a country, openly claiming that it was a political maneuver intended to bolster the Democratic voting bloc in the forthcoming 1948 presidential elections. Because other sections of the book cover instances in which Marshall's policy views did not align with those of his contemporaries, it seems a remarkable oversight that this disagreement—a serious rupture in his relationship with Truman—is not mentioned to any real extent in this volume. The question of Marshall and the Middle East could have filled another chapter on its own.

These concerns notwithstanding, *George C. Marshall and the Early Cold War* is a convenient, compact source of information for those whose knowledge of Marshall is limited to the proverbial highlight reel of his military career or the Marshall Plan. The book reveals the staggering breadth of policy issues with which Marshall contended throughout his lifetime of public service. Few individuals have held so many senior positions in or out of uniform; still fewer have risen to meet the challenges of their time as decisively, or with such personal integrity, as Marshall did.

SHANNON GRANVILLE is the senior editor in the Multimedia and Publications Division of the U.S. Army Center of Military History. Previously, she was editor and deputy publications director with the Woodrow Wilson Center Press, where her responsibilities included editing manuscripts for the Cold War International History Project series co-published with Stanford University Press. She has a master's degree in international history from the London School of Economics and a bachelor's in history from the College of William and Mary. Her research interests include Cold War nuclear history, postwar British and Japanese politics, and political satire in popular culture. She is a member of the 26th class of Mansfield Fellows (2022–2023).

THE ARMY'S HISTORICAL THINK TANK

Jon T. Hoffman

As I write this column, the eyes of the world are fixed on the Russian invasion of Ukraine. Over the past few years, the Department of Defense and the Army have been refocusing their attention on Indo-Pacific Command and its area of operations, looking at the People's Republic of China as the peer competitor of most concern in the world. Events in Ukraine likely will not alter that long-term strategic emphasis on China, but the Russian action highlights how quickly the situation can change in the here and now. In either case, the U.S. Army's ongoing effort to better prepare itself for large-scale combat operations is proving to be a wise investment that is paying immediate dividends.

The Center of Military History (CMH) is playing a small but significant part in that preparation for major conflict. Just recently, the Department of the Army Management Office—Strategy, Plans & Policies Directorate within the office of the Deputy Chief of Staff, G–3/5/7, asked us to conduct a series of seminars on the history of Army operations in the Asian-Pacific region. Two historians from the Headquarters, Department of the Army, Studies and Support Division within the Field Programs Directorate provided the first session in February.

William Donnelly led off with a presentation on the U.S. Army and the People's Liberation Army during the Korean War. He first described the American and Chinese war aims and how those strategic objectives affected each army. He then discussed the similarities and differences of the two armies during the war, and how these influenced the course of the conflict. In his conclusion, he recommended Bryan Gibby's book *Korean Showdown: National Policy and Military Strategy in a Limited War, 1951–1952* (University of Alabama Press, 2021) as an excellent case study that links the strategic, operational, and tactical levels in an analysis of the war during 1952.

Eric Setzekorn looked at Taiwan in the 1950s, where the U.S. Army demonstrated the ability to assist local armed forces and forge a lasting military partnership based on shared interests. During the 1958 Taiwan Straits crisis, the U.S. Army helped resist Chinese aggression through flexible and effective deployments, as well as the targeted modernization of our ally. American Army personnel on the front lines in Taiwan also provided vital information to senior policymakers in the United States.

To broaden this educational effort, CMH distributed a list of all its publications related to the Indo-Pacific Theater to senior leaders in Training and Doctrine Command and throughout the Army. They range from James C. McNaughton's *The Army in the Pacific: A Century of Engagement* (2012) through the official history volumes of the Pacific campaigns in World War II, the Korean War, and the Vietnam War.

Another initiative is coming out of Peter Knight's Field and International Division within the Field Programs Directorate. His small staff, aided by graduate research assistants, is building a mobilization staff ride. While we tend to think of mobilization these days as calling up the National Guard and the Army Reserve, this seminar will focus on a full-scale mobilization that would require the Army to create an even bigger force for large-scale combat operations. The staff ride thus looks at the U.S. Army's effort in the early days of World War II to build a massive army of some eight million men and women from a very small prewar base, even counting the entire National Guard. That mobilization entailed not just obtaining personnel via recruitment and the draft, but also building the base structure to train very large numbers of individuals and units, ensuring there was sufficient industrial infrastructure and labor to equip the massive force, developing the right organization and doctrine, and establishing a logistics pipeline that would encircle the world. Our most senior leaders of today's Army were not even alive when the Army last conducted a mobilization of this type, so history can provide critical guidance when no one has any personal experience upon which they can draw. Giving the Army's current leaders a chance to think about how their predecessors created the force that won World War II will stand them in good stead as they contemplate how to prepare for large-scale conflicts in the future.

CMH has a wealth of knowledge in its workforce and is well positioned within Training and Doctrine Command to be the Army's think tank when it comes to the use of history to inform current and future planning.

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