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FROM OCCUPATION TO MUTUAL DEFENSE

Amid the dislocation of the immediate postwar period, the theater chief engineer, Maj. Gen. Cecil R. Moore, organized Army engineer services to meet the needs and priorities of the army of occupation in Germany. As he adjusted his engineer resources to support and sustain the civilian administration of German communities, Moore also had to remain responsive to the challenges that developed as the wartime alliance gave way to the tensions of the Cold War.

The army of occupation in Germany and Austria needed shelter for men and equipment; and the engineers had to locate—and then relocate, as new exigencies emerged—headquarters, housing, and real estate for both ground troops and aviation units, the latter organized in the Army Air Forces. After April 1946 an ever-increasing number of military dependents required a different kind of housing and support facilities. The German infrastructure and economy were in shambles. Competing demands for both material goods and labor, combined with the widespread physical destruction and social dislocation, created scarcities that disrupted normal markets and caused persistent problems for the chief engineer's office in managing work and setting priorities. The engineers faced only one area of oversupply: Vast quantities of equipment and materiel shipped into the European Theater to support the war remained on hand. Disposing of this excess materiel became a major concern for the chief engineer's office through the end of the decade.

Over the three years following Germany's defeat, the entire atmosphere in Europe changed. In 1948–1949 the engineers had to cope with the possibility of an armed conflict when the Soviet Union cut off free access to Berlin. This confrontation over Berlin between the Soviet Union and the three Western occupying powers posed incredible challenges to the engineering ingenuity of the U.S. Army.

All these responsibilities coincided with the tasks that carried over from immediate postwar imperatives. At the same time they accentuated a new range of engineer activities that marked a transition from concern

with occupying a defeated nation to developing a community of interest with a potential ally.

Engineer Activities in Occupied Germany

During the early years of the occupation the engineers pursued projects to secure and provide adequate housing, office, and operational facilities for the U.S. military—headquarters buildings, command schools, hospitals, depots, shops, special installations, bridges, railways, highways, utilities, and ports.[1] The United States Forces, European Theater (USFET) Office of the Chief Engineer coordinated planning for these projects. When the occupation began, the U.S. military already held more than 50,000 real properties in occupied territory in Germany, Czechoslovakia, and Austria, including private houses, apartment buildings, hotels, schools, office buildings, factory buildings, warehouses and depots, retail stores, and barracks.[2] The largest part of the engineers' work went into rehabilitating buildings that the Army had confiscated or requisitioned. New construction accounted for only 1 percent of the work in the summer of 1946 and less than 5 percent in the next several years.[3]

Supporting the U.S. Army in Europe

After the war with Japan ended in August 1945, many soldiers—frequently officers but also the small number of enlisted troops that were married—wanted to bring their families to the European Theater. Housing in Germany was in a deplorable state. Overcrowding in the U.S. zone created continued pressure to requisition more facilities, and the military government's list of requisitioned properties grew during the first year of occupation. In Württemberg-Baden, for example, U.S. troops occupied 29,394 rooms in November 1945, 42,002 in December, and 43,361 in January 1946.[4]

In spring 1946, Headquarters, USFET, decided to allow dependents into the theater. The Army began active planning for the change in September 1945, when USFET created a board to define "standards for accommodations in military communities." In early October the planning board sent proposed standards to the theater's major commands for review by the commanding generals, who were responsible for housing in their areas. In early December the major commands were directed to prepare plans for establishing and maintaining military communities. At the same time, the commanding general of the Theater Service Forces, European Theater, was directed to submit technical standards to Headquarters, USFET, "for all types of housing and installations, including recreational facilities."[5] General Moore proposed setting up an Engineer Planning Office "with German engineers, architects and draftsmen somewhere outside the Frankfurt enclave."[6] An office such as he described evolved within the chief engineer's office in Frankfurt,

where staff officers devised standards for housing and prepared a guide, translated into French and German, that both military communities and contractors could consult.[7]

Because inflation had disrupted normal pricing mechanisms, for several years after 1945 the Army measured the value of all work in hours of labor. During January 1946 the chief engineer's office formulated a set of general estimates of the amount of work necessary in the theater over the next two years. The January 1946 projection called for 92 million worker-hours. Seventy-seven percent of the labor and almost 74 percent of the spending—but only 24 percent of the supplies—were allocated to the establishment of military communities. By late 1946 USFET had selected permanent locations for the military communities, which would include soldiers, dependents, and an array of service buildings to house commissaries, post exchanges, chapels, and administrative offices. As work on the facilities progressed, it accounted for 60 percent of the construction program and 47 percent of supplies, almost double the quantity projected earlier.[8]

During the first winter of the occupation the chief engineer's office set out relatively simple rehabilitation plans to prepare facilities for soldiers. The American zone contained requisitioned and confiscated barracks or casernes that needed only minimal work to bring them to standards acceptable to the occupying army.[9] Many of these casernes had been built before the First World War, and most had been damaged during the recent fighting. Still, even with no repair at all, these buildings offered more comfort than tents.

The engineers were allowed to rehabilitate barracks only to austere standards. The chief engineer's office planned a first phase to repair facilities so that they would be "somewhat better than the wartime scales of accommodations."[10] As work progressed, the plan for rehabilitation foresaw improving accommodations to a level "somewhat less than is allowed in comparable posts … within the continental United States."[11] No one at the time imagined that U.S. military personnel would use many of these facilities for more than forty years.

Accommodating dependents was more complicated than housing troops. Virtually all the apartments and private homes available for confiscation or requisition were in terrible condition as a result of neglect and damage during the war. Most facilities required extensive repair to be considered livable.[12] The program for rehabilitating quarters for dependents ran into a delay when the War Department ruled that neither permanent nor temporary construction funds could be devoted to housing dependents. In the face of protests from the theater, the War Department reconsidered and subsequently ruled that only appropriated funds could not be used for dependent housing. Surplus materials and money from reparations could be used to repair or to construct housing for dependents. Further, in contrast to earlier regulations, materials absolutely essential but not obtainable in the theater could be purchased in the United States. The reinterpretation made it possible to proceed. German

construction firms performed the work; German civilians, displaced persons, and prisoners of war supplied the labor; and costs and materials were charged to the Germans under the occupation budget.

Supporting the Air Forces

The U.S. Army Air Forces (AAF) enjoyed the same measure of support from the theater chief engineer's office as the field armies in Germany. The AAF had played a significant part in the war and needed appropriate facilities in occupied Germany. It chose as its command center the German airfield at Rhine-Main, seven miles southwest of Frankfurt. The U.S. troops had captured the field in April 1945 and put it at the disposal of an American fighter squadron for the last month of the war. Engineer battalions began rebuilding facilities at the airfield almost immediately. By midsummer the engineers had completed nearly all of the initial work, and by autumn Rhine-Main began operating as a major AAF base. Expansion of facilities continued over the next several years.[13]

The AAF formulated no construction plan for 1946, although U.S. forces retained control of over forty former German air bases and a few active bases in France and Britain. Even without major plans, the Office of the Chief Engineer, USFET, allocated over 12 million worker-hours of labor to AAF projects for the year—13 percent of its total two-year allocation. Fifty percent of the work scheduled for the AAF went into facilities at Rhine-Main, in part because it also opened for limited commercial use in May 1946. Seven months later a large passenger terminal opened for general commercial traffic. The remaining 50 percent of the engineer workload for the AAF for 1946 went into projects for housing, facilities, and routine maintenance.[14]

Berlin's main airport, Tempelhof, also became a locus of Army engineer activity immediately after the war ended. The airport's design had been avant-garde when planned in the mid-1930s, and 80 percent of its facilities had been completed by the time construction was suspended in 1943. Bombing and systematic destruction by the invading forces had left it nearly useless. When U.S. forces took control of Tempelhof in July 1945, the terminal and field were in shambles and needed immediate attention.

The 473d Air Service Group assessed the damage at Tempelhof and immediately set about reconstruction.[15] Troops cleared away debris and restored utilities. The airfield's one runway was sod, so the 862d Engineer Aviation Battalion began work on a new 6,000-foot runway. Over a base of crushed brick taken from the rubble of Berlin, the engineers poured a two-inch layer of concrete and then topped the concrete with pierced steel planks. When the airfield opened for military use, planes landed on the pierced plank runway and took off from the sod strip.[16]

By 1947 the Army engineers had begun work on other airfields in Frankfurt, Giebelstadt, and Munich and on AAF depots in Erding, Oberpfoffenhofen, and Roth. Work at Rhine-Main accounted for one-third of an estimated 51 million worker-hours that the engineers provided for

the AAF in 1947.[17] When the U.S. Air Force emerged in September 1947 as an independent military service, decisions in Washington ordained that the Army engineers, not its own engineer component, provide support. The Army engineer units detailed to the Air Force were designated Special Category Army with Air Force units.[18]

Juggling Competing Demands

During the first three years of the occupation, construction supplies were never adequate and certain materials were always lacking, particularly electrical fixtures and switches, plumbing supplies, paint, and plaster.[19] Because the engineers could not supply all essential projects, the chief engineer's office contrived a special category of hot projects that received preferential distribution of supplies. The office's list of hot projects, based on the staff's judgment of relative importance and on information from construction officers in the field, changed from month to month. The definition of *hot* was, to be sure, unofficial, and frequently at variance with the judgment of the using services, each of which tended to consider its own projects the most important.[20]

One of the earliest hot projects was the creation of facilities at Rhine-Main Air Base for the USFET's Air Transport Command (ATC) and the European Air Transport Service. The ATC began limited service from Rhine-Main in May 1946, but construction became more urgent later that year when the ATC received orders to relocate from Orly Field near Paris to Rhine-Main. The move had a ripple effect, pushing work at the neighboring Wiesbaden military community into the hot project category, because Wiesbaden became the new headquarters of the ATC. The only way to liberate space for the ATC at Wiesbaden was to move other units out of that city; each such move provoked another hot project. Similarly, construction in the Frankfurt area became a hot project by late 1946 when authorities chose the city as the administrative center for the merged British and American zones of occupation, renamed Bizonia. The overwhelming wartime devastation in Frankfurt put the city behind all other areas in the U.S. zone in providing dependent housing. As administrative services expanded, drawing ever more people to the city, securing adequate facilities for U.S. military personnel became increasingly difficult.

As a step toward resolving the situation, the chief engineer's office created a liaison team to work with the city's mayor to adjust space, labor, and supplies. Army engineers made supplies available from their stocks to speed the rehabilitation. The engineers concentrated labor in Frankfurt by transferring labor service companies—third-country nationals paid by the Army—from Stuttgart and Nuremberg and German workers from projects at Rhine-Main and in Griesheim.[21] By 1 January 1947, military housing in Frankfurt had first demand on materials. In the first three months of 1947 work crews completed 106 housing units—far short of the 7,000 additional units needed for civilians and officers.[22]

The designations of hot projects by the chief engineer's office illustrate that even in late 1946 decisions concerning engineer issues were based on immediate need and amid shortages. Expedient solutions displaced coordination. With both operations and project approval decentralized, execution of a coherent construction program remained beyond the reach of the chief engineer's office. As with nearly all construction, the real responsibility for the housing projects lay with the major subordinate commands; and they operated more or less independent of the efforts of the chief engineer to coordinate planning, procurement, and supply.

Examples abound of uncoordinated solutions to urgent problems. In the American military community in Bad Nauheim, north of Frankfurt, getting power to the residents superseded concerns about standardization. Direct current and alternating current served the same block of residence units, so the purchasing of appliances could not be standardized. Similarly, in the Höchst compound west of Frankfurt, some houses had 110-volt circuits installed in one room and 220-volt circuits in another. When a power failure hit the compound in October 1946, some houses lost power while others did not. Some houses lost power on only one floor. Col. Robert Fleming, chief of construction in the chief engineer's office, commented in a staff briefing that he "tried to explain to a friend of mine why only his second floor lights were out, but I don't think he yet believes me."[23]

The tension between the chief engineer's vast responsibility and his very limited authority—he operated through only technical and not command channels—constituted a vexing administrative issue. U.S. military construction and procurement proceeded on an ad hoc basis, command by command, with disturbingly little attention to overall theater needs.[24] For example, the Third Army's plans to construct an ice rink with a roll-back roof in Garmisch received approval by the commander over the objections of the chief engineer's staff, particularly Cols. Robert Fleming and Louis W. Prentiss, Sr., the deputy chief engineer in 1946. The engineer colonels in Third Army gloated publicly that they had humiliated their counterparts in Frankfurt. Their arrogance thoroughly angered Fleming. Five years later, he "settled some scores." Fleming had become assistant chief of engineers for military operations, and Prentiss headed the Personnel Branch in the Office of the Chief of Engineers in Washington. As Fleming remembered, "I got General Prentiss to go along—and two careers got ended because the two men involved [had been] too stupid to realize that cooperation was an asset."[25]

Fleming, too, had had problems with unreasonable projects. He had "hit the ceiling" upon learning that the engineers had received orders to provide the wife of the USFET commander in chief, General Joseph T. McNarney, with a cow barn so that she could have fresh milk daily. When he calmed down, he reasoned that "a cow barn was a small price to pay" for the good will of the four-star theater commander and let the project proceed.[26]

Construction Costs

As the occupation continued, money to support the U.S. military presence in Germany became ever scarcer. After four years of war Americans were ill disposed to invest in any military needs at all, much less in new facilities to house the U.S. Army in Germany. At the end of the war in 1945, military spending garnered 39.1 percent of the U.S. gross national product; by 1948 military spending had fallen to 3.7 percent.[27] Politically imposed budget constraints meant that troop strength in Germany dropped steadily from 342,000 in July 1946, to 135,000 in July 1947, to just over 100,000 by the end of 1948. In this climate, resources available to the military, and to the Army engineers, declined drastically. In the first quarter of 1947 major and minor construction, already down sharply from wartime levels, required 10 million worker-hours; by the same quarter of 1948 that figure was down to just under 6 million worker-hours. The reduced engineer budget for 1948 imposed "a drastic curtailment of expenditures" on both construction and other activities for the year.[28]

Budgetary concerns led commanders to make penny-wise but pound-foolish decisions. In mid-1946 the theater chief engineer's office warned that the effort to hold down expenses in rehabilitating troop facilities was false economy. Commanders were incorporating "less desirable buildings requiring more labor and materials per unit" into their inventory.[29] In late 1947 the engineers observed repeatedly that maintenance costs had increased because of the "serious deterioration of the facilities constructed during the last two years."[30] Indeed, funds "saved" from the budget through sparse rehabilitation went increasingly toward maintenance and repair. By 1 January 1948, maintenance consumed 90 percent of the total engineer labor, supplies, and funds. The early decisions during the occupation to build cheaply and for the short term haunted the Army for decades.[31]

Another factor increased the European Command's (EUCOM) expenditures for maintenance: the decision to shift an ever-greater burden away from the German government. Because of the escalation of tensions between the United States and the Soviet Union, German public opinion became more important to American strategists. Accordingly, in 1947 the U.S. military began to reduce "as much as possible the financial, manpower, and production burden of the occupation upon the indigenous economy."[32] This policy reflected the changing relations between the U.S. Army and the German polity developing with the active encouragement of the Western Powers in their zones of occupation. As the military sought to detach itself from dependence on German payments, it had to assume more of the costs of maintenance and repair directly.

Dealing with Excess Materiel

The eminent nineteenth century British historian Thomas Macaulay described the essence of war as violence, but in modern times the essence

of war has become logistics. In World War II the industrial and logistical system developed by the United States created the conditions for victory by pumping the materiel of war into the European Theater at a prodigious rate. By May 1945 over 5 million tons of war supplies were on hand in Europe. Solving the quandary presented by the volume of war materiel no longer needed became one of the most difficult and persistent problems that the Army engineers faced. Resolving the problem involved four years of intense effort.

Immediately after the victory, General Moore's Office of the Theater Chief Engineer received the assignment to clear the liberated countries as rapidly as possible of the thousands of tons of war supplies that remained in depots behind the advancing combat troops. About 90 percent of the materiel was in depots in rear or intermediate areas (France and Belgium) rather than forward in Germany. Moore's orders were to concentrate these supplies in Germany, where the army of occupation could draw upon them.[33]

The Army engineers began consolidating war supplies by constructing new depots and transferring materials to them. Before hostilities ended, the Army had established its forward engineer depot in an encampment formerly used by German military engineers near the town of Hanau in the Frankfurt area. Within months the engineers had added major supply depots in Fürth, Bremen, Mannheim, and Berlin in the U.S. zone in Germany and in Linz in Austria. Thirteen supply depots (1 in Britain, 5 in Belgium, and 7 in France) remained active throughout the Western Base Section.[34] As American military involvement in the liberated countries of France, Belgium, and the Netherlands decreased, these supplies could be transferred to Germany.

The Hanau Depot

To prepare for the influx of materiel from the Western Base Section, particularly from France and Belgium in 1946, the chief engineer's office began a substantial program to expand the depot in Hanau. The goal—to establish stabilized open storage, closed storage, shops, access roads, utilities, and railroad facilities—created a long catalog of projects: improve drainage; provide new latrines, a heating plant, a water system, and a supply of potable water for the depot; pave motor pool areas; and build rail spurs and related railroad facilities. The engineers also needed to build an electrical distribution system and additional warehouse space, winterize lubrication racks, put a fire prevention system in place, stabilize streets and open areas, and create hardstands for processing and parking vehicles. Cols. Paul D. Berrigan and Robert Fleming, successive heads of the Construction Division in the Office of the Theater Chief Engineer, supervised the Hanau project from Frankfurt.[35]

Not only did construction of new facilities fail to keep pace with the influx of goods from areas outside Germany, but the arrival of materiel often got in the way of construction. As an additional complication, requirements changed in the summer of 1946. Anticipating an increase

in the number of displaced persons in the U.S. zone in Germany, officials ordered the materials to construct prefabricated huts for 40,000 persons from storage areas in Belgium and France. The officials set 1 September 1946 as the target date for completing the transfer, without realizing that facilities for unloading and storage at the existing depots in Germany were inadequate to handle the volume of material involved.[36]

Management of the movement of excess war supplies broke down in part because redeployment removed trained engineer personnel. Lack of proper controls contributed to pilferage. The engineers did not have personnel in France or Belgium with sufficient experience to select the materials most adaptable to salvage and reuse. When a shipment of 20,000 tons of miscellaneous parts for prefabricated huts arrived in Hanau unlabeled and unsorted, Colonel Fleming observed that "it would have taken a battalion a year to sort them out" and build the huts.[37]

By 1 July 1946, inadequate facilities in Hanau left 1,800 railcars waiting to be unloaded. By late summer several hundred barges lined the Main River because the depot had insufficient personnel to unload them and insufficient facilities to store their cargo. To alleviate the backlog, the engineer's office established temporary construction supply dumps in each of the seven major commands and opened a new engineer supply depot in Gelnhausen.[38] By late 1946 the Hanau depot had become not only the storage point for all supplies from the Western Base Section but also the main depot for the U.S. zone of occupation in Germany.[39] In March 1947 all engineer supply depots in Germany were officially redesignated as subdepots of Hanau.[40]

Harsh weather during the winter of 1946–1947 brought more difficulties for the overburdened operators of the Hanau depot. To husband limited supplies in the face of the severe cold, they rationed electrical power and gasoline, substantially disrupting construction to expand the depot's storage facilities. Pressure on the depot increased when the Mediterranean Theater was inactivated in early 1947 and 9,800 long tons of supplies moved from Italy to the U.S. zone in Germany. In April, May, and June an additional 6,940 long tons of supplies—cement, lumber, and materials for electrical and plumbing work—arrived from the Mediterranean Theater.[41]

Although the Army engineers employed German contractors, construction throughout 1947 at the depot in Hanau remained inadequate to accommodate the incoming supplies. In Giessen, the Army built 500,000 square feet of new covered storage for a quartermaster depot. In Griesheim contractors rehabilitated and added to an I. G. Farben Company plant and buildings to adapt them as an ordnance depot. Projects at these sites included hardstands and rail, road, and other service connections, as well as warehouses. In spite of additional facilities, the depots still could not absorb all of the materiel arriving in Germany. By the summer of 1947 the target date for gathering all engineer supplies at the depot in Hanau had been pushed back well into 1948.[42]

Although its facilities and its personnel were both overtaxed, the Hanau depot provided a central point of distribution for the amassed

materiel. Designating a central distribution point enabled the chief engineer in Frankfurt to manage construction materials more effectively throughout the U.S. zone. In early 1947 the chief engineer's office began issuing lists that specified the quantities of each item of reserve stocks in Hanau so that engineers and commanders in the communities would know what was available in the theater.[43] At the same time, depots closed in the Western Base Section and supplies left France and Belgium for Hanau. Within Germany, as the movement of goods passed its peak, the engineer construction dumps in Kassel and Landsberg no longer had to provide overflow space; their stocks could be transferred to Hanau. By June stocks from Illesheim and Schwandorf were moved to Hanau and the facilities at Illesheim passed to the Ordnance Corps for use as a vehicle reserve park.[44] By September the supply point in Stuttgart was empty and supplies from Berlin had also been transferred to Hanau. The last shipment from the Mediterranean Theater—3,000 tons—was en route from Italy. By March 1948 about 3,190 tons of engineer supplies remained to be moved from subdepots to Hanau. Six months later all command stocks had been removed from the other subdepots, which were then closed, leaving Hanau as the only engineer service depot in the U.S. zone in Germany.[45]

Construction of storage space continued in Hanau. The depot gained usable space when in 1948 the Army turned over tens of thousands of tons of supplies to a new semipublic German corporation under the program called Bulk Transfer of U.S. Army Property.[46] As consolidation of supplies progressed and the inflow of goods lessened, the command of the Hanau depot began to gain control of the materiel in the warehouses. In the final quarter of 1948 the Hanau depot undertook an inventory of its entire stock of general engineer and spare parts. The chief engineer's office considered this "the biggest step forward that has been made since the depot was activated."[47] In January 1949 the Hanau depot passed inspection with a rating of excellent, in sharp contrast to its unsatisfactory rating just eleven months earlier.[48]

Fleming remembered the situation at the Hanau depot as "the biggest single problem" that the engineers faced in the years immediately after the war. The evolution of the Hanau depot illustrates several aspects of the immediate postwar years. The engineers had to fulfill assignments with limited resources and insufficient time to plan. To some degree, these limitations led to mistakes, inefficiencies, waste, and confusion. In retrospect, Fleming called the hasty consolidation of supplies in Hanau "one of the best examples in our Army of wand-waving and wishful thinking." Despite the problems, a substantial quantity of materiel was actually gathered and warehoused in Hanau, and a good percentage of it was salvaged and used. By early 1949 the engineers could claim some success in Hanau. That success came at personal cost. Fleming considered the whole process "a tragedy because several very fine officers trying to do a job were harassed to the point that their careers were ended."[49]

Repair and Rebuild Program

The Repair and Rebuild program at the Hanau depot offers another example of engineer success. In 1947 the 485th Engineer Heavy Shop Company (later designated the 507th Engineer Shop Company) was attached to the depot. This unit's mission was to repair and maintain mechanical equipment for the Army. Because the quantity of equipment needing work was more than the company could handle, the engineers turned to the German economy.

In 1947 the Hanau command awarded contracts to eleven German firms to repair U.S. military equipment. Arranging the contracts was not easy. German industrialists were reluctant to invest their capital, and German workers were reluctant to take payment for their labor in the worthless German Reichsmark. To overcome these obstacles, the depot put up the basic materials required for production out of its stocks and made special arrangements with Army agencies to provide the workers with one hot meal a day. With these inducements in place, three plants opened during the spring of 1947: a Daimler-Benz plant in Uhingen-Göppingen, where heavy cranes were rebuilt; the Kaeble plant in Backnang, which rebuilt tractors, rollers, and graders; and the FMA Porkorny plant in Frankfurt, which rebuilt air compressors. By July 1947 eight more firms had joined the list of contractors for the Hanau depot's rebuild program: Beinhorne Electrical Shop in Hanau, Sabel & Scheurer in Oberursel, Vulcan Diesel in Bremen, Karl Wolfe in Göppingen, another Daimler-Benz plant in Stuttgart, Alfred Teves in Frankfurt, Karl Schmitt in Fulda, and Fritz Leitz Machine Works in Oberkochen.

For almost a year these eleven plants could not keep up with the demand from U.S. military units for rebuilt equipment. By late 1948 the Repair and Rebuild program moved ahead of demand, and in the first quarter of 1949 it had made so much progress that a Heavy Equipment Storage Section had to be opened in Hanau to house and maintain the reconditioned equipment until it was requisitioned.[50]

H. Jace Greene, one of the civilian engineers recruited from the United States, became involved in the Repair and Rebuild program early in 1947. He had arrived in Germany in October 1946 and had first served as the operations officer of the 333d Engineers in Rüsselsheim, outside of Frankfurt. The following February Greene was reassigned to Stuttgart to carry on the work of the 555th Engineers. This new assignment, to supervise reconstruction of five German factories as Army shops to recondition jeeps, trucks, and tractors, began what became a thirty-year career for Greene with the Army engineers in Germany.[51]

Over the winter of 1948–1949 the Army reduced the number of service contractors involved in the rebuild program. By that time tremendous quantities of heavy engineering equipment had been salvaged and repaired. In 1950 the rebuild plants produced an average of 200 major and 150 minor items of equipment a day, from rebuilt earthmovers to chainsaws and water pumps for engines. By 1952 the program had produced

substantial quantities of such items as tanks, trucks, weapons, jeeps, tractors, cranes, radio equipment, light and heavy construction machinery, smoke generators, flamethrowers, and household furniture. The cost of the program represented about 30 percent of the replacement value of the equipment reconditioned. The German economy benefited through increased employment and expanded industrial capacity, important factors in the early phases of Germany's recovery.[52]

Reasserting Order and Discipline

A year after the occupation began it was clear that the rapid demobilization of the U.S. Army in Europe, coupled with difficult living conditions and frequent changes in command, had led to a decline in morale and discipline among the troops. The U.S. forces in Germany had degenerated into what one of the engineers called "almost an unruly mob" and had ceased to exist as an effective tactical fighting force.[53] The U.S. Constabulary, formed early in 1946 to act as a mobile military police force for the U.S. zone, rated only 65 percent on a measure of combat readiness. The 1st Infantry Division, the other unit available in event of combat, rated just 20 percent.[54]

In August 1946 Lt. Gen. Clarence R. Huebner, commander of the 1st Infantry Division during the war, became chief of staff, USFET, with the assignment to reassert discipline and to restore the Army's tactical readiness.[55] By the time Huebner assumed his position in Frankfurt, the sense of urgency associated with combat had long since disappeared. The occupation force had assumed a "supervisory rather than operational" role, and the challenge had shifted to meeting the duties of the occupation with an ever-shrinking troop base and budget.[56]

At the center of military planning in Washington, the Joint Chiefs of Staff recommended and the president approved a reorganization that had two objectives. One goal was to reconfigure U.S. forces overseas to a structure attuned to peacetime and to the mission of the occupation, with a single commander responsible for the operations of all military services in each overseas command. A second goal was to unify the armed forces under a new Department of Defense (successor to the War and Navy Departments) that would command four separate services: the Army, a newly independent Air Force, the Navy, and the Marine Corps.[57]

In Europe, these reforms led to the elimination of the wartime designation "theater" and the reorganization of U.S. forces under the new European Command (EUCOM), established in Frankfurt on 15 March 1947. On 15 November a separate Army command, the U.S. Ground and Service Forces, was created and then redesignated as the United States Army, Europe (USAREUR).[58] General Lucius D. Clay assumed command of EUCOM while retaining his position as U.S. military governor in Berlin. Huebner remained in Frankfurt as deputy commander in chief for Europe and EUCOM's chief of staff. In early 1948 EUCOM moved its headquarters from Frankfurt to Heidelberg. Clay operated from Berlin until

15 May 1949, when he returned to the United States and retired. All of Clay's successors as EUCOM commander in chief resided in Heidelberg.[59]

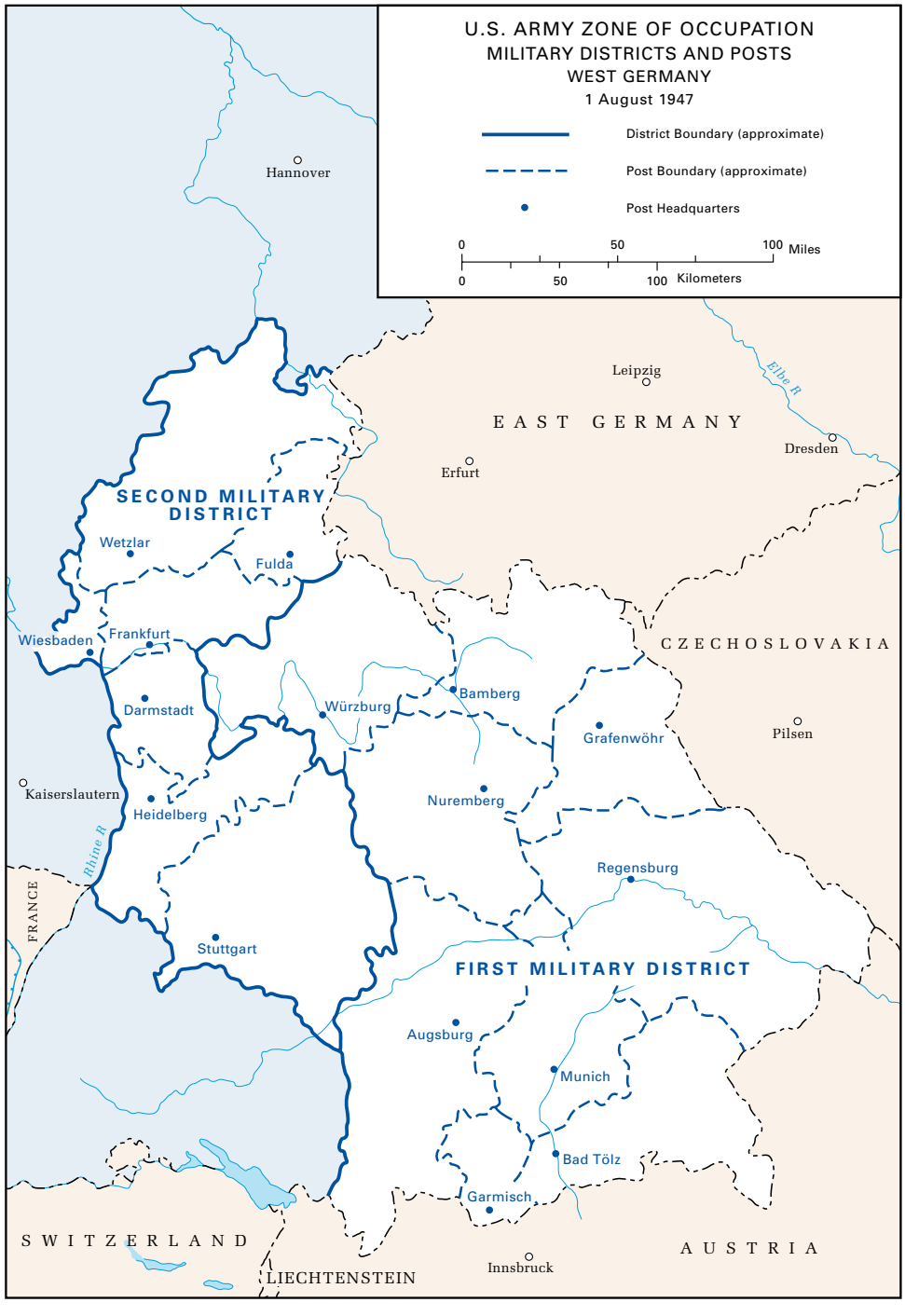
As a part of the reorganization in early 1947, the occupied areas of Germany and Austria were reorganized. The military districts were divided into military posts and subposts, which became logistical and administrative commands. Post commanders assumed responsibility for training and discipline. They also took over from the engineers the responsibility for supply. This became a more manageable task after the 1948 economic reforms in West Germany, which made procurement from the German economy more feasible. Within a year the military districts were eliminated and the sixteen military posts—nine in the German state (*Land*) of Bavaria and seven in the states of Württemberg-Baden and Hesse—became major subordinate commands under EUCOM.[60] (*See Map 4.*)

Huebner quickly made his presence known to the engineers in Frankfurt. In an attempt to boost morale, someone had ordered the Frankfurt district engineer, Col. Howard A. Morris, to convert the rotunda of the I. G. Farben building—a beautifully balanced architectural blend of interior and exterior space separated by tremendous two-story curved glass windows—into a fully furnished Main Street–style soda fountain. The new attraction opened about two weeks before Huebner took command. When Huebner arrived, he closed it down immediately and began looking for those responsible. Fingers pointed to the engineers, so Huebner called in the chief of construction from the chief engineer's office, Colonel Fleming. In truth, Fleming also found the project outrageous, and both he and Morris had unsuccessfully opposed the project as frivolous. At his meeting with Huebner, Fleming presented all the memoranda that he had written objecting to the project and orally protested against the soda fountain and similar projects, including the skating rink and the cow barn. After listening for a few minutes, Huebner asked Fleming whether he had other examples of such "unreasonable demands." When Fleming said that he did, Huebner replied, "I want to see them." From that day onward, the extravagant projects stopped.[61]

On 19 November 1946, Brig. Gen. Don. G. Shingler succeeded General Moore as theater chief engineer in Frankfurt. When EUCOM superseded USFET the following March, the label "theater" ceased to exist, and Shingler's title was shortened to "chief engineer." Over the next three years, as the changes Huebner initiated modified the character of the U.S. forces in Germany, Shingler led a similar effort to increase efficiency and discipline among the engineers.[62]

Engineer Management Efficiency

Huebner backed Shingler in asserting the authority of his office in all engineer matters. In late 1946 Shingler's staff submitted to the USFET general staff a plan to concentrate all construction activities under the operational control of the theater chief engineer.[63] The proposal became the basis for reforms in the management of engineer assets.


U.S. ARMY ZONE OF OCCUPATION
MILITARY DISTRICTS AND POSTS
WEST GERMANY
1 August 1947
District Boundary (approximate)
Post Boundary (approximate)
Post Headquarters
0 50 100 Miles
0 50 100 Kilometers
Hannover
Leipzig
Elbe R.
EAST GERMANY
Dresden
Erfurt
SECOND MILITARY DISTRICT
Wetzlar
Fulda
Wiesbaden
Frankfurt
CZECHOSLOVAKIA
Darmstadt
Würzburg
Bamberg
Grafenwöhr
Pilsen
Kaiserslautern
Heidelberg
Nuremberg
Rhine R.
Regensburg
FRANCE
Stuttgart
FIRST MILITARY DISTRICT
Augsburg
Munich
Bad Tölz
Garmisch
SWITZERLAND
AUSTRIA
LIECHTENSTEIN
Innsbruck

Map 4

After the reorganization in March 1947, EUCOM had seven major commands: the First and Second Military Districts; U.S. Air Forces, Europe; U.S. Forces, Austria; the Berlin Command (Office of Military Government United States); the Continental Base Section; and headquarters command (Frankfurt). EUCOM issued directives affirming that the commanding general of each major command retained responsibility for construction in his area. Simultaneously, these directives reemphasized the pivotal role of the chief engineer as the central planner for all construction, with authority to approve all major projects, that is, those involving more than 10,000 worker-hours of labor and supervision.[64]

As a result of this mandate the chief engineer's office reviewed 266 projects in the first quarter of 1947. Of these, the office approved 200 but rejected 66, leading to a substantial decrease in the construction program, in some areas a drop of as much as 50 percent. In the following quarter the major commands seemed to get the message. The chief engineer's office received only 84 projects to review; of these, they approved 54, rejected 2 outright, and returned 28 "for further study." By the third quarter of 1947 the commands submitted only 79 projects, less than one-third of the number proposed at the beginning of the year. Of these, the chief engineer's office turned back or deferred 40 percent. Many years later Col. Alan J. McCutchen, who succeeded Fleming as chief of construction, referred to this as the "prevention-of-construction phase" of engineering activity in Europe.[65]

The chief engineer's office continued to strengthen its role. By the last quarter of 1948 the engineers at military posts within the major commands no longer had the discretion to budget for projects requiring 5,000 or more worker-hours. Only projects "approved by Headquarters, EUCOM" received funding through the chief engineer's office. In other words, the chief engineer's office had the final word.[66]

Under Shingler's leadership the chief engineer's office developed other ways to manage engineer projects more efficiently. In the summer of 1947 the staff set up a post engineer training team made up of people from the central office trained in real estate, solid fuels, construction and utilities, cost accounting, engineer supply, repair and maintenance of engineer equipment, and fire prevention. The First and Second Military Districts, under which the military posts were organized, each formed a district team that was trained by the team in the chief engineer's office. The three teams worked simultaneously and completed visits to all sixteen military posts by the end of September.[67]

The renewed emphasis throughout EUCOM in 1947–1948 on military readiness, efficiency, and the elimination of unnecessary staff positions created a new activity for the engineers. The office began to engage German and third-country personnel to substitute for soldiers in nonmilitary duties. The Engineer School in Murnau assumed the task of preparing these local workers for new responsibilities; in May 1947 the school admitted the first German students to its training courses. Seven Germans graduated from training courses in June, and by September another 146

German engineer specialists graduated. The school trained increasing numbers of local nationals in technical specialties through the 1940s.[68]

Tactical Readiness

General Huebner's efforts to bring order and discipline to U.S. military forces in Europe stimulated other projects for the Army engineers. To address tactical readiness and troop training, Huebner made field exercises mandatory. He ordered elements of the 1st Infantry Division, still scattered in early 1947 throughout the entire U.S. zone, to assemble at a training area formerly used by the German army near Grafenwöhr, about twenty miles southeast of Bayreuth. Here he put company-size units through combat training. During 1947 and 1948 a total of about 1.5 million worker-hours went into renovation and construction of training facilities at the Grafenwöhr summer training camp. Although tents served the troops as shelter in the field, engineers constructed more durable wooden huts for kitchen, sanitary, recreational, and administrative facilities. During late spring 1948, eight separate camps were constructed at Grafenwöhr, with access roads, latrines, water systems, lights, mess and headquarters facilities, and floors for the tents. Headquarters, 26th Infantry, oversaw the preparations; and the Construction Branch of the chief engineer's office provided materials and trained engineers as supervisors.[69]

The U.S. military has used training facilities in Grafenwöhr since their construction in the late 1940s. Members of the 43d Antiaircraft Battalion are training with the .30-caliber M2 carbine in Grafenwöhr in early 1956.

Huebner also ordered extensive rehabilitation for Vilseck Caserne, where the U.S. Constabulary was slated for special combat training under the plan to revitalize American ground forces. The caserne consisted of about 120 buildings damaged by war and three years of occupancy by displaced persons. Because Vilseck was isolated from other U.S. military installations, recreational facilities for soldiers received special attention.[70]

Other than Grafenwöhr and Vilseck, the U.S. zone contained very limited areas for military exercises. The U.S. Army had permission to use training facilities in the British and French zones, but this involved greater travel for the troops, so EUCOM sought more training space within its own zone. In 1949 the command obtained another small training area for regiment-size units in Wildflecken in northern Bavaria. Like Grafenwöhr, it lay very close to the German-Czech border.[71]

Administrative Reorganization

In the summer of 1946 the United States invited the three other occupying powers to merge economic administration of the zones of occupation in Germany. The French and the Soviet Union declined the invitation, but the British accepted. The new administrative authority, Bizonia, took formal shape on 1 January 1947. Later that year the two powers decided to consolidate the administrative offices of their combined zones in Frankfurt. To make room, the EUCOM headquarters staff and the staff of the chief engineer's office moved to Heidelberg, a city spared from bombing during the war because of the historic and cultural associations it held for the British and Americans. To accommodate EUCOM, the U.S. Constabulary moved from Heidelberg to Stuttgart. EUCOM located its headquarters in Grossdeutschland Caserne, which in August 1948 was renamed Campbell Barracks. This sequence of moves began in February 1948 but was not completed until early 1949.[72] Beginning in 1948 the Army engineers supervised military engineer activity in Europe from Heidelberg.

The movement of headquarters to Heidelberg demanded a major commitment of labor. The construction program to prepare the area involved widening roads, providing office space and a new command post, preparing hardstands for parking military vehicles and five new parking lots for passenger cars, and building a new quartermaster gas station and a new engineer supply point.[73]

Although largely undamaged by air attacks, Heidelberg had not escaped the effects of the shortages prevalent throughout Germany before and during the war. Many of the city's buildings and homes suffered from years of neglect and the absence of such basics as paint, heating fuel, and utilities. The Army engineers had to carry out substantial rehabilitation on requisitioned property, which included over a thousand German homes and every hotel in Heidelberg, as well as military installations. Patton and Campbell Barracks were completely renovated, but the most intricate and delicate work went into the private homes that housed the general officers at EUCOM headquarters.

One of these facilities was the 72-room mansion of the Robert Bosch family on Schloßwolfsbrunnenweg. Sgt. Stanley Sikirica of the 252d Engineer Combat Battalion received orders to coordinate and supervise the carpentry, masonry, painting, and related work to repair the deterioration attributable to the lack of materials going back to the 1930s. "The wallpaper was terrible. Everything was falling down. The fresco work was breaking off the ceilings and deteriorating to the point [that] there was no adhesive, and everything was just mildewing … and the floors—the parquet floors—were warped. The heating systems were out; there was no coal or coke to burn for years to heat these large mansions."[74]

To restore the quarters as faithfully as possible to their original state of artistic beauty, the engineers engaged local people, including a fresco craftsman in Heidelberg. The parquet floors provided the greatest challenge. Finding wood to match the three tones in the original was difficult in an economy that had faced wood shortages for several years. But the engineers succeeded, and Sikirica recalled the work with pride. During the 1950s the Army returned the homes in Heidelberg to their German owners.[75]

The First Berlin Crisis

The work in Heidelberg took place as political tensions reached a public crescendo over Berlin. Shortly after the end of the war the United States and Britain moved to create autonomous German economic and political administrations within their zones. In January 1947 the two allies merged their zones and created Bizonia. The Marshall Plan followed in June. By 1948 France added its zone, and the Western allies prepared to introduce reforms for their unified zones—political autonomy for the German inhabitants, an economic reform program, and a revaluation of the German currency. All four powers recognized that economic fusion of the three Western zones would ultimately lead to a politically united West Germany.

For the Soviet Union, such a development seemed to contradict the results of its victory in battle. Economic recovery under an American-led capitalistic system threatened Soviet ideological and political control of both East Germany and Eastern Europe. In diplomatic meetings in early 1948, the four powers failed to agree on how to deal with Germany. The Western Powers continued to prepare for the introduction of the new German currency, and the Soviet Union prepared to do what it could to make the West Germans pay dearly for their acceptance of Western patronage. Soviet leaders chose to squeeze Berlin.

On 20 June 1948, the Western Powers introduced the new Deutschmark (DM). Four days later the Soviet Union closed all access to Berlin by rail. Within six weeks Soviet military officials stopped all road and canal traffic and shut off electricity to the Western sectors. The 2.5 million inhabitants of West Berlin—formed from the sectors occupied by the United States, Britain, and France—were thereby cut off from the supplies they

needed to survive. The Western allies viewed saving Berlin from slow starvation or from being swallowed up within the Soviet system as a test of their willingness to defend freedom. President Harry S. Truman was determined to see that Berlin survived.

General Clay favored confronting the Soviet armies on the ground by trying to force a convoy across the land routes to Berlin. Clay estimated that the city's civilian population would need a minimum of 4,000 tons of supplies per day and that the allied military forces would need another 500 tons a day. Without a convoy, all these supplies would have to reach the city by air. Clay expressed doubts that such a logistical feat could be sustained. Rather than force a confrontation on the ground, President Truman chose to order the supply of Berlin by air.

The Berlin Airlift began in late June 1948 as a short-term expedient to supply the allied forces. Within weeks it expanded into Operation VITTLES, an unprecedented and much more demanding operation to supply the city's entire civilian population. The airlift involved split-second timing as planes formed an "air bridge" between West Germany and Berlin, taking off and landing at all hours of the day in all kinds of weather. By December 1948 the airlift was delivering more than Clay's projected minimum of 4,000 tons per day. During January and February average daily tonnage climbed to 5,500. At its peak in the spring of 1949, the air bridge to the city delivered 8,000 tons of supplies per day.[76]

The moorings of the allied air bridge lay firmly on the ground—on the airfields from which the planes took off and on which they landed. Maintaining airfields in Berlin and in the U.S. zone was the responsibility of the Army engineers. Engineer work for the Air Force had declined late in 1947 and in the first half of 1948, but it jumped sharply with the airlift. Between 1 July and 30 September the chief engineer's office recorded 1.5 million hours of work for the Air Force, of which 80 percent went into airfield construction in Berlin. Much of the remainder went into the air base at Rhine-Main—dubbed Rhine-Mud by those who worked there—the starting point for airlift flights.[77]

Work on the airfields in Berlin involved keeping the limited runways open despite the heavy pounding by a steady succession of planes packed to the maximum. It also meant increasing the number of runways available. When the blockade began, Tempelhof Airfield in the U.S. sector had only one runway suitable for landing cargo planes. It was evident within days that this runway could not stand up to repeated use by heavily loaded C–47 and C–54 class aircraft. The weak base constructed in 1945 from Berlin rubble gave way, the layer of concrete broke, and the hooks of the pierced-steel landing mats tore off, causing the metal mats to warp and bend. In response, teams of workers took up positions along the runway. Wherever a fault appeared, a team would rush onto the runway, lift the plank surface, fill the cavities with a sand-bitumen mixture, bend back the planks to their correct positions, and weld steel straps between them. The crews had only a few minutes between landings, so they used a lookout to call out to workers as the next plane began its approach. The emergency

repairs on the runway went on around the clock and made continuous landings possible. The teams worked unceasingly until the first of the new runways was completed.[78]

In the first week of July 1948, Col. Reginald Whitaker, engineer officer at the Berlin Military Post, received orders to build a new runway in Tempelhof. On 8 July work began on an airstrip that was to be 5,500 feet long and 140 feet wide. Two months later, on 8 September, planes began landing on the new runway. A third runway in Tempelhof, started on 23 August, opened in November.[79]

Even with the additional runways, the facilities in Tempelhof were not adequate to sustain the airlift. The airfield's location among tall buildings made landings difficult and dangerous. The recommended approach angle for landing aircraft was one vertical unit for every forty horizontal units. The best angle that could be achieved in Tempelhof was one to sixteen! The glide angle was so sharp that as a safety measure engineers dug a trench at the end of the principal runway so that planes overshooting it would sheer off their landing gear and thus slow down enough to prevent them from crashing into the administrative buildings.[80]

In addition to the liability of the glide angle, the facilities could not accommodate the high volume of air traffic. Because Gatow Airfield in the British sector could not be expanded, the pressures of the blockade made a completely new airfield necessary. An engineer team identified an appropriate site in the Tegel area of the French sector, near rail facilities and unobstructed by tall structures. The French agreed to let the Americans build, staff, and maintain a field for the duration of the Berlin Blockade. General Clay approved the construction of the new airport on 31 July 1948. Lt. Gen. Curtis E. LeMay, commander of the U.S. Air Force in Germany, set in motion plans to complete the new field by February 1949. When Clay learned of LeMay's projected date of completion, he sent a terse message: "I don't accept the February 1949 estimate for Tegel. It is much too long."[81] LeMay pushed the opening date to December 1948.

Very little heavy machinery was available in the city, so the engineers applied labor-intensive methods. Clay, who had observed the value of hand labor during a visit to China in 1943, put out an appeal for civilian workers in Berlin. Thousands of Berliners, men and women in almost equal numbers, responded by volunteering to work on the runways for a nominal wage plus one hot meal a day. At the peak of the activity some 17,000 people worked three shifts a day around the clock. Rather than laying a concrete base, because concrete was in short supply, the workers laid the equivalent of ten city blocks of crushed rubble and bricks left from the wartime destruction of Berlin. Between the start of work and the end of the year, German civilians put in almost 3 million worker-hours. The U.S. military managed this labor with 15 officers and 150 men assigned to Tegel.[82]

Even with the multitude that volunteered to work on the airfields, the engineers still needed heavy equipment for construction and to keep up with runway maintenance. The appropriate equipment was available in

Germany, but it was scattered. A call went out to the U.S. zone to send available tractors, graders, rollers, scrapers, asphalt distributors, crushing and screening plants, and generators to the engineer supply depot in Hanau. The engineers in Hanau disassembled the equipment to prepare it for transport. To fit larger items into the aircraft, the engineers sometimes had to cut the frames, so thirty engineers flew to Berlin, set up a reassembly shop, and welded the equipment together again as it arrived.[83]

One of the men who learned to operate that equipment was Lt. Norman G. Delbridge, Jr., a twenty-year-old from Michigan who had enlisted in the Army in 1946 after one year of university engineering studies. Fresh out of Officer Candidate School, Delbridge commanded a shift of workers in Tempelhof. Sgt. Joe Debco, a crusty World War II veteran engineer on the crew, taught Delbridge how to operate each type of equipment that arrived in Berlin. In 1949 Delbridge left the city to accept an appointment to West Point, where he graduated in 1953. In 1976 he returned as a brigadier general and commander of the U.S. Army Engineer Division, Europe.[84]

The heavy equipment—about forty pieces in all—arrived only after work began, but its impact on the pace of construction was dramatic. The second runway in Tegel, begun in March 1949 and completed after the blockade had been lifted, required fewer than 400 civilian workers to complete, in contrast to the 17,000 who worked round the clock on the first runways in Tempelhof.[85]

The engineers also shipped fire extinguishers, generators to light night operations, and tons of coal to Berlin during the blockade. Coal was sacked at the Rheinau Coal Storage Point, shipped by rail to Rhine-Main or to Wiesbaden air base, and then flown to Berlin. In late November 1948 a shortage of sacks temporarily slowed delivery to 100 tons a day; but beginning on 1 December, when more coal sacks became available, the engineers managed to load and ship 254 tons of coal a day, seven days a week.[86]

In mid-May 1949 the Soviets abandoned the blockade and reopened Berlin to land traffic, but the allies continued the airlift until September 1949 to build up stocks of goods. In fifteen months allied pilots made a total of 279,114 flights into the city carrying 2,323,257 tons of supplies, an average of one flight every two minutes and over 5,000 tons of supplies a day. Keeping West Berlin free cost the lives of 39 British and 31 American military personnel as well as 9 civilians.[87]

The Blockade and U.S. Forces in Austria

American military planners were acutely aware that Vienna, located within the Soviet zone of Austria, was as vulnerable to a blockade as Berlin.[88] Under the circumstances, the commander of United States Forces, Austria (USFA), Lt. Gen. Geoffrey Keyes, concluded that he had to reduce the number of personnel in Vienna and relocate them in the area of Austria occupied by U.S. forces, specifically in Linz and Salzburg.[89]

Pulling people back from the exposed position would reduce the number of people that could be held hostage in Vienna.

General Keyes tapped the engineers of USFA to execute the relocation from Vienna. In January 1949 the Army recalled Col. Hubert S. Miller, USFA engineer from 1946 to 1948, and assigned him to administer the emergency program to create housing for troops and dependents. The engineer organization under Miller consisted of area engineers in Vienna, Linz, and Salzburg who reported directly to him. This centralized structure served until the creation of post engineers under post commanders in July 1951.[90]

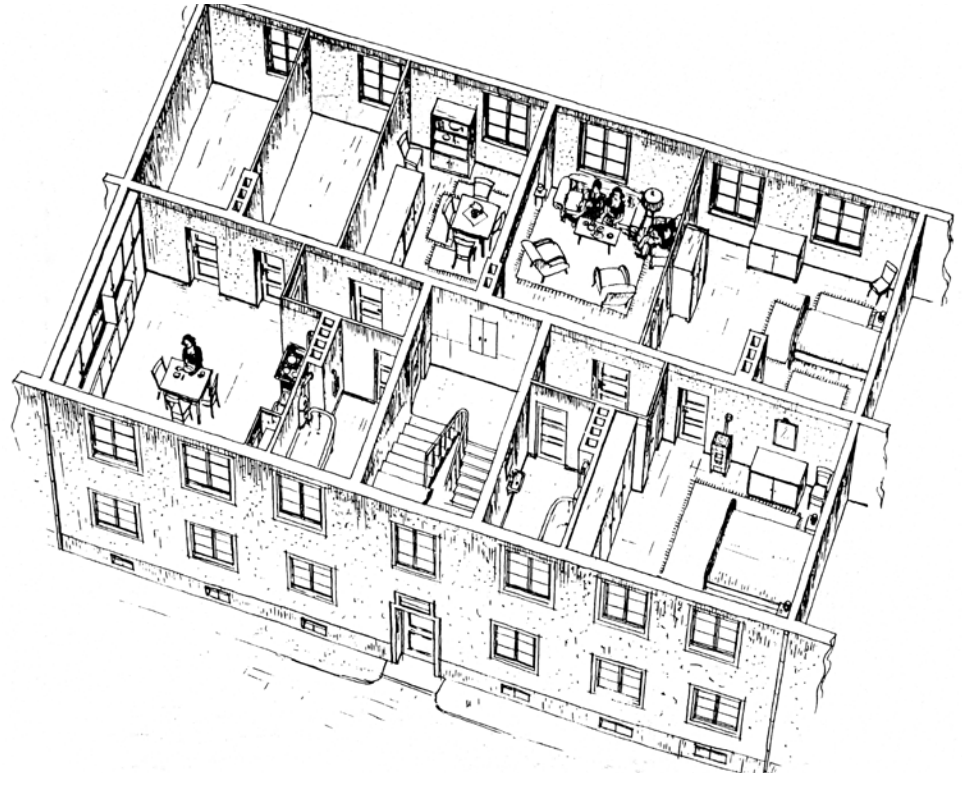
Near Salzburg and Linz, USFA found old garrisons for the troops to renovate and occupy.[91] Housing for dependents was much more difficult to find, but the Army identified the Bindermichl apartment complex just outside of Linz as one possibility. Its rehabilitation became an early example of the expanding role of the Army engineers in the changing atmosphere of Europe.

The Bindermichl complex had been built in 1941 by the Nazi steel conglomerate Reichswerke Hermann Göring to house the plant's workers. Originally it consisted of sixty-five connected blocks, rather like a series of row houses. Each block formed a three-story unit with six small apartments, one on each side of the stairwell at every level. After the war the U.S. Army took over the sixty-one blocks that had survived intact and passed them to the International Refugee Organization for housing displaced persons. The complex quickly became a lively center for black-market trade. When tensions began to mount during the Cold War, the apartments were put at the disposal of the Army.[92]

In early 1949 Colonel Miller created a special position and appointed Maj. William L. Starnes of his engineer staff as administrator for the Bindermichl properties. Starnes hired an Austrian firm to design the renovations and to advise on technical details once the project got under way. Colonel Miller persuaded the chief of engineers in Washington, Lt. Gen. Lewis A. Pick, to send several experienced Corps of Engineers civilian employees to Austria. The men were flown to Austria early in the project and contributed substantially to its ultimate success.[93]

Austrian contractors, selected on the basis of sealed bids, were to do the renovation and construction. Because the buildings had been German property, they were under the trusteeship of the Austrian government as a "German external asset." USFA removed them from trusteeship and established a German external asset fund of 9.72 million Austrian schillings (ATS) (about $971,899 at the official rate of exchange) to rehabilitate the apartments for American families. USFA also arranged to evacuate the displaced persons in phases, and Starnes put together a construction schedule to follow the pace at which apartments were vacated. The standard plan called for workers to break through the dividing wall behind the stairwell landing, thus joining the two apartments on each floor. (*Figure 1*) The resulting five-room apartment contained a living room/dining room combination, a large bedroom, a small bedroom, a kitchen, a

Figure 1: Converted Apartment in the Bindermichl Complex



storage room, a maid's room, and two bathrooms. Six apartments were specially modified for senior officers to provide more space and central heating.

The apartments and grounds were in a deplorable condition when vacated by the displaced persons. Black marketers had removed plumbing fixtures, stoves, and anything sellable; floors had been ruined; doors and windows, including frames, were often missing; over half the windows that remained were without glass; and trash, dirt, broken bottles, feathers, old clothes, shoes, and spoiled food soiled many apartments. Courtyards and common areas were even more depressing. Drainage had broken down completely, so that rain and snow produced a sea of mud. Wooden shacks, variously used by the inhabitants as small stores, workshops, supply huts, churches, and night clubs, littered the once-open courtyards. All of this debris had to be removed before renovation could begin.

The bids for renovating of the first block, which consisted of four apartment units, were opened on 10 February 1949, and work began within days. From that point to the completion of the project, Starnes and a staff of five supervised a steady cycle of contracting and construction. Each week contracts were signed for another group of buildings and work

was begun on them. The engineers applied experience gained in the first round of contract negotiations to subsequent rounds of bidding. The later contracts included interior parking areas, lawns, exterior sidewalks, fumigating the buildings before actual construction, built-in storage units for bedrooms and kitchens, and—through the USFA quartermaster—furniture for the finished apartments. The four apartments begun in February were completed two months later, and the first section of sixty-five apartments was finished in May.

By the middle of May 1949 all refugee residents had moved out and renovation of the rest of the apartments began at an intense pace. Indeed, the period from mid-May to early September became the busiest phase of the project. Cost-saving measures, combined with declining costs in the Austrian economy, meant that money stretched far enough to complete the project within budget. At one point, renovation was under way simultaneously in twenty-four blocks of apartments and two courtyards. The work involved about forty separate contractors. The American engineer supervisors relied heavily on Austrian engineers for inspections. Funds were dispensed at the rate of ATS 45,000 ($4,500 at the official rate of exchange) a day on construction and ATS 25,000 ($2,500 at the official rate) a day on furniture.

By the middle of July American families began moving into the available apartments at a rate of ten to fifteen a week, a pace that kept up with the construction crews' progress. The arrival of families meant contending with children and pets that found construction sites irresistible attractions. Apartment managers organized a Repair and Maintenance Section for the complex consisting of seven men and one foreman. The janitorial staff, which had begun with just a few men as the initial apartments were completed and furnished, grew to fifty men under one superintendent.

By the end of the construction phase the Army engineers had renovated and furnished 182 apartments and created a post exchange. Most of the apartments were occupied immediately. The bulk of the work was over by 15 November 1949; another twenty-four apartments were renovated in subsequent months. The work in the complex included parking spaces for 150 automobiles, landscaping for 3 lawn areas in courtyards, 5,500 square yards of sidewalk, and 10,000 square yards of concrete or asphalt road. The cost of the project by mid-November was just over ATS 10 million (about $1 million), with 90 percent coming from the German external asset account and the remainder from rent paid by families living in the complex. About 60 percent of the total spent was for rehabilitation and construction, with close to 30 percent devoted to apartment furnishings. The remaining money paid for landscaping and operating costs.

Even after the end of the Soviet blockade of Berlin, housing remained critically short for the U.S. Army in Austria. During 1949 and 1950 Colonel Miller arranged to house troops in the Salzburg province in facilities taken over from the International Refugee Organization. On three sites—Saalfelden, Sankt Johann, and Riedenburg— ATS 12.5 million was expended from a special account set up for the purpose. In March 1950

Miller arranged a program with the Austrian government that established the Housing Administration Trust account, a fund of ATS 130 million made available by the Austrian government and administered by Miller to construct new apartment houses. Over the next two years, contractors completed new apartments in Linz (68), Wels (38), Salzburg (272), Saalfelden (72), and Sankt Johann (16). The Austrian government put up the land and the money for these buildings but insisted that Austrian building codes be observed. The arrangement was a marked change from the era of occupation when the U.S. Army had been able to insist on American standards. Still, it was practical because, in return for its contributions, the Austrian federal government received title to the apartment units once the Americans no longer needed them.[94]

Standardizing Engineer Operations

The positive support in American public opinion for the airlift to preserve West Berlin did not prompt a reversal of the declining troop levels in Germany. Nor did the blockade change the mission and underlying activities of the engineers. Still, after four years of struggling to draw management of engineering activity into a central agency, the chief engineer's office had developed a set of procedures to standardize its operations. One sign of the change was how they calculated work. Until the stabilization of the German currency, paying an hourly wage in the vastly devalued German Reichsmark or in occupation marks had been impossible. After the introduction of the Deutschmark in June 1948, projects had to budget in worker-hours rather than in the money value for labor. In April 1949, for the first time since the occupation began, the Army engineers drew up their budget and projected their contracts for maintenance and construction in Deutschmarks using the cost per hour of labor. The establishment of an efficient German domestic market for goods also allowed the engineers to abandon their practice of furnishing to the contractor much of the material necessary for a job and to discontinue providing hot meals as an inducement to attract labor. By 1949 the marketplace had begun to take over some of these functions, and the conduct of business within the German economy by the chief engineer's office took on a semblance of standard practice.[95]

The German economy was by no means fully reconstructed, but recovery was clearly under way. In the German fiscal year beginning 1 April 1949 (fiscal year 1950), all projects contracted out by the Army engineers could be approved on a total-cost basis. Competitive bidding by German contractors became the norm; and in establishing guidelines for contracts, the chief engineer's office introduced such features as bonus-and-penalty clauses, leading to economies in construction and to earlier occupancy for the user.[96]

The chief engineer's office also made its technical authority felt in other ways. Drawing on the talents of its professional staff of engineers, the office assisted the post engineers in the most effective use of money,

labor, and supplies. For example, to enable post engineers to stretch the limited funds available for rehabilitation, the chief engineer's office developed standard plans for several types of dependent housing units, a measure to help reduce unit costs.[97]

The European Command used the experience of the chief engineer's office with techniques of financial management to enhance the engineer staff's central role. In 1948 Shingler's staff instituted cost-accounting procedures in engineer operations. In 1949 EUCOM extended the financial management system that Shingler's staff had implemented to the entire command, allowing commanders to match expenses to accomplishment, whether funding came from appropriated dollars or from the German government as part of the occupation obligations. The chief engineer also sent out accountants from his office to audit the records maintained by the post engineers.[98]

The chief engineer's office also extended its influence by providing assistance for facilities engineering. In the early years of the occupation, routine maintenance involving repair and utilities had been managed locally and executed by engineer units assigned to field commands (subsequently by the engineers of military districts). With the establishment and evolution of military posts in 1947 and 1948, post engineers took over the tasks related to maintenance, repair, and utilities.[99] By 1949 the chief engineer's office had refined its training program to help the local engineers establish a comprehensive maintenance program and allocated sufficient funds from their own budgets for regular maintenance and repair.[100] The new program for 1949 emphasized preventive maintenance to reduce repair costs. The teams trained by the chief engineer's office consisted of a carpenter, a plumber, and an electrician to inspect and repair each building on a three-to-four-month cycle. The program allowed the EUCOM Engineer Division to budget maintenance on a unit-cost basis—DM 0.186 per square foot per year for 1949.[101] For the German fiscal year 1949, the total budget for engineer costs of the occupation amounted to about DM 430 million. Of this, about 50 percent went to repairs and utilities. Most of the remaining budget went to real estate activities, major rehabilitation, and custodial services.[102]

Other activities took a small percentage of the budget, but they illustrate the areas in which the chief engineer's office established its position as manager and supporter of engineer activity throughout the European Command. For instance, starting in July 1948 the Office of the Chief Engineer in Heidelberg supported teams in each of the military posts to maintain the 5,500 pieces of engineer equipment in use throughout the command. These field maintenance teams, which included a master mechanic certified by EUCOM's chief engineer, could turn to the chief engineer's office for technical assistance. In addition, during 1949 the EUCOM Engineer School, supervised and staffed by the chief engineer's office, trained 561 Americans and 502 Germans as operators, construction equipment mechanics, diesel mechanics, welders, and utility repairmen. This training gave necessary personnel resources to the local command-

German and U.S. military personnel at the Engineer School in Murnau, Germany, learned engineering skills such as surveying and building bridges with ferries.

ers, who were responsible for the maintenance of engineer equipment. To supplement the local maintenance installations, the Office of the Chief Engineer prepared and issued a manual on field maintenance of engineer equipment and provided a maintenance assistance team, composed of personnel from the Hanau Engineer Depot, that visited each military post to assist and advise.[103]

The chief engineer's office found that from a strictly mechanical point of view, problems related to the maintenance of engineer equipment were minimal but other aspects of maintenance created difficulties. There was a critical shortage of spare parts, making timely repair difficult. The language barrier that divided American soldiers from the Germans and displaced Europeans who actually operated and repaired the equipment created misunderstandings and mistakes. German translations of instructions and schedules for maintenance services provided by the chief engineer's office were only a partial solution. More equipment was available in the field than could be effectively maintained by the people at hand. Lastly, field shops often attempted repairs beyond their capabilities.[104]

The engineer staff attached to the headquarters of the U.S. armed forces in Europe had moved from England to France to Germany in 1945 and from Frankfurt to Heidelberg in 1948. The name changed slightly with the reorganization of command in Europe, but the office's function remained the same. After 1945 the army of occupation progressively reduced its troop strength. Not even the blockade of Berlin interrupted the decline in

the number of American troops in Germany. In December 1949 the number of U.S. military personnel in Europe reached its lowest point—83,400 soldiers—since the war. Few people realized as events unfolded that the commitment symbolized by the Berlin Airlift would become the dominant determinant of policy and would override in succeeding decades the American inclination toward military disengagement from Europe.

By the end of 1949 the mission of the U.S. Army in Europe had shifted dramatically. In early 1945 combat had driven all American military decisions. After Germany was defeated, military leaders concentrated on the peacetime occupation and the need to maintain order. As the decade ended, combat readiness and rapid response to outside challenges supplanted static occupation duties. With its West European allies, the United States prepared to meet possible aggression against Western Europe by the Soviet Union.[105]