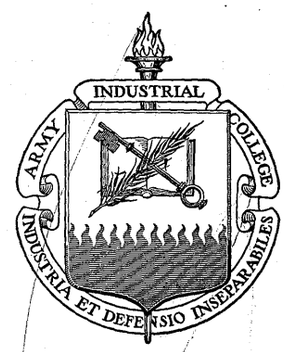
QUARTERMASTER SUPPLY

in the

EUROPEAN THEATER OF OPERATIONS IN WORLD WAR II

Camp Lee, Virginia



QUARTERMASTER SUPPLY

in the

EUROPEAN THEATER OF OPERATIONS IN WORLD WAR II

Volume VI

SALVAGE AND SERVICES

By

Eudora Ramsay Richardson

and

Sherman Allan

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PREFACE

In modern warfare, battle is not to combat troops alone but also to noncombat troops behind the lines. The contributions of many elements of the Army fit together to form the fine mosaic of victory. This volume tells the story of services scarcely less important in the winning of the war than the strategy developed in Washington, London, or Moscow.

The salvage program, filled as it was with the tedium of unbeautiful tasks, opened new sources of supply to the armies. Collection of enemy materials, which is as old as the axiom that entitles the victors to claim the spoils, brought to the armies not only equipment immediately needed but also ideas for the development of useful items. Repair and maintenance men, in the field and in depots, kept the tools of battle in usable condition. Though delousing is classifiable among the ugliest of trades and washing or cleaning dirty clothes is a task far from pleasant, the men of the fumigation and bath companies and the laundry companies were indispensable to the comfort of combat troops and to the preservation of combat efficiency.

The sixth in the series *Quartermaster Supply in the European Theater of Operations in World War II,* this volume should be used in connection with the first volume, which sets forth the broad plans, policies, and procedures that governed quartermaster supply in the Theater, and with the eighth volume, which treats of the personnel employed in the gigantic task of supporting troops 3,000 miles from the home base. The series, primarily intended for instructional purposes, is not to be considered official, for data other than those available to its authors may be unearthed. It is hoped that persons who took part in the quartermaster program of the European Theater will send constructive criticisms that can be incorporated in a revised edition.

Eudora Ramsay Richardson

15 August 1948

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CHAPTER 1

SALVAGE PROCEDURES

War, the great destroyer of men and supplies, is the antithesis of thrift and savings. Yet modern warfare leans heavily upon salvage, which has been defined as serviceable or unserviceable material abandoned or worn out in modern warfare.[1] The resources of an army consist of only two elements—personnel and materiel. A belligerent country knows that the supply of both has definite limits. The meteoric advance of science brought about more effective means not only of destroying life but also of saving life. In World War II the Medical Service saved the lives of desperately wounded men who in an earlier period would have died. Other services as well gave life-saving protection to fighting men. The salvage program conserved material of all sorts and returned it to usefulness. In World War II supplies were requisitioned from the zone of interior and procured in the theaters of operations. Salvage channels provided a third source of supply.

SALVAGE IN MODERN WARFARE

Salvage entered the vocabulary of the United States Army during World War I. Until that time no organized effort had been made to overcome the synonymity of war and waste. An extract from the report of The Quartermaster General to the Secretary of War during the year 1862 was representative of the waste that characterized all American warfare from 1775 to 1917. "In battle," wrote Brigadier General M. C. Meigs, "the losses of our equipment have been very large. Knapsacks were piled, blankets, overcoats, and other clothing thrown off, and, whether victorious or defeated, the regiments seemed seldom to recover the property thus laid aside."[2]

Soon after becoming a participant in World War I, the United States followed the British and French example by providing for the reclamation of material and supplies. On 5 July 1917 salvage was listed among the responsibilities of the Quartermaster Corps.[3] On 11 July 1917 the War Department abolished the monetary allowance for clothing and stipulated that a soldier would receive in its place the "quantity necessary and adequate for the service upon which he is engaged."[4] Therefore, from the standpoint of the Army, salvage and reclamation were of the utmost importance. Clothing issued to enlisted men was government property. Articles lost or destroyed through neglect would be charged against the men responsible for them.[5]

On 28 June 1917 the War Department authorized department commanders in the United States to submit requisitions for one half-soling machine for each regiment called into the service of the United States and directed quartermaster depots to disinfect, clean, repair, and press clothing.[6] The year before, the Office of The Quartermaster General had brought up the question of repairing shoes. The War Department had decided, however, to continue the individual allowance system instead of taking over responsibility for clothing. Yet it had authorized tailor shops at the Pacific Branch, United States Disciplinary Barracks, Alcatraz, and at the Fort Jay Disciplinary Barracks in New Jersey. There clothing and shoes would be repaired for prisoners.[7]

A conservation branch was set up in the Supplies Division, OQMG, on 5 October 1917. It became the Conservation and Reclamation Division on 8 November 1917.[8] Every camp quartermaster and depot quartermaster was directed on 1 December 1917 to assign an officer and adequate personnel to conservation work. Each shoe shop was allotted 8 men, and each clothing-repair shop 21 men. Because the buildings constructed for repair work at National Army and National Guard camps proved inadequate for the repair requirements of troops, base plants were established in New York, Philadelphia, Atlanta, Fort Sam Houston, El Paso, Jeffersonville, and Chicago.

The functions of conservation and reclamation were enlarged on 17 June 1918, when laundering, dry cleaning, gardening, and farming were added to the repairing of shoes, clothing, hats, and equipage, and the prevention of waste. In less than 1 year the personnel of the field organizations in the various cantonments and camps grew from the original 8 men to every shoe shop and 21 men to every clothing repair shop to 580 officers and men. The enlisted men were those who were disqualified for service overseas. The repair shops authorized in December 1917 were in operation by April 1918, and laundries had been established at the following camps: Custer, Dix, Funston, Lee, Meade, Merritt, Sherman, Stuart, Taylor, Travis, and Upton, and at 15 Regular Army posts.[9]

EARLY SALVAGE PROCEDURE

After the Armistice many manuals were stored on dark library shelves and many lessons of World War I were consigned to oblivion. The

salvage story, however, remained within reach. Now and then it was taken down and dusted off so that a few new pages could be added to the volume. On 13 May 1919 a salvage division became a part of Storage Service, OQMG.[10]

The principles underlying the salvage program of World War II were set down on 28 April 1922 in an Army Regulation that inveighed against waste of any kind and mentioned uses for garbage and other materials formerly thrown away.[11] On 27 April 1931 an Army Regulation made the Quartermaster Corps responsible for salvage operations and the disposition of waste material and unserviceable property. Its personnel would alter and fit uniforms and maintain equipment. To that end repair shops and textile renovating plants would be established. The Quartermaster Corps was charged also with the operation of laundries and dry-cleaning plants. Where government facilities were not available, repair and upkeep would be arranged through contract with private industries.[12] Also in April 1931 property classifications were set up in another Army Regulation as follows: class A, new property; class B, reclaimed property that was still serviceable; class C, unserviceable property that could be reclaimed; and class D, unserviceable property not fit for reclamation. The regulation laid down the general principle that nothing should be wasted and set up the procedure for reclamation and correct disposal of items that could not be reclaimed.[13]

FM 100-10, *Field Service Regulations,* which was published on 9 December 1940, dealt with salvage of equipment abandoned on battlefields and in bivouac areas, exploitation of captured supplies, and utilization of waste materials. In divisions or higher units salvage operations would be supervised by salvage officers, who would function under unit quartermasters. Salvage installations in a theater of operations would consist of collecting points, clothing and bath units, laundries, and other reclamation plants or shops. Salvaged property would be brought to collecting points and sorted. Articles that could be used would be sent to supply points for reissue. Other salvage would be sent to depots in the communications zone, where necessary repair would be accomplished. Enemy equipment that appeared to be an improvement over United States equipment would be turned over to development agencies.[14]

FM 10-5, *Quartermaster Operations,* the first field manual to be written at The Quartermaster School, was printed 9 months before the United States became a participant in World War II. This publication furnished the basis for the organization of the units and installations that carried out the salvage program of subsequent years.[15]

FM 10-10, *Quartermaster Service in Theater of Operations,* was published 3 months before the European Theater was created. Salvage and related activities would be performed by salvage-collecting companies, quartermaster salvage depots, sterilization-and-bath units, and laundry units. The quartermaster salvage depot would be made up of an administrative division, a salvage division, and a repair division. The manual set up the sterilization-and-bath battalion, the sterilization-and-bath company, the quartermaster laundry battalion, and the quartermaster laundry company.[16]

EARLY PROGRAM IN THE UNITED KINGDOM

Organized salvage activities in the United Kingdom began soon after the creation of the European Theater on 8 June 1942. Brigadier General Robert M. Littlejohn organized the Salvage and Laundry Division within a month after the establishment of OCQM.[17] The Office of the Chief Quartermaster moved from London to Cheltenham between 9 and 13 July 1942. When the move was completed, the division became the Salvage Service.[18] This arrangement, which had been patterned after the organization used in World War I, was in effect for less than 2 weeks. The Salvage Division was constituted on 25 July 1942.[19]

Meanwhile, the Chief Quartermaster was trying to determine his responsibilities in regard to the supply of petroleum, oils, and lubricants (see vol. IV, ch. 1). Because he was not sure where his responsibilities ended and where those of the Engineer and Ordnance Services began, the petroleum organization within OCQM was loosely defined. The storage and issue of gasoline, oils, and lubricants were controlled by the Petroleum Division; the storage and issue of solid fuels, by the Salvage Division.[20] Consequently, the name of the division was changed to the Salvage, Laundry, and Fuel Division.[21] No further changes were made until December 1942.

After the Center Task Force for the North African Invasion (TORCH) had been successfully mounted, OCQM underwent a vast reorganization. The control of salvage, repair, laundry, dry cleaning, and graves registration and effects was given to the Service Installations Division, which had been created to correspond exactly in function and responsibility to the Service Installations Division, OQMG.[22]

An Agricultural Branch, which supervised the planting of vegetable gardens to supplement the food supply in the United Kingdom, was placed under this division but later transferred to the Executive Division (see app. I).[23]

Things happened rapidly during the first 6 months of 1943. Major General Frank M. Andrews, who had set the tempo of increased OVERLORD planning, was killed in a plane crash on 3 May. On 4 May he was succeeded as Commanding General, ETOUSA, by Major General William S. Key, who in turn was succeeded by Lieutenant General Jacob L. Devers on 9 May.[24] At once plans were made to move the planning sections of SOS, ETOUSA, back to London. In preparation for the move, the Graves Registration Branch and the Effects Branch of the Service Installations Division were combined to form a separate division. The Service Installations Division, stripped of everything but the control of salvage and laundry, was designated the Salvage and Laundry Division.[25] It was a comparatively small division, consisting of 8 officers, 1 warrant officer, and 13 enlisted men. Nevertheless, it was responsible for formulating Theater policies for laundry, salvage, dry cleaning, and repair. It arranged with the British for laundry and dry-cleaning services, joined forces with the Chemical Warfare Service to decontaminate clothing, and helped the Medical Service arrange for the establishment of delousing plants.[26] An organization chart of the division appears as appendix II.

The Salvage and Laundry Division became the Installations Division on 15 March 1944.[27] From Cheltenham it continued to control salvage and laundry operations in the United Kingdom, while the Installations Branch of the Plans and Training Division in London did all the salvage planning for the Continental invasion. The Installations Branch was dissolved, and its personnel was assigned to the Installations Division just before OCQM moved to Normandy (see vol. I, ch. 2).

Many more changes had taken place in the Installations Division when Major General Littlejohn established his headquarters in the Hotel Astoria, Paris. The division was then composed of 14 officers, 34 enlisted men, and 7 civilians. It was made up of two branches subdivided into four sections (see app. III). The Maintenance and Spare Parts Branch was responsible for procuring, distributing, and issuing spare parts in the European Theater, maintaining all quartermaster equipment in the field, and training repair and maintenance men. The Salvage and Laundry Branch was responsible for providing laundry, dry-cleaning, sterilization, fumigation-and-bath, and shoe- and clothing-repair services to all United States forces on the Continent. It was responsible, too, for repairing tentage, procuring repair equipment, and organizing and supervising salvage and laundry schools.[28]

The Salvage Division worked in close cooperation with the British. The initial arrangements between United States forces and the British Government dealt with the salvage of packing cases, boxes, crates, and dunnage. Because lumber was scarce and much needed, it was not to be destroyed or used as firewood. Crates, packing cases, and dunnage derived from oversea shipments would be turned over to the Lumber Control Division of the British Ministry of Supply, which would perform all labor and transportation and later furnish the United States dunnage requirements. Units were provided with a list of places in the United Kingdom where salvage would be received.[29]

The first large-scale salvage activity in the European Theater was a byproduct of the North African operation. The Combined Chiefs of Staff decided in July 1942 that Anglo-American forces would occupy French Morocco, Algeria, and possibly Tunisia within the next 4 months.[30] The Western Task Force was mounted in the United States. The Eastern Task Force, which was essentially British, and the Center Task Force, which was all-American, were mounted in the United Kingdom.[31] Before departing from the United Kingdom for their unknown destination, the United States troops in the task forces turned in large quantities of clothing and equipment. The items had to be rehabilitated and reissued. The Quartermaster Service, unprepared at that time for so large a task as the undertaking involved, was compelled to solve the problem with whatever equipment was available in the United Kingdom and with women workers who were able to be employed only on a part-time basis.[32]

First Procedure

The Office of the Chief Quartermaster set forth early procedure on 16 August 1942. Economy in material was declared second only to economy in manpower. Some use could be made of practically everything. Requisitions should be limited to material that was essential. All items should be treated with care. Repairs should follow the stitch-in-time adage and be made promptly so that material might be reissued. The post, camp, or station quartermaster would appoint an officer or officers to inspect all items turned in by an organization. Only those that were nonrepairable should be

turned over to salvage. The following items would be disposed of through the British area salvage officer and transported to the nearest British salvage depot: paper, bottles and broken glass, food tins, meat wrappers, rags, and waste material of inflammable nature. Packing cases, boxes, crates, and dunnage would be disposed of according to the procurement directive of 1 July 1942. All other items would be segregated and held until the establishment of a salvage depot. Meanwhile the following items should be placed in closed storage: rags, cotton and woolen clothing, leather, rope and string, and canvas and webbing. The following items might be placed in open storage: barrels, steel drums, metals, and rubber. Garbage would be disposed of through contract with British agencies. A quartermaster would find out from the director of salvage of the British command in his area what concerns or individuals were available to collect salvage and kitchen waste and would receive payment according to British prices.[33] The arrangement made with the Timber Control Division of the British Ministry of Supply for the collection of lumber was used as the model for the collection of other salvage. No arrangement for sale might be made without the approval of the Quartermaster Service.[34]

Accounting Procedure

The accounting procedure governing salvage caused some confusion. A Theater circular, published on 8 March 1943, dealt in detail with the disposal of waste and surplus property and the accounting system that should be used. Lumber would continue to be turned over to the British timber control officer according to the arrangement worked out the year before. Ordnance and chemical warfare items would be turned over to the Ordnance and Chemical Warfare Services. The circular listed the precautions that should be taken in handling the items. Tires and tubes would be inspected frequently. Those that were beyond repair would be sent to the nearest ordnance depot for reclamation and salvage. In Great Britain garbage suitable for animals would be sold. The inspector of salvage of the British Army would furnish a list of prospective buyers and prices to be paid. In Northern Ireland garbage would be sold to the highest bidder. Grease and bones would be collected in separate containers and turned over to the British without charge. First, however, meat and fat would be removed and the bones boiled. Inedible garbage would be either burned or turned over to the British without charge. Funds collected would be handed to the finance officer for deposit to the credit of the United States.[35]

Army Regulations placed accountability and responsibility upon any person to whom public property was entrusted and required that account books be kept.[36] FM 10-10, *Quartermaster Service in Theater of Operations,* required that a system of property accounting be maintained. Though formal accounting was not required in a theater of operations, officers were not relieved from personal and official responsibility for government property. Circular No. 26, ETOUSA, which set up a simple procedure for theater accounting, provided that a running inventory be kept of receipts, losses, and balances.[37]

The British War Office protested, saying that men in their salvage depots had no time for strict accounting. Because the salvage received was large in bulk and low in value, little pilfering had been experienced. It had not been the practice to keep an account of material received from sources outside the British Army, since no monetary payment was made in connection with lend-lease transactions.[38] Nevertheless, the Audit Branch of the Executive Division, OCQM, argued that Depot Operations Manual No. 46, which required that salvage be tallied in and tallied out, should be followed. It had been the policy of the Audit Branch to record all lend-lease transactions, even though no financial adjustment was made.[39] Fortunately, the Chief of the Salvage and Laundry Division took the position that it would not be necessary to insist that the British conform to United States procedure.[40] Similarly, the Chief Quartermaster expressed the opinion that it was not the intent of the United States Army to dictate procedure to the British.[41]

RETURN OF SALVAGE TO UNITED STATES

Whether or not salvage should be returned to the United States was batted back and forth between the Theater and the United States for a considerable period of time.

When the War Department directed on 7 October 1942 that all scrap and waste material except waste paper, food waste, boxes, crates, and lumber should be returned to the United States,[42] as well as repairable items that could not be repaired in the Theater, the Commanding General, SOS, ETOUSA, expressed his conviction that salvage should be disposed of in the Theater and not shipped to the United States. He argued that the use of facilities in England was in the interest of economy. Raw material, moreover, was much scarcer in the United Kingdom than in the United States, and the use of salvage would ease the situation.[43]

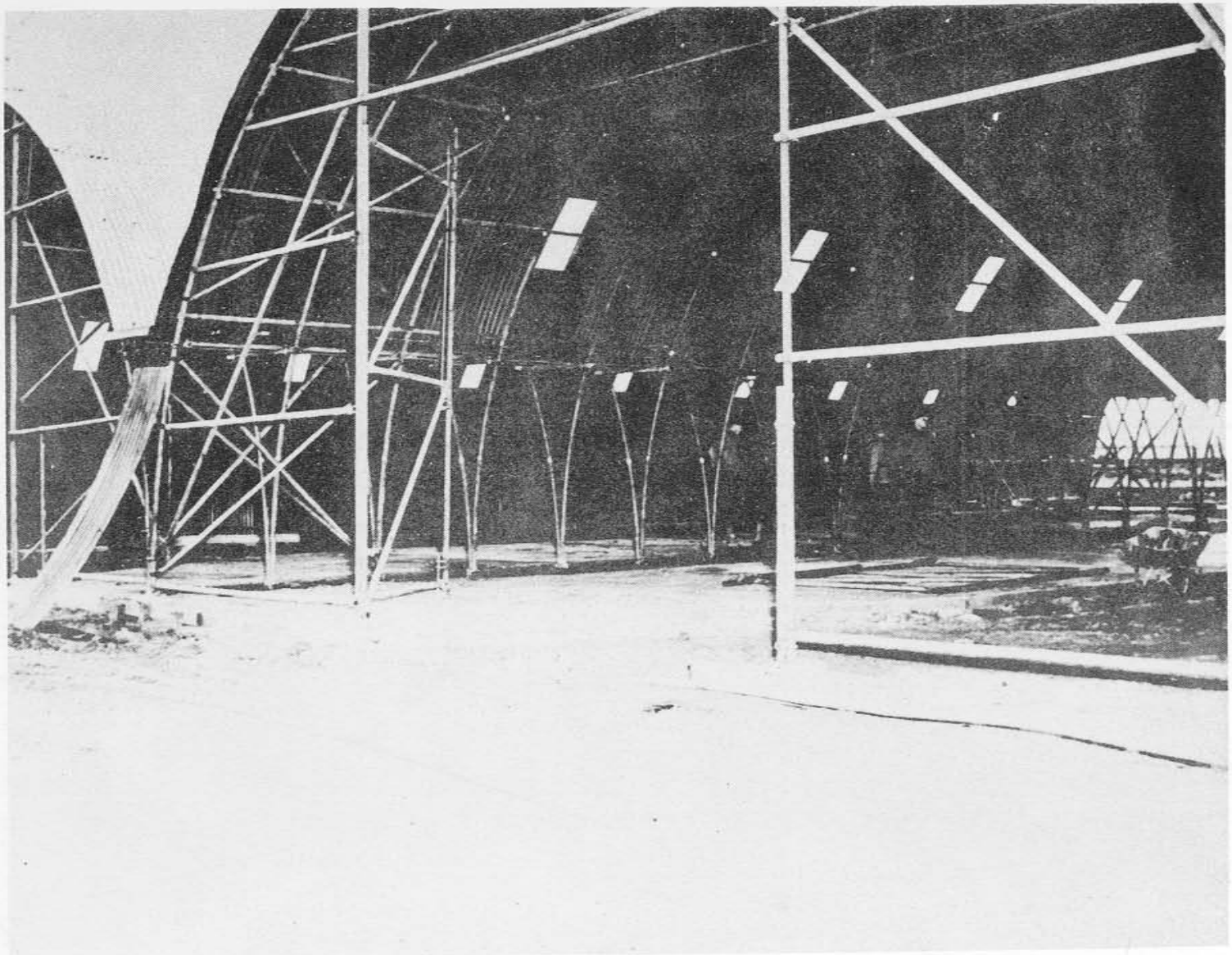

FIGURE 1.—Nissen Hut Being Constructed for Salvage Storage.

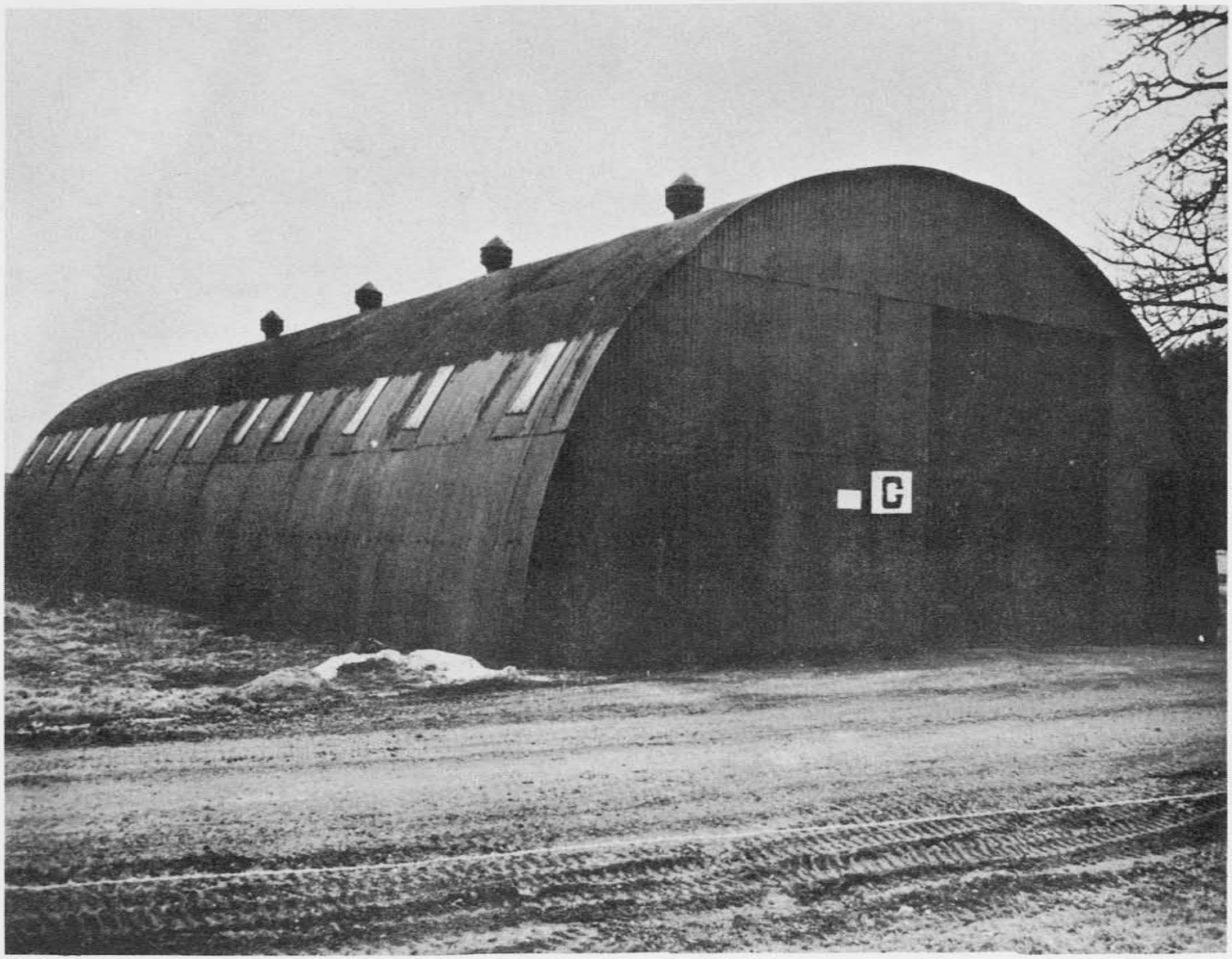

FIGURE 2.—Nissen Hut Completed for Salvage Storage.

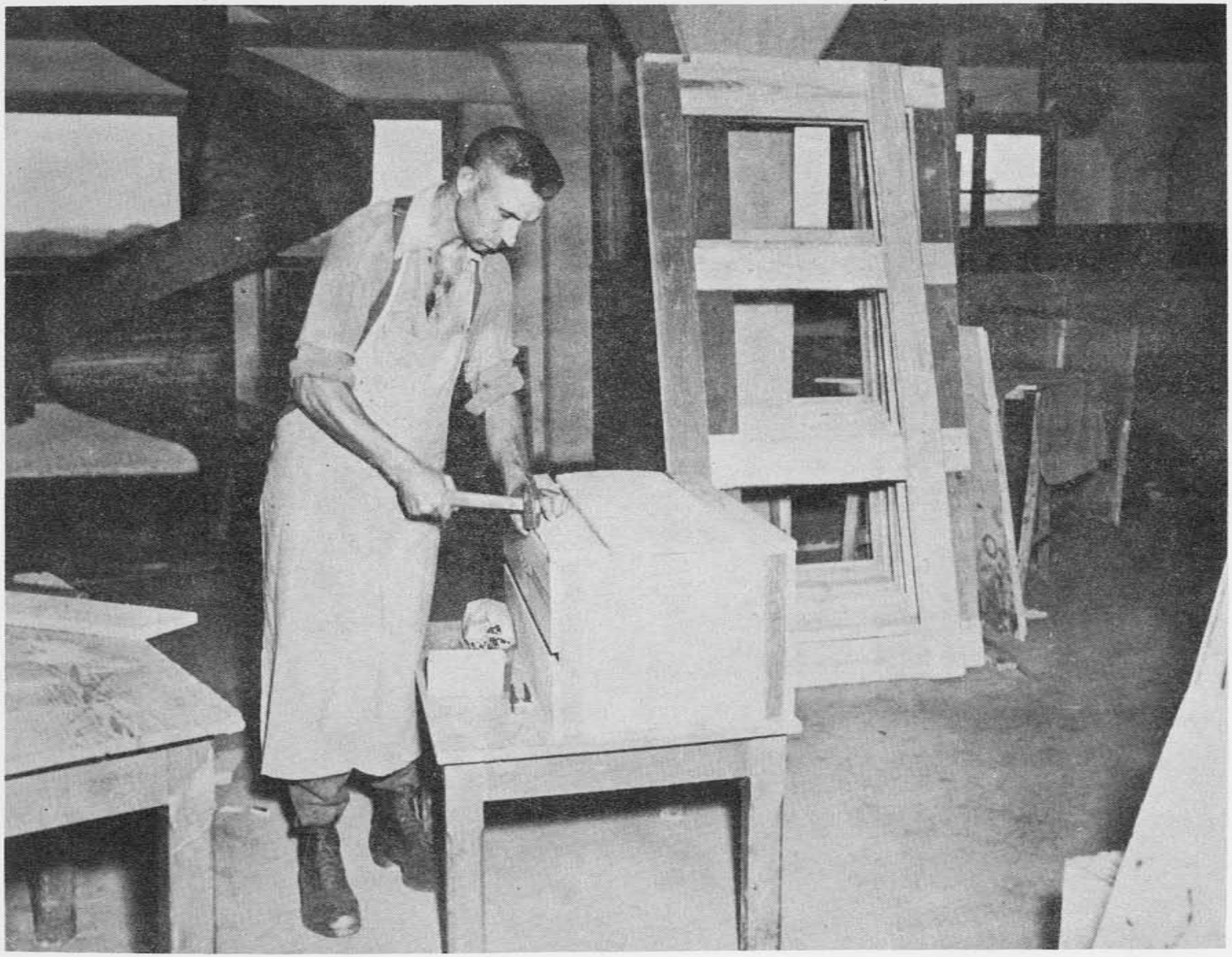

FIGURE 3.—Packing Cases Salvage for Re-use.

This correspondence was followed soon by a War Department memorandum directing that textile equipment be fumigated with methyl-bromide gas before shipment to the United States if it could not be dry-cleaned overseas and instructing that a methyl-bromide chamber be built at every oversea base.[44]

The War Department continued to hold its ground. On 29 December the Assistant Chief of Staff for Operations, SOS, WD, wrote the Commanding General, SOS, ETOUSA, that all salvage was to be returned to the United States except that necessary for the successful prosecution of the war and asked for information as to facilities and organizations in the United Kingdom that could be used for collecting, processing, and returning salvage. In reply Major General Lee again urged that salvage be disposed of in the United Kingdom and reiterated the arguments he had already presented. Whereupon, the Commanding General of the Theater wrote the War Department that in his opinion it was not advisable to return salvage to the United States, because facilities in the United Kingdom were adequate for the repair of equipment and property.[45]

Nevertheless, on 17 February 1943 the War Department again directed that property be promptly recovered and returned to the United States. It seemed that the Secretary of War and the Secretary of the Navy had discussed the matter and had asked that a joint plan and policy be formulated. On the other hand, repairable equipment might be repaired locally and re-used. If repair work could not be accomplished, property was to be returned to the United States. The memorandum went on to say that steel drums and gas cylinders should be returned because they were in short supply in the United States and because the return of scrap metals as ballast in ships was desirable.[46]

The Theater continued to reinforce its stand, saying that the British needed the material and that the amount the Quartermaster Service had accumulated was not large.[47] On 10 April 1943 the Deputy Chief Quartermaster sent to G-4 information as to the tonnage that could be saved by local disposal of scrap. He estimated that about 30 long tons of scrap metal had been turned over to the British, who employed about 2,250 workers in salvaging the materials and who would consider it a hardship to have scrap returned to the United States.[48]

Apparently the War Department memorandum of 8 May 1943 was resisted. Soon after its receipt, the Chief Quartermaster wrote The Quartermaster General that the Theater did not agree with the policy of returning items to the United States and added that no clothing or equipage had been returned.[49] On 7 June 1943, however, the Ordnance Service informed the Chief of Services that 1,300 tons of scrap would be returned between September and December.[50] A War Department letter of 19 August 1943 indicated that certain amounts of scrap metals and waste materials were being received at the New York port. The condition of the salvage, however, was such as to indicate that the handling of the material was difficult and scarcely worth the trouble involved.[51]

DECENTRALIZATION

While this controversy was going on, the Chief Quartermaster was trying to develop a better salvage plan than the one in operation. On 27 June 1943 he called a meeting to discuss decentralization of salvage operations and the delegation of responsibility to base sections. He wanted each base section to have a small salvage depot, where all classes of materials would be repaired; and he wanted one large central depot, where clothing and equipage could be repaired and quickly returned to troops.[52]

The plan was worked out immediately. The Chief Quartermaster directed that it be put into effect on 1 August 1943. All technical salvage operations would then become the responsibility of base-section quartermasters. Clothing other than shoes would be repaired by civilian concerns in the United Kingdom according to arrangements made between the base-section quartermaster and the British Deputy Director of Ordnance Service. Items returnable as class B would be sent to quartermaster salvage depots. Other items would be turned over to depots operated by the British Ministry of Supply. All unserviceable shoes would be shipped to depot Q-160 for sorting and classifying. If they could not be rebuilt by the depot, they would be shipped to British concerns. All unserviceable rubber footwear would be shipped to depot Q-160. If it was found to be repairable, the work would be done by British concerns. Unserviceable raincoats would be repaired by contractors whom OCQM would designate. Repaired raincoats would be returned to depot stocks. Repairable tentage and regular supplies would be shipped to quartermaster reclamation depots for repair. Waste and scrap other than textile scrap would be turned over to Ministry of Supply depots. The depots with their functions were as follows:

Base Section	Type of Repairs	Sections Served
Southern		
G-65	Tentage & webbing	Southern, Central, and Eastern
G-75	Tentage & webbing	Southern, Central, and Eastern
Q-140	Regular supplies	Northern Ireland
Q-152	Clothing & equipment	Southern & Central
Q-160	Footwear classifying	Entire United Kingdom
Western		
G-14	Tentage, webbing, clothing, equipment	Western
G-35	Clothing & equipment	Western
Eastern		
Q-102	Clothing & equipment	Eastern
Northern Ireland		
G-10	Tentage, webbing, clothing, equipment, regular supplies	Northern Ireland

Base-section quartermasters were instructed to send to OCQM a consolidated monthly report of salvage activities in the depots under their control. This procedure was in accordance with the depot operations memorandum of 26 June 1943.[53]

The Chief Quartermaster at once furnished the Directorate of Textile and Clothing Disposals, Ministry of Supply, a resume of the new plan. He asked for assistance in obtaining additional space at Bristol and Newbury and in obtaining machinery and civilian personnel. The stream of salvage, he said, would probably begin on 1 October.[54] The Directorate of Textile and Clothing Disposals expressed agreement with the major portion of the plan. It was requested, however, that the Quartermaster Service send prisoner-of-war clothing direct to a Ministry of Supply depot rather than to a commercial concern. It would be better not to turn garments into cleaning rags but to send all clothing to the Ministry of Supply, which would then issue rags as they were needed. The letter gave assurance that the space requested would be made available.[55]

FULL BOLERO PLANS

During the summer of 1943 BOLERO planning was again in full swing. It had been interrupted by the North African operation but had been resumed shortly after the Casablanca Conference, 14-26 January 1943, at which plans were made for the invasion of the Continent in the spring of 1944. The fourth edition of the BOLERO Key Plan was published on 12 July 1943. This edition raised the estimated strength of United States troops to be stationed in the United Kingdom before D-day from 1,049,000 to 1,340,000.[56] As a result of decisions reached at the Quebec Conference, which opened on 24 August, the strength figure was again increased (see vol. I, ch. 1).

Plan of September 1943

Whereupon, OCQM began work upon a new repair and salvage plan for the United Kingdom. This plan was formulated in order to provide repair and salvage facilities for a troop strength of 1,443,000. It was based upon using the combined British and American static facilities, with an estimated salvage-reclamation capacity for 765,000 troops, and upon using also nine salvage repair companies with a repair capacity for 450,000 troops. Minor repair for individuals and units would be performed by civilian contractors. According to arrangements made by base-section quartermasters and the British Ordnance Service, payment would be on reverse lend-lease. Class B repairs would be made at depot G-14 in Liverpool for the Western Base Section, at depot Q-102 in Wellingborough for the Eastern Base Section, and at depot Q-152 in Gloucester for the Southern Base Section. These depots were already in operation. In the Southern Base Section, depot G-35 in Bristol and depot G-45 in Newbury would be activated to make class B repairs for the Southern Base Section. All clothing and textile items that the depots could not return as class B would be delivered to Ministry of Supply depots, which would repair them and return them as class X.

Tentage and web equipment would be repaired at depot G-75 in Coypool and at depot G-65 in Hilsea. British civilian labor would be used under quartermaster supervision. All regular supplies would be sent for repair to depot Q-140 in Lydney. Repairable shoes and arctics of individuals would continue to be sent to civilian contractors according to arrangements made between base-section quartermasters and the British Ordnance Service, and all

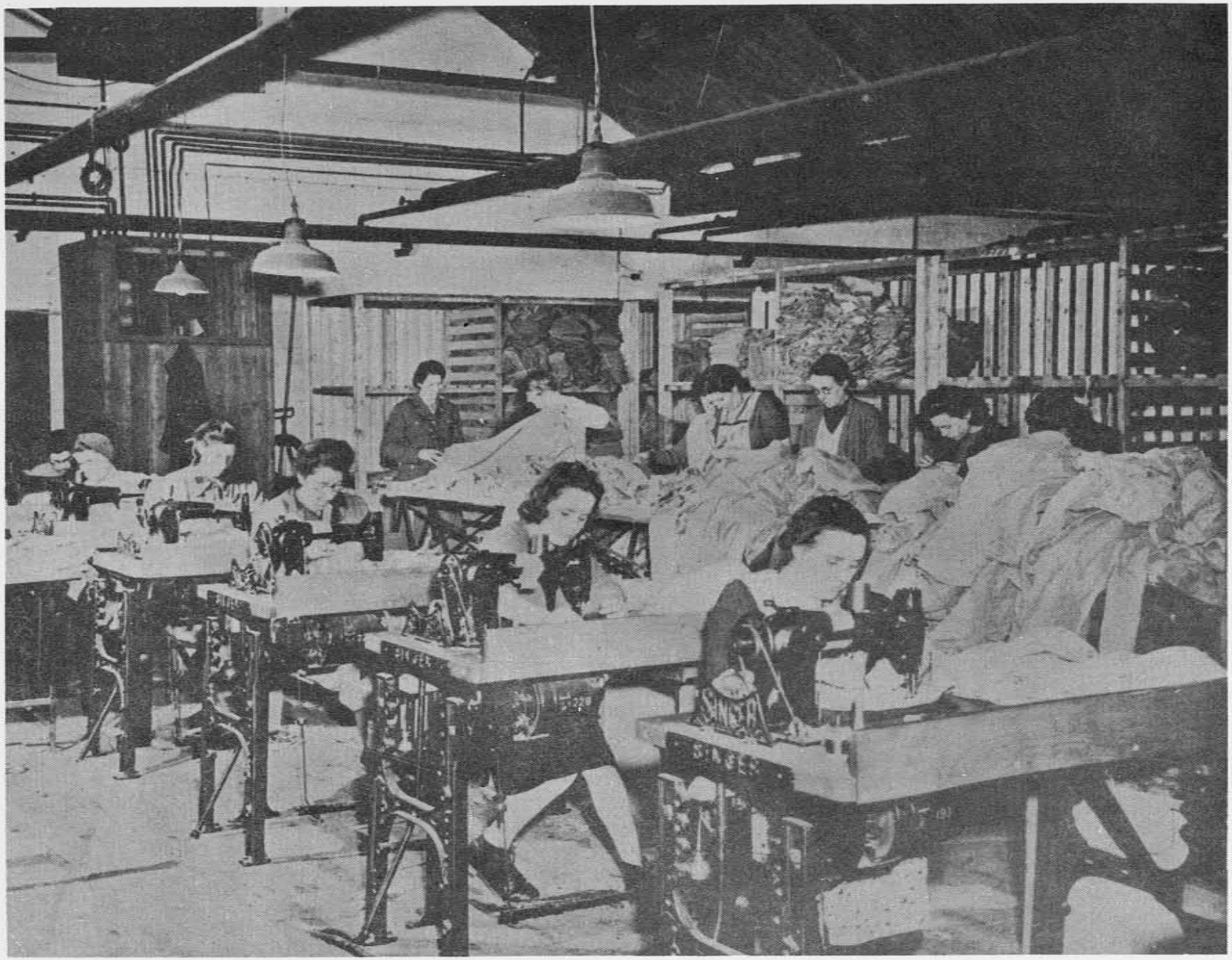

FIGURE 4.—British Women Repairing United States Clothing.

FIGURE 5.—Englishmen Repairing United States Shoes.

other shoes and arctics would be sent to depot Q-160 in Street. Raincoats and capes would be sent to depot Q-152 in Gloucester, which would have them repaired by British civilian concerns on contracts arranged through the Ministry of Supply.

United States forces would retain the rags and scraps they needed and would turn over the rest to the Ministry of Supply. Other scrap materials and waste would be sent to the British Inspector of Salvage. Shoes and arctics that could not be repaired would be turned over as salvage to the Ministry of Supply.

All clothing and other textiles, tentage, regular supplies, and web equipment in Northern Ireland would be repaired at depot G-10 in Belfast. Repairable shoes and arctics of individuals would also be repaired in Belfast, but all other shoes and arctics would be sent to depot Q-160 in Street. Salvage in Northern Ireland would be turned over to the Ministry of Supply. The combined capacity of static facilities was as follows:

Base Section	Troop Capacity (in thousands)			
	Clothing	**Tentage & Equipment	Regular Supplies	Footwear
Southern				
G-35	100			
G-45	100			
Q-152	100			
G-75		265		
G-65		265		
Q-140			765	
Q-160				765
Eastern				
Q-102	265			
Western				
G-14	100			
Northern Ireland				
*G-10	100			

* All reclamation except that of raincoats, rubber footwear, and shoe rebuilding.

**Of the total number of troops in United Kingdom, it was estimated that 300,000 would be quartered in tents. An estimated 50,000 tents of all types would require repairs before the departure of troops from the United Kingdom.

Of the 1,443,000 troops expected, only 765,000 would be served by these facilities, leaving the salvage expectancy of 678,000 for salvage-repair companies (semimobile). The nine companies approved had a total capacity for 450,000 troops, leaving a deficiency in salvage reclamation for 228,000 troops.[57] The map included as appendix IV shows the location of salvage depots as set forth in the United Kingdom Repair and Salvage Plan of 11 September 1943.

PROCEDURE CLARIFIED

Depot Operations Manual No. 50, which came out soon after the publication of the United Kingdom Repair and Salvage Plan, redefined the terms used in the salvage program. Salvage was all unserviceable, condemned, discarded, or abandoned property taken over by a salvage organization. *Unserviceable* applied to property that could no longer be used in its present condition; *class B* to property that could be used again if renovated; and *class X* to clothing that was still serviceable but unfit to be worn as part of the army uniform. Quartermaster items received by depots were classified as follows: textiles, except canvas and web equipment; canvas and web equipment; footwear; regular supplies; and miscellaneous equipment.

Depot Operations Manual No. 50 presented a recapitulation of the United Kingdom Repair and Salvage Plan and listed the following Ministry of Supply depots to which items not suitable for repair as class B and rags not required by United States forces could be sent:

Depot	Items To Be Shipped
Ministry of Supply Depot 231 Hammersmith Road London	Outer clothing of any kind
Ministry of Supply Depot Agricultural Hall Islington London	Cotton and woolen underwear and overalls
Ministry of Supply Depot C. W. S. Factory 493 Bath Road Bristol	Textiles other than clothing
Ministry of Supply Depot Cornwall Place Bradford	Outer clothing only
Ministry of Supply Depot Wellington Mills Dewsbury	Textiles other than clothing
Ministry of Supply Depot Owen O'Cork Mill Beesbridge Belfast Northern Ireland	All clothing and all textiles in Northern Ireland

Ministry of Supply Depot 57 Campbellfield Street Glasgow	Outer clothing and textiles
Ministry of Supply Depot Saltwells Road Middlesborough	Textiles other than clothing
Ministry of Supply Depot Northdown Road Margate	Camouflage netting only [58]

The Chief of the Salvage Branch, Salvage and Laundry Division, set forth on 23 October the procedure to be used in carrying out the repair and salvage plan. All general and quartermaster depots had set up salvage sections to receive items turned in by the troops whom they served. The salvage sections would ship repairable items to one of the nine repair depots that already had been established. In the Southern Base Section clothing would be sent to depot G-35 in Bristol, depot G-45 in Newbury, and depot Q-102 in Wellingborough; in the Eastern Base Section to depot Q-102 in Wellingborough; and in the Western Base Section to depot G-14 in Liverpool. In the Southern Base Section canvas and webbing would be sent to depot G-75 in Coypool; in the Western Base Section to depot G-14 in Liverpool; and in the Northern Ireland Base Section to depot G-10 in Belfast. In the Southern Base Section regular supplies would be sent to depot Q-140 in Lydney; and in the Northern Ireland Base Section to depot G-10 in Belfast.

The nine repair depots were operating in a satisfactory manner and could handle the salvage of 805,000 men if additional equipment and personnel could be supplied. The nine semimobile companies then operating could handle the salvage of 450,000 men. Though the planned troops strength was 1,443,000 men and the troop capacity of depots and semimobile companies was 1,255,000 men, the difference of 188,000 constituted no problem, because the total troop strength would not be in the United Kingdom for a considerable length of time.[59]

By January 1944, 332,690 square feet of space had been assigned to salvage and reclamation depots. The clothing-repair depots had at that time a troop capacity of 1,110,000 men and a future capacity of 1,335,000 men; and the canvas-and-webbing repair depots had a troop capacity of 800,000 men, which was the maximum capacity anticipated. The six and a half salvage repair companies then operating in the United Kingdom soon would be increased to nine. (See app. V.)[60]

ACQUISITION OF STORAGE SPACE

Acquisition of space for salvage activities and storage of salvage began in the early summer of 1942. The first contingent of troops that reached Northern Ireland on 26 January 1942, soon after the creation of the United States Army Forces in the British Isles, did not have equipment or personnel to provide laundry, dry cleaning, and repair of shoes and clothing. Therefore, it was necessary to use civilian plants, which were handicapped by shortages of labor and material. The civil authorities of Northern Ireland helped solve the problem by stipulating that certain establishments were to serve the civilian population and others were to serve United States troops. The unit commanders entered into agreement with contractors and assumed responsibility for payments. The United States Government had nothing to do with the arrangements.[61] The second contingent of United States troops, which reached Northern Ireland on 2 March 1942, fared more comfortably than their predecessors.[62]

On 17 June 1942, 9 days after the establishment of the European Theater of Operations, an inspection party set out from Services of Supply headquarters in London to explore the possibility of obtaining storage space. Its report of 23 June was far from encouraging. Many of the installations visited were inconveniently situated, old, and incapable of expansion. Clearly, much work had to be done before space for a full BOLERO program could be acquired.[63]

During these early days the problem was made difficult because storage space was handled by the General Depot Service, which in the reorganization of the Army on 9 March 1942 had been set up coordinate with other services under the Services of Supply. On 11 July 1942 the General Depot Service was discontinued.[64] The transfer of its work to the Quartermaster Service cleared the path for better functioning of salvage and services in the United Kingdom.[65]

A preliminary reconnaissance looking toward the establishment of a salvage depot at Lydney was made by the Construction Division, OCQM, on 20 July 1942.[66] This depot, which throughout the war played a large part in the salvage program, was activated on 27 October 1942. It was established to serve the Southern Base Section but was transferred to the Western Base Section on 24 July 1943.[67] The first storage space in the depot consisted of six sheds, which provided 13,000 square feet of open space, and three buildings, which provided

FIGURE 6.—Scrap Metal for Use in the United Kingdom.

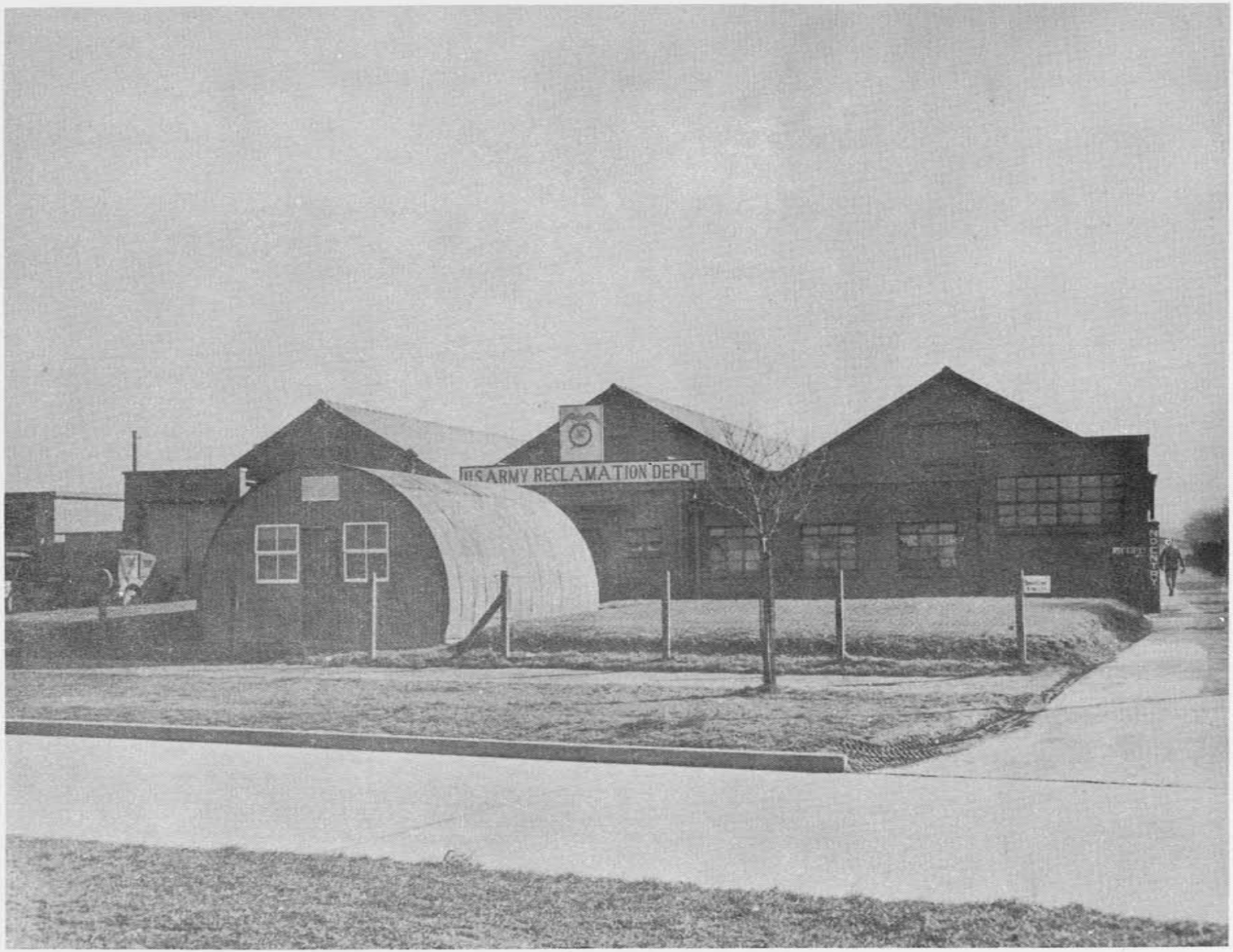

FIGURE 7.—Metal-Repair Shop in Gloucester.

30,800 square feet of closed space. The ceiling in the sheds was 24 feet high and in the buildings 11 feet high.[68] Additional space was acquired at once,[69] and by 6 December 1943 the depot was able to devote 81,200 square feet of space to salvage activities and the storage of salvage.[70] The depot at Lydney performed necessary repairs for all regular supplies, general supplies, and metal supplies for the entire troop strength in the United Kingdom.[71]

Meanwhile, steps had been taken to acquire more space for salvage and reclamation work. In August 1942 the quartermaster of the Northern Ireland Base Section took over a plant that had five Nissen huts and 23,000 square feet of closed storage space in a building. He intended to use the bottom floor of the building for salvage reclamation and a shoe shop. On the top floor he would store his dead stock.[72]

At the end of 1942 salvage and reclamation in the United Kingdom were being handled by four salvage depots situated in Wellingborough, Lydney, Gloucester, and Hilsea. In addition, a section of the Clark Shoe Company, Limited, at Street had been turned over to the United States forces for the rebuilding of shoes. The depot at Wellingborough, operated by 1 United States Army officer and 40 British civilians, served the Eastern Base Section. In the reclamation shop were 100 electrically operated sewing machines for the repair of all types of clothing. This shop could handle an expectancy of 200,000 troops. Gloucester and Lydney served the Southern and Western Base Sections and could handle an expectancy of 150,000 troops. On order from the British for these depots were a complete dry-cleaning unit, with a capacity of 8,000 pounds a week, and two mobile laundry units, with a capacity of 300,000 pounds a week. Plans had been made for installing electrically operated sewing machines for the repair of clothing and light webbing and canvas. The Gloucester and Lydney depots each operated one British mobile shoe-repair unit, with a capacity of 1,400 pairs of shoes a week. The depots washed, paired, and sized rubber footwear, but the Dunlop Rubber Company made all major repairs. A modern tent-repair shop at Hilsea, worked jointly by United States and British forces, could handle an expectancy of 100,000 troops.[73]

By 21 June 1943 salvage-receiving sections were operating in all quartermaster and general depots. Here salvage turned in by units was sorted and classified. All items fit for reissue were laundered or dry-cleaned and returned to stock. Items needing repair were laundered if necessary and sent to reclamation shops. Scrap and waste materials were turned over to the British inspector of salvage. The following depots were at that time operating salvage reclamation sections:

Depot	Type of Repairs
G-10, Wilmont	General repairs
G-14, Liverpool	Clothing repair
G-30, London	Clothing repair
G-35, Bristol	Clothing repair
G-45, Newbury	Clothing repair
G-65, Hilsea	Tentage, canvas and webbing repair
G-75, Coypool	Tentage, canvas and webbing repair
Q-102, Wellingborough	Clothing repair
Q-140, Lydney	Repair of regular supplies
Q-152, Gloucester	Clothing repair
Q-160, Street	Shoe rebuilding

In addition, a salvage-reclamation section would be set up at G-50 in Taunton as soon as personnel and equipment could be made available.[74] The disposition made of items handled from June 1942 through August 1943 appears in appendix VI.

In October 1943 the British offered factory space in which clothing-repair shops might be established. One possible location was the plant in Finedon belonging to Ideal Clothiers, Limited. Here no civilian labor was available. The Director of Quartering, British War Office, understood that 120 enlisted men could be assigned to the shop. Employees of Ideal Clothiers, Limited, could be spared for a short time to train these men. About 170 sewing machines could be turned over to the proposed repair shop. Another possible location was the plant of Wallace & Linnell, Limited, in Kettering. Here some part-time labor was available.[75] Upon the recommendation of the Salvage and Laundry Division, the Engineer Service accepted the property in Finedon. The commanding officer of the Kettering and Wellingborough depots earmarked 120 enlisted men to operate the shop and promised 50 or 60 others in the near future.[76]

Requests to G-4 for additional space continued to be honored. On 30 October 1943, however, G-4 requested that the Quartermaster Service review the whole situation and attempt to stabilize the salvage program within the facilities that had been acquired. The following space was at that time available in salvage depots:

Depot	Closed Space (sq. ft.)
G-10	33,000
G-14	40,000
G-20	6,000
G-35	17,000
G-45	10,000
G-65	36,000
G-75	10,000
Q-140	81,000
Q-152	20,000
Q-160	14,000
Total	267,000 [77]

The Storage and Distribution Division replied that, according to its records, 300,646 square feet was available for salvage in depots and that actual space requirements, as previously submitted, were 350,000 square feet.[78] The Salvage and Laundry Division continued to insist that 350,000 square feet constituted the minimum amount of space needed.[79]

That the Salvage and Laundry Division had not exaggerated its need is attested by a storage and distribution report of 17 April 1944, which showed that the following space had been assigned to salvage and reclamation:

Depot	Closed Space (sq. ft.)
G-14	39,939
G-35	17,000
G-45	10,080
G-65	35,750
G-75	10,475
Q-101	24,987
Q-140	137,040
Q-152	38,050
Q-160	14,376
Q-161	32,880
Total	360,577 [80]

The Installations Division report of 2 July 1944 recorded another increase. The salvage storage space on that date was distributed as follows:

Depot	Closed Space (sq. ft.)	Open Space (sq. ft.)	Total (sq. ft.)
G-14	39,274	—	39,274
G-35	17,000	—	17,000
G-40	11,500	—	11,500
G-45	10,080	—	10,080
G-65	35,750	—	35,750
G-75	10,475	—	10,475
Q-101	24,987	—	24,987
Q-140	249,273**	400,000**	649,273**
Q-152	37,630	—	37,630
Q-160	14,952	—	14,952
Q-161	58,000	4,400	62,400
Total	508,921	404,400	913,321

**Less storage space utilized for salvage-repair supplies, warehouse-handling equipment, and packing and crating supplies.[81]

IMPORTANCE OF RECLAMATION

On D-day 1,552,735 United States troops were in the European Theater of Operations, and others were on their way to the United Kingdom. A month later 637,121 troops were on the Continent, and others were ready to follow in rapid succession.[82]

OVERLORD was mounted in an area in Southern England adjacent to the Channel ports. Here were established marshaling areas, where troops were assembled, equipped, and otherwise made ready for the invasion. The Transportation Service moved units from home stations to concentration areas. Here troops turned in all items of clothing and individual equipment that would not be absolutely essential during the assault. Units were then moved to the marshaling area to remain until called forward for embarkation. Here there was another showdown inspection. Any items of clothing and equipment that had been lost or damaged on the trip from the concentration area were replaced.[83]

Inevitably errors took place in the concentration and marshaling areas. On a visit to depot Q-140 at Lydney shortly before D-day, Brigadier General Allen R. Kimball, Deputy Chief Quartermaster, found that units of the First Army had turned in much new clothing, which had been shipped to the depot piled in trucks and cars along with used and dirty clothing. He wrote immediately urging Colonel A. T. McNamara, First Army Quartermaster, to give the matter his personal attention.[84] Simultaneously Brigadier General Kimball sent instructions to Colonel Everett Busch, Third Army Quartermaster, as to the proper way to segre-

FIGURE 8.—WAC Oxford Made from Worn-out Shoes.

gate new and old clothing and asked that the Third Army make every effort not to repeat the errors made by the First Army.[85] He also sent the correspondence to G-4 and asked for cooperation.[86] In reply G-4 directed that a draft of instructions be prepared for distribution to alerted units.[87]

Later, departing troops would need much of the clothing and equipment they had relinquished. The supply sources, other than those available on the Continent, were the pipe line from the United States and stocks in United Kingdom depots. The time required for filling requisitions prevented the United States from meeting immediate needs. Therefore, stocks in United Kingdom depots had to be the source of supply for sudden operational requirements. Unfortunately, they were limited in quantity.[88] Consequently, reclamation facilities in the United Kingdom were forced to shoulder an enormous responsibility in order that troops on the Continent might be equipped from salvage stocks as well as from new stocks. The extent to which they accomplished their mission will be taken up in another chapter.

COMMUNICATIONS ZONE PROCEDURE ESTABLISHED

The standing operating procedure for maintenance and salvage, the lack of which had caused the Chief Quartermaster no little concern, was published on D-day. The maintenance of all materiel of the Allied forces would be undertaken by units or establishments to the limit of their capabilities and available resources. Inspection and repair teams would visit units at regular intervals.

Chiefs of services would keep records of the major items of equipment issued to their services in sufficient detail to enable them to requisition parts, procure proper tools, and edit stock requisitions. Maintenance supplies consisted of replacement units, repair units, and expendable items. The various echelons would prescribe supply levels of balanced stock. The chiefs of supply services would assemble data on maintenance, which they would furnish to supply echelons, and see that follow-up inspections were made. Those organizations using equipment not carried by normal agencies were responsible for procuring stocks of necessary parts.

Communications Zone units would assume custody of all salvage left in army collecting points on the Continent. Salvage would be evacuated from collection points when maintenance facilities were inadequate. Unserviceable material would be returned for repair through maintenance echelons until it was classified as unrepairable.

Base scrap dumps would segregate material collected for evacuation from the Continent into the following groups: unserviceable equipment for which repair and reclamation facilities were not available on the Continent; enemy equipment required for study and experimentation by agencies outside the Continent; enemy equipment required by United States armed forces in other theaters; and scrap material of which a critical stortage existed in the United States or the United Kingdom. Evacuation of salvage to the United States or the United Kingdom would start as soon as base depots and ports could be opened and as soon as the Commanding General of the Theater could establish priorities.

The Quartermaster Corps was responsible for the maintenance of machinery mounted on special-purpose quartermaster vehicles and for the maintenance of British trailer units, office machinery, fixed laundry plants, gasoline-dispensing equipment, and other quartermaster equipment not maintained by other services. It continued to be responsible for all salvage activities not assigned to other services. It would collect salvage at collecting points or dumps and would segregate items and return those that belonged to other services. It would also operate salvage-repair units and installations for the repair of quartermaster salvage. Items would be segregated into the following groups: serviceable items that could be immediately returned to stocks; serviceable items that could be returned to stocks after they had been laundered; unserviceable items that had to be laundered and repaired before they could be returned to stocks; and unrepairable items. As in United Kingdom procedure, quartermaster salvage was divided into clothing and textiles, canvas and webbing, regular supplies, and footwear.

The standing operating procedure provided that quartermaster salvage collecting companies would collect material and do preliminary sorting. They would then send items fit for immediate use to quartermaster depots. They would send repairable items of clothing, shoes, and canvas and webbing to the nearest semimobile repair unit, which would forward those in excess of its capacity to quartermaster repair installations or salvage-repair shops. Semimobile repair units and salvage-repair depots would ship repaired items to quartermaster depots for storage and reissue.[89]

Disposal of Salvage and Scrap

The procedure published on D-day remained in effect throughout the fall, though it could not be followed either in spirit or in letter during periods of bitter fighting and rapid forward movement of troops. Specific instructions, however, were issued from time to time.

Because of the anticipated shortage of lumber on the Continent, stress was laid on the importance of conserving all salvaged lumber. The Engineer Service was responsible for stock-piling and using salvaged lumber on the Continent. Units, therefore, were instructed to turn in to engineer depots all lumber suitable for reissue. The services might retain in their installations, however, the salvaged lumber that was needed for packing, crating, and miscellaneous construction. Port commanders on the Continent were authorized to maintain a 10-day stock pile of dunnage at each port. They would report all other dunnage to the base section engineer. Damaged lumber, however, suitable only for firewood would be turned in to solid-fuel dumps; and wooden boxes, crates, baskets, and other containers that were reusable would be turned in to ordnance depots or ordnance supply points.[90]

In July 1944 Mr. Philip Reed, Chief of the Mission for Economic Affairs in the United States, asked for estimates of the amount of scrap that would be salvaged during the Continental operation. The Mission for Economic Affairs in London passed the request on to OCQM.[91] The Chief Quartermaster had just returned from a trip to Normandy, where he had observed salvage operations. Because he planned to have mobile units repair clothing, shoes, and some items of equipment and reissue them to troops, he estimated that very little material would be left over. This, he thought, should be used for civil affairs on the Continent.[92] Immediately Major General Littlejohn asked the acting quartermaster of ADSEC to discuss the matter with the First and Third Armies and the senior civil affairs officer in order that some difinite policy might be worked out.[93] It was not until 30 August that the Deputy Chief Quartermaster was able to submit an estimate of the quantities of salvage that might be expected. He then placed the amount of paper at 500,000 pounds and the amount of leather at 45,500 pounds. He thought that the total amount of textile scrap would be needed to complete requisitions for rags from units in the field.[94]

The European Theater published on 13 September 1944 Circular No. 97 dealing with the disposition of surplus property, salvage, and scrap. Excess, or surplus, property was defined as property exceeding the needs of the theater, not required in the theater, or exceeding the maximum theater supply level approved by the War Department. Salvage was defined as material residue from all operations. It might include new, serviceable, unserviceable, condemned, discarded, or abandoned property. The ADSEC commander and the base-section and army commanders would issue instructions for reporting and disposing of surplus property and salvage (other than Air Corps technical salvage) from troops within the territorial area of their commands. The Commanding General of the Air Service Command, United States Strategic Air Force, would publish directives for the disposal of Air Corps technical salvage. The chiefs of supply services would report excess or surplus property to theater headquarters for instructions as to disposal. Units in the communications zone would turn in all excess or surplus property to the appropriate supply service and would designate new property as class A in order to expedite its return to depots. If property that had been obtained under reciprocal-aid agreements should become surplus, it would be disposed of by the armies with the approval of ADSEC headquarters. Maintenance facilities of each unit would be used to the maximum extent for repairing property. Upon authorization of chiefs of services critical items would be repaired regardless of cost. Scrap materials would be returned to the United States or to the United Kingdom in accordance with instructions issued by ETOUSA headquarters. Classified papers would be destroyed. Other papers, boxes, and containers would be tied in packages and disposed of through normal channels.[95]

Upon receipt of Circular No. 97, the Deputy Chief Quartermaster asked that authority be granted to sell paper, boxes, and containers, saying that the stortage of transportation made difficult the disposal of this material through normal channels.[96] Whereupon, G-4 granted authority to dispose of salvage paper by sale to civilians, the proceeds from the sales to be turned in to the nearest finance officer.[97] Later, authority was obtained from the War Department to sell ferrous scrap and aluminum scrap to the French authorities.[98]

NOT ONLY TAKEN BUT REPAIRED

As the salvage program came into full operation on the Continent, procedure was developed for having repair work done by civilian contractors in occupied countries with payment for the most part on a reciprocal-aid basis. For instance, French firms repaired shoes for prisoners of war [99] and raincoats and shoes for reissue to United States troops.[100] Commercial

firms in the Seine Section repaired gasoline drums;[101] industrial firms at Flixecourt, on the highway between Amiens and Abbeville, dried and repaired tents; and Les Blanchisseries Industrielles de France repaired salvaged leggings.[102]

Meanwhile, depot Q-140 at Lydney was going forward with throttle open. While the First and Third Armies were in the marshaling areas, this depot handled and stored 2,500,000 pieces of clothing, which it soon undertook to repair for reissue. Its shops worked on machinery and metal and canvas and webbing; its spare-parts section met Continental needs; and its laundry division ran at full speed. During the summer of 1944 the personnel of the depot was supplemented by 1,000 Italian cooperatives.[103] To the NATOUSA slogan "We take everything," ETOUSA might have added "and try to repair everything."

EXCESS AND SURPLUS PROPERTY

During the BOLERO period in the United Kingdom, the United States forces placed major emphasis upon building stock piles of supplies. The troops mounted from month to month in actual numbers, and estimates of future strength rose as final plans for the invasion took shape. During 1941 and 1942 the War Department exercised little control of those quantities of equipment, materials, and supplies that were shipped to meet needs necessarily estimated rather than actual. By 24 September 1943 the military situation had become sufficiently stabilized for a survey to be undertaken. Then it was that the War Department published a memorandum directing all command, supply, and transportation echelons to study stockage and to return excess materials to supply channels.[104]

Teeth were put into the instructions on 3 August 1943, when the War Department directed the Hawaiian Department, the Caribbean Defense Command, the Newfoundland Base Command, and the Alaska Defense Command to submit a list of construction materials, equipment, spare parts, and supplies that had been determined to be surplus.[105] On 2 September the War Department sent a similar directive to the European Theater. Because aggressive action was necessary to prevent hoarding, the supply services must report to the Commanding General, Army Service Forces, all items in excess of their needs for the next 6 months.[106] Accordingly, Major General John C. H. Lee, Commanding General, SOS, ETOUSA, wrote the supply services to prepare the lists and send them to him by 1 October.[107]

In the fall of 1943, however, the European Theater of Operations, struggling to accumulate supplies for the greatest invasion of all history, was in no mood to declare excesses. When troops were withdrawn from Northern Ireland in the spring of 1944, excess stocks in the Northern Ireland Base Section were moved to Great Britain. For the first time a few depots had found themselves somewhat overstocked.[108]

As D-day approached, the Commanding General, SOS, ETOUSA, issued to base-section commanders instructions bearing upon the disposition of supplies in depots that were to be wholly or partly liquidated in the near future. Base-section commanders were charged with the accurate accounting and disposition of supplies in branch and general depots. If a supply service operating in a general depot should discontinue operations before the closing of the depot, its special-purpose equipment and operating supplies would be declared excess. In order that the items might be returned to stock, the representative of the supply service that was moving out would provide the depot commander with an inventory, which would be forwarded to the chief of the service that had procured the supplies. The depot commander would be informed by the chief of the procuring service as to the disposition that he should make of excesses. He would be permitted to keep whatever portion of the supplies the depot could use, but he would be required to send the base-section commander a list of the items that he kept.[109]

In July and August 1944 troops were moving rapidly from the United Kingdom to the Continent. In order that clothing and equipment left by the departing troops might not be lost, the Quartermaster Service placed upon depot commanders the responsibility for recovering supplies from vacated camps, posts, and stations.[110] On 21 August, as the armies were reaching the outskirts of Paris, the troop strength in the United Kingdom was less than that on the Continent—965,105 men in the United Kingdom and 972,895 on the Continent— and other shipments were to follow in quick succession.[111] Clearly, fewer and fewer supplies would be needed to support the troops left in the United Kingdom. On 24 August, G-4 instructed the Chief Quartermaster to keep in the United Kingdom only stocks for the support of the Eighth Air Force, the hospital program, and activities of the United Kingdom Base; British-procured excesses that would have to be returned to former owners; and theater stocks of some Chemical Warfare Service materials. All other supplies and equip-

ment would be shipped to the Continent, except excesses for which the War Department had directed shipment to other theaters and excesses of too little value to justify shipment to the United States.[112]

The War Department published on 19 September 1944 Circular No. 379, which became the excess- and surplus-property bible of theaters of operations. Herein were clear definitions of terms. Excess property was defined as serviceable or repairable property above the definitely foreseeable needs of a theater or repairable property for which repair facilities were not available in a theater. Surplus property was defined as serviceable or repairable property above the total foreseeable needs of the War Department for any activity within or without continental United States.

Theater commanders determined what property was excess. The Commanding General, AAF, and the Commanding General, ASF, determined what property was surplus. Theater commanders would return certain designated property to the United States as soon as they had classified it as excess unless the Commanding General, AAF, or the Commanding General, ASF, had sent directives concerning its disposition. They would report all other excess property to the Commanding General, AAF, or the Commanding General, ASF, who would determine disposition. Either commanding general, however, might issue instructions declaring specific items or classes of items surplus after the theater commanders had determined that they were in excess of theater requirements. Property that the Commanding General, AAF, or the Commanding General, ASF, had classified as obsolete and all perishable items of subsistence would be classified automatically as surplus.

Theater commanders would report surplus War Department property to local representatives of the United States Government agency designated to dispose of it outside continental United States, its territories, and possessions. Within their discretionary authority theater commanders might sell or otherwise dispose of surplus property. If such property had any military value, it might be dealt with as salvage. Theater commanders were authorized to withdraw from surplus any property for which a need should arise in theaters but were required to report withdrawals promptly to the Commanding General, AAF, or the Commanding General, ASF. The designated United States Government disposal agency would direct the shipment of all surplus property from theaters.

Upon authorization of the local representative of the designated United States Government disposal agency, theater commanders might sell or otherwise dispose of surplus property. They should try, however, to obtain fair and reasonable prices and, if possible, should sell to the highest bidder. All sales, of course, would be in compliance with the laws and regulations of the countries in which they were made.[113] The agency designated to dispose of surplus property was the Foreign Economic Administration. On 21 November 1944 the War Department published a flow chart that showed how surplus property would be disposed of in oversea theaters. This appears as appendix VII.

Just before the receipt of War Department Circular No. 379, the European Theater of Operations had published a circular setting up procedure for handling excess and surplus property.[114] Until a new circular could be published, G-4 directed the Chief Quartermaster to prepare a list of the major quartermaster items of excess property.[115] Submitted in November, this list contained the following items:

Item	Quantity
Bag, saddle	600
Pocket, magazine, double web, EM	400,000
Pouch, ammunition, shot gun	500
Sprayer, disinfectant, knapsack-type	114
Stools, office	71
Ring, tent, size ¾"	300,000
Ring, tent, size 1"	75,000
Eyelets, No. 1563	100,000
Eyelets, No. 4094	300,000
Eyelets, No. 4132	100,000
Eyelets, No. 4211	1,000,000
Component parts for fastener, snap, style I, lift the dot:	
Male section	1,200,000
Washer, male section	2,000,000
Stud, male section	2,400,000
Female section	1,300,000
Socket, female section	2,100,000
Plate	2,300,000
Component parts for fastener, snap, style II, durable:	
Male section	1,100,000
Stud, male section	400,000
Female section	700,000
Socket, female section	1,100,000[116]

Circular No. 112, which expressed the new War Department procedure in European Theater terms, was published on 21 November. The Assistant Chief of Staff, G-4, would determine the disposition to be made of excess property and would issue necessary instructions. The chiefs of supply services and the Chief of Transportation were instructed to report to

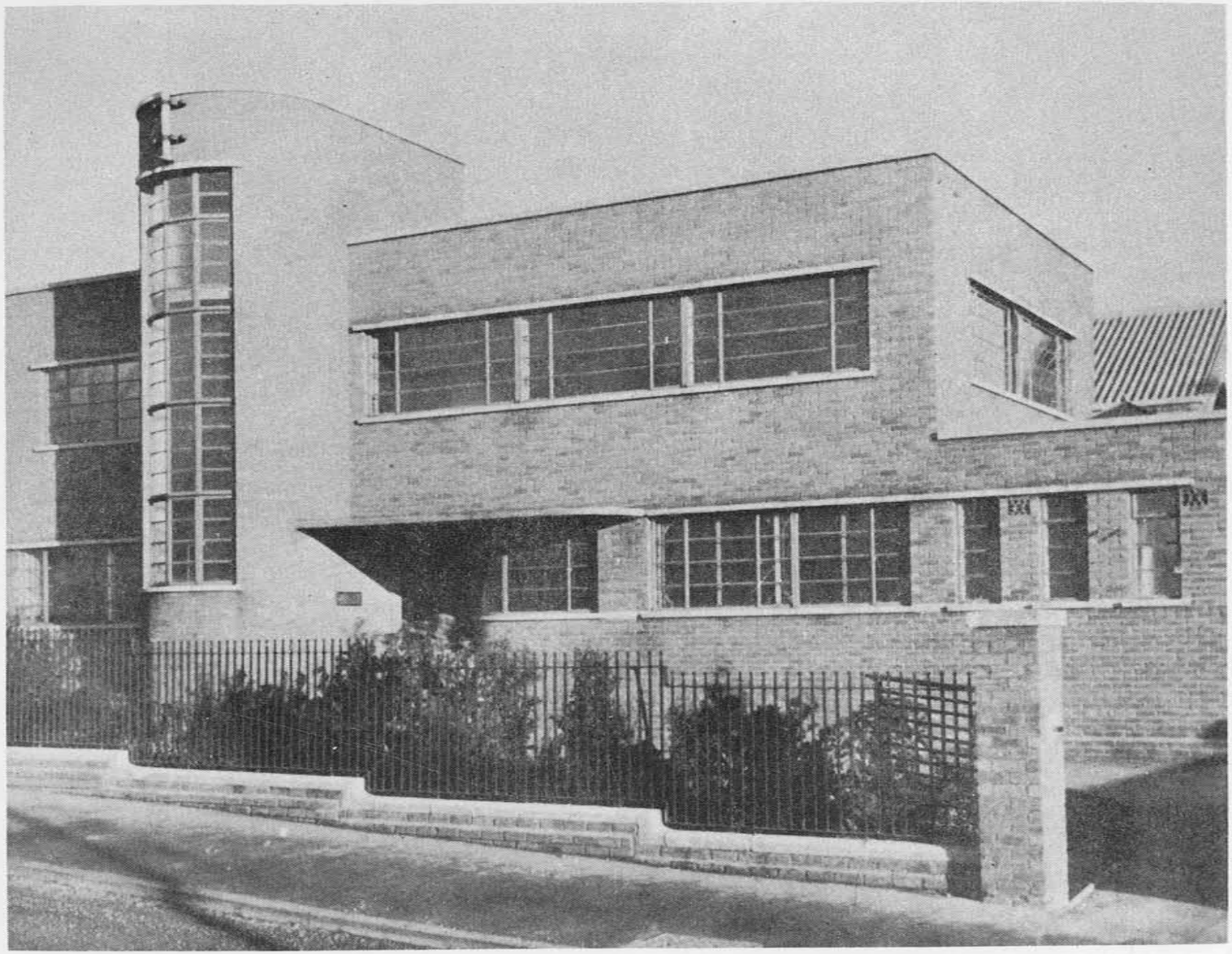

FIGURE 9.—Former Shirt Factory Used by Wellingborough Depot.

FIGURE 10.—Panorama View of Coypool.

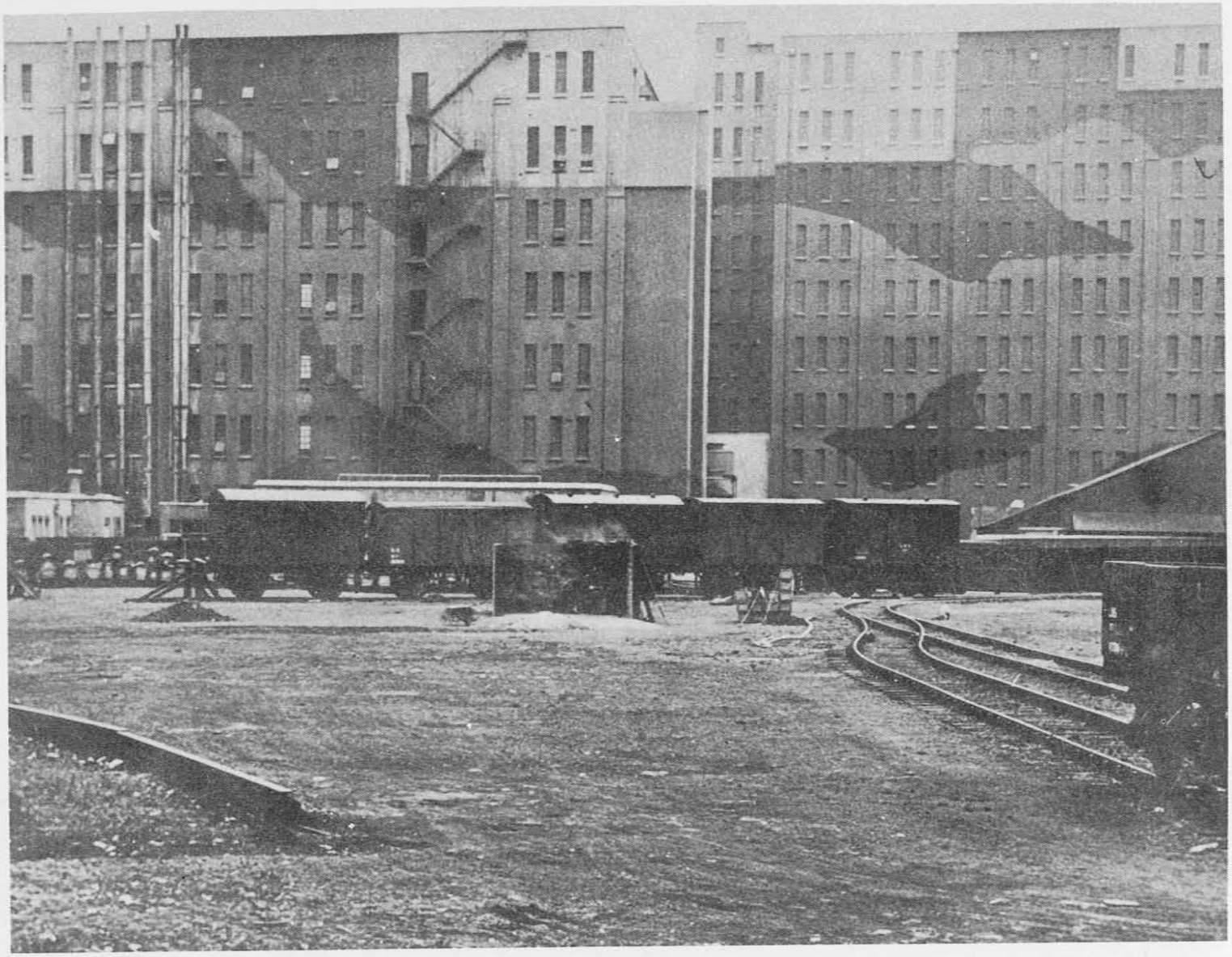

FIGURE 11.—A Warehouse at Bristol.

FIGURE 12.—Warehouses and Outdoor Storage at Lydney.

him all property in excess of their requirements. The Commanding General of the Base Air Depot Area, Air Service Command, United States Strategic Air Force in Europe, was instructed to report excess items to the chief of the appropriate supply service. The chiefs of services would report to the General Purchasing Agent all property for which G-4 had directed disposition and would later dispose of the property according to instructions from the General Purchasing Agent. Meanwhile, they would see that the excess property was properly stored and safeguarded.[117]

Upon receipt of Circular No. 112, the Military Planning Division directed that monthly reports of excess property be prepared according to the new War Department procedure. The first of these reports would list all items in depots on 31 December 1944.[118] Excess supplies in the United Kingdom fell into two categories: those obtained from the United States and those obtained locally under reverse lend-lease. The former group might be disposed of in any way, but the latter group would have to be divided into three classes: new items, second-hand usable items, and second-hand unusable items.[119]

The United Kingdom Base was distressed by the amount of work that the excess-property report would entail. In the first place, the nomenclature of British-procured items gave much trouble. In the second place, no one at the depots was competent to determine what items were in excess.[120] Therefore, the Quartermaster of the United Kingdom Base resisted the making of a physical inventory, believing that it would show little more than had appeared on the monthly stock-record reports. Having conferred with the chiefs of all his divisions, he wrote the Chief Quartermaster that a special inventory of all quartermaster items was not desirable because the taking of it would bring the supply system to a standstill.[121] The Supply Division, however, was convinced that the inventory was basic to a complete review of the procurement program in the United Kingdom. Unquestionably some contracts made with British industries through the Ministry of Supply would have to be canceled. Temporary dislocation of British labor did not constitute so serious a problem as the waste of raw materials in the manufacture of items that were no longer needed.[122]

The physical inventory was made. On 9 January the Quartermaster of the United Kingdom Base submitted to OCQM a complete list of excesses in the United Kingdom above a 45-day level of supplies and above requirements through 30 June 1945.[123] Subsequent directives from OCQM provided that the inventory be kept up to date and that it be reflected in stock-record reports.[124]

During the Continental campaign the stocking of railheads, truckheads, dumps, supply points, and depots was of much more importance than the counting of items that might be in excess of needs. Though plans for the use of excess supplies in the redeployment and the civil affairs programs had been sketched early in the campaign, how they were carried out will be told in volume IX and volume X of this series.

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CHAPTER 2

PREINVASION PLANNING

Plans for invasion were based upon the assumption that a self-sufficient program would be developed on the Continent and that, after the initial phases of the operation, items would not be returned to the United Kingdom for processing. In broad outline the program was conducted according to plan. Yet self-sufficiency on the Continent was not achieved.

PRELIMINARY STUDIES

Salvage plans for the Continental operation began to take shape in the summer of 1943. The European Theater of Operations reported on 12 June 1943 that "the Combined Chiefs of Staff have decided to appoint, in due course, a Supreme Commander of all United Nations Forces, for the invasion of the Continent of Europe from the United Kingdom." The Supreme Commander would be responsible to the Chiefs of Staff, Supreme Allied Command, (COSSAC), which had been created at the Casablanca Conference in January. He would plan and execute operations and coordinate policies. Until his appointment all planning would be the responsibility of the Chief of Staff.[1] The fourth and last edition of the BOLERO Key Plan was published on 12 July 1943. OVERLORD had replaced ROUNDUP as the code name for the entire Continental operation. COSSAC issued its first plan for OVERLORD on 15 July 1943.[2]

Though the Quartermaster 100,000-Man Plan, which was published in the summer of 1943 made no reference to salvage, the Salvage and Laundry Division was studying the storage space that would be required for salvage. The first estimates were based upon the assumption that 200,000 men would be on the Continent by D-plus-90-day and another 200,000 by D-plus-180-day. For handling the salvage requirements of the total troop strength, it was estimated that 269,324 square feet of space would be required. Of this amount 134,662 square feet would be needed by D-plus-90-day. Assuming that a third of the space would be in buildings commandeered on the Continent, the Salvage and Laundry Division recommended that Romney huts or tents provide the rest of the space needed. For this purpose 27 Romney huts, 35 by 96 feet, would be required by D-plus-90-day, and another 27 by D-plus-180-day. Machinery and equipment for two depots had been requisitioned from the United States by August 1943.

The Salvage and Laundry Division had set down the types and desired locations of the facilities. The buildings that would be used for the repair of clothing, shoes, leather, rubber, and canvas and webbing should be near the laundry and sterilization buildings. Because the machinery used in them would have to be bolted down, wooden floors were desirable. The buildings used for machinery and metal repair, receiving and regulating, waste and disposal, and storage and shipping should have concrete floors and should be on the same road or siding in order that hauls might be as short as possible.[3] These early salvage and reclamation plans and figures were changed many times in the months that followed.

By mid-October 1943 Fifth Army engineers had reclaimed the port of Naples. Then supplies and ammunition began pouring in for the battle of the Volturno River. Bridgeheads were established on 14 October, and 2 days later the Germans were forced to withdraw from the delaying positions. Marshal Pietro Badoglio, who had replaced Mussolini 4 months before, had declared war against Germany on 13 October. The tactical lessons that the United States Army had learned during the battles for North Africa, Sicily, and Corsica were beginning to pay dividends.

The administrative lessons also were well learned. The War Department published a circular on 16 October 1943 completely reorganizing ground-combat and supporting service units. The entire reorganization was based upon the creation of a new series of Tables of Organization and Equipment, T/O & E 10-500. Though the full significance of the change will be discussed in another volume, some mention of it is necessary here for background. These new tables were developed for the purpose of creating composite service units and installations. The assumption was that large consolidated supply and repair depots, even though dispersed over a considerable radius, were more efficient than small establishments. The new series was designed to fit men to jobs rather than jobs to men. The 10-500 series contained, in other words, lists of specialists who could be woven as teams into a central installation serving as many troops as possible. Under the old system men were assigned to specialized units, which served a given number of troops. The newly created composite units—battalions,

companies, or platoons—would consist of teams with personnel qualified to perform all types of depot work.

The Headquarters and Headquarters Company, Quartermaster Base Depot, (T/O & E 10-520-1), was created under the new 10-500 series. This company was designed to provide supervisory and administrative personnel either for the quartermaster section of a general depot or for a quartermaster branch depot. Major General Littlejohn wrote G-4 on 20 June 1944 that he had been extremely interested in the new organization for four reasons. First, it offered a solution to the problem of personnel not included in Tables of Organization. Second, it would help solve the problem of depot overhead. Third, the depot could be organized on lines parallel with OCQM, thereby achieving better decentralization. Fourth, the headquarters and headquarters companies would most likely become the quartermaster depots on the Continent, where there would be no general depots. Consequently, the Personnel Division studied the new organization during the latter part of 1943 and the first 5 months of 1944. The way in which these studies helped the Chief Quartermaster solve many salvage problems by creating teams of salvage technicians will be told in other chapters.

EARLY QUARTERMASTER SALVAGE PLAN

The salvage plan outlined by the Installations Branch of the Plans and Training Division in January 1944 followed in general the earlier plans of the Salvage and Laundry Division. Salvage reclamation on the Continent would be accomplished by 18 quartermaster salvage repair companies (T/O 10-237), 2 salvage repair depots (T/O 10-250), and 20 quartermaster salvage collecting companies (T/O 10-187). Of the repair companies, 8 would be assigned to quartermaster salvage repair battalions and attached to the combat forces, 6 would be attached to quartermaster salvage repair battalions and operate in the communications zone under the Services of Supply, and 4 would be operated separately along the lines of communication. Salvage operations would not be performed in the United Kingdom by quartermaster salvage repair companies but by United States static shops and civilian contractors. Quartermaster salvage depots would be housed on the Continent in buildings especially designed by the Engineer Service. They would not be in operation, however, before D-plus-90-day. Efforts would be made to acquire additional civilian repair facilities on the Continent. Quartermaster salvage depots would not be operated in the United Kingdom, but United-States-operated static equipment in the United Kingdom would continue to serve troops that had not been sent to the far shore and to process salvage that had been evacuated from the Continent. Of the quartermaster salvage collecting companies, 12 would be attached to the combat forces and 8 would operate in the communications zone under the Services of Supply. These companies would not be required in the United Kingdom after D-day.

All salvage materials accumulated on the Continent before the arrival of mobile repair units would be evacuated to the United Kingdom for processing. Until the establishment of quartermaster salvage depots, all salvage material that could not be quickly processed by salvage repair battalions would be evacuated to salvage repair shops in the United Kingdom.

In the plan there was admission that salvage accumulations might "occasionally exceed the capacity of all repair facilities on the Continent." In such cases salvage repair facilities in the United Kingdom would be used. It was estimated that about 1,000 civilian employees would be required on the Continent to work in the two quartermaster salvage depots and the civilian shops that would be taken over by United States forces.[4]

EXPERIENCES IN NORTH AFRICA

The pioneer work of the Quartermaster Service in the North African Theater of Operations (NATOUSA) proved extremely helpful to the ETOUSA salvage planners. Lieutenant Colonel C. L. Austin, Chief of the Redistribution and Salvage Branch, Production Division, ASF, arrived in Algiers on 15 September 1943 to study the salvage problem in NATOUSA. Traveling throughout the theater, he conferred with Major General Everett S. Hughes, Deputy Theater Commander; Brigadier General Elbert L. Ford, Chief of Staff; Brigadier General Thomas H. Ramsey, Chief, Quartermaster Section, Allied Force Headquarters (AFHQ); Colonel William H. Middleswart, Chief, Quartermaster Section, SOS, NATOUSA; Colonel Vere Painter, Chief, Quartermaster Section, Eastern Base Section; and others.[5]

NATOUSA may be said to have served as the experiment station for the organization of expeditionary forces in World War II. It was set up on 4 February 1943, almost 3 months after the United States troops invaded North Africa. SOS, NATOUSA, was set up on 15 February. The advance echelon of the Atlantic Base Section, under Brigadier General Arthur R. Wilson, arrived with the Western Task

Force; and the advance echelon of the Mediterranean Base Section, under Brigadier General Thomas B. Larkin, arrived with the Center Task Force. The Allied Force Headquarters landed at Algiers on 25 November 1942 and became responsible for the two base sections. This was a British-American command, activated in London in August 1942 and responsible to the Combined Chiefs of Staff. It was under the European Theater of Operations until the activation of NATOUSA.[6] The base sections then came under the direct control of the Commanding General, NATOUSA, with the Commanding General, SOS, NATOUSA, responsible for only supply and administration.[7] This double command was eliminated on 24 February 1944, when communications zone activities were consolidated under one commander.[8]

So it appears that the Quartermaster Services in NATOUSA and ETOUSA differed in organization. Brigadier General Thomas H. Ramsey served as Chief of the Quartermaster Section, AFHQ/NATOUSA. He was responsible to G-4, NATOUSA. Colonel W. H. Middleswart, Chief of the Quartermaster Section, SOS, NATOUSA, was responsible to the Commanding General, SOS, NATOUSA. The control of salvage collection was the responsibility of the Chief of the Quartermaster Section, AFHQ, and was exercised by coordinating the technical services of the base sections and armies.[9]

Lieutenant Colonel Austin reported that the NATOUSA chain of command with regard to salvage was as follows: the Theater Commander; the Deputy Theater Commander; G-4; Chief, Quartermaster Section, NATOUSA; Commanding General, SOS, NATOUSA; Chief, Quartermaster Section, SOS, NATOUSA; Base Section Commander; quartermaster sections and base sections; depots in base sections; and collecting companies. He pointed out that no staff personnel was assigned to the coordination of the salvage activities of the services and recommended that a salvage organization be set up in a theater of operations with a salvage officer, or officers, experienced in field conditions assigned to the theater quartermaster and responsible to G-4 of the theater.

Lieutenant Colonel Austin believed that lack of coordination had been responsible for lack of uniformity in the salvage operations of the base sections. Fired cartridge cases, for instance, had been handled by ordnance men in the Mediterranean Base Section but by quartermasters in the Eastern Base Section. If quartermasters were to have such responsibility, it was desirable that trained ordnance men be available to assist them.

Lieutenant Colonel Austin was of the opinion that quartermaster collecting companies were without equipment necessary for the efficient performance of their work. Wreckers had to be used to transport salvage from fields to roads. For this purpose the quartermaster 4-ton wrecker was too light and a 10-ton wrecker was needed. It had been necessary to borrow this equipment from the Ordnance and Engineer Services. Similarly, tank transporters had been furnished by the Ordnance Service for transporting salvage from collecting points to salvage dumps. Quartermaster companies needed heavy trucks to convey salvage to railroad cars. The absence of such tools as cutting torches, bolt clippers, and heavy jacks had slowed up the work. He recommended, therefore, that one or more heavy-duty platoons with the following equipment be included in quartermaster salvage collecting companies:

5	transporters with 4-ton prime movers
4	wreckers, 10-ton
3	wreckers, 4-ton, (now included in T/E)
1	tank recovery vehicle, T-2 or equivalent
6	trucks, 2½-ton, (4 now included in T/E)
12	cutting torches (1 now included in T/E)
2	jacks, 50-ton
2	jacks, 25-ton
2	jacks, 10-ton
10	bolt clippers, ⅜"
5	mine detectors [10]

The War Department sent to all the theaters copies of Lieutenant Colonel Austin's report. An accompanying letter asked the commanding generals if in their opinion recovery and salvage operations should be made the responsibility of the Ordnance Service rather than the Quartermaster Service. If the answer was no, should the T/O of the quartermaster collecting company be revised to include personnel and heavy equipment capable of moving ordnance and engineer material? If the answer was yes, could existing ordnance units be used to perform salvage functions in addition to their other work or should special units be developed?[11]

The Quartermaster Service in the European Theater immediately began to study the problem. Colonel Andrew T. McNamara, Quartermaster of the First Army, believed that the 4-ton wrecker with which each company was provided should be replaced by a 10-ton wrecker. He thought also that salvage collecting companies should be equipped with mine detectors operated by trained personnel in the company or attached to the company. He fur-

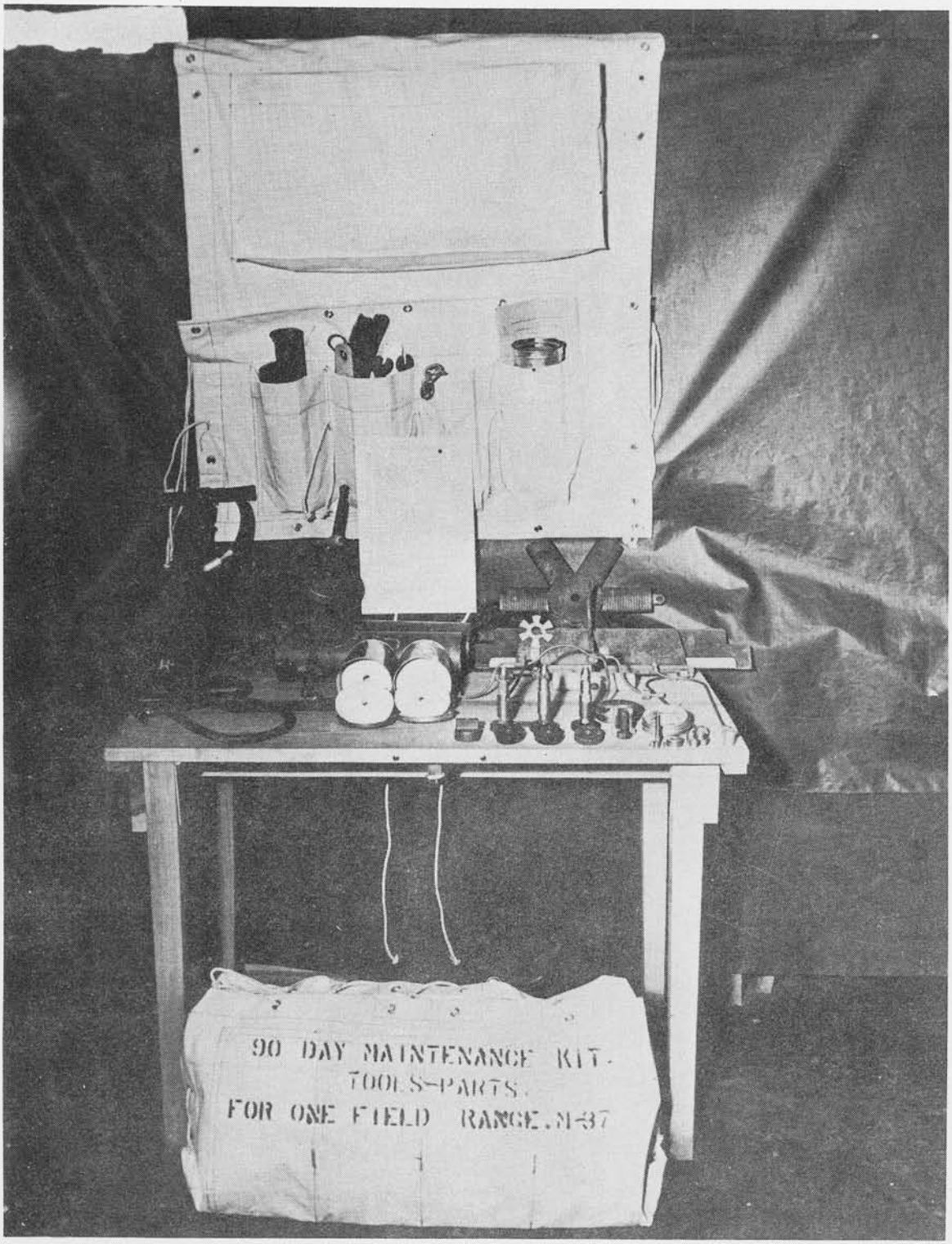

FIGURE 13.—Spare Parts—90-Day Maintenance Kit.

ther recommended that all 2½-ton cargo vehicles in the salvage repair company be equipped with a winch and an A-frame derrick that could be operated from the winch and that a block and tackle be issued for each vehicle.[12]

On the other hand, Major Culbreth N. Rice, Chief of the Installations Branch, Plans and Training Division, thought it impracticable to equip quartermaster collecting companies for handling all evacuation from battlefields. Primary recovery he considered the function of combat units. The various services, of course, should assist, and quartermaster collecting companies should work with labor troops. The Ordnance and Engineer Services should be charged with determining what equipment should be evacuated. Major Rice recommended that seven noncommissioned officers of the Engineer Service be added to the T/O of the quartermaster salvage collecting company and that the ratings of the personnel of other services attached to the company be increased so as to provide technicians capable of handling heavy equipment and detecting and destroying booby traps and mines. He recommended that the equipment listed by Lieutenant Colonel Austin be added to the salvage collecting company.[13] How the problem was solved in the European Theater of Operations after D-day will be discussed in another chapter.

During the months that followed, salvage planners leaned heavily on the experience of NATOUSA. The salvage circular published in North Africa on 13 February 1944 was carefully studied, and in March Colonel Michael H. Zwicker, ADSEC Quartermaster, was sent to NATOUSA to study quartermaster operations. Using "We take everything" as the motto, the theater had been efficient in salvage collection, he reported. Items not shipped to the United States were sold as they accumulated. A cotton flour sack had brought as much as $2.50, a cotton 10-pound sugar sack $0.25, woolen rags $0.50 a pound, unrepairable shoes $1.80 a pair, and a "bed sack" as much as $20.00 on the black market. In order to protect the economy in North Africa a committee had been appointed to fix salvage prices. The committee, consisting of representatives from the North Africa Economy Board and the French Committee of Liberation, met periodically.

Colonel Zwicker reported also that experience in North Africa had indicated that salvage collecting companies needed additional heavy equipment and that insufficient provision had been made for the repair of gasoline containers.[14]

Advice was sought from Brigadier General Joseph P. Sullivan, Fifth Army Quartermaster, whose brilliant achievements had been acclaimed in the European Theater. Brigadier General Sullivan said that the need for clothing in the early days of the Italian campaign had been so acute that a resizing policy on class B clothing was established to speed up the rate of reissue. Garments were sized merely as small, medium, or large. It was reported that the soldiers found the plan highly satisfactory.[15] Upon the strength of Brigadier General Sullivan's letter, OCQM put into effect the NATOUSA resizing plan[16] and incorporated it in the quartermaster annex to the Communications Zone Administrative Plan for Operation OVERLORD.[17]

OVERLORD SALVAGE PLANS

Just as the large BOLERO plans had said little or nothing about salvage, so the large OVERLORD plans left the detailed development of the program to the Quartermaster Service. Supreme Allied Headquarters stated on 20 December 1943 that salvage would be held on the Continent until the establishment of ports and base depots and then would be evacuated from the Continent according to instructions. Captured war materiel would be handled according to the policy laid down by COSSAC on 17 September 1943. Army groups would forbid the looting of captured enemy equipment.[18]

According to the joint administrative plan for NEPTUNE, SHAEF would direct the disposal of salvage. United States salvage units would be landed on the Continent between D-plus-30-day and D-plus-45-day. British salvage units would be landed as soon as possible. United States salvage would be held on the Continent until ports and base depots were opened. British salvage would be collected and held until the Seine River ports were opened.[19]

The quartermaster annex to the First Army Plan NEPTUNE provided that army salvage points would be division and corps truckheads and the army quartermaster salvage depot. All salvage would be turned in to the army quartermaster, who would operate the salvage depot, where serviceable items would be fumigated, laundered, repaired, and reissued. Unserviceable items would be shipped from the army salvage depot to the appropriate SOS salvage depot. A detachment of salvage collecting troops would be made available by the army quartermaster to corps quartermasters to assist in salvaging captured enemy materiel.[20]

The SOS Plan, Mounting the Operation OVERLORD, stated that base section quartermasters would assign personnel to marshaling and embarkation areas to receive, collect, and classify salvage at collecting points and dumps and return it to depot stock. Captured enemy materiel would be received from craft at ports and hards and forwarded to designated depots. Marshaling and embarkation area commanders would deal with the British in connection with the disposal of swill, sewage, and garbage.[21]

Quartermaster Salvage Handbook

The Office of the Chief Quartermaster published on 1 March 1944 a handbook on salvage activities in the combat zone, which reiterated the importance of collecting salvage and exploiting captured materiel in order that the burden on lines of communication might be lightened. Troop commanders were responsible for collecting salvage from battlefields and occupied areas and delivering it to collecting points, where it would be sorted by salvage collecting units and evacuated to the rear area.

Collection in Rear Areas

Rear areas would be searched systematically and quickly. In order to conduct an efficient search, salvage men should familiarize themselves with the area that was to be evacuated. Citizens should be warned to turn in all United States Government property. Police work, however, was the duty of the organization conducting the evacuation and not normally the duty of the salvage collecting company.

Collection from Units

Soldiers leaving for the front would turn in to salvage collecting units all clothing and equipment that they did not need. The collecting units would forward quartermaster items to the nearest quartermaster mobile repair unit or salvage depot and would return all other salvage to the appropriate service, using the best available means of transportation. After items were repaired or renovated, the mobile unit or salvage depot would return them for reissue as class B stocks.

Captured Materiel

Recovery of items should be started during the battle and continued until the work was completed. All captured materiel would be delivered to the officer in charge of the proper supply arm or service for the corresponding echelon of command. Samples of captured items that embodied new principles would be delivered to the proper service officer of the theater staff for preliminary analysis and for forwarding to the zone of interior for final analysis and report. Salvage personnel would invite the attention of intelligence officers to new or unusual articles. Enemy clothing would be searched for documents and orders, which would be delivered to the division intelligence officer or his representative. Stocks in enemy POL dumps would not be moved except under authorization of the army commander. They would be put under guard, however, and reported to the army quartermaster for testing.

Procedure in the Battle Area

The salvage officer would reconnoiter the battle area in order to find where large quantities of salvage were located, to determine how much labor would be needed, to make arrangements for evacuation, and to give priority to the salvage that was most important at the moment. He should divide the area into subsections. If possible, each subsection should be bounded on one side by a railroad or a highway. Work should be done by small groups, each under a noncommissioned officer. One or more groups should be assigned to collect ordnance material, and the others to collect general salvage.

Salvage collecting points should be as near the front as possible. Their sites would be selected by corps, division, or army quartermasters. In order to prevent large accumulations, salvage should be evacuated daily to main dumps, which should be near railheads or highways. At advance dumps only superficial segregation would be done. At main dumps, however, the salvage platoons would classify items. They would remove ammunition and search clothing for personal property. All salvage would be segregated according to the arm or service to which it belonged. Representatives of the Ordnance, the Chemical Warfare, and the Signal Services who were attached to collecting companies would be at the main dumps to assist in the segregation. Gassed clothing would be segregated and marked. Firearms would be given an oil bath and cleaned. Clothing and individual equipment would be sorted and kept dry. Parts of unserviceable articles would be salvaged for use in remanufacturing.

The handbook presented in detail the precautions that were to be used in handling ordnance material. Fired cartridge cases, live ammunition, potato-masher grenades, land mines, and booby traps should be collected and piled separately. Such procedure would eliminate

FIGURE 14.—A Salvage Dump behind the Beaches.

subsequent segregation, which had "resulted in numerous explosions and loss of life in the North African Theater."

Loading and Shipping

Freight cars should be swept out before they were loaded. A box in which material was packed should be nailed lightly so that its contents could be readily ascertained, and it should contain only one type of article. Meat drippings and other oils and greases should not be shipped in the same car with clothing. If metal and clothing were shipped together, the metal should be in the front end of the car. Heavy articles should never be placed on top of clothing or shoes, and horse equipment should never be shipped with clothing. Boxes of gassed equipment should be plainly marked and should not be shipped with other articles. Each car should be loaded to capacity and sealed. For each carload, truckload, or separate smaller shipment sent by a salvage company to a repair or issuing depot, a form similar to the model shown in appendix VIII should be filled out in triplicate. One copy of this form should be tacked on the inside of the car, one retained by the salvage platoon commander, and one forwarded to the salvage company commander.[22]

Revised Salvage Plan

The reorganization of depot Q-140 at Lydney as the principal salvage depot in the United Kingdom was part of a revised salvage plan issued when the marshaling areas were being established. Procedure outlined in the Depot Operations Manual was suspended on 1 April 1944. Class II depots in base sections would remove from stocks turned in for salvage all items in original packages and all items that could be returned to stocks without being processed. Class II base depots in the Northern Ireland Base Section would then ship salvage to depot Q-161, the old salvage depot in Belfast, which had been operating under depot G-10. Depot Q-161 would then ship shoes for repair to depot Q-140. Class II depots in the Eastern Base Section would ship salvage clothing to depot Q-101 in Kettering and other salvage to depot Q-140. All other class II depots would ship all salvage to depot Q-140. Items turned in at marshaling areas would also be shipped to depot Q-140, which would run an expanded repair section. The using unit, when at its home station, would turn in unnecessary quartermaster equipment and salvage to the depot from which it drew class II supplies. When in the marshaling area, it would turn in all excess quartermaster equipment and salvage to a point within the marshaling area designated by the area commander. Static troops in the marshaling areas would use commercial repair facilities. Repair shops in depot Q-160 in Street, depot G-65 in Hilsea, and depot G-75 in Coypool, according to the plan, would be closed on 30 September 1944.[23]

Other OVERLORD Plans

The quartermaster annex to the SOS Plan, Mounting the Operation OVERLORD, incorporated the details of the revised salvage plan.[24] Immediate instructions to ship all excess salvage to depot Q-140 caused some concern. The Office of the Chief Quartermaster, therefore, instructed all base section quartermasters to put the plan into effect gradually. To this end the Southern and Western Base Section quartermasters set up temporary stations for sorting and collecting salvage, thus making possible the shipment of large quantities at one time and greatly lightening the work at Lydney.[25]

The Communications Zone Administrative Plans

The Communications Zone Administrative Plan for Operation OVERLORD provided that recovery would be performed by all personnel but that quartermaster salvage companies and recovery units of other services would specialize in the performance of this work. The plan also provided that unrepairable material on the Continent would be held in base depots for subsequent evacuation to the United Kingdom.[26] The quartermaster annex to this plan dealt in detail with quartermaster responsibilities on the Continent. The Quartermaster Service would provide all salvage repair facilities for quartermaster items; receive, sort, and dispose of all salvage in the communications zone except items of special type or unusual bulk belonging to other services; and collect salvage that was abandoned in the communications zone by Allied or enemy forces.

Unit commanders were made responsible for turning in all salvage to collecting points. If they were unable to comply, salvage responsibility would fall upon salvage collecting companies or service companies. A salvage collecting company would forward salvage to the nearest salvage dump or depot in the communications zone.

In army areas quartermaster salvage repair companies (semimobile) would be attached to armies. Salvage repair companies, quartermaster base depots, or civilian facilities would repair all salvage from army areas except that of unusual bulk belonging to other services. No repairable salvage would be evacuated from

the Continent unless accumulation should exceed repair facilities. Then salvage would be evacuated either to the United Kingdom or to the United States.[27]

The original conception of the salvage repair company (fixed) had contemplated the use of heavy fixed machinery. Because this equipment would not be available for at least 4 months after the beginning of operations on the Continent, the companies were instructed to try to get along with the equipment issued them. The ADSEC quartermaster was furnished a list of tools with which units would be equipped and told that replacements could be drawn from depot Q-140.[28]

On 28 April 1944 a SHAEF memorandum implemented the Continental salvage plan. Salvage and scrap were then defined as nonrepairable material for which the Supreme Commander had no use. Reports of all salvage and scrap on hand on the Continent would be made to SHAEF on the 15th of each month. They would then be forwarded to the Combined Raw Materials Board, which would issue instructions as to their disposition. Scrap required in both the United States and the United Kingdom would be shipped as soon as shipping space was available. Other scrap would be stock-piled on the Continent and held until the Combined Raw Materials Board directed the Supreme Commander to dispose of it.[29]

As D-day approached, the Chief Quartermaster frequently expressed dissatisfaction with the salvage plan and with salvage operations. He wanted the whole program to be so clear that he could walk into the map room at any time and see what was going on. Each base section would have to prepare a detailed plan. The planning echelon of the Installations Division in London and the operating echelon in Cheltenham would have to get together. He was concerned because the problems of salvaging overcoats and blankets had not been solved. These should be settled before anything else was done. He was disturbed because new clothing was being turned in at depots, sent to salvage centers, and returned to depots. This practice must stop. The preliminary sorting left much to be desired. The salvage dumps bore evidence that material of all kinds had been thrown together without segregation and without separation of useful from useless items.[30]

Even after the invasion had been launched, the Chief Quartermaster wrote gloomily to the Deputy Chief Quartermaster. "We are definitely behind the eight ball in our salvage activities," he said. The salvage plan was not clearly understood by the depots, and the base sections had not studied and coordinated their plans. He had just visited depots where salvage, which was arriving in great quantities, consisted of new clothing, old clothing, guns, ammunition, typewriters, and every class of equipment that could be loaded on a truck. New clothing, worn-out clothing, dry clothing, and wet clothing were all piled together. At depot G-40 he found quantities of salvage piled in a warehouse mixed and unclassified. Major General Littlejohn concluded his letter with the statement that the Quartermaster Service, confronted with the largest salvage problem in history, lacked personnel and equipment. "We must put the best brains we have on it," he said. "We must use a knife to cut the red tape. We must cut down the service that the individual soldier has been getting. We must immediately return this clothing to stock."[31]

Spare Parts

The stocking of spare parts for repair of equipment was one of the most important service functions of the war. Machinery had to be maintained in good running order. The Quartermaster Service was responsible for procuring maintenance parts for quartermaster laundry, refrigeration, sterilization-and-bath, fumigation-and-bath, shoe-repair, clothing-repair, and textile-repair trailers and coffee-roasting plants. The Engineer Service was responsible for procurement and maintenance of fixed refrigeration, but the Quartermaster Service was responsible for the utilization of space and products. The Ordnance Service procured and maintained warehouse handling equipment.

In January 1944 it was announced that maintenance parts were stocked at depot Q-140 and that all other quartermaster depots, except depot Q-134 at Exeter, and all general depots handling class II supplies had stocked field-range maintenance parts. For Continental operations OCQM developed a 60-day maintenance kit, which would be issued, one per range, to all combat units embarking between D-day and D-plus-90-day. This kit, together with the 30-day supply carried by the division quartermaster, would insure a 90-day supply of field-range maintenance parts. Replenishment would be from depots on the Continent on an exchange basis. All maintenance parts on the Continent would be stocked in two quartermaster salvage depots, which would make disposition to other depots. The using unit would perform first echelon maintenance. The salvage depots, the Ordnance Service, and the using unit, if possible, would perform second and

third echelon maintenance. The Ordnance Service would perform all fourth echelon maintenance.[32]

By 3 February the Salvage and Laundry Division reported that 17,000 field-range kits had been manufactured—a number sufficient to assure adequate maintenance on the Continent. Two weeks later OCQM republished procedure for salvage maintenance. The paper carried with it an excerpt from Circular No. 13, ETOUSA, which set forth the division of all responsibilities among the Quartermaster Service, the Engineer Service, and the Ordnance Service (see app. IX).[33]

On 13 April the Installations Division submitted to the Plans and Training Division a new, but only slightly changed, procedure for maintenance and salvage. Procurement, storage, and issue of maintenance parts for machinery mounted on special-purpose quartermaster vehicles continued to be a quartermaster responsibility. Each vehicle would carry a 90-day stock of spare parts. Units in the United Kingdom or on the Continent would make monthly requisition for replacement supplies, using normal channels. A prescribed level of maintenance parts would be held in the United Kingdom and transferred to the Continent as the parts were needed by quartermaster repair companies (fixed). Procurement, storage, and issue of maintenance parts for the chassis and body of British machinery mounted on special-purpose British vehicles were also the responsibility of the Quartermaster Service. Spare parts were to be requisitioned according to usual procedure. As before, procurement, storage, and issue of maintenance parts for materials handling equipment were the responsibility of the Ordnance Service; and the procurement, storage, and issue of maintenance parts for field ranges were the responsibility of the Quartermaster Service. One repair kit would be issued with each field range, and a 30-day supply of parts would be carried by each division or supply officer. No spare parts for office machinery would be maintained by the quartermaster salvage repair company (fixed) but would be requisitioned quarterly on the United States. The repair work on office machinery would be done by the British.

The storage and issue of maintenance parts for quartermaster fixed laundry plants on the Continent were the responsibility of the Quartermaster Service. The quartermaster salvage repair company (fixed) would make such repairs as could not be made by using units. Each plant would carry a 90-day stock of spare parts, and the quartermaster salvage company (fixed) would carry a prescribed level of spare parts. Laundry officers would make monthly requisitions for additional supplies, using normal channels.

Procurement, storage, and issue of maintenance parts for POL-dispensing equipment were an ordnance responsibility, and the mechanical operation and maintenance of fixed refrigeration plants were an engineer responsibility. Procedure for the collection and the evacuation of salvage and the disposition of captured enemy equipment was identical with that set forth in earlier directives.[34]

Everything contained in the memorandum from the Installations Division was incorporated in the quartermaster annex to the Communications Zone Administrative Plan for Operation OVERLORD, which contained the final invasion doctrine.[35]

After Lydney was made the principal salvage depot, all spare parts for special-purpose equipment, typewriters, and gasoline dispensers were stored there. The depot collected, however, only critical items and parts that were used solely for making repairs on field ranges. It became the only issuing agency for spare parts and honored approved requisitions from the Maintenance Branch of the Installations Division, keeping a complete stock-record account of each item. It performed all actual operations, but the Installations Division controlled initial issue of parts and oversea depot stocks. Lydney's mission was carried out by the 29th Salvage Repair Company (Fixed) and such other military personnel as could be made available.[36] A functional chart of depot Q-140 appears as appendix X.

A study conducted shortly before D-day led to the setting up of a training program at Lydney for officers and key enlisted personnel. It covered a 4-week period. Plans looked toward giving instructions to 208 enlisted men, 52 to be trained each week. Classes were held in laundry repair, canvas and webbing repair, clothing repair, machinery and metal repair, the use of spare parts, and administration.[37]

Six men from each salvage repair company (semimobile) were to be sent to Lydney for specialized training in the repair and maintenance of field ranges. In order that the repair shops maintained by the salvage-repair company (fixed) could accomplish their work efficiently, the T/O of this company was changed to allow the inclusion of a sufficient number of trained repair men on the Continent.[38]

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FIGURE 15.—Ration Truck Unloading Salvage at a Collecting Point.

CHAPTER 3

BATTLEFIELD SALVAGE

During the first days of the invasion, procedure could not be carried out to the letter, excellent though it might be on paper or in the minds of men. As craft came in on the morning of D-day, machine guns were firing from the beaches and the cliffs. The artillery, however, withheld its fire until the soldiers were disembarking. The 75-millimeter and 88-millimeter guns opened up with deadly accuracy. As the ramps were lowered, infantry attempted to gain cover, making short rushes, throwing themselves into runnels, and crawling through defilades in the sand. They held on to only their rifles and ammunition.[1]

When darkness fell on D-day, infantry, artillery, and tanks had not reached any of their objectives,[2] and the supply situation was far from under control.[3] Casualties of Army and Navy had amounted to 41 percent of the personnel.[4] Equipment of all kinds had been destroyed. Gasoline- and ammunition-laden trucks had been set on fire by enemy shells. Tanks had been mired in the sand.[5] There had been no time to give thought to the valuable equipment that lay beside the bodies of more valuable men.

Obviously, as troops were getting a foothold on the Continent, it was more important to bring in supplies than to salvage them. In some areas dumps were opened on D-plus-2-day and in others not until D-plus-3-day and D-plus-4-day.[6] Before dumps could be set up, fields had to be cleared of mines and snipers.[7] Two salvage dumps, opened on 14 June (D-plus-8-day), operated smoothly. On 17 June all life belts worn by troops on the cross-Channel trip were ordered to be turned over for shipment to the United Kingdom. Many belts that had been left on the beaches for collection were among the clothing and equipment delivered to the first salvage dumps.[8]

During the first stages of the assault the First United States Army, using quartermaster service companies, operated salvage dumps on both UTAH and OMAHA beaches in areas adjacent to class II and class IV dumps.[9] One officer and one enlisted man from the Advance Section, Communications Zone, arrived on 17 June and began to observe salvage activities and to aid in their supervision.[10]

ADVICE FROM NATOUSA

In anticipation of the large quantities of salvage that would be piled in dumps on the Continent, Colonel Joseph C. Odell, Deputy Chief Quartermaster, had written Colonel William H. Middleswart on 5 June 1944 requesting information on the disposition that NATOUSA had made of the matèrial. Colonel Middleswart replied promptly and fully. Every effort, he said, had been made to dispose of scrap rapidly. No materials, except heavy ferrous scrap, were returned to the United States. Class D shoes were being sold in North Africa, Sardinia, and Corsica, while in Italy they were being turned over to the British or to the Allied Control Commission for use of the Italian Army or civilian population. Light ferrous scrap was being sold to the highest bidder; and aluminum scrap and magnesium scrap were being sold to the best advantage of the United States Government—to the highest bidder, except in one area where prices had been fixed in order to avoid disturbing the economy. In North Africa textile scrap was being transferred under lend-lease to agencies designated by the French authorities, while in Sicily, Sardinia, and Corsica it was being sold to the highest bidder. In Italy unrepairable clothing was being turned over to the British or other agencies for use by the Italian Army or the civilian population. Scrap rubber (except tires and tubes), scrap wire, scrap leather, and bottles were being sold to the highest bidder.

Though heavy ferrous scrap was handled by Ordnance, the Quartermaster Service rendered assistance. During the first 12 months of the Theater's existence, congested port facilities had prevented the sending of heavy ferrous scrap to the zone of interior. Since the improvement of conditions, about 70,000 tons of scrap materials had been shipped. The removal of explosives constituted the major problem connected with the preparation of scrap metals, for the enemy had been clever about hiding grenades and charges in unexpected places. NATOUSA had recommended to the War Department that the T/O & E of the quartermaster salvage-repair company be changed to provide for additional heavy material. Before the receipt of War Department nonconcurrence, four salvage companies had been equipped with heavy wreckers, tank transporters, tractors, and some heavy-duty cranes.[11]

SALVAGE PROGRAM ESTABLISHED

The Continental salvage program was not established on a permanent basis until after the fall of Cherbourg. By 26 June all headquarters personnel connected with quartermaster salvage activities had reached the Continent. Soon thereafter ADSEC actually began its work.

On 27 June 1944 the 229th Quartermaster Salvage Collecting Company opened a collecting point to serve all troops in the Cherbourg area.[12] Major Sydney Grossman, who was assigned to ADSEC but attached to the First Army, entered Cherbourg at 1:30 Tuesday afternoon, 27 June. The next morning the 999th Salvage Collecting Company, a First Army unit, arrived and began sweeping the area. All types of equipment were picked up, particularly helmets and clothing abandoned by the Germans. That afternoon Colonel Michael H. Zwicker, ADSEC Quartermaster, arrived. He found large quantities of supplies and equipment in the old arsenal on the Rue de Val-de-Saire, which became the first quartermaster depot on the Continent. Here were stationery, desks, tables, chairs, coal, hay, grain, and food. On Wednesday morning, the 999th Salvage Collecting Company having been withdrawn for use by the Third Army, the 229th, an ADSEC unit, operated the collecting point.[13]

Cherbourg Salvage Depot Opened

The first salvage depot at Cherbourg was opened on 28 June in a former lumber warehouse on the Rue de Beauvais in the southern part of the city and began at once the repair of furniture and clothing. After 8 August the shortage of the water supply cut down the volume of work. Before that time, however, the salvage depot had become a branch of the main depot. Civilian women operated 32 sewing machines, which had been procured at UTAH beach. Thus, despite the power and water shortage, a considerable amount of work was accomplished.[14]

Salvage Companies Arrive

Quartermaster salvage-collecting companies reached the Continent on 27 June 1944. The 235th, assisted by the 233d, opened a dump at OMAHA and sent out daily patrols to search for salvage along the roads in the corps rear areas and the beach maintenance areas. According to the army operation scheme, salvage was received at all class I truckheads and then shipped to army quartermaster salvage dumps on returning ration trucks. Though it was sorted on both beaches into usable, repairable, and unrepairable classes, lack of salvage-repair and laundry facilities necessitated the leaving of repairable items at salvage dumps. Usable items, however, were turned in at class II and class IV dumps for immediate issue.[15]

The 216th Quartermaster Salvage Repair Company (Semimobile) began operations on 16 July, the 224th Quartermaster Salvage Repair Company (Semimobile) on 17 July, and the 294th Quartermaster Salvage Repair Company (Semimobile) on 22 July. Because these units were constantly moving forward, they were not able to operate at maximum capacity.[16]

Early Operations

The First Army turned over to ADSEC its UTAH dump on 1 July and its OMAHA dump on 18 July. By this time such large quantities of quartermaster items had accumulated that is was necessary to supplement army personnel by civilians and in some instances by prisoners of war.[17] The most efficient workers were Russian women whose families had been impressed by the Germans and brought to Normandy as laborers. The retreating Germans had taken the men with them but had left the women behind. One hundred or so of these women, who were employed at OMAHA beach, worked diligently and uncomplainingly for long hours. They laughed when the commanding officer of the depot expressed the fear that the work would be too heavy for them, saying that they had been used by the Germans for road building and other heavy construction. They insisted that they were intent upon doing a good job because they wanted to help end the war. As soon as a larger number of troops arrived, however, the women were dropped. Speaking in retrospect a number of weeks later, the Chief Quartermaster declared that the salvage work in Normandy had been one of the outstanding accomplishments of the Quartermaster Service on the Continent. Dr. Anna Rosenberg, close associate of President Roosevelt, had been so impressed by the work of the Russian women that she had sent from the United States a representative of the press to observe the salvage operations. Major General Littlejohn had been chagrined to find that the Russian women had been discharged before the arrival of the reporter. The upshot was that he ordered the Russian women reemployed as the nucleus around which to build an organization designed to take care of salvage from the front.[18]

In the early days of the invasion French boys and girls were recruited to assist in both the collection and the repair of salvage. They proved to be enthusiastic workers, grateful for

FIGURE 16.—Russian Women Sorting Clothing in Normandy.

FIGURE 17.—Russian Women Repairing Clothing in Normandy.

FIGURE 18.—French Children Sizing Socks in Normandy.

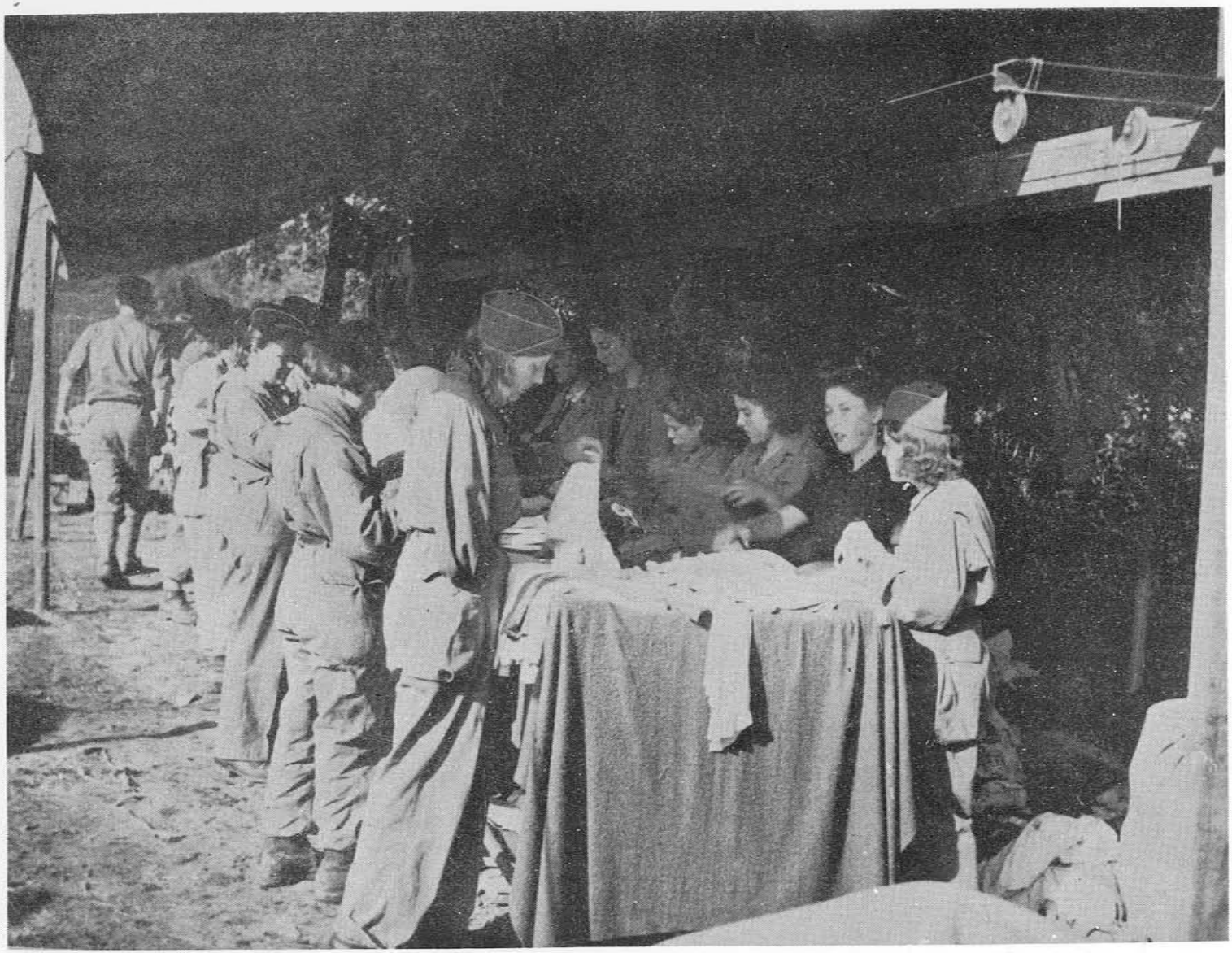

FIGURE 19.—French Girls Sorting Garments in Normandy.

the francs paid them and the hot meal served them at noon. The young people, however, had suffered so many privations during the days of German occupation that they proved to be somewhat light-fingered. Because of the close supervision required, their employment was discontinued as soon as other labor could be found.[19]

On 25 July one quartermaster salvage-collecting company was operating in the communications zone; three were operating with the First Army; one was operating with the Third Army; and two others were expected before 25 August. Besides the three salvage-repair companies (semimobile) that were with the First Army, three were operating with the Communications Zone, and three others were expected before 25 August. One quartermaster salvage-repair company (fixed) was at UTAH beach. Upon the arrival of machinery for its static repair shop, the company would be established at a permanent location.[20] Third Army salvage operations had begun on 19 July in an area adjacent to the class II and class IV depot at Saint Jacques de Nehou. Items that could not be repaired on the spot were sent to the salvage dumps on UTAH beach.[21]

BETWEEN SAINT LO AND PARIS

From the break-through at Saint Lo on 25 July 1944 to the capture of Paris on 25 August, the armies rushed forward with such breath-taking speed as to prevent the carrying out of normal salvage procedure. The Depot Operations Manual, however, published in August, set up procedure, which was followed as closely as the tactical situation permitted (see app. XI). The First Army was served by three quartermaster salvage-collecting companies—the 233d, 235th, and 999th. The activities of the units were hampered, however, by the rapid movement of the combat troops, the small amount of salvage discarded, and the use of the companies' organic transportation to haul more important classes of supplies. ADSEC assumed control of the salvage dump in the beach maintenance area on 6 August. The next day the First Army established a new dump in the vicinity of Saint Lo and thereafter other dumps near army quartermaster class II and class IV installations.[22]

During this period the Third Army set up salvage dumps and moved them forward progressively as new class I supply points were established. One squad from the 237th Quartermaster Salvage Collecting Company served each class I supply point to accept salvage that organizations turned in at truckheads. It was the general practice to send collected material to the main salvage dumps for processing. Two truckheads, however, were instructed to ship all accumulated salvage to Cherbourg on empty ration trains. At the main salvage dumps all quartermaster clothing classified as B and C was fumigated and laundered, and all class B and class C web equipment was fumigated and scrubbed lightly. Class B items were then delivered to the nearest quartermaster class II and class IV depot, and class C items were repaired by mobile repair shops. Efforts were made to establish salvage dumps close to class II and class IV depots as soon as class I points had been moved forward.[23]

Le Mans Depot Established

Plans developed in August looked toward the establishment of a salvage-repair installation just outside Laval on the main highway leading to Le Mans. Here four two-story buildings were available—two in good condition, one in need of minor repairs, and one so damaged that reconditioning would probably be too expensive.[24]

The 64th Quartermaster Base Depot, which had been at OMAHA beach under First Army supervision, was turned over to ADSEC on 20 August.[25] Immediate steps were taken to move the base depot to Le Mans, where sufficient closed space had been assigned in an arsenal for the storage of all repair parts and for a metal-repair machine shop. General salvage activities would be conducted at a cartridge plant. At that time the Third Army was directing salvage in the Le Mans area.[26] The first echelon of the 64th Quartermaster Base Depot, which included the 696th Salvage Repair Company (Fixed), was ordered to reach Le Mans by 26 August.[27]

On 22 August G-4 had called together representatives of the Transportation, Engineer, Medical, Ordnance, and Quartermaster Services to decide upon the allocation of storage space in Le Mans. The conference resulted in the assignment to the Quartermaster Service of about 1,200,000 square feet of closed storage space that would be usable as soon as cleaning and minor repairs had been accomplished and 500,000 square feet of closed storage space that would be usable as soon as tracks and roofs could be repaired. At two other points 38,000,000 square feet of open space was allotted to the Quartermaster Service.[28]

The detailed plan for salvage activities in Le Mans called for the first increment of the 696th Quartermaster Salvage Repair Company (Fixed) to begin operations in Le Mans on 1 September and for the second increment to operate at OMAHA until midnight of 31 Au-

gust and then move to Le Mans. The 529th Quartermaster Salvage Repair Company (Semimobile) would be moved from UTAH on 1 September to join the 696th Quartermaster Salvage Repair Company (Fixed). The second platoon of the 540th Quartermaster Salvage Repair Company (Semimobile), then on loan to the Third Army, would be moved before 1 September to OMAHA to perform repair services incident to cleaning up the dump. After 1 September all salvage activities of the UTAH dump would be transferred to the 52d Quartermaster Base Depot. All operating supplies in the United Kingdom would be called forward on 26 August for shipment direct to Le Mans.[29] The salvage depot at Le Mans was opened by ADSEC on 6 September 1944 and turned over 2 days later to the Loire Section.[30]

Rennes Depot Established

On 17 August 1944 a reconnaissance party inspected establishments in Rennes for the purpose of setting up salvage-repair and laundry facilities. Though most of the institutions inspected were serving or were about to serve the Service de 1' Intendance of the French Army, their full capacity was not needed. Members of the party found that a factory in Rennes could convert rags into thread for reweaving. The Mother Superior of the Monastaire de Saint Cyr told them that her institution could handle from 4,000 to 6,000 pounds of laundry a day if coal and soap could be provided. The sisters would also make minor repairs on clothing. A prison for women, which had 185 sewing machines and some buttonhole-stitching machines, could do a considerable amount of work for United States troops. A shoe factory, then manufacturing shoes for the French Army and French civilians, could turn out 1,300 shoes daily if electricity could be provided, and a shoe-repair shop that was then closed could be reopened. A factory that made men's shirts could be used for the repair of individual clothing. A recreation park containing about 6 acres could be converted into a distributing point.[31]

Another reconnaissance party visited Rennes on 19 August in search of a location for a salvage-collecting point. The headquarters of the Shell Oil Company was found to be so badly damaged as to be wholly unsuitable. An automobile race track, however, could be used for two semimobile salvage companies, though the Germans had left only one of its buildings standing. A brick warehouse, which the Germans had used to store supplies, could be converted into a shoe shop; and a chemical plant, into a salvage-collecting point if the proper repairs could be made.[32]

The choice for the salvage-collecting point fell upon the recreation park, which formerly had been a municipal stadium. For lack of closed storage, tarpaulins were used to cover items that needed protection. The 53d Quartermaster Base Depot, in charge of operations at Rennes, received approval early in September for the use of a site outside the city. First, however, the engineers would have to restore railroads, buildings, electric power, and water supply. The depot's first task was the collection of salvage in and about the city. No effort was made then to take over army salvage dumps, for troops were then moving rapidly. In the absence of salvage-collecting companies, service troops and depot supply personnel were used for salvage operations.[33]

FROM PARIS TO GERMANY

From the Paris area spearheads of the Third United States Army pressed toward the Marne River, drove through Chateau-Thierry and Soissons, and closed in on Reims.[34] By the end of August the Allied offensive was well ahead of schedule and still gaining momentum. The Allied Forces reached Belgium on 2 September. That day the 2d Armored Division of the First United States Army rolled into the area south of Tournai. The British Second Army entered Antwerp on 4 September. The Canadian First Army captured Ostend on 6 September, Le Havre on 8 September, and Boulogne on 18 September. The VII Corps Artillery shelled German soil for the first time on 10 September and captured Eupen and Malmedy. The Ninth United States Army captured Brest on 19 September. German resistance in the Cape Gris Nez sector collapsed with the capture of Calais on 30 September by the Canadian First Army. Meanwhile, units of the First United States Army had crossed the German frontier some 40 miles northwest of Trier. The 82d and the 101st Airborne Divisions, having taken bridges over the Meuse and Waal Rivers, had joined the British Second Army at Nijmegen on 19 September. Toward the end of the month units of the First United States Army were fighting on the outskirts of the Siegfried Line.[35]

The rapid movement of the armies necessitated revisions of the maintenance program. Therefore, G-4 called a meeting on 27 September for the purpose of discussing the establishment of fifth echelon maintenance facilities close to the armies. Under the arrangements then in effect, the hauls had been too long for efficient operation. G-4 suggested that a maintenance area be set up in the vicinity of Nancy and Metz and possibly at Verdun for support

FIGURE 20.—Salvage-Collecting Company at Work.

FIGURE 21.—Salvage Clothing Being Sorted at Le Mans.

FIGURE 22.—Salvaged Shoes Being Repaired at Le Mans.

of the Third and Ninth Armies. These areas could also take care later of the needs of the First and Seventh Armies. At that time, however, a maintenance area should be set up near Liege and Namur for the support of the First Army. It was desirable that a repair shop be placed there. Though Antwerp had been entered, the garrisons on the Schledt Estuary had not surrendered. Accordingly, it seemed wise that Antwerp should be developed only for local maintenance. Paris should not be developed at all at that time, and Le Mans should have no further immediate development.

The quartermaster representatives at the meeting mentioned that the static maintenance depot would soon be moved from Le Mans to Reims. G-4 posed the question as to whether or not Nancy should be considered instead of Reims and suggested that a reconnaissance team made up from members of the supply services visit the Nancy-Metz area and report the amount of storage space and facilities available there.[36]

Reims Depot Established

Two days after the meeting, the Chief Quartermaster wrote Colonel Samuel W. Smithers, ADSEC Quartermaster, that the 64th Quartermaster Base Depot had been moved to Reims and that he was arranging to have a team visit the Third Army in order to develop a plan for bringing the salvage program to full efficiency.[37] He also directed the Installations Division to develop a salvage plan that could be put into effect immediately.[38] On 25 October the salvage depot at Reims, the principal salvage depot on the Continent, was turned over to ADSEC.[39]

Reims has a population of about 100,000. Ninety-eight miles northeast of Paris, it is situated in a bowl formed by hills that rise out of the "champagne plain" of France. It is served by the Eastern Railway, the Vesle River, and a canal that connects the Aisne and Marne Rivers. The little city played an important part in French warfare from the Roman Conquest to World War II. Its people helped repulse barbarous tribes who invaded France in 336. It was vanquished by the Vandals and Attila the Hun. The English acquired Reims in 1420 by the terms of the Treaty of Troyes but were expelled in 1429 by French troops under Joan of Arc. It changed hands many times during the Napoleonic wars and was impoverished during the Franco-Prussian War by the Germans, who made it the seat of a governor general. During the devastating battles of World War I people took refuge in the city's huge subterranean wine cellars. In 1918 Reims was almost in ruins and its cathedral was badly damaged. The city suffered again in World War II but not as severely as in other wars.

When Reims was entered by the Third United States Army on 29 August 1944, its cathedral was found to be scarred but still standing and many of its buildings not past restoring. The facilities for salvage operation first available at Reims consisted principally of an immense structure that had been built before the war by a French chain of grocery stores. Used by the Germans as a food storage depot, the warehouse had been pounded by Allied bombs for 4 years. Before it could be made serviceable, twisted girders and debris had to be cleared away, roofs repaired, conveyors fixed, the building rewired, windows installed, walls rebuilt, and floors reinforced. A solid airtight building was needed to combat the wet weather of France, which was capable of destroying supplies as effectively as were enemy bombs. The plant was still being patched 4 months after American occupancy. Yet production began the day that the 64th Quartermaster Base Depot moved to Reims.[40] As salvage activities for the Continent were concentrated in Reims, other facilities were added throughout the city. The map appearing as appendix XII will give an idea of the magnitude of salvage operations in Reims. Appendix XIII shows the organization of the Salvage Division of depot Q-256 in Reims.

Other Salvage Depots

The status of major salvage installations on 16 November was as follows:

56th Quartermaster Base Depot in Cherbourg: general salvage—receiving and repair—and can repair.

52d Quartermaster Base Depot in Longueville: general salvage—receiving—and clothing repair.

53d Quartermaster Base Depot in Rennes: general salvage—receiving and repair.

72d Quartermaster Base Depot in Le Mans: general salvage—receiving and repair.

63d Quartermaster Base Depot in Paris: general salvage—receiving.

64th Quartermaster Base Depot and 696th Salvage Repair Company (Fixed) in Reims: general salvage—receiving and repair—and central depot for operating supplies and maintenance spare parts.

Technical Intelligence and Field Service Teams

The team that Major General Littlejohn mentioned in his letter to Colonel Smithers had set out for army areas on 9 October. One of two quartermaster technical intelligence teams,

it consisted of one captain, one first sergeant, one staff sergeant, and one private. Between 11 and 16 October the team questioned First Army quartermaster service units, and between 17 and 21 October questioned troops of the 29th and 30th Divisions and the 2d Armored Division of the XIX Corps. On 22 and 23 October it made contact with the Twenty-first Army Group and on 24 October entered Aachen. The team returned to Paris on 26 October and made its report early in November.

Units of the 294th and 216th Quartermaster Salvage Repair Companies (Semimobile) had been working out of doors in tents since 12 July. The metal-repair section had been working on stoves, lanterns, field ranges, and mess equipment, the repair of which was very important at that time. Because essential tools and equipment had been lacking, the companies had used captured stocks or improvisations. The need for a new T/O & E was apparent. Some of the men employed in the tentage-repair section worked in the depot area. Others, organized in teams consisting of two to four men, repaired tents in the field without taking them down. Heavy-duty sewing machines and waterproof material were badly needed. The cast-iron fixed bench jack used by the shoe-repair section had been found to break easily. An improvised revolving jack, which had been made from an upright jack, worked satisfactorily.

The 224th Quartermaster Salvage Company (Semimobile) needed a spray gun for steel-helmet repair, a standard kit-straightener tool, and a mess-gear straightener. This equipment, for which the T/O & E made no provisions, had been improvised. In addition, the company needed pliers, chisels, and all types of files. The shoe-repair section found the old-type Landis sewing machine unsatisfactory. Only 4 hammers were issued, whereas 15 were needed. In one section a man had brought his own heel remover, which was found to speed up the work. The shoe-repair section had made no provisions for the storage of repaired items.

The 579th Quartermaster Laundry Company lacked maintenance equipment, such as extra spark plugs, soldering irons, spark-plug adjustments, electrical kits of wrenches, pliers, and screw drivers. Privately owned sets of tools had in a number of cases saved the situation.[41]

In mid-September, when the Third United States Army became virtually immobilized for want of fuels and lubricants, its quartermaster had been able to establish in the rear of each corps a company salvage point, where items were processed and the most usable items repaired, except those for which spare parts were lacking.[42] Between 3 and 13 November a quartermaster technical intelligence team braved rain and near-freezing temperature to visit the Third United States Army area in the vicinity of Nancy, Toul, Pont-a-Mousson, Etain Conflans, Metz, Thionville, and Verdun. The repair of M-1937 field ranges, gasoline lanterns, one- and two-burner stoves, and immersion heaters was found to be a major problem. For its solution a quartermaster repair installation had been established at the class I depot in Toul, which was operated by one platoon of a quartermaster service company. This installation consisted of a static repair shop and mobile teams made up of one officer and six enlisted men, who traveled from division to division. When units came to draw rations, they brought to the static repair shop items in need of repair and received new items in exchange.

Mobile teams were operating with combat divisions on schedules arranged by division quartermasters. One team, having just completed repair work with the 35th Infantry Division, reported that 340 field ranges, 515 stoves, 190 lanterns, 10 immersion heaters, and 50 hand pumps had been repaired. The equipment of this team consisted of one 2½-ton truck with a 1-ton trailer, a tool kit per man that contained whatever tools were available, an emery wheel, vise, anvil, two workbenches, two blowtorches, two fire extinguishers, and a limited supply of spare parts.

Onan electric plants had given several salvage-collecting points considerable trouble. One new plant was found defective when it was taken from the crate. Lack of proper lubrication had caused the rods of other plants to freeze to the crankshafts and render the plants useless. It was suggested that the defects be reported to the manufacturer.[43]

The 100-gallon gasoline dispenser caused the Third United States Army to call for a trained service team to help them. On 9 November the 64th Quartermaster Base Depot dispatched specialists to the field. The dispensers were found to be in bad condition. The pumps were not of the sort designed for belt drives; the gasoline contained salt water; and the operating units let the machinery completely wear out before trying to repair it and then seemed to have no idea where repairs or parts could be obtained. The field service team attempted to give the much-needed instruction.[44]

In an effort to install a preventive rather than a curative method, the Chief Quartermaster set up two field-service teams consisting of five officers, each of whom was a specialist in

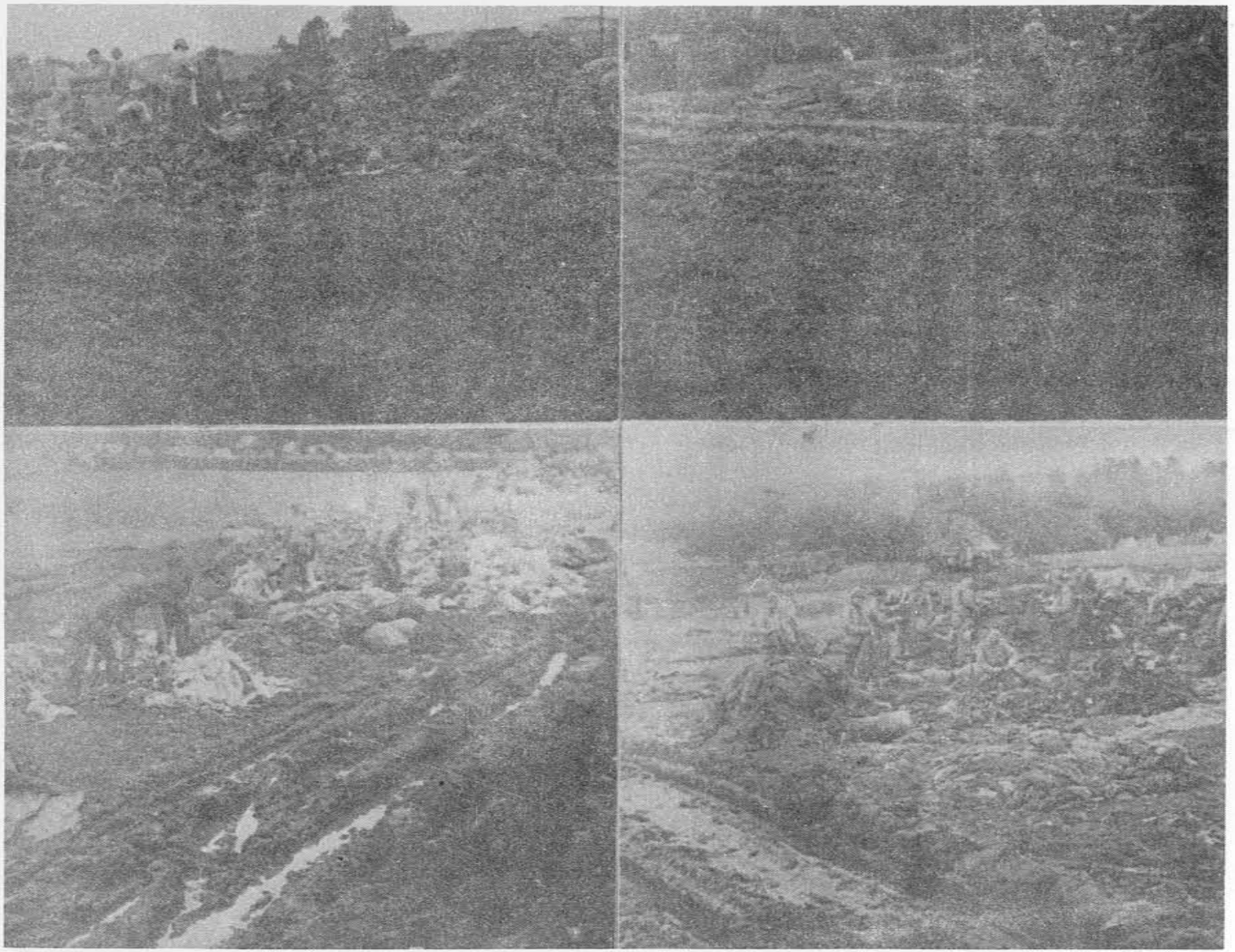

FIGURE 23.—First United States Army Salvage Point at Eupen.

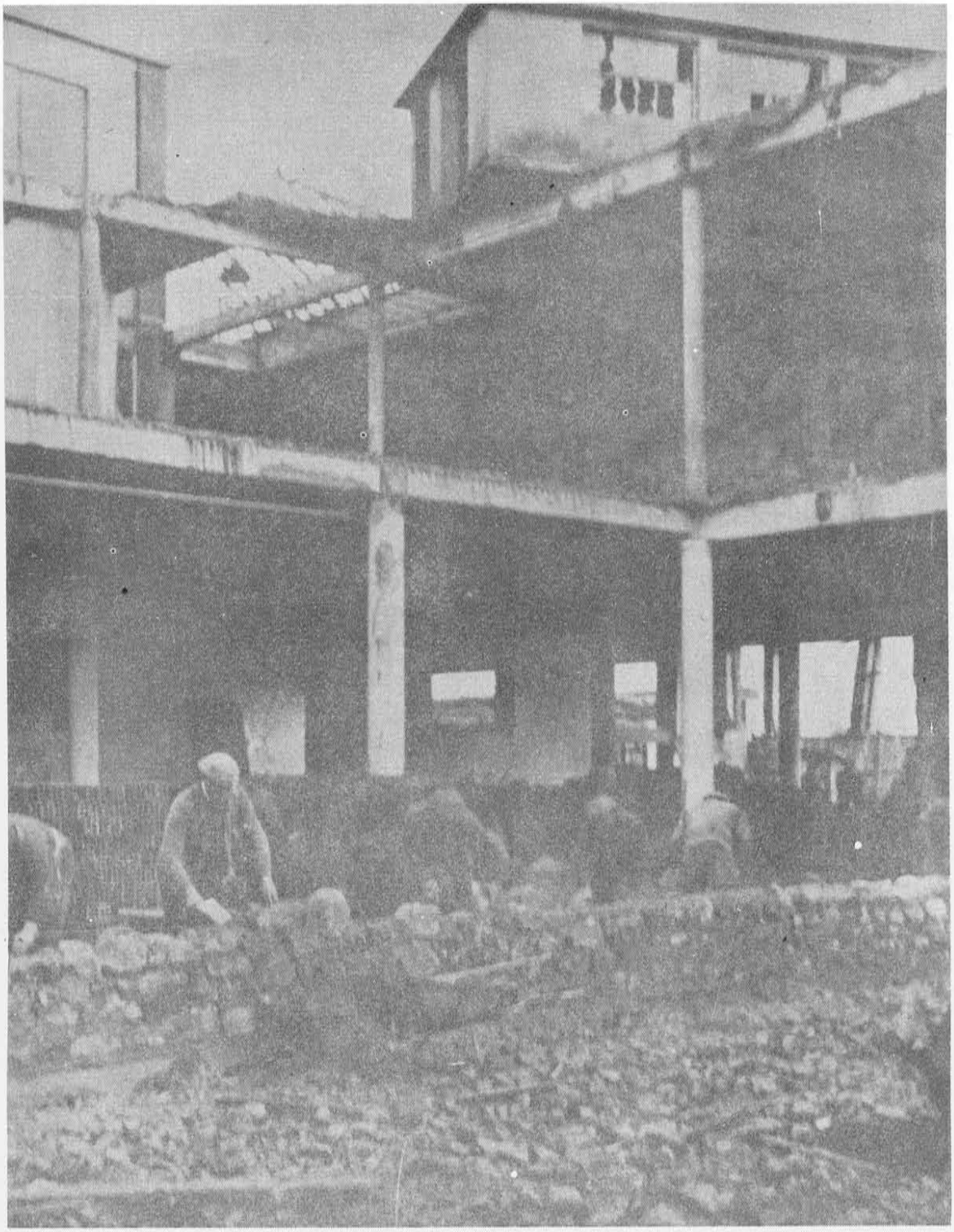

FIGURE 24.—Salvage Operations Started amid Rubble of Former Grocery Warehouse.

FIGURE 25.—A Restored Grocery Warehouse at Reims Used by the Salvage Depot.

FIGURE 26.—Members of Intelligence Teams Sorting Captured Equipment.

one of the following fields: office machinery; special-purpose equipment; laundry, sterilization, and fumigation-and-bath equipment; salvage-repair equipment; and bakery equipment. These teams would be sent to the Third Army from time to time to find what difficulties existed and to see that repair work was done.[45]

Between 21 November and 1 December another technical-intelligence team braved the elements to visit the Third Army, which had encircled Thionville and Metz. After 8 days of hard fighting, the Germans were being pushed toward the Rhine. Rain and sleet, which had been falling almost continuously, had brought the Moselle River and its tributary streams to flood height. The team reported that the 5th Division was supplementing normal salvage work with a four-man patrol and a 2½-ton truck. The patrol operated under the division quartermaster, who furnished the truck and used men lent him by infantry units. Through the work of the patrol large quantities of salvage had been returned to supply channels—clothing, tentage, mess equipment, and, in one 3-day period, 457 gasoline cans.[46]

The Third Army was treated to another visit from a technical-intelligence team between 7 and 18 December. Fighting in the Saar area had concentrated around Saarguemines, Saarlautern, and Saarbrucken, with sporadic resistance continuing in Metz. The Third Army, however, had continued to maintain company salvage-repair installations behind each corps. These installations were composed of one salvage-repair company, one salvage-collecting company, three sections of a laundry company, and two methyl-bromide fumigation chambers. Colonel Everett Busch, the Third Army Quartermaster, reported that he was having difficulty finding locations close enough to streams. Salvage-collecting points had been set up at each large dump, to which salvage was brought in empty ration trucks.[47] The team that visited the Third Army in December reported temperature around freezing, rain, frost, and thin layers of ice covering ponds and streams. Battlefield usage had rendered much clothing and equipment unrepairable. For instance, of 29,922 raincoats salvaged, only 6,695 could be used again. Salvage-collecting units delivered salvage to class I supply points, from which it was transported to salvage yards. For each corps there was usually one yard.[48]

In the first week of January a technical-intelligence team found conditions in the Ninth Army and First Army areas similar to those formerly encountered in the Third Army area. The Ninth Army—then in Holland on a 45-mile front along the Roer River from Simmerath to Linnich—was capturing many German agents and parachutists in and around its installation. The sudden movement of First Army troops occasioned by the German offensive in the Ardennes had resulted in active salvage operations. Teams from salvage-collecting companies operated in division areas. Arrangements had been made with the quartermaster of each division to return all quartermaster salvage that could be immediately reissued. The load picked up in a division was usually sorted at the truckhead from which the collecting company operated. Serviceable items were returned the next day to the quartermaster supply officer. The technical-intelligence team reported that about four truckloads of salvage were being collected daily, for the most part quartermaster items. The collecting teams were searching not only battlefield areas but public buildings and houses as well.[49]

SUPPLY AND STORAGE PLANS

Supply and storage plans were necessarily revised to meet changes in the military situation. The first over-all quartermaster supply and storage plan, which was published on 30 October 1944, touched only lightly upon salvage. It provided that all captured enemy class II supplies and all class X United States items in excess of the needs of sections and base sections would be reported to OCQM and shipped to Le Mans as directed and that further instructions would be issued as soon as the port of Antwerp was opened. The normal flow of salvage, spare parts, and laundry operating supplies would be from ports to Reims unless OCQM directed diversions to meet the requirements of the Channel, Normandy, and Brittany Base Sections and the Seine and Loire Sections.[50]

The capture of Antwerp and the consequent flow of supplies to armies that had already reached the German frontier radically changed the whole supply situation. Accordingly, a new quartermaster supply and storage plan was developed. Published on 1 December 1944, it was based upon the assumption that before 1 January 1945 large quantities of quartermaster supplies could be unloaded at Antwerp and promptly cleared from the port and that berths allocated for off-loading quartermaster supplies at Antwerp, Le Havre, Rouen, and Cherbourg would be adequate to discharge all quartermaster supplies.

The plan provided that all captured supplies and all POW supplies would be divided between the Reims and the Le Mans depot. The Reims salvage depot would hold all reserves of maintenance parts and salvage and laundry operating supplies for the entire Continent and

make bulk shipment to all armies, sections, and base sections. It would repair all quartermaster supplies and equipment that could not be repaired by using units and mobile quartermaster repair units. The Reims salvage depot would hold for 2,200,000 United States troops a 60-day level of maintenance parts and operating supplies. It was estimated that 80,000 square feet of space would be required to store maintenance parts and operating supplies and about 525,000 square feet of space would be required for salvage activities. The Reims salvage depot would also hold 75 percent of the Theater level of maintenance parts for quartermaster equipment and laundry and salvage operations. The other 25 percent would be unloading at ports or on wheels.[51]

In December and January the military situation required another change in supply and storage plans. The German offensive in the Ardennes had begun on 16 December. Though Von Runstedt's break-through was halted at the end of the month, the Battle of the Bulge continued throughout January. By the middle of the month, however, reduction of the Ardennes salient had been assured.

This was the tactical situation on 20 January 1945 when another over-all quartermaster supply and storage plan was published. The plan provided that the Le Mans area would continue to hold for a time all captured supplies. The depot soon would be closed, however, and all supplies held there would be transferred to Reims. The Reims salvage depot would hold all reserves of maintenance parts and of salvage and laundry operating supplies for the entire Continent and would repair all equipment that could not be repaired by the using unit and mobile quartermaster repair units. It would hold a 60-day level of maintenance parts and a 45-day level of operating supplies to meet Theater requirements. The estimate of storage space needed was identical with that of the preceding over-all supply and storage plan. The Reims salvage depot would hold 80 percent of the maintenance parts for quartermaster equipment and 80 percent of laundry and salvage operating supplies. The other 20 percent would be unloading at ports or on wheels.[52]

In February and March 1945 the Chief Quartermaster issued in the form of memorandums to section and base-section quartermasters the last quartermaster supply and storage plan formulated before VE-day. The Reims salvage depot would continue to hold reserves of maintenance parts and salvage and laundry supplies for the entire Continent and to make bulk shipments to all armies, sections, and base sections. It would also repair all quartermaster supplies and equipment that could not be repaired by using units or quartermaster repair units.[53] The flow of salvage in March 1945 appears as appendix XIV.

RETURN OF WINTER CLOTHING

The salvage load on the Continent was greatly augmented in the early spring of 1945 by the large quantities of winter clothing returned by the armies. In order to avoid a bottle-neck, Colonel Thomas B. Phillips had been sent into the field in February to discuss the problem with army quartermasters and to gather information and ideas that would lead to a constructive program.[54]

Colonel Phillips found that the Continental Advance Section (CONAD), which supported the armies in southern France, planned to centralize activities in Nancy. The site proposed for the fixed salvage installation in Nancy lacked sufficient covered space, but adequate open storage space was adjacent to railroad sidings. The Seventh United States Army would cooperate with any procedure established by the Communications Zone. It would provide army personnel to classify garments and separate them into those that needed no processing, those that needed merely to be cleaned, those that required repairs, and those that were unrepairable. The Seventh Army was already turning in the snow capes that had been manufactured by its own personnel. No appreciable amount of winter clothing would be received from the French First Army.

Colonel Phillips recommended that the 592d Salvage Repair Company (Semimobile) be released from CONAD and attached to the Seventh Army, that the laundry situation in the Nancy area be investigated with a view to using any available surplus capacity, that the French First Army be told what procedure it should follow, and that instructions be prepared and distributed through the quartermaster of the Sixth Army Group and the quartermaster of the Seventh Army.[55]

As winter clothing began to pour in to depot Q-256 in Reims, a critical situation developed, which was made more serious by the spring offensive. It became apparent that the garments could not be processed unless other buildings were erected at the depot and new laundry equipment was installed. It was planned to ship salvaged clothing and overshoes from the Reims salvage depot to the quartermaster storage depot near Romilly. G-4 directed that the Quartermaster Service send baling machines to the depots at once. If a sufficient number of these machines could not be brought from

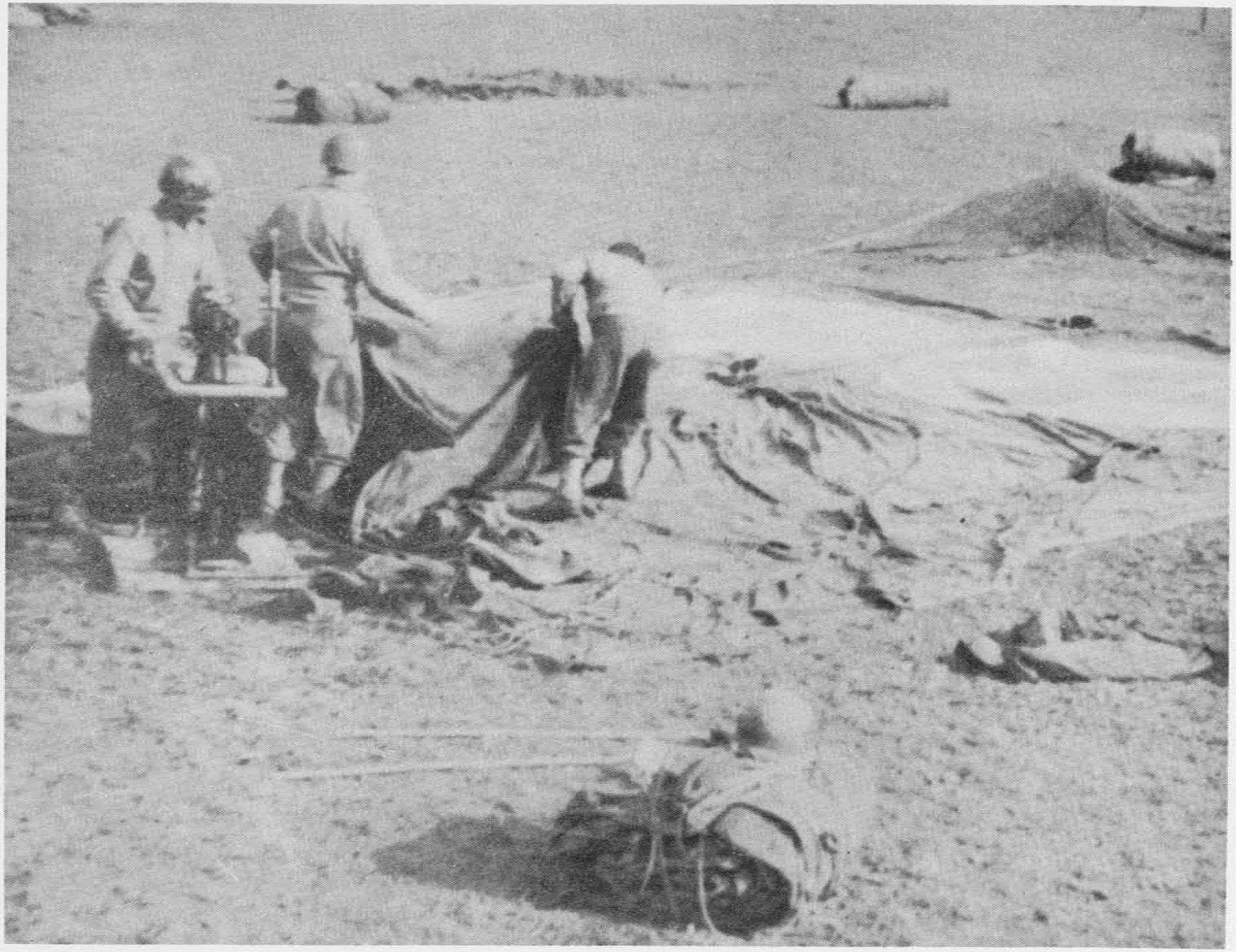

FIGURE 27.—Tent Repair in the Field.

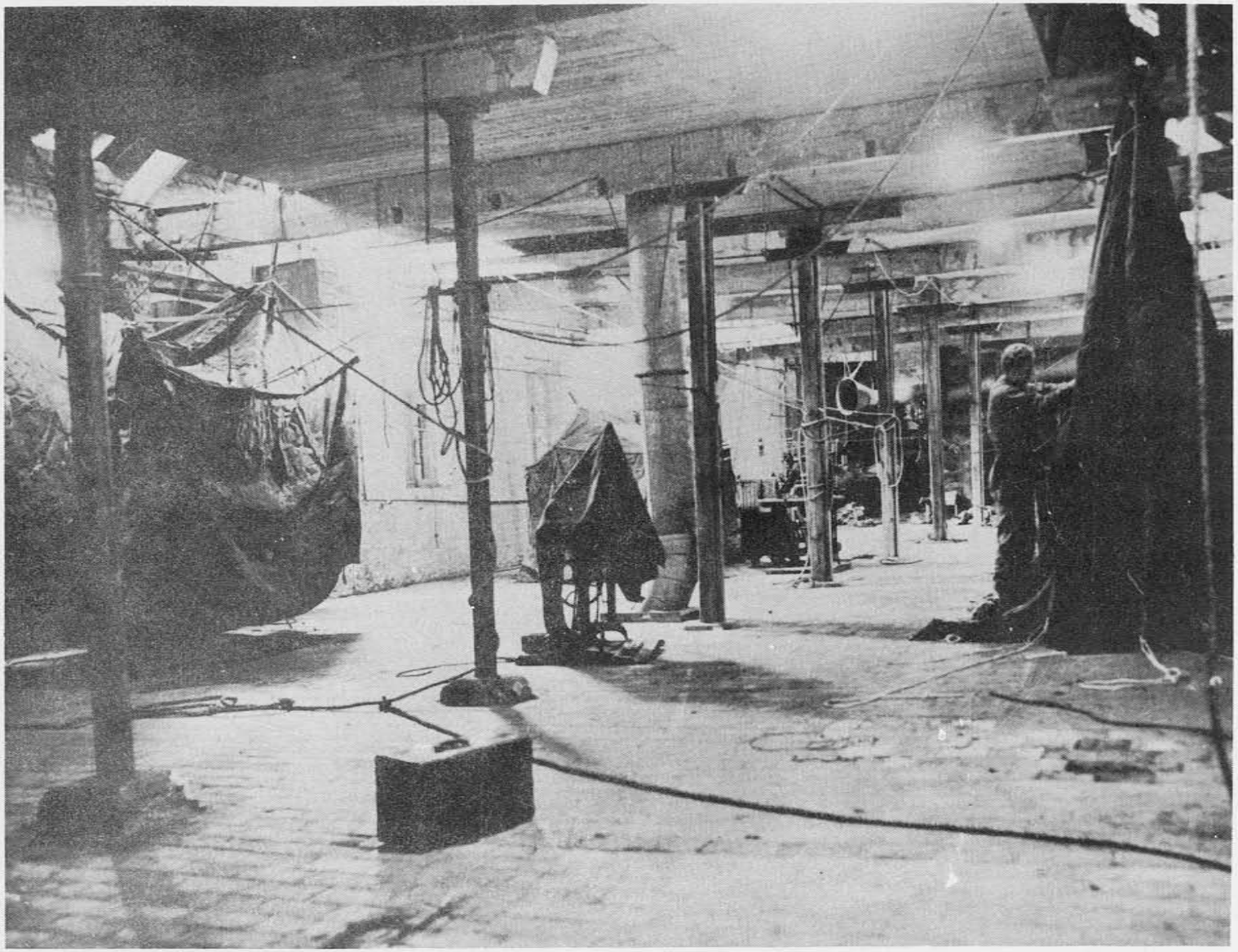

FIGURE 28.—Tent Repair Indoors.

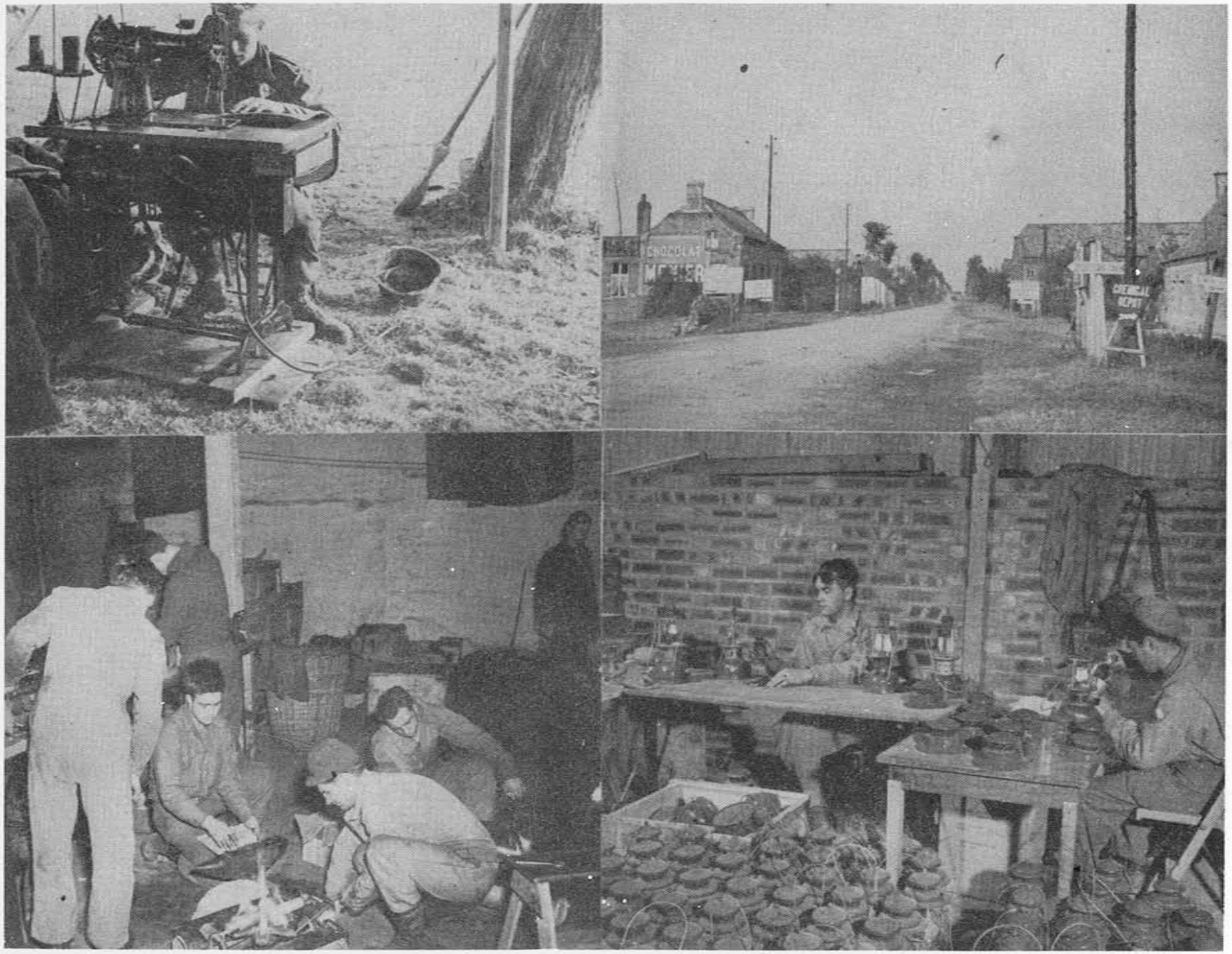

FIGURE 29.—Army Service Area behind the Lines.

FIGURE 30.—Salvage Returned to a Third Army Collecting Point.

FIGURE 31.—Salvage Returned to a First Army Collecting Point.

Rouen or Antwerp by truck, arrangements should be made to have them brought by air from the United Kingdom. Similar arrangements should be made with regard to other needed machinery. Fortunately, Italian service units could be used to process the unprecedented volume of salvage.[56]

The work in southern France was hampered because the Engineer Service did not send promptly the approval necessary for installing a salvage-repair shop in Nancy. Brigadier General William H. Middleswart, Deputy for Administration, urged that efforts be made to impress upon the engineers that the backlog could not be decreased until the shop was established.[57] On 12 February 1945 the Southern Line of Communications (SOLOC), which had supplied the southern armies, had gone out of existence, and the boundaries of the European Theater of Operations had been redefined.[58] Consequently, Brigadier General Middleswart thought that for the sake of uniformity the salvage procedures in the former SOLOC area should be integrated with those of northern France. Moreover, he was not sure that the procedures in northern France were as sound as those of southern France, particularly with regard to the disposition of salvage that should be turned over to the French. He thought strongly that the SOLOC system should not be changed if it was found to be better than the system in use throughout the rest of the Theater.[59] In the Nancy area all salvage was being processed by the mobile salvage repair company at Nancy. All Seventh Army salvage was being sent to Vesoul; but after 15 March, when salvage operations at Vesoul would be discontinued, it would be sent to Nancy. According to the CONAD salvage officer, salvage had been arriving so badly mixed that it took five times as long to segregate, sort, and classify it as to do the repair work. On 13 March the salvage-repair equipment had not been installed in Nancy, for only about 25 percent of the needed machinery had arrived. Major General Littlejohn recommended that the Chief of the Installations Division take positive action to uncover all equipment in the Delta Base Section and have it shipped from Marseille to Nancy without delay. In the meantime the CONAD quartermaster was hoping to get fixed salvage operations at Nancy partly under way by the first of May, using the machinery on hand and any additional equipment that he could locate.[60]

For processing winter clothing Colonel Phillips investigated the possibilities of acquiring additional facilities in the northern part of the Theater. In Huy he found 281,000 square feet of closed space in addition to that already occupied. In Liege 337,500 square feet of closed space was already in the possession of the 58th Base Depot Company. Thus it seemed that, with 618,500 square feet of space available, the salvage operations in the Liege-Huy area could be activated immediately.[61] At Seilles near Huy the burgomaster had promised 100 sewing machines, 200 seamstresses, 12 English-speaking clerks, and 500 laborers.[62]

The transfer of the 697th Quartermaster Salvage Repair Company (Fixed) from the United Kingdom to the Continent, which had been under discussion since 26 January, was vigorously revived in the middle of March. Colonel A. M. Brumbaugh, Quartermaster of the United Kingdom Base, had been hoping that he had convinced the Chief Quartermaster of the inadvisability of moving this company from depot Q-140 in Lydney. He had insisted that its transfer before 30 June 1945 would cripple operations in the United Kingdom.[63] Colonel Beny Rosaler, at that time serving as Chief of the Installations Division, declared that, fully recognizing his responsibility for salvage operations in the United Kingdom, he believed nevertheless that the removal of the 697th Quartermaster Salvage Company (Fixed) would be wise. The backlog in the United Kingdom, he said, represented a 1-week production and was, therefore, normal. The amount of salvage on the Continent was 10 times as large and represented 10 weeks of work. The winter clothing turned in would reach a volume of 12,000 tons. On the other hand, troop strength in the United Kingdom had decreased. Accordingly, he insisted that the company be sent to the Continent at once.[64]

Colonel Brumbaugh lost his battle to hold the 697th in England. The advance detachment was ordered to reach the Continent early in May. It would consist of 6 officers and 10 enlisted men. On 16 April all the equipment of the company was being packed and crated for shipment. It was expected that the entire company would be on the Continent by 15 May. Colonel Rosaler had taken necessary steps to station the fixed salvage platoon at Verviers, where machinery would be immediately conveyed.[65]

Meanwhile, the Oise Section had made plans to take over the Nancy area early in April and to have the salvage operations in Epinal controlled by Nancy.[66] Colonel Rosaler insisted that the fixed salvage platoon at Nancy could not function properly unless it was reorganized and a qualified officer selected to run it. He wanted the platoon expanded and patterned after the 64th Quartermaster Base Depot.[67] At

the end of March the Salvage Division of the 64th Quartermaster Base Depot was using 314,000 square feet of closed space at three locations and 173,700 square feet of open space at two locations.[68]

TRAINING PROGRAM

A training program brought about considerable improvement in the quality of salvage operations. A quartermaster school was established on the Continent to train officers in all quartermaster activities. It was desired that field-grade quartermaster officers and potential field-grade officers attend this school prior to promotion to the next grade.[69] At the same time a salvage school was opened. The course was planned to cover a 2-week period, with classes beginning the first and third Mondays of the month. Each class was composed of 10 officers and 30 enlisted men chosen from among those who were engaged in salvage activities on the Continent. The school day consisted of 2 hours of classroom work and 8 hours of practice.[70] According to plans initiated in March, salvage instruction would be given at Nancy also. It was then recommended that a 5-day course be offered each officer and each key enlisted man of salvage-repair companies, especially those assigned to the armies. Sorting and classification would be stressed. It was also recommended that a 2-week course be given to at least one officer and one key enlisted man of each salvage-repair company. This course would stress actual salvage-repair work in the fixed shop.[71]

AFTER VICTORY

Because it was recognized that the cessation of hostilities would increase the salvage load, post VE-day planning was begun in the winter of 1944. On 17 December Brigadier General John B. Franks, Deputy Chief Quartermaster, instructed the Chief of the Installations Division to work toward replacing large quantities of clothing and equipment after the surrender of Germany. Items taken up would have to be repaired. Planning at that time indicated that much mechanical equipment would be moved to the Pacific. Stocks of spare parts, therefore, would have to be reassembled and made adequate for use in the European Theater and other theaters.[72]

Planning Directive, Series A, published serially between 5 March and 10 May 1945, covered supply plans during operation ECLIPSE, which dealt with the occupation of Germany. Before the surrender the boundaries of the United States zone within Germany had been defined, and maintenance areas had been designated. (See vol. I, ch. 5.) A revision of Plan C of Planning Directive, Series K, No. 1, published on 28 March 1945, specified that third, fourth, and fifth echelon maintenance would be provided for the Bremen-Bremerhaven enclave and fifth echelon maintenance for the Berlin area but none for the United States area in southern Germany.[73]

Before VE-day a quartermaster salvage depot had been set up at Verviers, Belgium, a few miles from the German border. Immediately after the surrender, plans were made to hold all the fixed salvage-repair machinery at Verviers in readiness to be moved to Germany and to keep at Verviers only a mobile repair plant.[74] The mission of the Verviers salvage depot, as set forth on 16 May, was the receipt and repair of all quartermaster supplies and equipment that could not be repaired by the using unit or mobile quartermaster repair units. The Verviers salvage depot would receive and store maintenance spare parts for general-purpose equipment and salvage-repair and laundry operating supplies and make bulk shipments to the First and Ninth Armies. It would hold a 30-day supply of spare parts. It required 27,000 square feet of space for storage and 75,000 square feet of space for salvage activities.[75]

The program by which salvage would be handled during the period of occupation reached blueprint form soon after VE-day. The following depots were in existence on 23 May 1945: Q-171, Cherbourg; Q-174, Rennes; Q-175, Le Mans; Q-177, Paris; Q-178, Verdun; Q-179, Liege; Q-181, Le Havre; Q-183, Charleroi; Q-185, Lille-Mons; Q-187, Dijon; Q-188, Marseille; Q-189, Antwerp; Q-256, Reims; Q-257, Nancy; and Q-258, Verviers.

A subinstallation at Pavilly would operate as a repair section of the Le Havre depot. A temporary subinstallation at Thaon, which had been processing winter clothing, would soon be closed. Its equipment would be transferred to Nancy. By 1 July 1945 the salvage depots in Le Mans would be closed; by 1 August the salvage depot in Rennes; by 1 September the salvage depots in Cherbourg and Lille; by 1 January those in Charleroi, Nancy, and Verviers; and by 1 March the salvage depot in Paris. The four salvage depots projected to August 1946 were those in Le Havre, Marseille, Antwerp, and Reims. Three salvage depots remained in the United Kingdom—Q-140 in Lydney, G-65 in Hilsea, and G-45 in Thatcham. Lydney and Hilsea would be closed on 1 August 1945, and Thatcham on 1 May 1946.

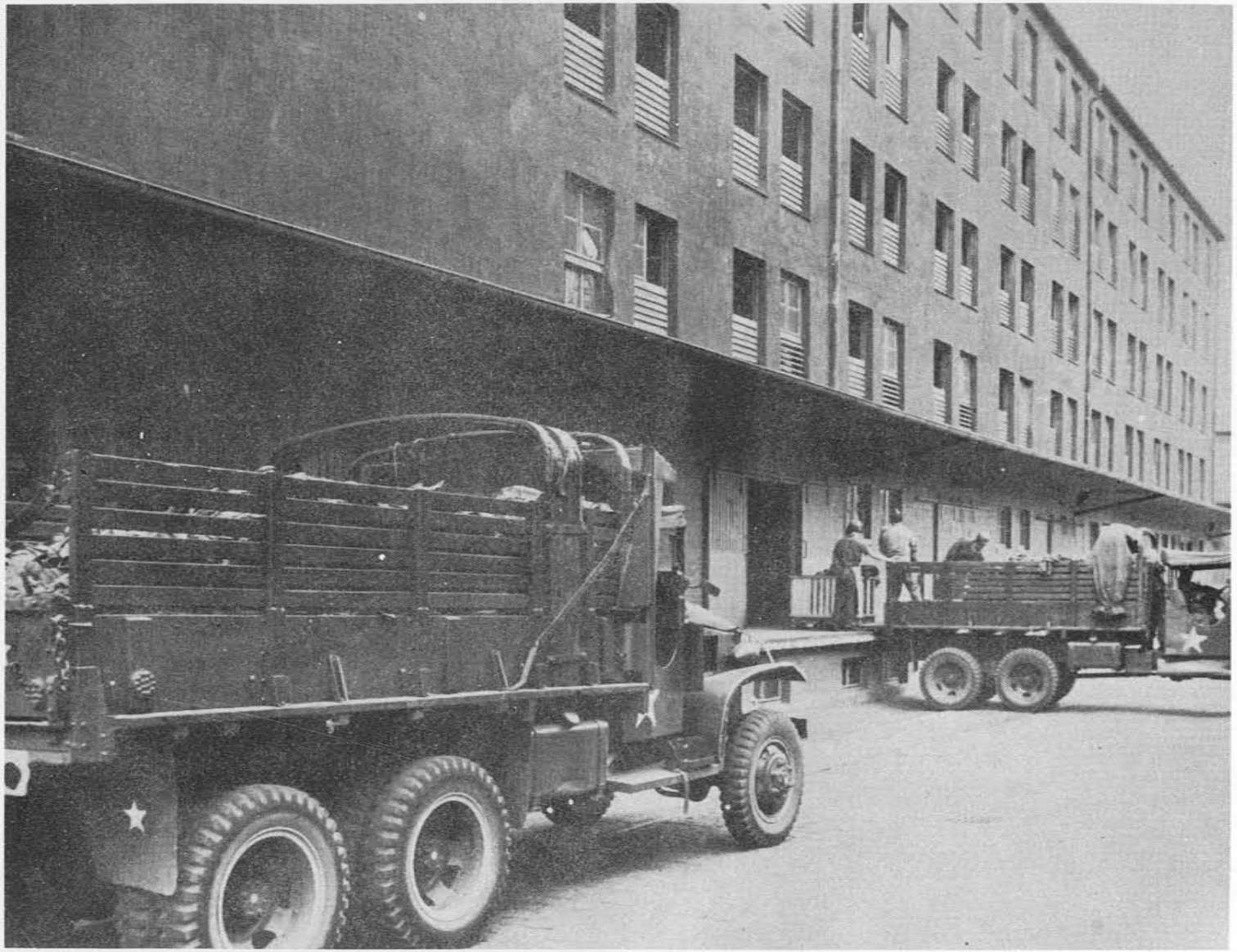

FIGURE 32.—First Army Salvage Brought to Repair Depot.

FIGURE 33.—Winter Clothing Repaired in Trailer.

FIGURE 34.—Winter Clothing Turned in by the Armies.

The Quartermaster Service estimated that in liberated countries 2,114,000 square feet of closed space and 1,755,000 square feet of open space would be required during June 1945. The estimates decreased until March 1946, when they were stabilized at 813,000 square feet of closed space and 528,000 square feet of open space for the following 6-month period.

The estimate of space required in Germany during June 1945 was 2,764,000 square feet of closed space and 2,030,000 square feet of open space. From the July peak of 2,800,000 square feet of closed space and 2,030,000 square feet of open space, the estimates decreased for the 4-month period beginning 1 May 1946 to 1,488,000 square feet of closed space and 732,000 square feet of open space.[76]

Authorization came from the Army Service Forces early in June for the establishment of a large salvage depot in Bamberg, Bavaria, about 39 miles north of Nuremberg. The Quartermaster Service would be permitted to keep the equipment of two salvage-repair companies (fixed). The 64th Quartermaster Base Depot and 696th Salvage Repair Company (Fixed) would be split, part to remain in Reims and part to be released within the next 2 weeks and sent to Bamberg.[77]

By the middle of May the United States areas of occupation in Germany had been established and the services had been authorized to obtain facilities by dealing directly with the armies that were in control of areas as well as with those that were responsible for organizing the military districts.[78] By 22 June the districts had been designated as the Western Military District, the Eastern Military District, and the Berlin District; and the missions of the depots had been defined. The Bamberg depot in the Eastern Military District would handle captured enemy materiel and salvage.[79] The story of salvage in relation to the redeployment program will be told in another volume of this series.

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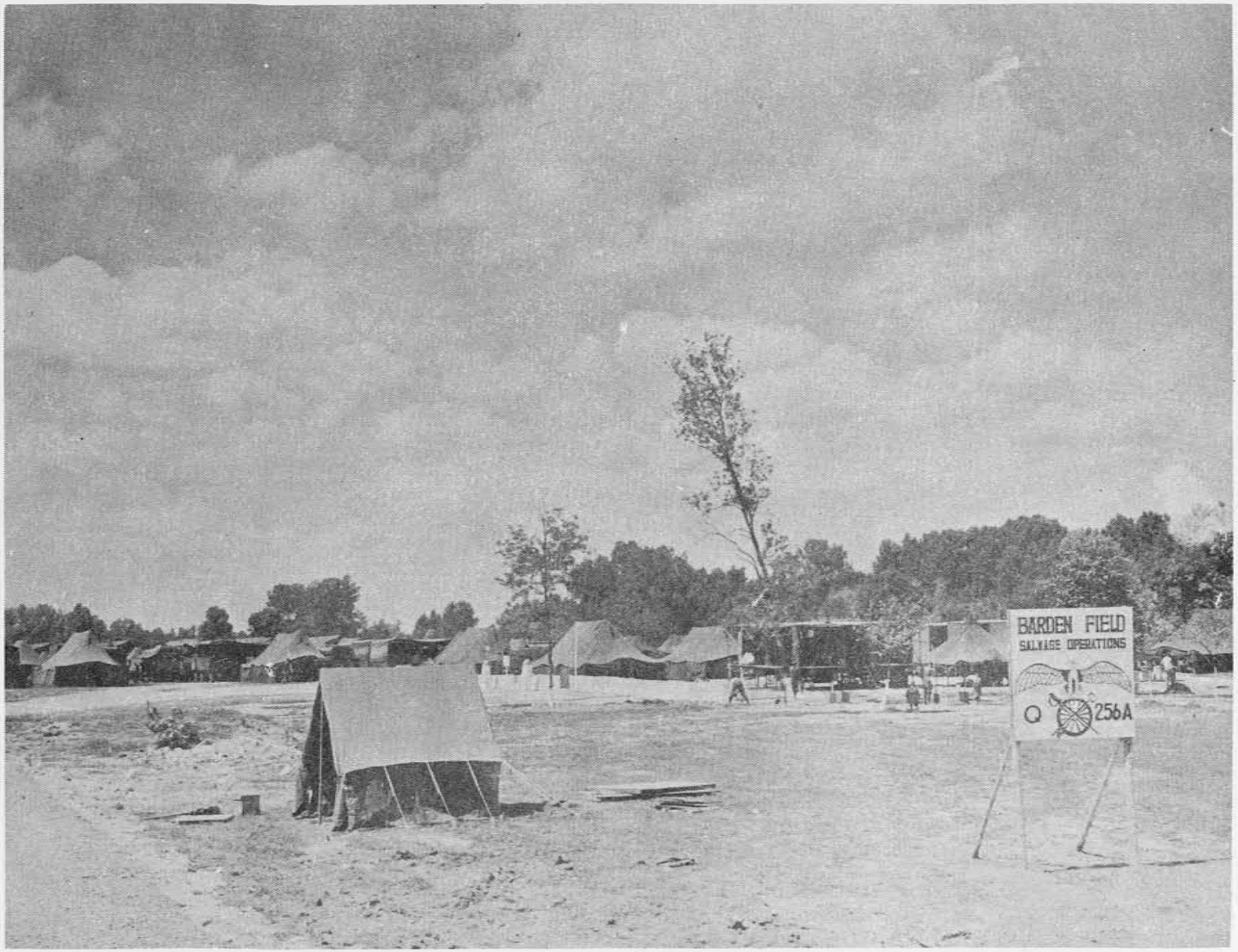


FIGURE 35.—Salvage Depot at Sept Saulx Operated by the 64th Quartermaster Base Depot.

FIGURE 36.—Salvage Depot at Chalons Operated by the 64th Quartermaster Base Depot.

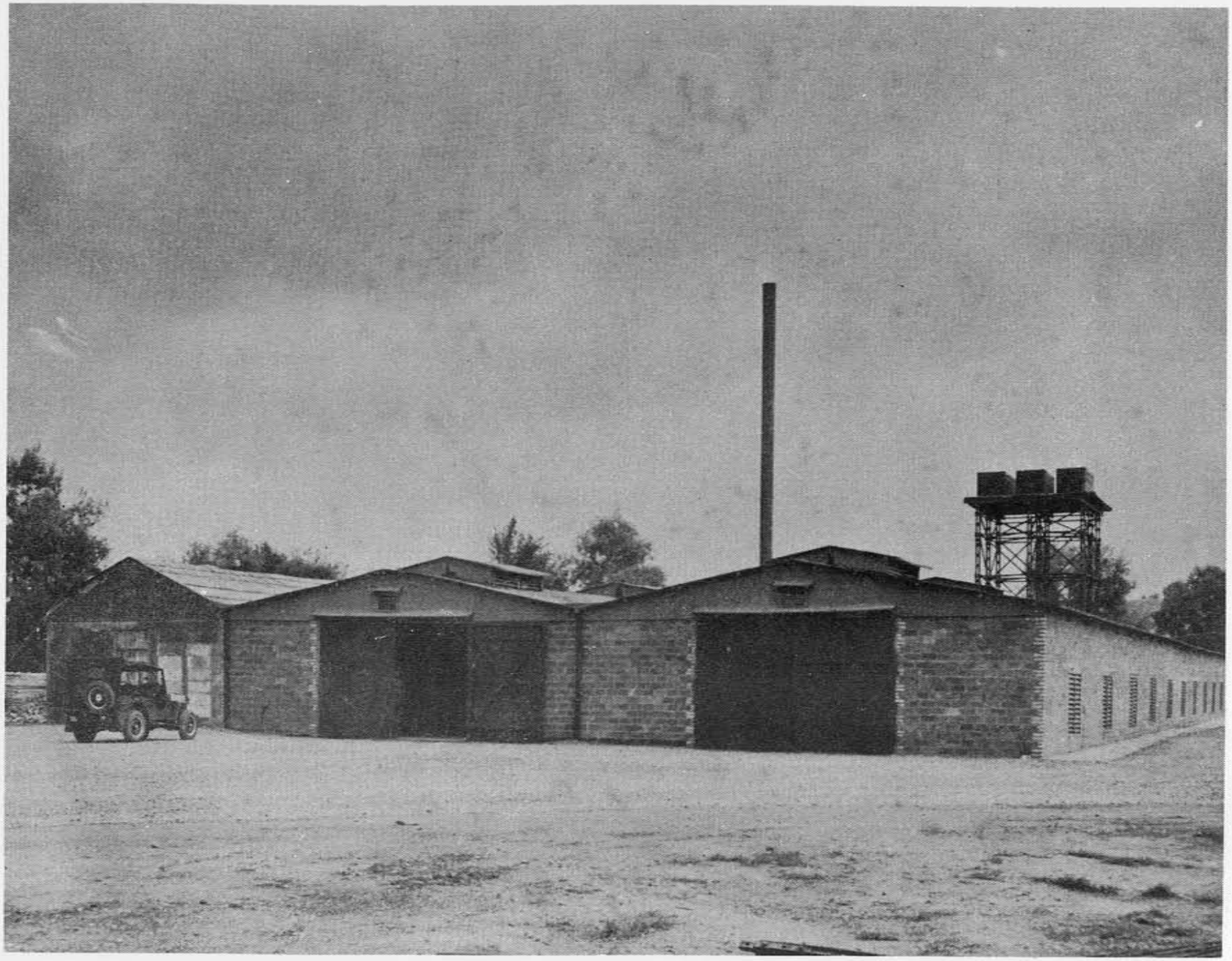


FIGURE 37.—Salvage Depot at Berry au Bac Operated by the 64th Quartermaster Base Depot.

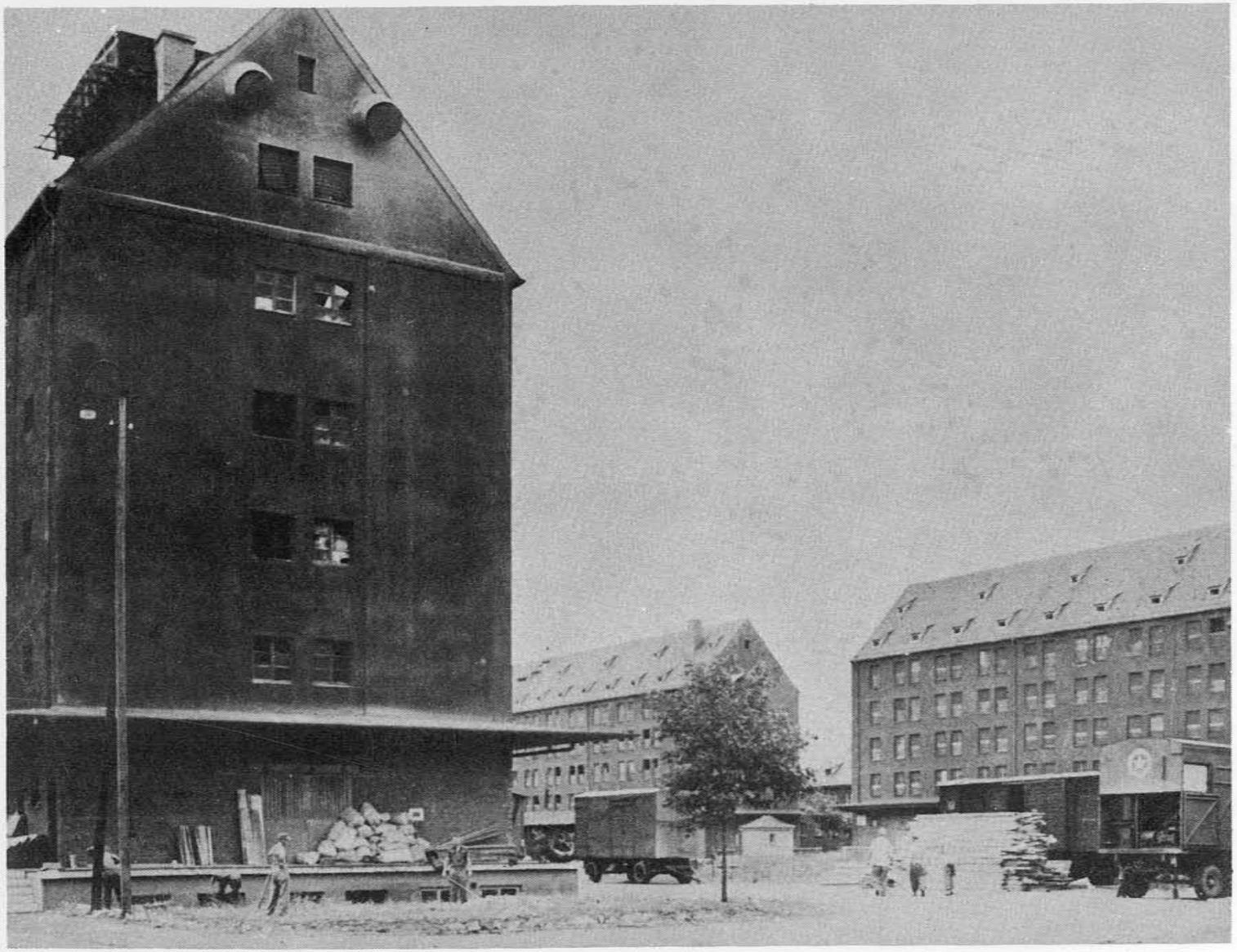


FIGURE 38.—Grain Elevators Used by Salvage Repair Section, Bamberg Depot.

FIGURE 39.—Portion of the Bamberg Salvage Depot.

CHAPTER 4

REPAIR PROBLEMS

Commanders of expeditionary forces from Philip of Macedon to Dwight D. Eisenhower have had their supply problems. In every great advance of an army, troops have lost baggage and utilized items left in the wake of the enemy's retreat. Organizations trained to repair clothing and equipment on battlefields, however, were born during World War I and came of age during World War II. To reach full maturity, they had to build upon the experiences of their youth. For some of the problems encountered there was quick solution; for some solution was approached; and for others no solution was either found or indicated.

BACKLOG

When armies are moving forward rapidly and sending to the rear their own and enemy materials, a salvage backlog is inevitable. Throughout the Continental operation, therefore, a backlog of repairable supplies was the major problem, for which there was never hope of definitive solution.

In the United Kingdom

The backlog of items to be repaired in United Kingdom depots, which had been a problem during the static period, assumed gigantic proportions as United States armies swept through Normandy. The Office of the Chief Quartermaster continued its efforts to get maximum production in the United Kingdom. For handling the great volume of work that piled up after D-day, the general salvage depot, Q-140 at Lydney, went through a quick reorganization. After 13 June 1944 it operated with the following divisions: Maintenance and Spare Parts, Salvage and Laundry, and Effects and Baggage. The Maintenance and Spare Parts Division was responsible for the following duties: operation of a maintenance shop; storage, issue, and control of all spare parts needed to maintain designated equipment; operation of a gasoline-can repair plant; and operation of a typewriter shop.[1]

Corrective Measures Started

On 22 June 1944 Major General Littlejohn addressed a letter to the commanding officers of all quartermaster depots and the quartermaster officers of all general depots. Now that the standing operating procedure for salvage was in their hands, he said, strict compliance with its provisions was mandatory in order to reduce the large piles of salvage that remained unsorted. He warned that the problem would increase unless immediate action was taken to correct mistakes.[2]

To G-4's instruction that nonessential work be laid aside and that no equipment be repaired merely for the improvement of appearance,[3] Major General Littlejohn replied that for some time only essential repair had been done and that items had been classified as quickly as possible. In order that all clothing and textiles might be returned to stock quickly, many items had been sterilized and fumigated and not laundered or dry-cleaned, slight repairs and spot cleaning had been done by hand, and items issued to prisoners of war had been repaired by the British Ministry of Supply. Minor repair of canvas and webbing had been made by the using units and the mobile repair teams, and items that had been turned in by units had been repaired only enough to make them combat serviceable. A central repair shop had been established in the United Kingdom for the repair of regular supplies. New footwear had been returned to stock immediately; footwear in need of repair had been shipped to a central depot for classification and disposition. The Office of the Chief Quartermaster had set up the following time priorities for repair, which were subject to change:

Priority 1—Blankets
Priority 2—Overcoats
Priority 3—Herringbone twill protective clothing
Priority 4—Protective woolen shirts
Priority 5—Herringbone twill suits
Priority 6—Herringbone twill coats
Priority 7—Herringbone twill trousers

The Chief Quartermaster concluded his letter by reporting that OCQM representatives were visiting all agencies that had been set up to receive and repair quartermaster equipment.[4]

Depots Inspected

For the purpose of bringing about better salvage reclamation in the United Kingdom, a special section in the Field Service Division was organized, with Colonel Beny Rosaler as its

chief.[5] Colonel Rosaler's group first reported on the salvage receiving point at Okehampton, which had been established early in June to receive salvage from units and marshaling areas. Though the new standing operating procedure had been received, Colonel Rosaler reported that little effort had been made to carry out its provisions. Large backlogs existed, and no organization had been established to speed production. Equipment, supplies, and facilities were inadequate, and officers and enlisted men were untrained.[6] Depot G-47 in Westbury was found to be in better condition. Its personnel understood the new standing operating procedure, and its backlog was not alarming. Two huts were available for reclamation work, but space for quick sorting was inadequate. All serviceable items were being returned to stock immediately.[7] Depot Q-105 in East Harling and Depot Q-107 in Stowmarket, which were acting as salvage receiving points for air force units and installations in their vicinities, were found to be operating satisfactorily under the new standing operating procedure. The backlog at neither depot was alarming.[8] Depot Q-108 in Great Dunmow was also operating under the new standing operating procedure. Though large quantities of unsorted material had been turned in by an engineering unit, the backlog was not alarming and could be reduced in about 3 weeks. Depot G-23 in Histon was operating under the new standing operating procedure but did not understand the provisions. A substantial backlog existed here.[9] Depot G-24 in Honeybourne, also operating under the new standing operating procedure, had a backlog that was not alarming.[10] At depot G-14 in Liverpool several warehouses were not properly organized. Though one had baled about 30,000 overcoats, it had made no effort to return them to class B stock. Another was improperly arranged for rapid sorting.[11] Depot G-18 in Sudbury had adequate facilities for processing salvage. The operations there were so well organized that no backlog existed and class B items were returned to stocks immediately.[12]

In his final report Colonel Rosaler summarized the difficulties that in his opinion had impaired the efficiency of the salvage program in the United Kingdom. Depot commanders gave receiving points low priority; salvage officers were inexperienced junior officers, usually lieutenants; salvage personnel was often changed; salvage officers were not familiar with regulations; salvage operations were given insufficient space; containers or bins were not available for classification; sorting tables and hand trucks were not provided; and processed garments were not returned to stock. The inspecting team had given full instructions concerning procedures and methods. As a result Colonel Rosaler thought that improvement would take place. He had urged that salvage personnel be trained, that the officers be men of wide salvage experience, and that salvage activities at the depots be allotted adequate space.[13]

Procedure Improved

Brigadier General Allen R. Kimball, the Deputy Chief Quartermaster, passing on to Major General Littlejohn an account of Colonel Rosaler's inspections, reported that on 22 July 1944 the unprocessed backlog in the United Kingdom amounted to about 6,400,000 pieces. It was encouraging that during May and early June the rate of turn-in had been considerably less than that of former months—due, he thought, to more economical requisitioning. Brigadier General Kimball suggested that a high stock level of salvage clothing be maintained in order to meet the needs of prisoners of war. This stock should be segregated in a single depot. Such an arrangement would preclude the possibility of issuing class A clothing to prisoners of war and civilian laborers. The British Ministry of Supply had been dyeing garments earmarked for prisoners of war. Because recent bombings had greatly decreased British productive capacity, some way should be found to expedite the work.[14]

Major General Littlejohn immediately called a conference to discuss the question posed by Brigadier General Kimball. The problem could be solved only by more speedy processing of class X clothing. It transpired, for example, that in June 634,000 pieces of class B clothing and only 27,000 pieces of class X had been processed. Unfortunately, no policy had been set up for maintaining levels of class B and class X clothing. Therefore, no stock piles existed. Major General Littlejohn desired that the ADSEC Quartermaster determine a level for prisoners of war and civilian laborers in the communications zone and that clothing for civilian laborers and prisoners of war be stored in one depot.[15]

Though the backlog that existed when Colonel Rosaler completed his survey had been decreased by more than 2,000,000 pieces before the end of October, Colonel A. M. Brumbaugh, Quartermaster of the United Kingdom Base, considered 4,233,827 pieces far too large a number of unprocessed salvage clothing. He wrote, therefore, to the Chief of the Installations Division of the United Kingdom Base asking that an effective plan for reducing it be prepared at once.[16]

FIGURE 40.—Backlog in the United Kingdom.

FIGURE 41.—Salvage near OMAHA Beach.

FIGURE 42.—Salvage in Belgium.

That the depots were snowed under by the piles of clothing departing troops had turned in explained many of the mistakes made in the United Kingdom. Much clothing, for instance, that was suitable for reissue to troops and should have been classified as A was classified as X and shipped to the Continent for issue to prisoners of war. A continuation of the practice would lead inevitably to serious shortages. Thoroughly alarmed, Colonel H. M. Florsheim, Chief of the Supply Division, asked the Chief of the Installations Division to call a conference for the purpose of working out corrective measures.[17] Early in December 1944 the Chief of the Installations Division sent to the Quartermaster of the United Kingdom Base instructions that he hoped would lead to speedy correction.[18]

Class X clothing remained a problem with regard to its repair as well as to its classification. On 23 July 1943 the British Ministry of Supply had agreed to handle all class X clothing and to arrange for the items to be repaired by civilian contractors. Very small quantities were ever returned to United States control. In early February 1945, moreover, the British reported that there was no immediate prospect of processing the materials. Therefore, the burden had to be assumed by United States installations[19] With warfare conducted 3,000 miles from the home base, it was no wonder that so small a part of the over-all program as was represented by salvage should have had its ups and downs.

On the Continent

The plan for salvage self-sufficiency on the Continent fell far short of fulfillment. The backlog of unprocessed salvage on the Continent had its beginning during the first days of the invasion, when men had no time for the proper sorting of items left on the beaches. As the armies swept through Normandy at an unexpected rate of speed, the backlog grew larger.

Left at OMAHA

In November 1944 it transpired that much salvage was still stored at the OMAHA beach. The 64th Quartermaster Base Depot, which had operated at the beach under the First United States Army and then under ADSEC, had conducted operations at Le Mans during part of September and then had moved to Reims, where salvage activities were concentrated.[20] On 20 November OCQM directed that the salvage materials be shipped to the 64th Quartermaster Base Depot so that they could be processed and returned to stock as class B or class X supplies. The following items had been stored at OMAHA:

Item	Unit	Amount
Can, meat	ea	7,000
Canteen	ea	12,000
Canvas and webbing	pc	250,000
Clothing	pc	20,000
Helmet, steel	ea	27,000
Shoes, service	pr	50,000[21]

Inadequate Facilities

The machinery and equipment of the 64th Quartermaster Base Depot soon proved inadequate for processing the enormous quantities of salvage pouring into Reims. Because 58 foot-pedal sewing machines, which had been borrowed from the Installations Division, would be needed later for the repair of prisoner-of-war clothing, it appeared in mid-December that the backlog would increase rapidly. Whereas some of the salvage did not require immediate processing, combat troops needed the majority at once. A case in point was BAR belts for the First, Third, and Ninth Armies, which the Chief Quartermaster had directed the depot to produce. All reclamation facilities were working on a 24-hour basis. Space was available for additional machinery; and civilians, prisoners of war, and laborers who had been impressed by the Germans could be put to work. The engineers had begun installing a power plant that would meet all foreseen requirements. The commanding officer of the 64th Quartermaster Base Depot, therefore, made an earnest plea that the Installations Division take action to procure more machinery. At that time 112 sewing machines of various kinds were on hand; 5 were due in; and 466 had been requested. This total of 583 machines represented the smallest number with which the work could be done satisfactorily.[22]

Colonel John B. Franks, Deputy Chief Quartermaster, desiring to see the salvage backlog reduced, instructed the Quartermaster of the Normandy Base Section to use commercial facilities if army facilities were insufficient.[23] A number of factors had contributed to the increase of the salvage backlog in Normandy. Items had been received from units formerly served by the 52d Quartermaster Base Depot in Charleroi and the 54th Quartermaster Base Depot in Boutteville. About 200 tons of salvaged clothing had come from the rear echelon of the 28th Infantry Division. Two semimobile salvage companies had been moved from the

Normandy Base Section, leaving only one salvage depot to serve the needs of more than 50,000 troops. When the 52d Quartermaster Base Depot moved from the Normandy Base Section, it did not give up the sewing machines that had been in its use. Facilities were inadequate for baling the large amounts of clothing, blankets, and web equipment that should have been returned to depot stock.[24]

The salvage resulting from the extensive operations in the Ardennes caused the backlog to mount steadily. The 64th Quartermaster Base Depot packed, marked, and crated all processed material. After the German offensive had been repulsed, the personnel of the depot was capable of producing 500 bales a day. In order to accomplish this mission, however, the following equipment was needed: 6 double-chamber balers, 12 economy balers, and 120,000 linear feet of bituminous paper or 25,000 feet of burlap tubing or 440,000 yards of burlap. Salvage would provide enough packing and crating lumber. Though lack of materials and equipment had restricted the program, the depot had met a portion of the recooperage requirements by utilizing improvised balers and salvaged packing material. The 64th Quartermaster Base Depot had initiated action that should result in the procurement of materials and equipment sufficient to enable its mission to be performed in the near future.[25]

In the early spring the backlog problem was vigorously attacked. Brigadier General William H. Middleswart, who was appointed Deputy for Administration, OCQM, on 14 February 1945, visited salvage installations to gather facts basic to a workable plan.[26] At Le Mans on 2 March he found that the backlog had increased. Though some salvage activity was going on, commercial facilities were not being exploited. In a letter to Colonel Frank A. Heywood, Chief of the Installations Division, Brigadier General Middleswart raised several questions. Had every effort been made to use the idle facilities at Vesoul? Had full advantage been taken of the large facilities available in the Lyon area? Had all the salvage been sent to Marseille that could be taken care of there? He was convinced that the base sections had not "put on the heat" and had not developed local facilities.[27]

Faulty Practices

At the salvage plant of the 64th Quartermaster Base Depot Brigadier General Middleswart found a number of practices deserving criticism. Garments were not being classified upon arrival but were being laundered regardless of their condition. He saw in the wash one that was 90 percent holes and many others that should have been consigned to the rag pile. Other garments without even a button missing had been placed in class X. Unpressed garments were being returned to depot stocks. Soldiers, he said, would "raise the devil" if they received clothing that was unsightly merely because it needed pressing. The depot seemed to think that shoes too worn for repair should be returned to the United States. Brigadier General Middleswart, however, was under the impression that they should be turned over to the French.[28]

Problem Studied

On 8 March 1945 Major General Littlejohn appointed Colonel Beny Rosaler Acting Chief of the Installations Division to succeed Colonel Frank A. Heywood[29] and instructed him to reduce the backlog within the next 30 days.[30] The next day Colonel Rosaler sent the Military Planning Division an outline of his plans. Section quartermasters, he said, were charged with the responsibility of carrying out an effective reclamation and salvage program within their sections. To that end civilian repair facilities should be used to the maximum extent and static shops should employ civilian and prisoner-of-war labor. Between 1 April and 31 May winter clothing would be turned in to the amount of about 12,000 tons. In order that this load might be handled, Colonel Rosaler was establishing three collecting points in the rear of the army areas—two in the Twelfth Army Group area and one in the Sixth Army Group area. Here winter clothing would be classified for shipment to processing plants as rapidly as possible. The winter-clothing salvage program should be completed by 31 August 1945.

Meanwhile, in cooperation with the Control Division, Colonel Rosaler was entering upon a study, which should be completed by 21 March. He hoped to develop a plan that would cover normal repairs; the elimination of the 17,000-ton backlog; the processing of winter clothing, tentage, and tent stoves; and the processing of clothing and equipment that would come in immediately after VE-day.[31]

A week after Colonel Rosaler assumed direction of the Installations Division, he completed a review of the salvage situation and reached several conclusions, which he passed on to the chiefs of his branches. Salvage reports, he said, should be closely studied. If backlogs at depots were found to be increasing, the salvage sections should be required to discuss the problem with the depot commander. Stocks of class

FIGURE 43.—Winter Clothing Collected in Germany.

X clothing for prisoners of war should be studied so that a sufficient supply would always be on hand to cover requirements. Colonel Rosaler was then writing to all depots through base section commanders, calling attention to backlogs and demanding prompt replies.[32]

In the weeks following his appointment as Acting Chief of the Installations Division, Colonel Rosaler had his hands full. Undoubtedly the Chief Quartermaster had laid a heavy burden upon him. On 17 March he was appointed Chief of the Control Division and the Installations Division.[33] On 6 April he was relieved as Chief of the Control Division by Colonel Richard B. Thornton.[34] On 18 May the Control Division became the Field Service Division;[35] and on 22 May Colonel Rosaler, though continuing as Chief of the Installations Division, was appointed Chief of the Field Service Division.[36] Colonel Rosaler fortunately had become accustomed to diversity, for in January 1945 he had been chief of three divisions—Captured Enemy Equipment and PW Supply, Field Service, and Graves Registration and Effects.[37]

Backlog Reduced

The salvage backlog showed considerable improvement by the end of March. Though the unprocessed balance on hand at the 64th Quartermaster Base Depot was still large because of the influx of winter clothing, 2,099,117 pieces of salvage had been processed during the month.[38] By the end of April Colonel Rosaler was able to report that the backlog existing at the beginning of the month had been reduced by nearly a million pieces. The figures sent to the Deputy for Operations were as follows:

	Beginning Backlog	Received	Processed	Ending Backlog
Clothing	7,633,573	1,210,530	2,023,196	6,820,907
Equipage	1,949,174	249,758	599,959	1,598,973
Regular supplies	104,262	23,726	16,798	111,190
Footwear	768,888	379,400	269,652	878,636
	10,455,897	1,863,414	2,909,605	9,409,706[39]

Whether or not salvage backlogs during periods of intensive fighting on the Continent could have been prevented or reduced is a question for future historians to answer. The repair of clothing and equipment during the redeployment period will be taken up in another volume of this series.

REPAIR OF GASOLINE CONTAINERS

Volume IV of this series tells the story of gasoline, which the French called "le sang rouge de guerre." The repair of the containers that conveyed gasoline to the advancing armies was a salvage operation. Before the invasion 11,000,000 jerri-cans and ameri-cans were stocked, cans were repaired in the United Kingdom, and a salvage plan was developed for the Continental operation.[40]

Preinvasion Plans

Early in 1944 a quartermaster unit had already repaired more than 8,000 jerri-cans and ameri-cans and was bringing about a saving of nearly $20,000 a month. The cans were dipped in water and marked for leaks, conveyed on rollers to the degassing unit, and steamed for 30 minutes in order that all vapors might be removed. Paint was then scrubbed by an electric appliance, and the neck was resoldered by an acetylene blowpipe. Conveyors then took the cans to the paint department, where they were first sprayed and then cleaned by air pressure. Finally they were stocked for reissue.[41]

The can-repair plan developed for the United Kingdom on 21 February 1944 provided that damaged ameri-cans would be repaired at depot Q-331 in Highbridge, to which they were shipped by depots that handled petrol, oil, and lubricants, (POL), and that unrepairable ameri-cans would be turned over to British salvage. Jerri-cans, however, would be repaired by Birnam Products, Limited, according to arrangements made by the British. Gasoline drums that had been manufactured in the United States would be repaired at Highbridge; but gasoline drums that had been manufactured in Great Britain would be repaired by Victor Blagden & Co., Limited, according to arrangements made by the British.

A can-repair plan for the Continent was also sketchily set forth on 21 February 1944. At filling points gasoline supply companies would replace lost or damaged closure parts on 5-gallon cans and drums. Spare parts for the repair of containers would be shipped to the Continent in 70-pound boxes, which would contain proportionate quantities of each part. Salvage-collecting companies would sort drums and cans into three categories—those in good condition, those needing welding, and those that were useless. The first group would be consigned to POL depots, the second to ordnance repair shops, and the third to scrap. Ordnance repair shops would weld seams and replace jerri-can necks. The procurement of parts, however, was a quartermaster responsibility.[42]

Damages Analyzed

A month after D-day the Petroleum and Fuels Division undertook a study of 5-gallon gasoline

cans under combat conditions. On 8 and 9 July 1944 a 10-percent sample of 212,040 jerri-cans was checked at POL dump No. 1 on UTAH beach. One can out of 170 was found to be damaged. Those that had been punctured or crushed had been thrown out before the cans were stacked in the dumps. In addition, these cans had been used only once and, when used again, would undoubtedly show a higher percentage of damage. Similar studies conducted by the British had revealed that one can in 250 was damaged. That the British were experienced in the use of the can probably explained the lower percentage.

A jerri-can could be damaged in many ways. The container might be crushed, or it might be punctured by a bullet or a nail, and its seam might develop a leak through wear and tear or inside pressure. The handle might be broken or pulled loose. The neck might be bent in such a way as to cause a leak where it was welded to the container. The clamp and cap connection might be pulled from the neck; and the protection at the rear, where the cap is hinged, might be so bent as to prevent proper closure. The hinge might be twisted, and the hinge pin bent. The gasket might be lost.

After analyzing the study, the Petroleum and Fuels Division made definite suggestions concerning repair procedure. Empty cans should be returned to dumps or decanting points. They should then be sorted. Those that were in good condition should be washed and refilled. Decanting points or sorting points should make minor repairs, wash the cans, replace the identification tags, and refill the cans. All seriously damaged cans, however, should be sent to a central can-repair depot. The following sections should be set up in a can-repair depot: sorting, degassing, testing, welding, straightening, replacement, painting, and reclamation.

Because many cans had been damaged through carelessness or ignorance, instructions should be issued in the form of a directive. Units should be told to close caps immediately upon emptying cans so that washing would be unnecessary. No welding or replacement should be undertaken at the decanting point. In other words, all major repairs should be done at one central repair shop. Cans in need of paint should be sent to the repair shop along with damaged cans.[43]

Procedure

During the summer of 1944 containers needing major repairs were sent to the United Kingdom. All quartermaster salvage-receiving depots shipped damaged and leaky drums, ameri-cans, and jerri-cans to depot Q-140 in Lydney. A report as to the number on hand was sent by the depot monthly to the Installations Division, which forwarded information to the Procurement Division. In turn, the British War Office was notified by the Procurement Division as to the number of drums and cans held for repair. The containers were later picked up and sent to civilian contractors.[44]

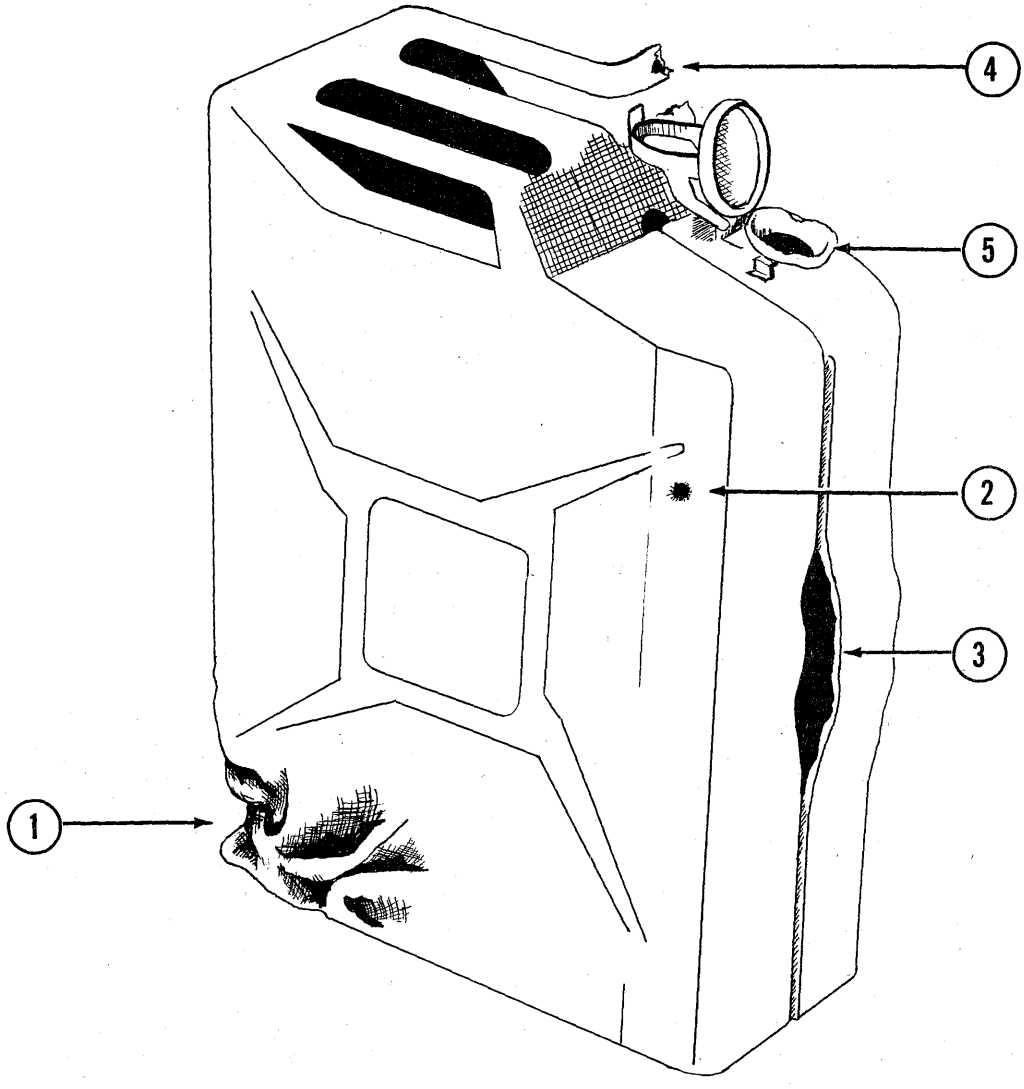
Cherbourg Plant

In October the Chief Quartermaster directed that a can-repair plant be set up at the 56th Quartermaster Base Depot in Cherbourg. The operating personnel would consist of eight two-man teams, operating as a section of the salvage repair company (fixed), T/O & E 10-317. Necessary equipment was thought to be either already in Cherbourg or offshore at Cherbourg. Some additional equipment stored at the 64th Quartermaster Base Depot could also be made available. Colonel Chapin Weed, Commanding Officer of the 56th Quartermaster Base Depot, would select the site; but Lieutenant Colonel Elmore A. Haney, who would reach the Continent in the immediate future, would set up the plant.[45] The 64th Quartermaster Base Depot was ordered to furnish the 16 men, who would make up the teams, and to send the equipment it was holding, which consisted of four cases of air compressors, four sets of paint sprays, and one box of electric soldering irons.[46]

The can-repair plant at Cherbourg began limited operations on 6 November and by 9 November had repaired 600 cans. Inadequate civilian labor and need of repairs on the buildings that housed the can-repair teams held up operations. Lieutenant Colonel Elmore A. Haney thought, however, that in about 2 weeks the capacity would be 1,500 cans a day.[47] Colonel R. T. Bennison, Chief of the Pertoleum and Fuels Division, planned to move the plant to a forward position as soon as the Normandy peninsula could be cleaned up.[48]

Assistance from the French

Before the can-repair plant began operations in Cherbourg, arrangements had been made with the French Minister of Production for a firm in Paris to repair 250,000 jerri-cans at the rate of 10,000 a week.[49] Gasoline-supply companies would continue to make minor repairs and adjustments. Damaged cans, however, which were defined as those that were crushed, punctured, or in need of welding, would be turned over to depot Q-348 in Linas near Paris. The Seine Section Quartermaster would accept



1 CONTAINER CRUSHED

2 CONTAINER PUNCTURED

3 SEAM CRACKED

4 HANDLE BROKEN OR PULLED LOOSE

5 NECK BENT

FIGURE 44.—Possible Damages to Jerri-cans.

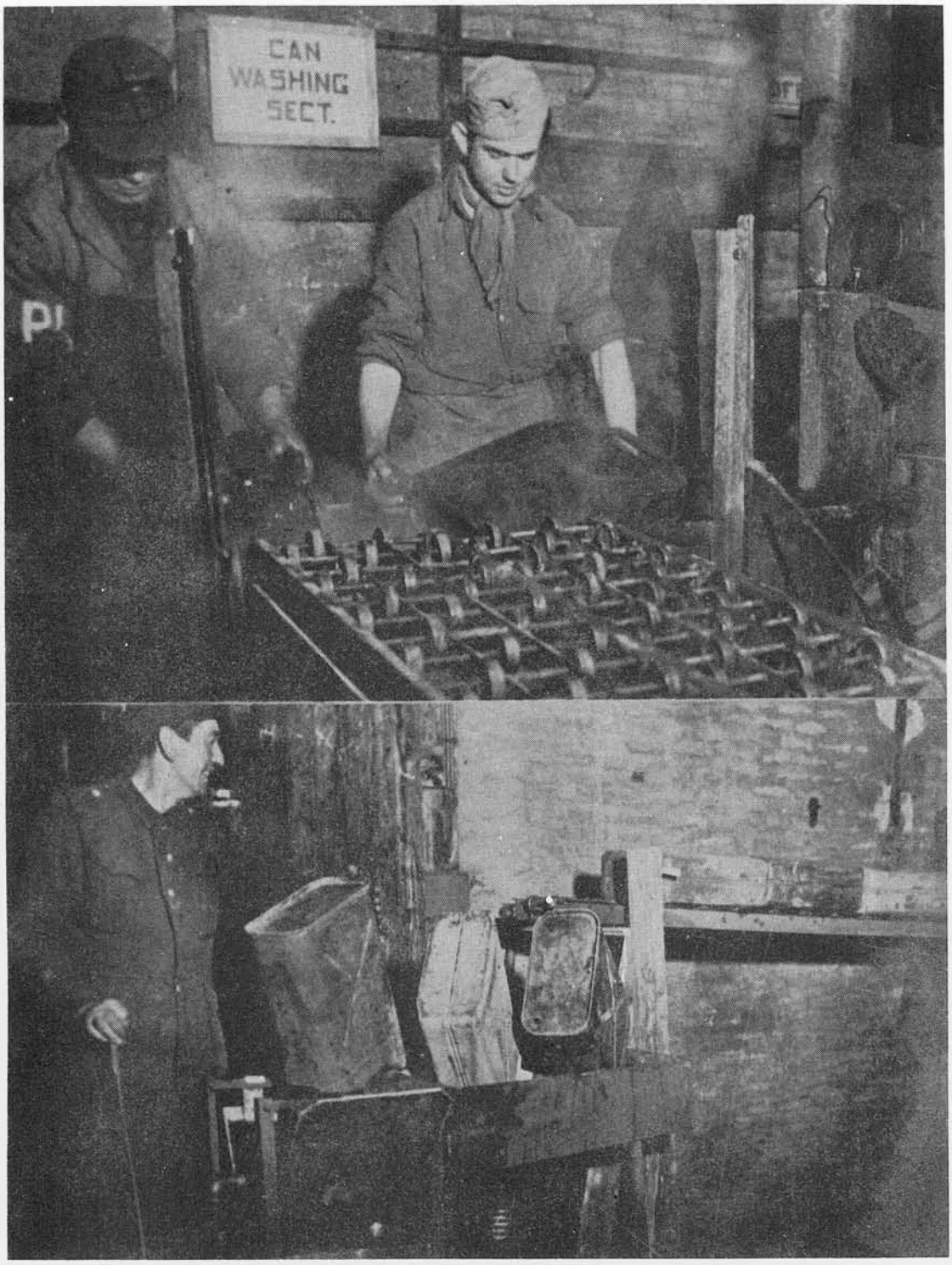


FIGURE 45.—Jerri-cans Were Thoroughly Cleaned and Then Flushed with Water.

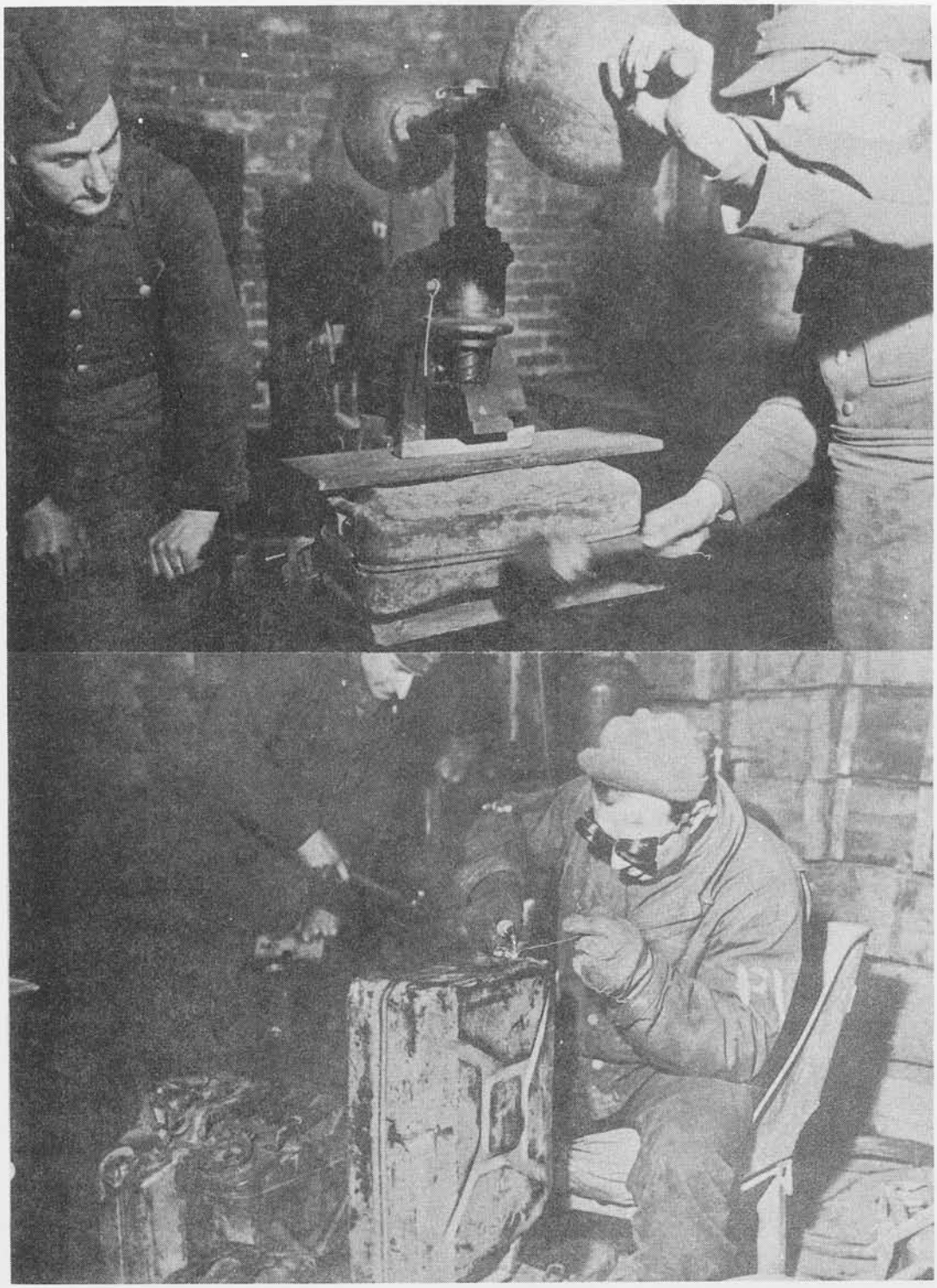


FIGURE 46.—After Dents Were Removed from Jerri-cans with Home-made Jigs and Presses, Holes Were Patched and Seams Were Mended.

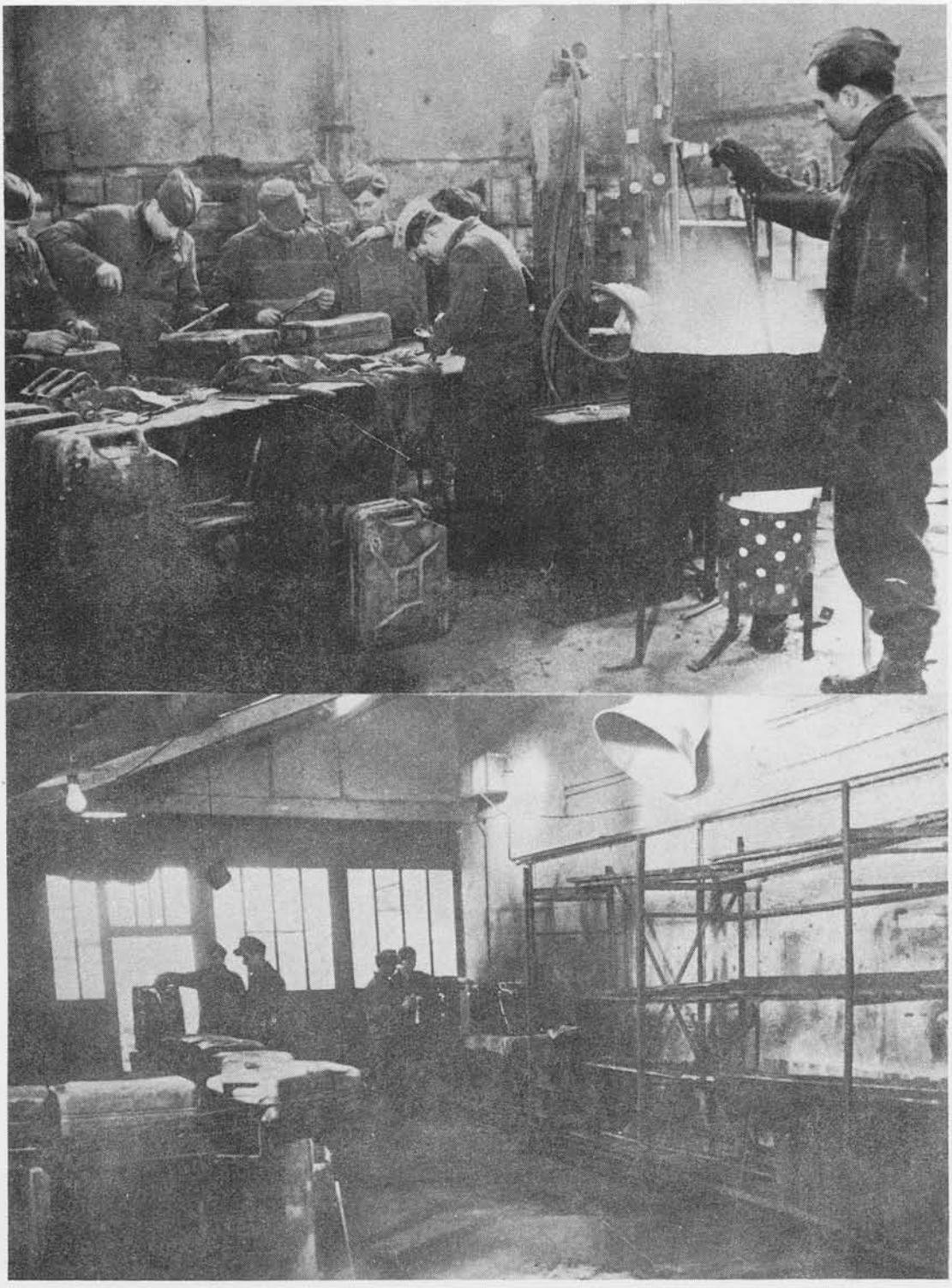


FIGURE 47.—After Specialists Finished Their Work, Cans Were Sent to the Paint Shop.

the cans and have them sent to the commercial firm in Paris. After the cans had been repaired, they would be returned to depot Q-348 and put back into service. Those beyond repair would be cannibalized. These instructions rescinded those sent out by OCQM on 7 September 1944 directing that damaged cans be shipped to the 64th Quartermaster Base Depot in Le Mans.[50]

Changes of December 1944

In December 1944 an anticipated shortage sped up procurement, requisitioning, and salvaging of jerri-cans (see vol. IV, ch. 3). In order to reclaim a great number of jerri-cans, the Chief Quartermaster directed that a can-repair unit be added to each gasoline-supply company and that a circular letter be prepared setting forth the plan of operation.[51] On 18 December 1944 the Petroleum and Fuels Division submitted the draft of the circular letter. Each quartermaster gasoline-supply company would organize a can-repair section, which would make second echelon repairs on 5-gallon cans. This section would operate whenever there was a steady turnover of gasoline cans and would be composed of the following personnel: 1 staff sergeant, who would serve as foreman and salvage inspector; 1 technician fourth grade, who would serve as testing inspector; 1 technician fifth grade, who would serve as general painter; 1 technician fifth grade, who would serve as utility repairman; 1 technician fifth grade, who would serve as salvage man; and 25 prisoners of war, who would serve as laborers.

First and second echelon maintenance of jerri-cans and ameri-cans would be done at decanting points. Maintenance of jerri-cans would consist of replacing the gasket, closure, and closure fastening; straightening the container or any of its parts; and replacing the marker tags. The maintenance of the ameri-can would consist of replacing the gasket, the closure, the connecting chain, and the marker tags. In order to perform this work, the repair unit would need the following equipment: one gasoline air compressor and storage tank, two paint-spray guns with air hose and fittings, twelve ball-peen hammers, twelve 8-inch side-cut pliers, twelve 6-inch screw drivers, six heavy tinsmith shears, and six punch-and-chisel sets.[52]

Methods Improved

First echelon repair of jerri-cans by gasoline-supply companies continued to be encouraged. Lieutenant Colonel Edward Fourticq, Seine Section POL officer, originated a simple process in which assembly-line methods were used in the making of on-the-spot minor repairs. Second echelon maintenance was performed at base depots such as the 62d and 64th. Shortly before VE-day OCQM announced that about 1,600,000 cans had been returned to service since the beginning of the recovery and reclamation program.[53]

MISCELLANEOUS PROBLEMS

A program so diversified as that presented by the repair and reissue of salvaged items precludes the listing of all problems connected with it. Some of the difficulties, however, are deserving of mention.

Personnel

That better trained personnel would have brought about better results cannot be denied. Two among the many complaints to be found in the files maintained by the Historical Records Branch, OCQM, will serve to emphasize the importance of trained leadership. As salvage operations got under way on the Continent, the Chief of the Installations Division deplored the inadequacy of officers who supervised repair and reclamation. Whereas all officers in charge of salvage-repair companies should have been fairly familiar with equipment and procedure, many depended upon enlisted men for technical information. An officer, he said, should have had experience in doing a job before attempting to give directions to subordinates.[54]

Untrained personnel seemed to have been responsible in December 1944 for unsatisfactory conditions at the salvage depot in Huy. The Chief Quartermaster, having received many complaints regarding the clothing shipped through the salvage route, wrote Colonel Samuel W. Smithers, the ADSEC Quartermaster, that in his opinion the depot was overstaffed with officers who knew little about their business. Inefficiency was responsible for the poor stock situation as well as for the unsatisfactory flow of salvage to the armies. Huy, moreover, was not the only installation at fault. While unprocessed blankets were cluttering the depots, the need for blankets had forced OCQM to enter upon an extensive procurement program in Spain.[55]

In other words, the Theater records proved that in too many instances officers directing shoe repair had never handled a cobbler's tool, officers directing the renovation of uniforms had never darkened the door of a clothing factory, and officers directing the repair of gasoline cans hardly knew a paint spray from a

soldering iron. The problem, of course, could have been solved if more attention had been given to the selection of specialists in the various fields and to the training of officers in procedures applicable to the repair of quartermaster items.

Items Unfit for Reissue

The disposition of items unfit for reissue was one of the problems for which a happy enough solution was found. During the static period in the United Kingdom, clothing was dyed and shoes were rebuilt for issue to prisoners of war who had been captured in North Africa or on the European Continent during earlier British operations. After D-day, however, the quantities of salvaged clothing were in excess of prisoner-of-war needs. In September, for instance, 33,570 pairs of salvaged service shoes of no value to United States troops were at quartermaster dumps in Normandy.[56] Information was lacking as to what should be done with them. It was decided later that the shoes would be given to G-5 either for distribution to civilians or for resale to civilians at a price agreed upon by G-5 and the General Purchasing Agent.[57]

In the early part of the Continental operation some salvaged shoes for reissue to infantrymen on line duty were repaired by commercial plants in the United Kingdom and on the Continent. Because the turnover was so great that repair and reissue were slow, the men were issued new shoes and the shoe-repair companies served only those troops that were outside the combat area.[58] The problems stemming from the necessity to supply persons who were not members of the United States armed forces belong in another volume of this series.

Officers leaving for the Continent turned in much clothing that they wanted never to see again. These white elephants, together with sales stores items, occupied valuable storage space. Colonel A. M. Brumbaugh, the Quartermaster of the United Kingdom Base, thought that the garments, if cleaned and pressed, might be sold or transferred to Special Services for distribution to worthy noncombatants or to hospitals for free issue to officers whose clothing had been lost in battle.[59] The Installations Division sent Colonel Brumbaugh's suggestion to the Supply Division, saying that some of the items might be sold as "brand-new."[60] Because of the comparatively small amount of officers' clothing that could be sold, the Supply Division thought that the establishment of sales and warehousing facilities necessary to separate second-hand from new items could not be justified but concurred with the recommendation that items of salvaged clothing be issued free to hospitalized officers who needed them.[61]

IMPROVISATIONS

Criticism of the Quartermaster Corps is not a twentieth-century product. From the cradle to the grave man tends to be ungrateful to the person who looks after his food, shelter, and clothing, whether that person be mother, wife, member of school or college staff, or mess or supply officer.

General George Washington's ragged and half-starved soldiers complained no more bitterly of their tattered clothing and meager diet than did World War II soldiers of their adequate clothing and balanced diet. During the Mexican War of 1846-47 General Zachary Taylor declared that poor supply had "inexcusably delayed" his advance; while the youthful Lieutenant George B. McClellan—straight from West Point and attempting to put into practice all he had learned about fighting—wrote in his *Mexican War Diary*, "I have come to the conclusion that the Quartermaster's Department is most woefully conducted—never trust anything to that Department that you can do for yourself. If you need horses for your trains etc., carry them with you." During the Civil War General Irvin McDowell and General George B. McClellan were not the least hesitant about informing Federal authorities that in their opinion defeats could have been converted into victories if supplies had arrived in time; and General Ulysses S. Grant was scarcely happy when he was forced to detail crack combat soldiers to the building of railroads and the handling of supply trains. The Spanish-American War lasted long enough for soldiers to register many complaints that concerned uncomfortable uniforms and hardtack and stew. Similarly, the soldiers of World War I screamed about lice and laundry; uniforms that kept them too hot or too cold; and the ration of corned beef hash and sliced corn beef, baked beans hot and baked beans cold, bread such as no man's mother ever made, and canned vegetables that bore little resemblance to garden varieties.

The soldiers of World War II were chips off the old block. There was no way, of course, to make a soldier admit that his food, shelter, and clothing were even moderately good. There was a way, however, to provide the food, shelter, and clothing that kept a fighting man fit to fight. This the Quartermaster Service in the European Theater of Operations was able to accomplish—not perfectly but sufficiently well for the war to be won.

FIGURE 48.—Separated Shoes Remarried by French Civilians.

FIGURE 49.—Major Pevey Completes His Flame Cup.

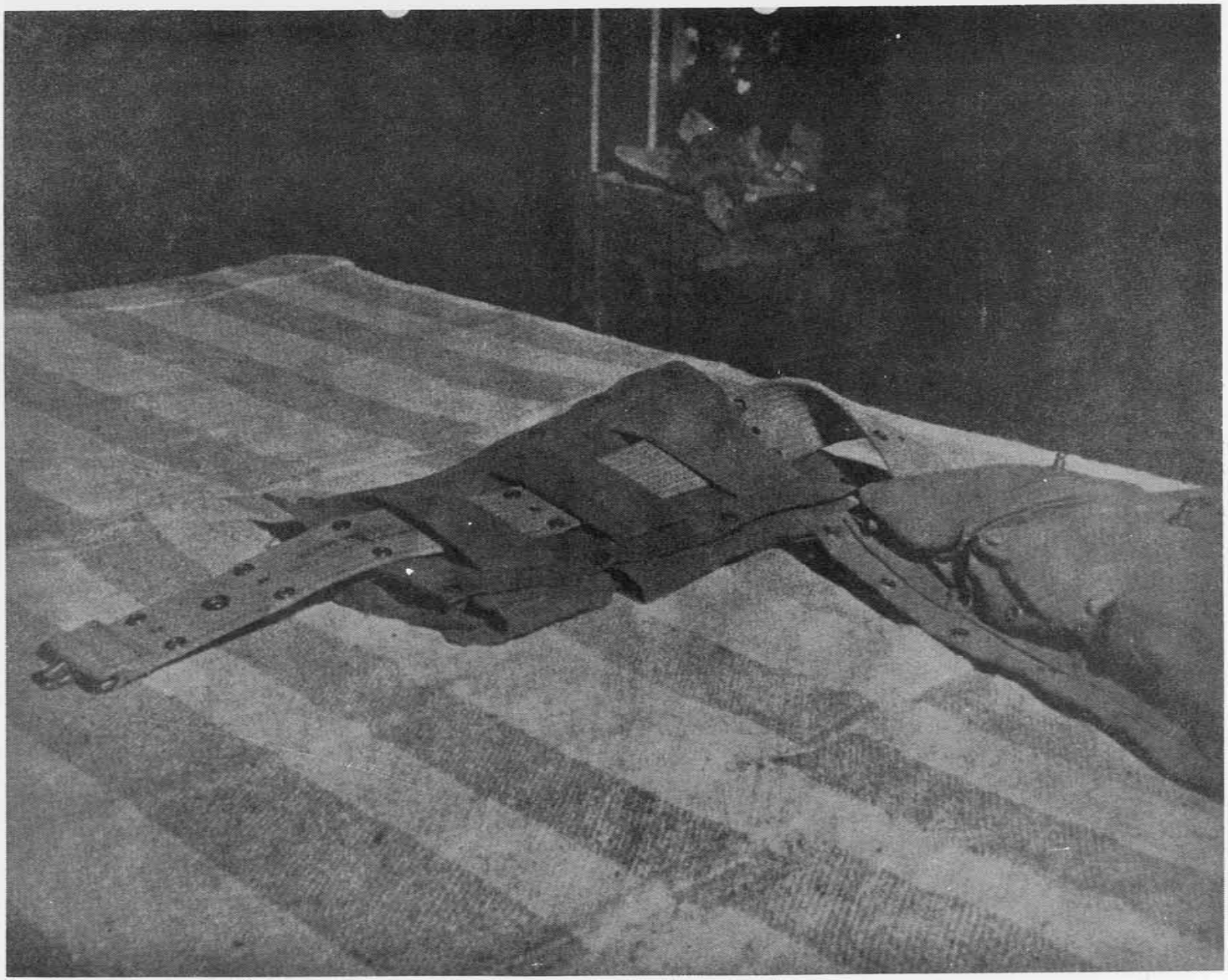


FIGURE 50.—Belt Made from Salvaged Materials, with Shoddy Blanket as Background.

FIGURE 51.—Blankets Made from German Foot Wrappers.

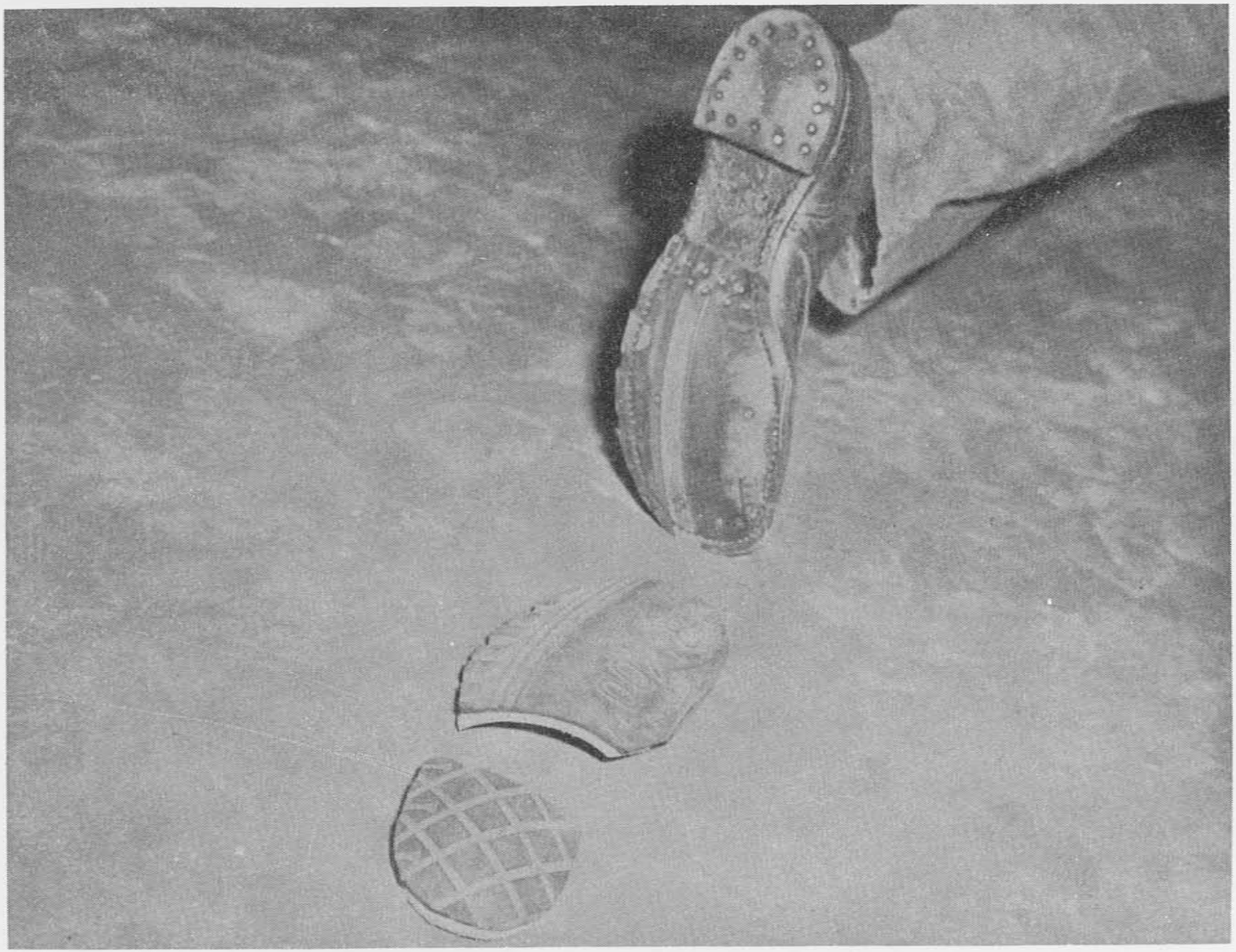


FIGURE 52.—Rubber Tire Provides Sole for POW Shoe.

The student of both the tactics and the logistics of the war frequently asks how victory was possible despite the many sins of omission and commission. As far as supply is concerned, the query is often answered by the assertion that errors made in top echelons were corrected by ingenious lower-grade officers and key enlisted men, whose nimble wits and equally nimble fingers created improvisations sometimes as good as items of issue and sometimes better. The salvage story in the European Theater contains many instances of quartermaster ingenuity. Space, however, is available to recount only a few of these.

The Flame Cup

If the horseshoe nail was lost, it did not follow that the horse, the rider, and the battle also would be lost. Nor was it necessary to wait until a nail could be found, if something else could be invented to take its place.

The one-burner gasoline stove was a case in point. About the size of a quart jar, this stove afforded the men in the field their only means of heating food. If the flame cup was out of order, the stove was as useless as the horseshoe without the nail. The brass flame cup with which the stove was initially equipped proved to be no good. Consequently, the Installation Division made arrangements with the French to manufacture a substitute cup designed in two parts. In the meantime Major James E. Pevey took several competent enlisted men into the field and began to experiment with the cup. Upon his return to the depot, he invented a substitute superior to the cup that the French were about to manufacture. The Pevey cup was in one piece and could be made of salvaged materials. Therefore, the contract with the French was canceled.[62] Before the Pevey flame cup could be issued in sufficient quantities, the Ninth Army Quartermaster had supplemented his supply by means of a contract with a manufacturer in Liege.[63]

Belts

Early in the war the First United States Army was sorely in need of BAR belts. Since none could be provided by requisition or procurement, the 64th Quartermaster Base Depot converted salvaged pistol or cartridge belts into good-enough BAR belts. Leather belts for prisoners of war were nowhere to be found; yet the German prisoners could not very well do without them. The 64th Quartermaster Base Depot met the emergency by manufacturing prisoner-of-war belts from the uppers of salvaged shoes. Machines were used only for clamping the buckles in place.[64] The depot reported on 23 November that 7,340 BAR belts had been manufactured. Of this number 260 were on hand and 7,080 had been distributed as follows:

Shipments to Date	First Army	Third Army	Ninth Army
18 November 1944	400		
21 November 1944	1,060		
26 November 1944	2,080		
29 November 1944		1,800	
20 December 1944			1,740
Total	3,540	1,800	1,740[65]

Blankets and Comforters

The 64th Quartermaster Depot was perhaps unjustifiably proud of the prisoner-of-war blankets it manufactured, for the salvaged materials that went into the blankets might have been put to better use had sound advice been given. Among captured stocks were hundreds of thousands of part-woolen and part-cotton cloths measuring 18 by 24 inches. Used by the Germans as foot wrappers, they had proved to be important factors in the prevention of trench foot (see ch. 6). The shortage of blankets for prisoners of war led the depot to sew these pieces of cloth together. Eight-foot wrappers could be converted into a blanket 4 feet wide and 6 foot long.[66] The 64th Quartermaster Base Depot reported on 23 December that 1,200 of these blankets had been manufactured.[67] Unrepairable woolen garments, both American and German, were sent to a French manufacturer, who shredded them to make a substance known as shoddy. The shoddy was run through another machine and converted into a soft material excellent for insulation. The 64th Quartermaster Depot covered the improvised cloth with salvaged muslin to make a prisoner-of-war quilt that proved to be light and warm.[68]

Miscellaneous Items

A detailed account of salvage repair in Continental depots could list hundreds of other improvisations, without which battles might have been lost. Squad tents were made from salvaged fabrics.[69] A jackhead and base, invented by a member of a salvage-repair company, sped up shoe repair.[70] Soles of prisoner-of-war shoes were made of old rubber tires. To overcome the shortage of parts for gasoline-dispensing pumps, the pumps were disassembled and their parts used as models for manufacturing substitutes.[71] Snow suits, shoe pacs, money bags, and felt insoles were made from salvaged materials.[72] The story could go on and on.

Throughout the entire Theater, improvisations were the order of the day in quartermaster headquarters from army groups to divisions. In usefulness many items that were made from salvaged materials are classifiable only slightly below the weapons of war. Their story, however, cannot be told in a history of over-all quartermaster supply.

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CHAPTER 5

MAINTENANCE AND SPARE PARTS

Maintenance, according to Webster, is "the upkeep of property, equipment, etc." According to United States Army usage, it is applicable to only mechanical equipment; and, according to the Quartermaster Corps, to only special-purpose equipment, general-purpose equipment, and gasoline dispensers. Quartermaster special-purpose equipment is used only by quartermaster troops. It consists of laundry, sterilization, refrigeration, shoe-repair, clothing-repair, textile-repair, bath, and bakery trailers, and fumigation chambers. Quartermaster general-purpose equipment is issued by the Quartermaster Corps to all arms and services. It consists of office machines, field ranges, immersion-type water heaters, cooking outfits, and gasoline lanterns.

World War II was a war of motion, a contest of men and machines. In mechanized warfare machines are more important than men, and courage means little in the face of superior arms and equipment. Moreover, a machine is no stronger than its weakest part.

In July 1943, though Americans were being asked to tighten their belts, labor was fighting to hold the ground it had gained. Meat was scarce on butchers' shelves. Shoppers were counting points as well as change. Strict controls were being placed on goods, salaries, rents, and prices. Labor leaders, shouting about the rising cost of living, increased their demands. Strikes threatened to cripple wartime production. The people of the United States, impatient for action, angered by the Government's inability to cope with internal problems, and stunned by the growing casualty lists, hurled abuse at the President, the Cabinet, and the Congress. Commentators and columnists warned that Hitler was winning the "battle of the home front."

WAR DEPARTMENT PROCEDURES

While civilian agencies coped with production and inflation, military agencies worked swiftly to supply United States fighting men. The War Department published on 6 July 1943 its policy for procuring and distributing spare parts.

Each supply service would be responsible for maintaining its own equipment. Spare parts that were easily broken, rapidly worn out, or frequently replaced would be furnished as an integral part of the initial issue of the item. In addition, a 12- to 18-month supply of spare parts normally would be provided with each item of equipment. If it was known, however, that future production would not be available, enough spare parts for the anticipated life of the item would be supplied. Besides the spare parts provided integrally with equipment, organizational sets of spare parts would be shipped with each unit that moved overseas. At first, these sets would be balanced depot stocks. Thereafter, the spare parts in these sets would be delivered only on requisition.[1]

The War Department policy was expanded on 3 September 1943[2] and revised on 7 June 1944. Under the new directive, each supply service continued to be responsible for maintaining its own equipment. First echelon spare parts—those that were easily broken, rapidly worn out, or frequently replaced—would be furnished as an integral part of the initial issue of the item. These parts could be installed by the operator of the machine. Second echelon spare parts—those needed for minor field repairs and for replenishment of first echelon parts—would accompany each unit that moved overseas. Third echelon spare parts—those needed for heavier field repairs—would be issued to maintenance organizations leaving the United States, if the specific types of equipment these organizations would be called upon to maintain could be determined in advance. Spare parts common to all types of repair would be issued upon requisition. Maintenance organizations that did not receive spare parts in the United States would be furnished them from overseas-depot stocks. This procedure applied also to fourth echelon spare parts—those needed for heavy repairs or overhauling.

Army depots would be given only enough spare parts to maintain the equipment of the units they supported. Spare parts given to Army depots were known as tactical-supply-organization spare parts. An initial issue of these spare parts would be given to task forces launched from the United States and to tactical supply organizations leaving the United States, if the specific types and quantities of equipment that these organizations would be called upon to maintain could be determined in advance. Task forces launched from theaters and tactical supply organizations not supplied in the United States would be issued spare parts from theater depot stocks.

Base depots would carry a year's supply of all spare parts. Chiefs of technical services would

make automatic shipment of base-depot spare parts under two circumstances: when requisitions for items of equipment were filled for the first time and when substantial increases in requisitions—20 percent or more—were made within the same month. Spare parts would be shipped in boxes, which would weigh not less than 70 pounds and not more than 200 pounds when filled. Spare parts would not be shipped in mixed sets.[3]

Throughout the war only two minor changes were made in the policy. In November 1944 the War Department stated that second echelon spare parts might be supplied automatically if the chiefs of technical services so requested,[4] but on 3 March 1945, that second echelon spare parts would be supplied automatically with the initial issue of the items to which they pertained and also by requisition.[5]

UNITED KINGDOM PROCEDURES

The spare-parts problem did not gain prominence in OCQM until late December 1943. President Roosevelt, Prime Minister Churchill, and Marshal Stalin had met at Teheran earlier in the month. There they had shaped the strategy of war and the goals of peace. On 10 December President Roosevelt had confirmed General Eisenhower's appointment as Supreme Commander of the Allied Expeditionary Force. The go-ahead signal for accelerated Continental planning had been given. Consequently, Major General Littlejohn directed that emphasis be placed on the maintenance of quartermaster equipment and that the Plans and Training Division make a thorough study of the problem.[6]

The Plans and Training Division reported its findings on 22 February 1944. Quartermaster organizations would be responsible for first and second echelon maintenance. Because no fixed line could be drawn dividing quartermaster and ordnance responsibility, repairs beyond the capabilities of using organizations would be made by quartermaster salvage depots or ordnance shops. Using units would requisition monthly from division quartermasters or similar supply officers replenishment stocks of first and second echelon spare parts. Salvage depots would supply third and fourth echelon spare parts to using units and ordnance shops. Salvage depots would requisition replenishment stocks from OCQM.

All used parts and assemblies, regardless of condition, would be sent to depot Q-140 in Lydney, which would also house enough balanced stocks of spare parts to maintain each item of quartermaster special-purpose equipment for a year. The initial balanced stock would be shipped automatically from the United States, but replenishment stocks of spare parts would be requisitioned by OCQM.

All spare parts for special-purpose equipment would be stored at Lydney. The Ordnance Service would be responsible for storing and issuing spare parts for chassis and bodies of quartermaster special-purpose vehicles. It would also be responsible for storing and issuing spare parts for materials handling equipment. Spare parts for field ranges would be stored and issued at all general and quartermaster depots. Using units would not be issued spare parts for office machines but would be issued new items in exchange for unserviceable items. Spare parts for ameri-cans manufactured in the United States would be stored at Highbridge. Ameri-cans and jerri-cans manufactured in the United Kingdom would be repaired by British commercial concerns. Spare parts for British mobile laundries would be stocked at Lydney. British mobile bakeries would continue to be delivered with a 10-month stock of spare parts.[7]

Lydney

Since its activation on 27 October 1942, Lydney had been just another quartermaster depot storing and issuing classes I, II, and IV supplies.[8] There were several reasons for its becoming in March 1944 the central salvage depot in the United Kingdom. Lydney is close to the southern coast of England and the ports used during the Continental invasion. It was in the Western Base Section, which contained the largest marshaling areas. The depot, therefore, could quickly receive salvage turned in by troops leaving the United Kingdom and salvage evacuated from the Continent.[9] Before March 1944 there was no adequate stock of spare parts in any quartermaster depot in the United Kingdom, and the combined stocks in all depots were not sufficient to meet requirements. Consequently, when plans were set on foot to reorganize the depot at Lydney, Major General Littlejohn directed that a spare-parts section be established there. The new section would be directly controlled by the Installations Division, OCQM.

The spare-parts section at Lydney at once made a complete inventory of all parts shipped to the depot and sent a duplicate set of stock-record cards to OCQM, thus enabling the Installations Division to control the requisition and issue of spare parts.[10]

Confused Procedure

Meanwhile, the New York Port of Embarkation, the Office of the Chief Quartermaster, and

the Office of The Quartermaster General were having trouble understanding each other. So confused was the situation in May 1944 that Colonel Ira K. Evans of the New York port paid a visit to the European Theater. He explained that the New York port automatically sent with each shipment of gasoline dispensers and materials handling equipment an initial issue of spare parts for first and second echelon maintenance and a 6-month supply of spare parts for all echelons of maintenance and that thereafter spare parts were shipped only on requisition. The New York port, he said, automatically sent with each shipment of special-purpose equipment an A set of first and second echelon spare parts. These parts were for emergency field repairs. For the number of special-purpose vehicles shipped during the month, the New York port automatically sent a B set of spare parts. These parts would provide complete maintenance for 1 year. A year's supply of all-echelon spare parts was shipped with each fixed laundry.[11]

The Chief Quartermaster and his deputy stressed the need for clear, specific, and understandable information, free from involved sentences and technical terminology.[12] Brigadier General Herman Feldman, the Deputy Quartermaster General, agreed with the Chief Quartermaster and stated that the information given by Colonel Evans was correct. No other policies were in effect. The supply of spare parts for quartermaster equipment, he said, was rapidly becoming more favorable. Therefore, all requisitions from the United Kingdom would be filled in the near future.[13]

PLANNING FOR THE CONTINENT

Though OCQM prepared a series of tentative spare-parts plans during the early months of 1944, the final plan was not published until D-day. It appeared as part of the European Theater Standing Operating Procedure for Maintenance and Salvage and as the Communications Zone Standing Operating Procedure for Quartermaster Maintenance and Spare Parts Supply.[14]

The European Theater standing operating procedure assigned to the Chief Quartermaster the maintenance of quartermaster special-purpose equipment, including British mobile laundry, bakery, and coffee-roasting trailers; field ranges; office machinery; fixed laundry plants; gasoline-dispensing equipment; and quartermaster equipment not maintained by other services.[15]

The Communications Zone standing operating procedure was more explicit. The Ordnance Service was responsible for maintaining materials handling equipment and for supplying necessary spare parts. The Ordnance Service would repair field ranges and other quartermaster general-purpose equipment when such repairs could not be made by quartermaster facilities. The Engineer Service would construct fixed refrigeration plants and fixed laundries, and the Quartermaster Service would maintain them.

Operating units would maintain gasoline dispensers. Quartermaster salvage-repair companies (fixed) would perform maintenance beyond the capability of using units. Ordnance facilities might be used whenever practicable. The Quartermaster Service would provide any necessary spare parts. Gasoline-supply companies or other operating units would be given an initial issue of spare parts. The salvage-repair company (fixed) would store and issue all parts other than those carried by the unit. Parts would be issued on an exchange basis. The salvage-repair company (fixed) would hold all used parts and unserviceable assemblies.

Operating units would maintain field ranges. Salvage-repair companies (semimobile) would perform maintenance beyond unit capabilities. The central repair shop of the salvage-repair company (fixed) would perform higher maintenance. Ordnance facilities could be used if necessary. Spare parts would be held by using units, division quartermasters, and salvage-repair companies. Replenishment spare parts would be requisitioned from class II depots.

Typewriters and other office machines would be cleaned and oiled by using organizations but repaired and overhauled by salvage-repair companies (fixed). The facilities of these companies would be augmented by mobile maintenance teams attached to class II depots. Spare parts would not be issued to using units. Mobile teams would carry only a limited amount of spare parts. All other spare parts would be carried by salvage-repair companies (fixed).

Fixed laundry plants would be maintained by operating units. Civilian or military technicians could be called upon for assistance. The Engineer Service would provide the initial stock of spare parts. Subsequent stocks would be held either by salvage-repair companies (fixed) or by depots designated by OCQM.

Jerri-cans, ameri-cans, and drums would be maintained by quartermaster gasoline-supply companies. These companies would replace closures, gaskets, tags, and hinge and cotter pins. Major repairs would be made by salvage repair companies (fixed) augmented by 16-man maintenance teams. Class III depots would hold stocks of spare parts for minor repairs. Sal-

FIGURE 53.—Captain Pevey Displays His Kit.

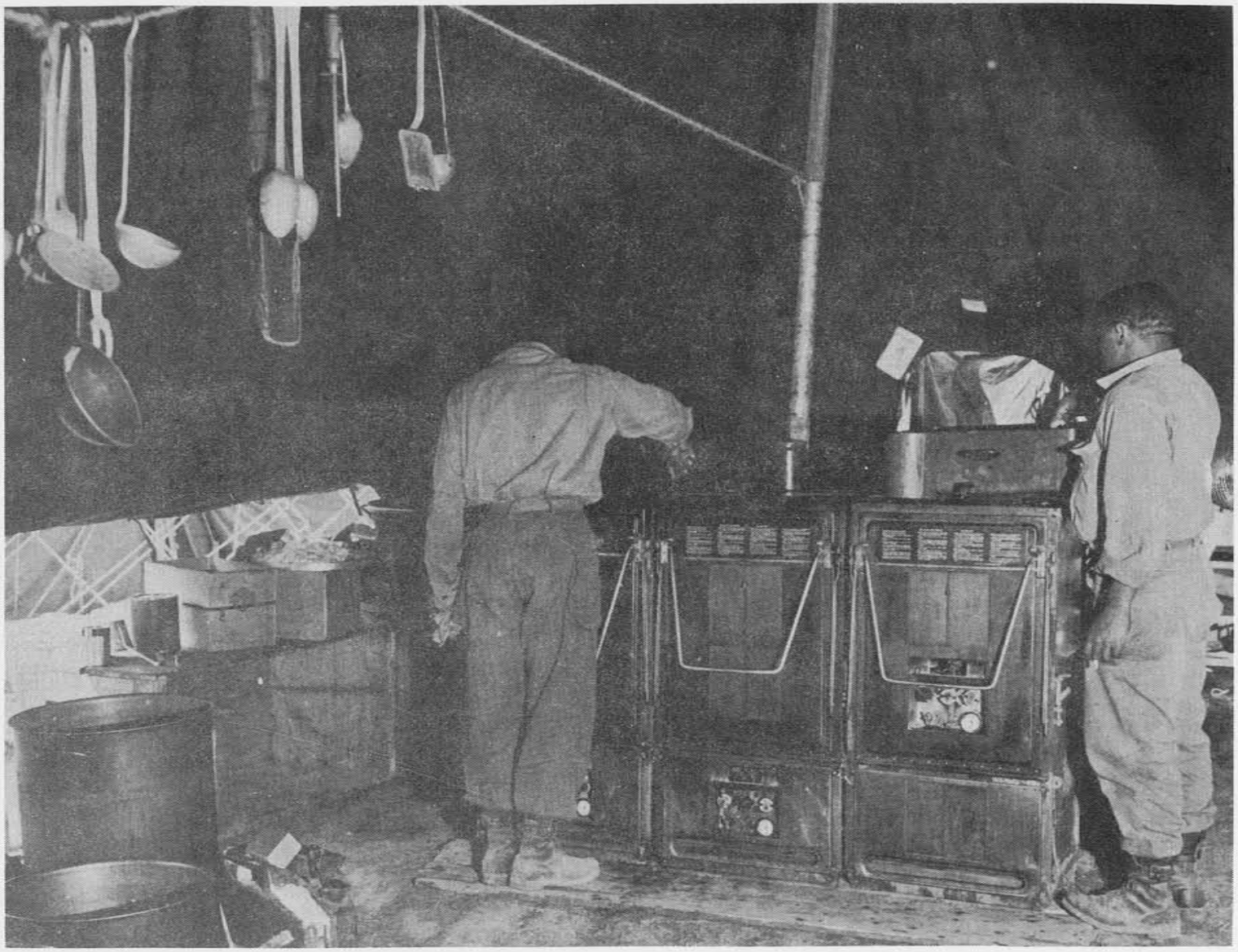

FIGURE 54.—Field Ranges in Use on the Continent.

FIGURE 55.—Fire Units Being Repaired on the Continent.

vage-repair companies (fixed) would hold spare parts for major repairs.

Using units would maintain materials handling equipment. All equipment requiring heavy repair would be shipped to designated ordnance depots. It would not be returned to the unit but would be repaired and sent to a salvage depot for reissue. Replacements for equipment sent to ordnance depots would be supplied by requisition.

Replenishment spare parts for special-purpose equipment and gasoline dispensers would be requisitioned monthly by using units from the Installations Division, OCQM. Emergency requisitions might be placed at any time. Replenishment spare parts for depot stocks would be requisitioned monthly by salvage-repair companies (fixed) from the Installations Division. Salvage-repair companies (fixed and semimobile) would requisition spare parts for field ranges monthly. Salvage-repair companies (fixed) would at first requisition only those spare parts that mobile teams needed for maintaining office machines. As soon as usage factors could be developed, the Installations Division would direct salvage-repair companies to issue office-machine spare parts to units. Gasoline-supply companies would requisition replenishment spare parts for minor can and drum repairs from the Petroleum and Fuels Division, OCQM. Salvage-repair companies (fixed) would requisition replenishment spare parts for major can repairs from the Petroleum and Fuels Division monthly.[16]

After Major General Edmund B. Gregory, The Quartermaster General, received a copy of the plan, he wrote Major General Littlejohn, "In all instances your plan can be considered as a model and readily adapts itself to the over-all plan of the Office of The Quartermaster General."[17] Nevertheless, the Chief Quartermaster wrote the Deputy Quartermaster General several weeks later that many questions still had not been settled and asked that a representative of OQMG be sent to Europe to see the problems firsthand.[18] Brigadier General Feldman arrived in late July 1944. The Chief Quartermaster explained to him that the maintenance and spare-parts plan would have to be changed. First, maintenance factors were in need of revision because parts were wearing out more rapidly than had been anticipated. Second, it was difficult to maintain a steady flow of supplies from the United Kingdom to the Continent. Shipments were too small. Parts were lost or delivered to the wrong places. Third, there was not enough technical information available in Europe. The Chief Quartermaster believed that the problem could be solved in three ways. First, the salvage-repair company (semimobile) should be reorganized to include a squad capable of repairing all quartermaster equipment. Second, the Theater level of spare parts should be redistributed. The smallest portion should be held by salvage-repair companies, a larger portion by designated depots, and the largest portion by a central salvage depot operated by a special base-depot company. Third, the War Department should send booklets and other information about maintenance and spare parts.[19]

Meanwhile, OCQM, having gone ahead with its Continental planning, published on 16 June its plan for shipping spare parts to the Continent. Each unit operating special-purpose equipment and gasoline dispensers would be given as initial issue a 90-day supply of spare parts. Units arriving on the Continent before the establishment of a central salvage and spare-parts depot would carry specially designed spare-parts kits. All unused kits or parts of unused kits would be turned in to the central depot whenever it should be activated.

Beginning at D-plus-60-day, a 6-month supply of spare parts would be shipped for each special-purpose trailer on the Continent. The entire stock of office mobile parts would be shipped to the Continent as soon after D-plus-60-day as possible. Using units would submit requisitions for replenishment spare parts to the spare-parts section of the central salvage depot. This section would submit its monthly requisitions to the highest quartermaster echelon on the Continent.[20]

CONTINENTAL PROCEDURES

The Chief Quartermaster directed on 4 August 1944 that salvage-repair companies (semimobile) be reorganized. The company, as set up by the War Department on 6 July 1943, consisted of two platoons broken down into three sections. Each section did a specific type of work: shoe repair, clothing repair, or textile repair.[21] The Chief Quartermaster's plan was to add a third platoon to the company. Known as an equipment-maintenance platoon, it would act as a mobile maintenance-and-repair team for all quartermaster equipment. It would be composed of 12 men taken from the two other platoons. The strength of the company—201 men—would remain the same. The 120-day Theater level of supply for spare parts would be broken down as follows: 30 days with each equipment-maintenance platoon; 30 days with each salvage repair company (semimobile); and 60 days at the central spare-parts depot.[22]

The Chief Quartermaster wrote Brigadier General Feldman on 16 September that even

though his goal of creating a mobile platoon capable of repairing anything from a typewriter to a battleship had not yet been reached, rapid progress was being made.[23] The full account of this reorganization will be told in another volume of this series.

On 21 August, OCQM directed that bulk stocks of spare parts be concentrated at the 64th Quartermaster Base Depot operating in Normandy. Because all spare parts were controlled items, an officer from the Installations Division, OCQM, would be sent to the 64th Quartermaster Base Depot to approve and edit all requisitions for spare parts. Spare parts for special-purpose equipment would be issued on an exchange basis. The repair teams of salvage-repair companies (semimobile) would carry enough parts to make on-the-spot repairs in the field. Spare parts for office machines and gasoline lanterns would not be issued to using units. Repairs would be made either by salvage-repair companies (semimobile) or by the 64th Quartermaster Base Depot. Units would requisition spare parts for field ranges from the 64th Quartermaster Base Depot. The 64th Quartermaster Base Depot or salvage-repair companies (semimobile) would handle the heavy repair of field ranges.[24]

This procedure was effective until 15 October 1944, when special procedures were set up for distributing spare parts in the combat zone and the communications zone. Spare parts for combat units would be concentrated at the 64th Quartermaster Base Depot, soon to be moved to Reims. Monthly credits, which would be established for each army, would provide full maintenance for all types of general-purpose equipment—a 30-day stock of parts for the using unit and a 30-day stock for salvage-repair companies. These credits could be drawn against at any time. The army quartermaster could carry his stock in one of three ways: at the army class II depot, at the 64th Quartermaster Base Depot, or with salvage-repair companies.

Communications zone units in the Normandy and Brittany Base Sections and in the Loire and Seine Sections would requisition spare parts from the depots at Cherbourg, L'Hermitage, Le Mans, and Paris respectively. Units in the Oise Section, the Channel Base Section, and ADSEC would requisition spare parts from the 64th Quartermaster Base Depot.

Spare parts for quartermaster special-purpose equipment and office machines would also be concentrated at Reims. Special-purpose-equipment spare parts would be issued to using units and salvage-repair companies. Office-machine spare parts would be issued to mobile repair teams. All issues would be made on an exchange basis.[25]

Field Service Teams

An OCQM circular of November 1944 announced the organization of two field-service teams. Each team consisted of 5 officers and 10 enlisted men. Each member was an expert in the repair and maintenance of one item of general- or special-purpose equipment. The teams would be under the control of the 64th Quartermaster Depot. They would inspect quartermaster equipment in the field, maintain an orderly flow of spare parts, correct maintenance difficulties, and give instructions to using units.[26]

After Victory Day

The credit system for supplying spare parts to combat units stopped on 31 August 1945. New procedures were published on 15 September. By this time Germany had been partitioned into occupational districts and the United States occupational forces had been organized. The redeployment of troops and material to the United States and other theaters was well under way. The new maintenance and spare-parts-supply procedures were designed to meet the post-hostilities operations in the European Theater.

Salvage-repair installations, both fixed and mobile, would carry a 30-day stock of spare parts. Quartermaster spare-parts depots that served sections in liberated countries and districts in occupied territory would also carry a 30-day supply. Using units would carry only those spare parts needed for emergency repairs. Repair installations in the Bremen Enclave and the Berlin District would carry enough spare parts above their normal shop requirements to fill requisitions from using units and maintenance organizations in their areas. Depot Q-256 in Reims would be the central spare-parts depot for troops in liberated countries. The salvage depot in Bamberg would be the central spare-parts depot for the occupational forces. Spare-parts depots and repair installations would send monthly requisitions to Reims or Bamberg. Issues would be on an exchange basis.[27]

FIELD RANGES

The maintenance of field ranges was a stormy problem. Veterans of the North African campaign agree that the field range was the greatest troublemaker of all class II supplies. Quartermasters of the European Theater avow that it was the maintenance man's nightmare.

Actually, the field range is a simple apparatus designed for cooking in the field where other cooking facilities do not exist. It consists of an upright steel cabinet, a pot cradle, and a gasoline fire unit. The upkeep of field ranges involves the procurement, storage, and issue of some 190 types of spare parts.

Supply and Procurement

The procurement of field ranges and field-range parts from the British began in August 1942 when the firm of Waller and Company, Limited, agreed to produce 50 field-range cabinets for testing purposes.[28] The British cabinets proved to be so satisfactory that Major General Lee asked the War Department for permission to procure complete field ranges from the British. Waller and Company had already been given a contract for an additional 200 cabinets and had agreed to produce 500 weekly if authorization was granted.[29] The War Department refused the request. Brigadier General Littlejohn wrote Major General Lee on 4 December that production in the United States was more than ample to meet European Theater requirements and that any field ranges procured in Great Britain would have to be replaced either in kind or by shipments of steel from the United States. "From every view point," he said, "Lieutenant General Somervell feels that it is preferable to continue procurement in the United States."[30]

The War Department's decision was not questioned until February 1943, when G-4 suggested that another request for procurement authorization be sent to Washington. The British field range was easier to operate and maintain than the American model. Experiences in North Africa had shown that American ranges caused a great deal of trouble. The procurement of British ranges would save valuable shipping space. The General Purchasing Agent had been assured of complete and rapid deliveries.[31] The Deputy Chief Quartermaster replied that G-4 was apparently laboring under a misapprehension. Though the British Ministry of Supply had previously promised unlimited production, it had delivered only two field-range cabinets by January 1943. The British model differed from the American only in minor and unimportant details. Complaints from North Africa pertained only to fire units, for which corrective measures were being taken both in the Office of The Quartermaster General and the Office of the Chief Quartermaster. Finally, new methods of packing under study in the United States would result in appreciable saving of shipping space.[32]

On 22 June 1943 OCQM reversed its decision to use the United States as the sole source of field-range supply and directed that 3,576 field-range cabinets, with all accessories except fire units, be procured from the British by 30 June 1944.[33] The Chief of the Procurement Division reported in March 1944 that the order had been increased to 5,195 cabinets but that only 1,281 had been delivered.[34] A chart of quantities ordered and delivered appears as appendix XV.

A Ministry of Supply report on the production of field-range parts painted an even darker picture. Only 100 of 10,119 pot covers had been delivered. The Ministry explained that one contractor was doing nicely but that another was still in trouble. None of the 15,000 leather washers and only 5,000 fuel caps had been delivered, because the contractor had lost the patterns. He had been given other patterns and should begin production by the end of June.[35]

Pevey Kits

Meanwhile, the question of packing spare parts had come to the fore. The Plans and Training Division believed that there were two basic reasons for all field-range troubles in North Africa. First, leaded gasoline had been used. Second, spare parts had not been available because the War Department refused to pack them in sets. Fillers, for example, came in one box, burners in another, and flame valves in a third. The loss of one box prevented complete maintenance. The Office of the Chief Quartermaster had been studying new methods of packing for some time and had developed at the Ashchurch general depot a field-range maintenance kit. This kit, containing enough spare parts and tools to maintain one field-range fire unit for 90 days, had been designed by Captain James E. Pevey of the Subsistence Division. The kits, constructed from 2½ yards of 16-ounce duck, could be made from salvaged tentage. They could be transported inside field-range cabinets or in empty garbage cans. When not in use, they could be folded and tied. When in use, they could be unfolded and hung at working height so that each part would be at the repairman's fingertips.[36] A list of the parts included in the kits appears as appendix XVI.

The Chief Quartermaster authorized the production of 35,000 kits on 13 December 1943, the work to be done by salvage-repair companies.[37] The Quartermaster of the Southern Base Section having enlisted the aid of a British civilian concern, all 35,000 kits were produced by March 1944.[38]

The acquisition of parts for Pevey kits was another problem. The Chief Quartermaster

originally intended to issue during the first 90 days of the invasion one Pevey kit for each field range on the Continent. These kits would be in addition to the initial issue of tools and parts.[39] The First Army Quartermaster, however, believed that this plan would give units too many tools. He recommended on 28 February 1944 that one Pevey kit, less tools, be issued for every three field ranges. He also recommended that half of the Pevey kits that were to be sent to the Continent for replenishment be shipped without tools.[40]

Division chiefs of OCQM argued about the suggestion for more than 2 months. The Chief of the Supply Division insisted that the original plan be followed. His division had not taken into consideration the possibility of replenishment shipments. He had merely been told to requisition from the United States enough parts and tools for 10,000 kits. This would cover requirements for the first 90 days of the Continental operation. No further use of Pevey kits had been contemplated.[41] The Chief of the Plans and Training Division, believing that the First Army's suggestion should be followed, directed that 2,500 Pevey kits be assembled with parts and tools and that 7,500 be assembled without tools.[42] When the Supply Division passed the responsibility for assembling Pevey kits to the Installations Division,[43] the Chief of the Installations Division suggested that all 10,000 kits be packed without tools.[44] The First Army Quartermaster was getting impatient. D-day was near; yet his units still did not know how many spare parts they would have. Consequently, he notified OCQM that all references to Pevey kits had been deleted from First Army plans and instructions. He had decided to revert to the original War Department policy of June 1943, which allowed units to draw a 30-day supply of field-range spare parts.[45] The Deputy Chief Quartermaster put an end to the argument in May 1944. With each class II follow-up maintenance set (see vol. III, ch. 1), OCQM would assemble and ship 15 field-range maintenance packs containing enough spare parts to maintain 20 field ranges for 30 days. In addition, it would ship with each follow-up set enough field-range spare parts to maintain 15,000 men for 30 days.[46] (See app. XVII.)

Use and Training in the United Kingdom

The field-range training program began in January 1943 with the opening of a field-range school at the Ashchurch depot. Mess advisers were taught how to use and maintain the field range so that they could instruct units in the field. Though the classes proved highly successful, instructors and students alike bemoaned the shortness of the 2-day course. Captain Pevey, the chief instructor, asked that one officer in each base section be allowed to devote his full time to field-range instruction.[47]

Major General John C. H. Lee attached so much importance to the proper operation and maintenance of field ranges that he directed all units to use them at least once each month.[48] The Chief Quartermaster not only agreed with Major General Lee but instructed units to use field ranges once every 10 days.[49] When units were asked to comment upon the effectiveness of the program, they unanimously replied that field ranges should be used more often.[50] Nevertheless, the 3-day-a-month program remained in effect.[51]

Problems on the Continent

Most of the field-range problems that were settled by D-day arose again on the Continent, and with more disastrous consequences. Many new ones appeared. Some were solved quickly and simply, others only by means of patience and fortitude.

The Fire Unit

The fire unit is the most important part of the field range. Yet, oddly enough, it caused most of the field-range trouble in the European Theater. The earliest pamphlets about the range stated that unleaded (white) gasoline or leaded (ethyl) gasoline worked equally well as fuel but recommended white gasoline because it cut down the number of cleanings.

The War Department improved the fire unit on 10 July 1944 by modifying the generator, jets, filter assembly, fuel tubes, and other parts of the burner assembly. The purpose of the modification was to reduce maintenance and improve performance when leaded gasoline was used. Old-type fire units could be converted in about 30 minutes. Unit mechanics would merely have to install 22 new parts.[52] Because these parts were already coming off the production line, theaters were asked to submit their requirements.[53] The Deputy Chief Quartermaster reported on 16 August that there were enough parts on hand and on outstanding requisitions to convert all field ranges in the European Theater.[54]

Conversion did not begin, however, until October 1944. Then, the work proceeded slowly because, contrary to all reports, replacement parts were not available. A quartermaster technical intelligence team visiting the XIX Corps of the First Army, which was then battling for Aachen, reported that some 300 gen-

FIGURE 56.—Gasoline Lanterns Being Repaired on the Continent.

FIGURE 57.—Mobile Typewriter-Repair Shop.

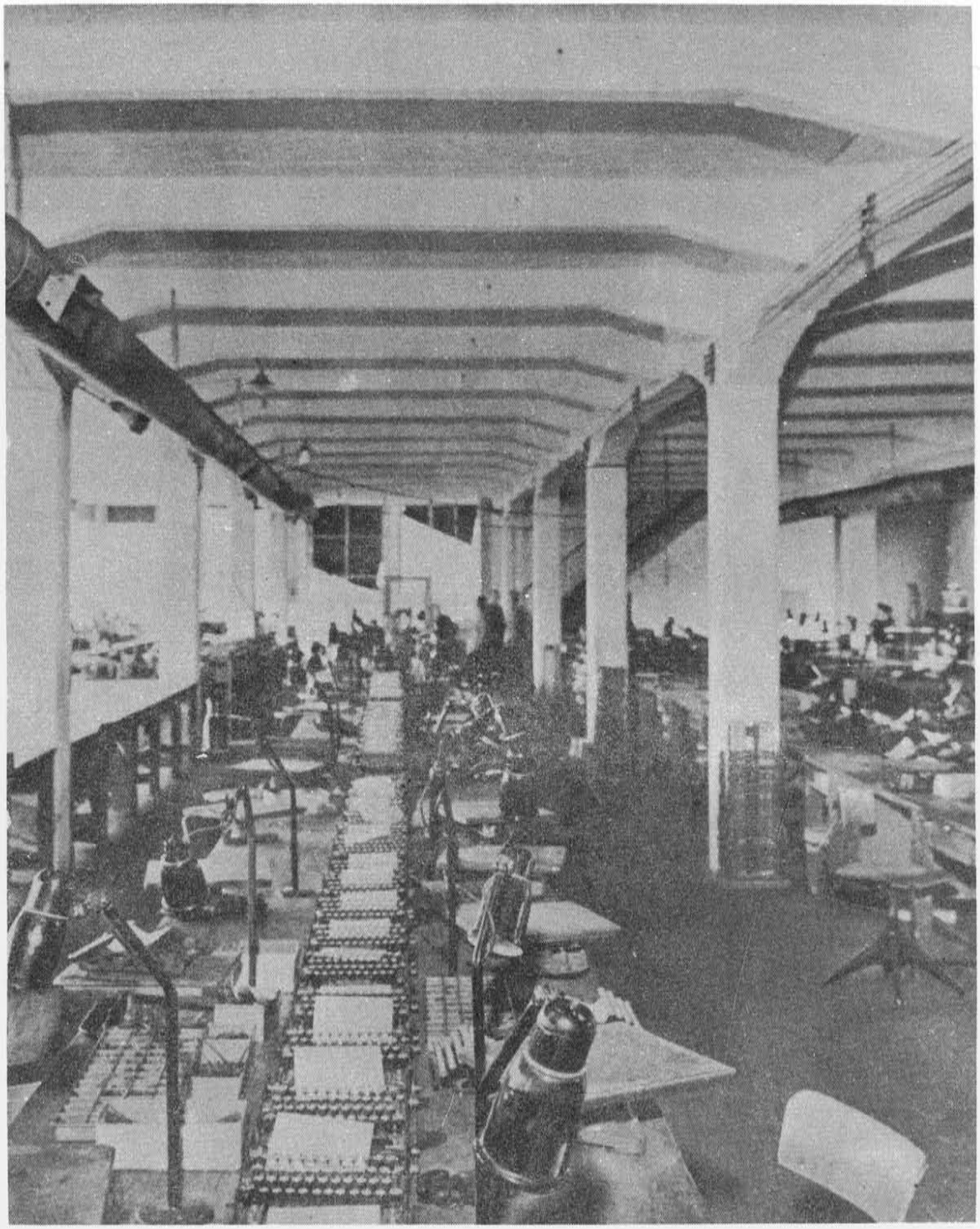

FIGURE 58.—Assembly Line in a Captured Typewriter Factory in Germany.

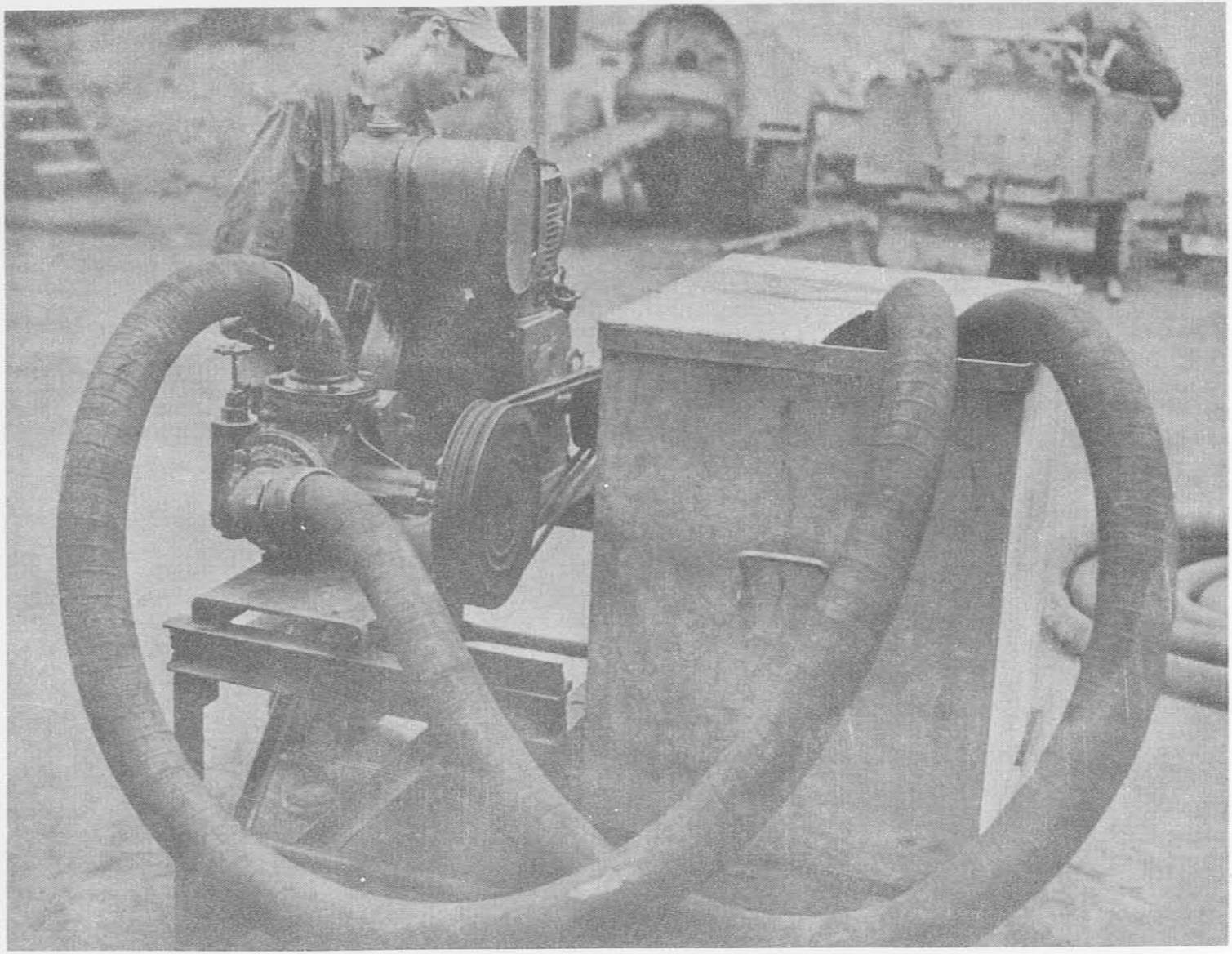

FIGURE 59.—Gasoline Dispenser Pump Being Tested on the Continent.

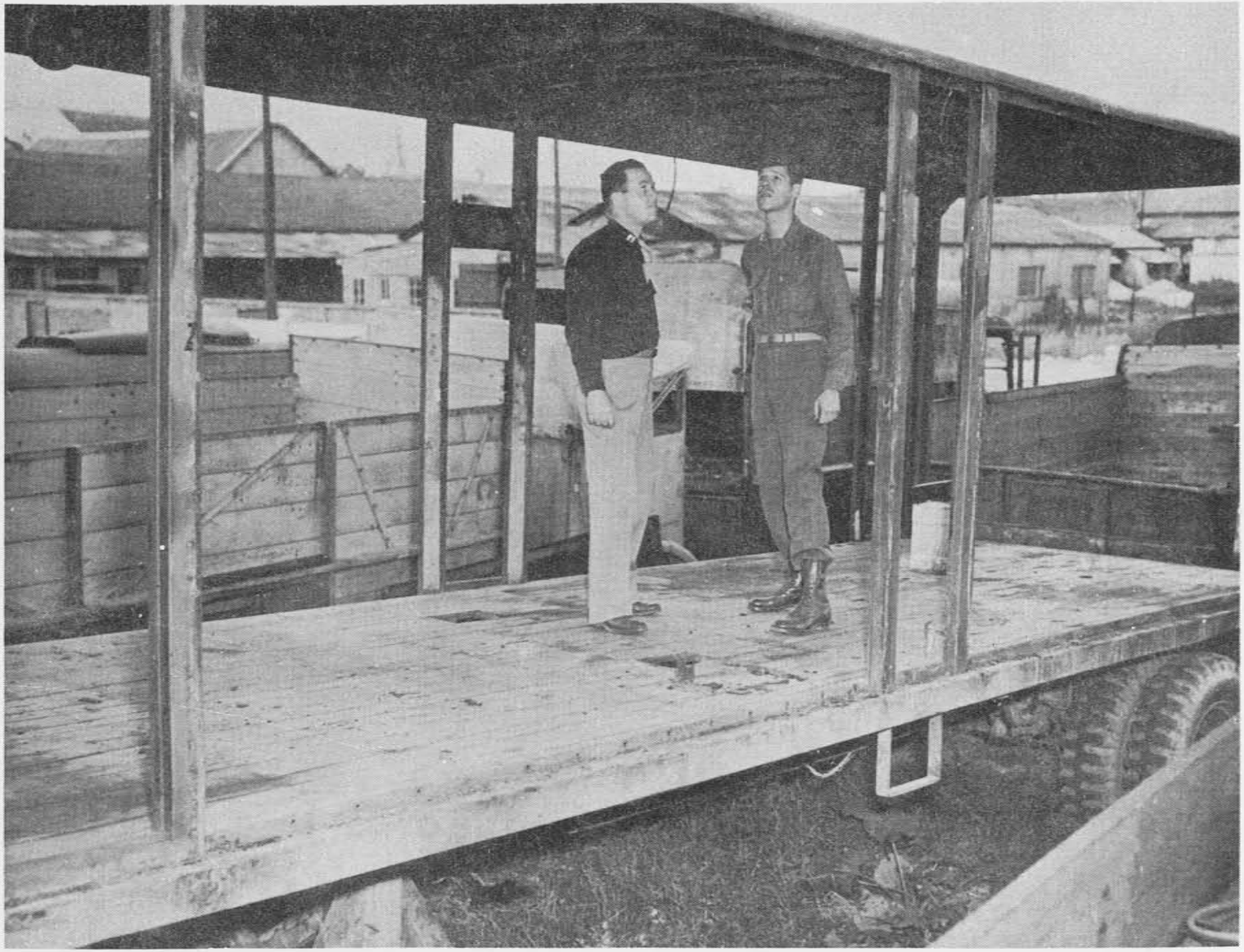

FIGURE 60.—Laundry Trailer to Be Rebuilt at Reims.

erators had been installed. In many instances the converted ranges functioned satisfactorily for more than 300 hours. Then, because replacement parts were not available, generators were cut open, repacked with steel wool, and rewelded.[55] Another technical intelligence team, visiting First Army troops near Eisenborn, Belgium, and Roetgen, Germany, reported that the 9th Division was pleased with the converted fire units. The new units were still being installed, and the division quartermaster was worried about replacement parts.[56]

On the whole, the converted fire unit was well received and appreciated. It did help the maintenance problem to some degree. In November 1944, salvage repair companies of the Third Army repaired more than 4,000 fire units. They did not repair more than 3,200 in any month after converted units were installed.[57] During the period from 13 September to 15 December 1944, salvage repair companies of the First Army repaired 4,011 fire units. During the period from 16 December 1944 to 22 February 1945, after the complete conversion of fire units, they repaired 3,259.[58]

Getting the Supplies

The shortage of field-range spare parts was brought about by a number of factors. First, an efficient central spare-parts depot did not exist until the 64th Quartermaster Base Depot was established. Second, the Installations Division did not actually take over the control of spare parts until August 1944. Third, spare parts were overlooked in the priority system of unloading ships. Fourth, spare parts were lost.[59]

The Chief of the Installations Division could not understand why records in his office did not tally with the records of stocks on hand in depots. He knew that the New York port had shipped a great many spare parts to the United Kingdom, but he had no record of their arrival on the Continent.[60] The Quartermaster of the United Kingdom Base admitted that the parts had been misplaced. He was doing everything possible to find them because the New York port, claiming that enough parts were on hand in the United Kingdom, was reluctant to make any additional shipments to the European Theater.[61]

The Chief Quartermaster was able to make up part of the shortage by procuring field-range spare parts from the French. The usual production difficulties began when the first demands were placed on 30 October 1944.[62] The Sera Martin Company, which accepted the first orders, was neither given a written contract nor paid by 11 December for the 33,000 parts it had delivered. Consequently, the Procurement Division was told to act quickly because the company was getting impatient and would likely stop production.[63]

Quartermaster observers discovered in May 1945 that some of the locally procured parts were not made according to specifications. Nuts for field-range burners were too long, flame valves were too shallow, and caps for fuel tanks were too thick.[64] Colonel Beny Rosaler, Chief of the Installations Division, explained that these defects had come to light some weeks before and that they were being remedied at the 64th Quartermaster Base Depot.[65] A chart of field-range spare parts ordered and delivered on the Continent appears as appendix XVIII.

GASOLINE LANTERNS

The gasoline lantern also gave trouble. The Chief Quartermaster, dissatisfied with its performance as early as 6 June 1943, made repeated demands to the War Department for a substitute. The lanterns simply did not burn properly with leaded gasoline.[66] The Quartermaster General replied that a new type of gasoline lantern was being developed and would be available by the spring of 1944. In the meantime, the European Theater would be supplied candle lanterns and combination candle-and-kerosene lanterns.[67] Consequently, OCQM discontinued the issue of gasoline lanterns. The Deputy Chief Quartermaster believed, however, that the measure should be temporary, because the gasoline lantern would be essential on the Continent.[68]

Instead of immediately designing a new gasoline lantern, the Office of The Quartermaster General developed special conversion sets that permitted ethyl gasoline to be used in the standard lantern. The only trouble with this scheme was that it made the distribution of spare parts more complicated. The United States Army procured its gasoline lanterns from three manufacturers. Though the lanterns were of the same basic design, they varied in some minor details. Consequently, three different conversion sets had to be distributed because the parts were not interchangeable. The Office of The Quartermaster General admitted on 10 May 1944 that lack of information as to how many lanterns of each make were on hand in the theaters had prevented the development of a method of distribution.[69]

The War Department announced in July 1944 that the Quartermaster Corps had developed, tested, and approved gasoline lanterns designed to use leaded gasoline exclusively.[70] Major General Littlejohn asked the War Department, therefore, to ship new lanterns against all requisitions for old. He still wanted 73,200 con-

version sets, however, for use with old-style lanterns.[71] Though OQMG replied that these sets and 215,600 additional spare parts would be available for shipment during August, it made no mention of shipping new lanterns.[72]

The Chief Quartermaster reported in February 1945 that gasoline lanterns had one major defect. During the lighting process the mantles were easily broken by the jet of gasoline from the generator. The Ninth Army had developed a diffuser, which he believed solved the problem.[73] Brigadier General Georges F. Doriot of The Quartermaster General's office agreed that the diffuser was a positive method of avoiding mantle breakage, which was a universal problem. Before the device could be incorporated in production models, however, a suitable alloy would have to be found.[74]

OTHER GENERAL-PURPOSE EQUIPMENT

The supply of other general-purpose equipment, such as office machines, immersion-type water heaters, and cooking outfits, is discussed in volume V. The upkeep of these items was characterized by the problems common to field ranges and gasoline lanterns. Spare parts were in short supply. Available parts were not always satisfactory. Because materials wore out more quickly than the War Department had anticipated, prescribed allowances of spare parts were not always sufficient. The initial issue of general-purpose equipment was often at fault. The War Department, for example, authorized an initial allowance of one cooking outfit for every 20 men in the Theater. Continental experience proved that the allowance should be one outfit for every 12 men. This particular question was not settled until the Commanding General of the Army Service Forces visited the European Theater in January 1945 and approved the Chief Quartermaster's repeated recommendation for an increased allowance.[75]

The shortage of personnel was another disturbing factor. The Spare Parts Branch of the Installations Division consisted in January 1945 of only two officers, one warrant officer, two civilians, and five enlisted men.[76] Lack of control resulted. Because stock-record cards could not be kept in OCQM, inventory and issue figures were incomplete and any chance to foresee and avert shortages of spare parts was precluded. The Spare Parts Branch did not know enough about the actual equipment being used during any specific period of operations. The absence of experience data forced OCQM to use War Department issue and replacement factors, which were too low.[77]

Office Machines

Though the Quartermaster Corps was not given complete responsibility for the distribution, storage, and issue of typewriters until January 1945,[78] it was made responsible for the repair of typewriters in August 1944.[79] Earlier it had procured new typewriters and had disposed of unserviceable ones.[80]

In the United Kingdom His Majesty's Stationery Office repaired all typewriters for the United States forces.[81] On the Continent typewriter repair was accomplished by quartermaster salvage-repair companies in army areas and by civilian concerns in the communications zone. The French committee of organization for the office-machine industry agreed in September 1944 to accept United States contracts.[82] Negotiations with the Belgian Government began in March 1945.[83]

Gasoline Dispensers

The Chief Quartermaster became responsible for the repair and upkeep of gasoline dispensers on 6 May 1944, a duty formerly assigned to the Ordnance Service.[84] The New York port notified the Chief Quartermaster later in the month that all ordnance requisitions for gasoline-dispenser spare parts had been canceled and that OCQM would receive a 6-month supply of parts for all dispensers on hand or due in the United Kingdom.[85] Though several partial shipments were made late in August and September, delivery was not completed until November 1944.[86] Meanwhile, the 64th Quartermaster Base Depot stripped one of its dispensers and sent the parts to local manufacturers as models.[87]

SPECIAL-PURPOSE EQUIPMENT

The maintenance of special-purpose equipment was never a problem of great magnitude. Heavy repairs, beyond quartermaster maintenance facilities, were made by the Ordnance Service. The supply of spare parts for this equipment was generally adequate. Special-purpose equipment performed a definite service for a given number of men. Even though certain pieces of equipment were often called upon to operate beyond their designated capacities, they were of hardy construction and could stand the strain. Usually, because of their size or bulk, they were operated under favorable conditions. They were not subjected to damage by weather or rapid and constant movement. Nevertheless, there were a few problems worthy of consideration.

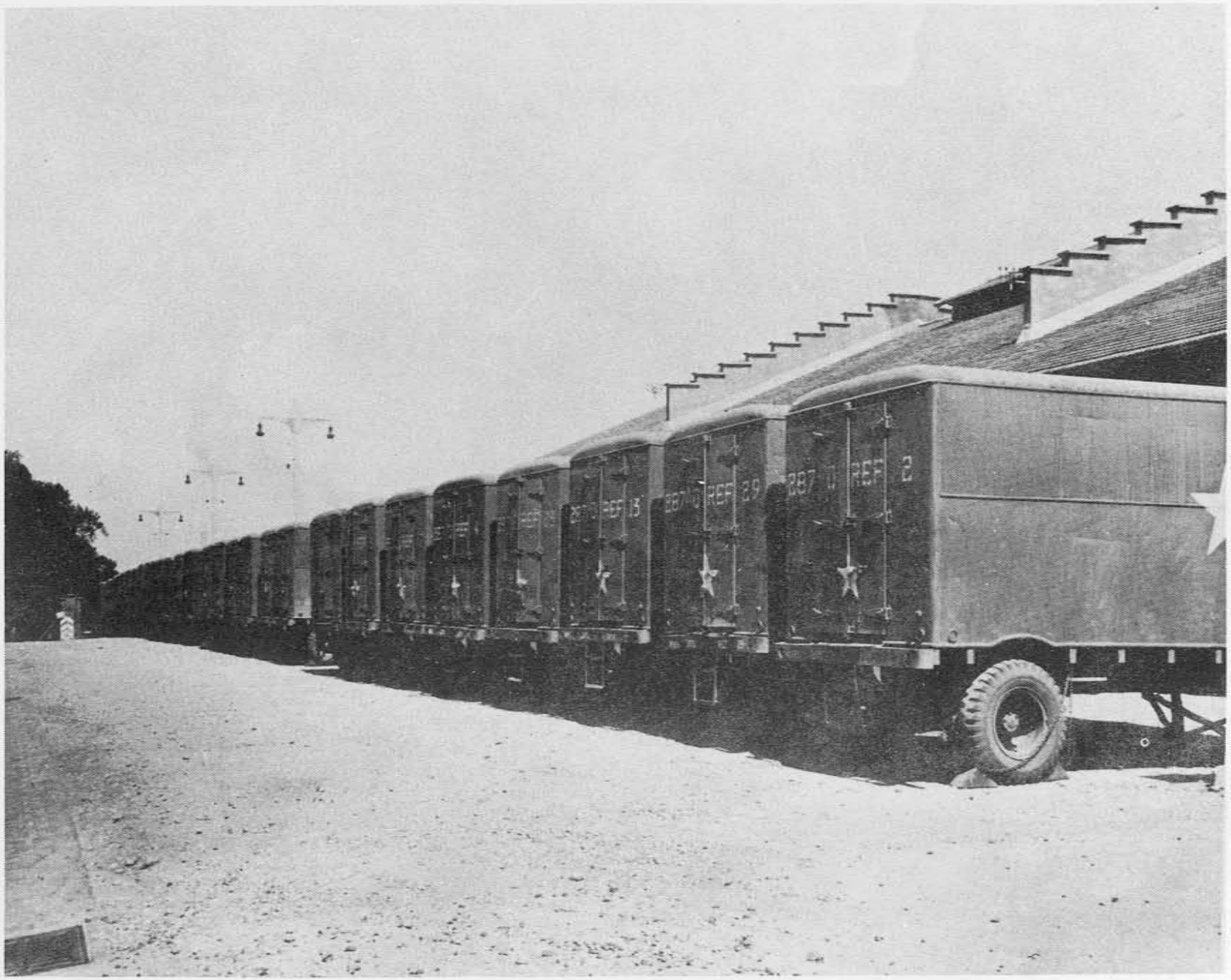

FIGURE 61.—Renovated Refrigerator Vans Ready for Reissue.

FIGURE 62.—Quartermaster Mobile Spare-Parts Depot at Verviers.

FIGURE 63.—Quartermaster Mobile Spare-Parts Stockroom.

FIGURE 64.—Quartermaster Equipment Maintenance Platoon Unpacking Supplies.

Mobile Bakeries

The Chief Quartermaster's decision to use British mobile bakeries (see vol. II, ch. 5) brought about one of the most serious problems. Although the British delivered the bakeries with an initial issue of spare parts, OCQM constantly tried to get additional parts.[88] Though the Ministry of Supply appreciated the Chief Quartermaster's position and was willing, oftentimes anxious, to meet the ever-increasing demands, British production was rarely able to keep pace with requirements from both British and American forces. Furthermore, OCQM frequently got in its own way.

The actual procurement of additional spare parts for mobile bakeries began in September 1943.[89] Members of the British War Office and OCQM discussed the matter during the next 6 months in an effort to develop a program acceptable to all concerned. The argument centered about OCQM's estimate of requirements for 1 year. It was almost four times that provided in the British maintenance scale. The British War Office took the stand that the United States forces should not be given parts at a rate greater than that prescribed for British forces. The British said that production was the controlling factor in the development of maintenance scales. Furthermore, the United States forces had not been using mobile bakeries long enough to know how many spare parts were needed for maintenance. The Deputy Chief Quartermaster, on the other hand, believed that the British maintenance scales were too low.

The discussion ended in a series of conferences held at the Old Dalby depot in March 1944. To avoid further delay in production, the Chief Quartermaster accepted the British scales with the stipulation that the British at a later date accept his requirements, which would be prepared in the best interest of the service and in cognizance of the need for conservation.[90] The British agreed to produce enough spare parts to maintain mobile bakery trailers for 1 year and to accept emergency spot demands.[91] In another conference held with the Ministry of Supply at the Hotel Metropole on 10 May 1944 the Chief of the Bakery Branch, Subsistence Division, said that the requirements for 1945 were being determined.[92] Though the Chief of the Subsistence Division asked the Procurement Division on 31 May to place the requirements for 1945 with the British War Office, the Procurement Division did not do so until 21 September 1944. The Chief of the Procurement Division explained that he wanted to be certain that there would be no hitch in the negotiations and that British production would be available.[93]

This delay had a rather serious repercussion. The Quartermaster Service had made no arrangement with the United States for the supply of spare parts for bakeries. Practically all the bakeries on the Continent, which had not been in constant operation since D-day, were badly in need of immediate overhauling. Colonel Robert T. Willkie, Chief of the Subsistence Division, sent the Chief of the Procurement Division a blistering memorandum, saying that because "the specific instructions of the Chief of the Bakery and Coffee Roasting Branch . . . were not followed at the proper time," it would be necessary to "accept at this late date the automatic maintenance scales . . . set up by the British War Office."[94]

Other Special-Purpose Equipment

The Plans and Training Division reported on 13 May 1944 that if everything went according to schedule, there would be on hand by 31 August 1944 a 1-year supply of spare parts for all special-purpose equipment in Europe (see app. XIX).[95]

That this report was not merely wishful thinking was evidenced by a letter written by the Chief of the Installations Division on 20 September, saying that the over-all spare parts situation was healthy except for gasoline-lantern parts. The supply of spare parts for special-purpose equipment was not a problem.[96]

After the surrender of Germany, redeployment of men and material assumed the leading role in the European Theater. The laundry, refrigeration, coffee-roasting, bakery, and sterilization trailers that had given yeoman service during 336 days of bitter fighting had to be put in order for work still to be done on the other side of the world. How this was accomplished will be told in volume X, *Redeployment.*

THE PROGRAM EVALUATED

Mobility was the key to the success of the maintenance program. The distribution of spare parts through a series of depots would have resulted in chaos. This was proved in the United Kingdom before the depot at Lydney was transformed into the central salvage and spare-parts depot. Thus, when the first boatload of spare parts arrived on the Continent in mid-July 1944, another central spare-parts depot was set up behind the invasion beaches of Normandy. This depot followed the advancing armies until it reached Reims, where it remained throughout the European campaign. Though the centralization of spare parts did much to solve the maintenance problem on the Continent, there was still the problem of distributing spare parts to the armies in the field. Chapter 2 of this vol-

ume tells of the Chief Quartermaster's plan to transform the quartermaster salvage-repair company (semimobile) into a group of teams capable of repairing all types of quartermaster equipment. A detailed account of this reorganization appears in volume VIII of this series, *Personnel.* Here it will suffice to say that the creation of an equipment-maintenance platoon within the semimobile repair company made possible the bringing of spare parts to the armies quickly and efficiently. Because each maintenance platoon consisted of a special-purpose-equipment repair section and a general-purpose-equipment repair section, the armies were never without trained repairmen for on-the-spot maintenance.

Each using unit had to have a small stock of spare parts always available for minor repairs. Salvage-repair companies (semimobile) had to carry a larger stock of spare parts for three reasons: to provide a back-up stock of parts for using units; to make available quickly to units in the field any part stocked by the central spare-parts depot; and to have parts available for its own repair work. The largest stock, of course, was held in the central salvage and spare-parts depot. In addition to this stockage of spare parts, each equipment-maintenance platoon was outfitted with a mobile spare-parts stockroom. This innovation was really a converted textile-repair trailer. The trailer stockroom contained workbenches, bins, and cabinets. Small equipment—such as typewriters, gasoline lanterns, cooking outfits, and field-range fire units—were repaired inside the trailer. A 2½-ton cargo truck and a weapons carrier were also used to carry spare parts and repair equipment for special-purpose trailers. The maintenance platoon erected its tent, unloaded about half of the spare parts from the trailer stockroom and truck, and went to work. Replacements for the parts it used were requisitioned from the salvage-repair company (semimobile) or the central spare-parts depot.

Rapidly moving armies needed constant and immediate service. Therefore, the Chief Quartermaster impressed upon his salvage and maintenance officers the need for improvisations in the maintenance of equipment.

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