A Military Encyclopedia
Based on Operations in the Italian Campaigns, 1943-1945.

[p. 415]

Chapter Ten
QUARTERMASTER

Section 1. Organization of the Office of the Army Quartermaster in the Fifth Army

When it came time to organize the Quartermaster Service of the Fifth Army there was no established modern precedent to serve as a guide. Field Service Regulations and Field Manuals offered only vague suggestions, and since the writing of available texts, warfare had become so fundamentally different that they were largely valueless. There was, though, a wealth of information in technical histories of past wars from the Civil War through the First World War, but it all had to be dug out and evaluated against the requirements of the planned campaign before it could be used.

The only recently published document that was of any assistance whatever in planning the interior organization of the Office of the Army Quartermaster was a War Department Table of Organization that listed the total personnel, with some breakdown into grades and ratings. Even this was not entirely suited to fit the requirements of the coming situation.

No text or manual described in detail the responsibilities of an Army Quartermaster in the field. Again, there was nothing specific in Field Service Regulations, in Field Manuals, or in Army service school texts. There was little up-to-date experience data to be found in the War College Library or in the Library of the Office of the Quartermaster General.

Starting with the basic premise that an Army Quartermaster in the field would probably not be expected to furnish any fundamental service that is not provided by a post, camp, or station Quartermaster, the Army Quartermaster and two or three assistants sketched out an operating procedure to be used in the field. Quartermaster problems that had been encountered in the North African landings, and by II Corps in Tunisia, were closely studied to develop a complete Standard Operating Procedure which retained its effectiveness throughout the Italian Campaigns.

[p. 416]

With the completion of the Standard Operating Procedure came the problem of selection and development of officer and enlisted personnel. The Army Quartermaster wanted the best staff he could organize to assist him in the performance of the following which he visualized to be his duties:

a. To keep the Army Commander and his staff informed on all Quartermaster affairs.

b. To do the necessary planning, coordination, advising, and supervising on all matters pertaining to Quartermaster activities within the Army.

c. To supervise the work of all subsections, issue instructions, and pass on all matters of policy within the Section.

d. To keep informed on the tactical situation and all matters of interest to the Quartermaster Section.

e. To command the Quartermaster Service.

To develop the staff, individuals were selected who, in so far as they were available, had had combat Quartermaster experience. The size of the staff was initially kept to a minimum, in order to expand in the field, along with the expansion of the operation, on a trial and error basis, until the most desirable individuals to complete the organization were found.

It was fortunate that while the Fifth Army was being formed in Oujda there was time for training personnel. Classes were held daily on all aspects of Quartermaster service in the field, with added instruction given in the evenings. Many problems, based on the tactical situations which had been encountered in Tunisia, provided specific bases for the study of supply functions. All enlisted men took part in this instruction, and often presented phases acting as officers.

With the background of his task in developing his Office and his experience during the Italian Campaign, the Army Quartermaster set forth the following as criteria for the selection of the key officers of an Army Quartermaster Service.

[p. 417]

a. All should have had combat Quartermaster experience, rank should be a minor consideration; all should be well-versed in staff procedure.

b. The Administrative Officer must have a sound knowledge of the functional responsibilities of staff sections; should know thoroughly the proper routing of official correspondence; and should know the relation of the Adjutant General to other sections.

c. The Operations Officer, particularly, must have first-hand knowledge of staff procedure, and it is desirable that he have a Service School background. He must have direct knowledge of field supply installations, and know the echelons of supply from company to Army. He must be thoroughly familiar with the functional relationship between the Army Quartermaster and the G-4 Section.

d. The Graves Registration Officer should have had field experience in handling the dead, but it is unimportant that he have had experience as a mortician. He must know what problems are met by small units in handling the dead. His work is of utmost importance to the Army Commander. More repercussions of a military, political, or morale nature can arise from poor regulation of Graves Registration

Service than from any other section under the Quartermaster. He must be meticulous in handling records that may be used for many years.

e. The Class I Officer should have had field experience with a division or smaller unit rather than with a higher headquarters such as a Theater Communication Zone Headquarters. He must know rations, the types best suited to various tactical situations; he must be sensible to anticipating requirements and tactful in his contacts, for many Quartermaster troubles can arise from the inept functioning of a Class I Division.

f. The Class II and IV Officer can well have had experience in rear echelons, but it is preferable that he also have had field experience with lower units. He must know how to use maintenance factor data, and be able to anticipate Class II and IV requirements for specific types of operations.

[p. 418]

g. The Class III Officer who has had commercial experience in fuels and lubricants will find it an asset in developing the knowledge he must have of the use of such products in military vehicles. He should have had field experience in the Combat Zone in order to meet field problems entirely unrelated to those encountered in maneuvers in the United States.

h. Other officers to supervise salvage collection and salvage repair, sterilization and bath units and bakeries, or to serve as assistants to key officers are best drawn into the Office of the Army Quartermaster from Quartermaster units.

i. In the organization of the Quartermaster Service for a field army, nothing can substitute for field service.

[p. 419]

[Chart] ORGANIZATION OF ARMY QUARTERMASTER SECTION

[The original 'inverted tree' organization chart format is here represented as indented list.]

ARMY QUARTERMASTER
- DEPUTY QUARTERMASTER
  - STATISTICS, HISTORY, LIAISON
  - ADMINISTRATIVE DIVISION
    - MAIL AND RECORDS
    - PERSONNEL
    - FISCAL
  - OPERATONS DIVISION

| |--TRANSPORT
| |--UNIT CONTROL
| |--TRAINING
| |--INTELLIGENCE
| |--QM UNITS
|
|--SUPPLY DIVISION
| |--CLASS I [Rations and Subsistence]
| |--CLASS II & IV [Clothing and Equipment & General Supplies]
| |--CLASS III [Petroleum Products]
| |--PURCHASING AND CONTRACTS
| |--SALVAGE AND LAUNDRY SECTION
|
|--GRAVES REGISTRATION DIVISION
    |--CONTROL
    |--BURIAL RECORDS
    |--CEMETERY

[p.420]

Section 2. Formulation of a Civilian Labor Policy

From the beginning of the Italian Campaigns, the employment of large numbers of civilians proved necessary to move supplies, maintain lines of communication, and repair materiel. During the early months of the operation the recruiting of civilian labor was haphazard; the various elements of the Fifth Army hired civilians on whatever basis they could manage. Common labor was easy to obtain. Such workers were satisfied with little or no pay, and often labored long hours for the reward of a mere chance to scavenge food at company kitchens.

There was a good deal of competition for skilled labor. As a result, the disparity of wages paid and food provided by military agencies and by civilian employers could have resulted in political and economic unrest. Many essential civilian industries were unable to hold even old employees. As long as no control over them was exercised, some units sometimes exceeded their real needs in employing civilians.

It was soon realized that a definite policy had to be formulated for the hiring of civilians by US forces. The Army Quartermaster was instructed to prepare directives concerning the employment of civilians by all elements of the Fifth Army.

At that time, when the British X Corps and other units were a part of the Fifth Army, a British Increment was included in the Fifth Army Headquarters. The British Army had a fixed civilian labor policy; and an established framework for its administration.

The Army Quartermaster held a series of conferences with the Deputy Assistant Director of Labor of the British Increment and with officials of the Allied Military Government. From these conferences he was

able to obtain a guide to the planning of the Fifth Army labor policy and to assure its coordination with the others.

A Labor Officer was designated to serve with the Army Quartermaster to assist him in developing and administering the policy.

[p. 421]

As eventually developed, the Fifth Army civilian labor policy set up a systematic procedure for the employment, classification, payment, feeding, and clothing of civilian employees.

Comprehensive job classifications and attendant wage scales were established; they recognized local customs of wage differentials among men, women, and minors.

The hiring of labor was standardized so that all procurement would normally be processed through the Civilian Labor Office or Civil Affairs Officer of the Allied Military Government by formations and units of the Fifth Army. Units hired labor from lists of individuals available under the various job classifications. All individuals listed by the Allied Military Government were previously screened by CIC [Counter-Intelligence Corps] to avoid as far as possible the employment of subversive characters.

Provision was made for the authorization of feeding either one or three meals a day depending upon whether the employees were hired for an eight hour day or required to remain on call on the premises twenty-four hours a day.

Allied Force Headquarters established a Labor Committee made up of representatives of all major commands in the Italian theater. Meeting periodically, this board coordinated labor policies and regulated details of administration as need arose.

While the labor policy as developed and administered in Italy did clear up a great deal of the confusion that had existed, it did not provide a complete solution. For example, need for civilian labor often arose in forward areas not yet administered by the Allied Military Government. A division engineer, pressed for help in maintaining roads near the front had to obtain labor as best he could.

The solution generally reached by those who had to cope with the civilian labor problem in Italy was that there is needed within the tactical organization of the United States Army some provision for the control of a civilian labor program for forward areas through the medium of military field agencies other than Allied Military Government.

[p. 422]

Section 3. Retention by Army of Control of Quartermaster Units

At the beginning of the Italian Campaigns there was some decentralization of control over Quartermaster service units. Army relinquished to Corps the control of some railhead, gasoline supply, and

service units. Various impediments to the smooth flow of supplies eventually dictated a return to the Army of centralized control over all Quartermaster activities.

Poor communication with the Base Section aggravated difficulties arising from the split responsibility for supply within Army. Initially Army was entirely responsible for the shipment of supplies to the various truckheads from Army rear, and Corps was responsible for the location and operation of the truckheads. At times Corps would move truckheads and service units even though poor communications prevented them from advising Army of such moves. Consequently extreme difficulty was experienced in delivering supplies to these truckheads.

It is possible that on a wide front centralization of control might prove impractical, and decentralization to Corps more feasible. In Italy, however, the experience of the Fifth Army favored Army control over all Quartermaster activities.

Section 4. Coordination of Reconnaissance for Dump Sites

The need for coordinating the selection of sites for quartermaster supply installations soon became apparent. Early in the Campaigns, difficulties often arose in selecting sites which could furnish the best service for all concerned because the ideas of division, corps, and Army Quartermaster personnel concerning ideal locations failed to coincide. The right of final decision from a tactical point of view was reserved to corps. As a result of disagreements there was sometimes a considerable delay in setting up dumps.

[p. 423]

To correct the situation, joint reconnaissances were conducted by parties made up of representatives from both Corps and Army, especially in locating sites for Class I and Class III installations. This enabled a decision to be made on the spot as to whether a selected site was practical and satisfactory from both tactical and administrative points of view. Such quick decisions provided adequate time for establishing dumps.

Section 5. Use of Quartermaster Battalion Headquarters

Late in 1943, War Department directives reorganized all Quartermaster battalions. Quartermaster companies, formerly organic elements of battalions, became separate companies under new designations and were relieved from permanent assignment to specific battalions. The reorganized battalion headquarters were intended to function in a supervisory capacity over a number of varied types of Quartermaster companies within restricted areas.

The flexibility of assignments permitted by the new organization was not particularly applicable to the situation existing in Italy at that time, particularly due to the relatively narrow front of the Fifth Army. It was highly desirable to retain the specialized Quartermaster companies under the supervision of erstwhile similarly specialized battalion headquarters and thus to utilize to the maximum the specialized experience of the battalion headquarters personnel. Therefore, Fifth Army orders re-assigned all gasoline supply

companies to the battalion which had been a gasoline supply battalion; the bakeries to a former bakery battalion; laundry companies and sterilization and bath companies to a laundry battalion. Service companies returned to their former headquarters.

This policy enabled the delegation of complete responsibility for specialized supply and service. The Class I Division of the Office of the Army Quartermaster, for instance, was relieved of all details concerning the production and supply of bread to the Fifth Army. The battalion commander was directly responsible to the Army Quartermaster for the supervision of all details of a technical nature; for the allocation of production requirements; for arranging transportation of bread from bakeries to ration dumps. [p. 424]
In addition, he was responsible for all administration, supply, and training in the bakery companies. Other battalions were given the same responsibilities with respect to their several former specialties.

During the first months of the Italian Campaign, when the number of specialized Quartermaster companies was insufficient to warrant the use of similarly specialized battalions, operation areas were designated. Supervision over each area was delegated to the senior Quartermaster officer in the area who acted as Area Commander. The Area Commander was the Army Quartermaster's field representative and was responsible for the coordination of the receipt and transmission of all orders, reports, and instructions from the Office of the Army Quartermaster to the various activities in his area. He made pertinent recommendations to the Quartermaster for the more efficient operation of installations in the area, including changes of personnel, where necessary. However, the various separate units within the area retained their own normal administrative routine and were not consolidated for such control. This experience assured the meeting of the contingency of an expanded front.

Thus, although the tactical situation remained such that complete use of specialized battalion supervision continued to be the more practical, there were within the Fifth Army enough senior Quartermaster officers who had had experience as Area Commanders that should circumstances have required, the reestablishment of Quartermaster operational areas could have been accomplished.

Section 6. Administration and Supply of War Dog Platoons

The Table of Organization of the separate Quartermaster War Dog platoons, whose animals were used for scouting and patrolling, and as messengers, provided no administrative personnel or equipment. [p. 425]
It contemplated that such functions would be accomplished for the dog units by the tactical units with which they worked.

Within a short period after five such War Dog platoons had joined the Fifth Army it was realized that such a system of administration and supply was impractical under the conditions which prevailed in Italy. As a consequence, all five platoons were assigned to a Quartermaster battalion for administration and supply. The platoons were attached to various tactical units for operations. This corrected the administrative and supply deficiencies.

Section 7. Improvised Equipment in Quartermaster Installations

1. Salvage Repair Equipment

a. *Machine for Cleaning 1-burner Cooking Stove Container.* This machine consisted of a 1/4 h.p. gasoline motor, the pulley of which was connected by a belt to two revolving steel brush contrivances. One of the cleaning appliances had two steel wire brushes bolted to a central shaft with bristles facing outward, and one brush placed on the end of the shaft at right angles to the others. This cleaned the interior of the container. The other contrivance had four such brushes bolted to a pulley with brushes facing inward. This cleaned the exterior of the stove container.

b. *Dipping Tank for Painting Helmets, Intrenching Tools, etc.* This device consisted of a paint tank and a drip trough over which the painted helmet or tool was suspended and excess paint allowed to drip back into the tank. It saved many hours of work and assured an even coating of paint.

c. *Handle Removing Press for Open Socket Tools.* This device consisted of a steel upright frame with a flat steel plate welded to the bottom and an adjustable tool-holder at the top.
[p. 426]
An ordinary hydraulic automobile jack was set inside the lower part of the frame. Broken tool handles were sawed off close to the head and the tool placed in the press, sawed side down. The jack was raised against the tool, forcing the handle out of the tool.

d. *Handle Removing Clamp for Closed Socket Tools.* A common lumber cant hook was mounted on a steel upright. Rivets holding the handle to the shank of the tool were removed and the handle grasped between the cant hooks. The tool was then knocked away from the handle by tapping with a hammer.

e. *Fitting for Forcing Compressed Air into Canteens, 5-gallon, and 55-gallon Gasoline Drums.* Valves taken from Class "D" innertubes were welded to caps of the respective items listed above after holes had been drilled into the caps. Compressed air was forced into these containers to test them for leaks and to force out dents.

f. *Forms for Straightening Mess Gear.* These forms, made of lead and tin alloy, had the reverse shape of the outer part of the gear to be straightened. Dents were hammered out with rubber mallets. The form used in straightening canteens was made in two sections which were hinged together. The canteen was locked into this form and dents removed by compressed air which was forced into the canteen though the fitting described in sub-paragraph e above.

g. *Electric Cloth Cutter.* A portable electric saw with a 12" circular blade was mounted on a stainless steel base. The saw teeth were filed off and the remaining edge sharpened. This unit, mounted on small casters and fitted with protective guards, was capable of cutting up to forty thicknesses of cloth at one time.

h. *Fire-Unit Gauge and Tube Tester.* The assembly tube from a No. 2 fire-unit conversion set was attached to the filler tube of a fuel tank taken from a salvaged M1937 fire-unit. An air gauge and an input valve were attached to either end of the assembly tube.
[p. 427]
A hose was attached to the fuel output jet on the tank and an air valve was fitted to the free end. The entire device was connected to an air compressor. A gauge to be tested was attached to the air valve on the hose and the valve opened; the gauge was then adjusted to read the same as the gauge attached to the tank. In testing tubes, they were attached to the air valve and other openings were plugged. Leaks showed up under air pressure and so could be marked for brazing.

2. Field Bakery Equipment

a. Bakeries operating American-Century equipment eliminated the use of 64 separate 5-gallon gasoline reservoirs, issued for the operation of the Breese pot-type burner, by installing a 600-gallon gasoline tank outside the bakery and feeding gasoline to the ovens by pipeline. This greatly reduced the fire hazard and saved many linear feet along the oven line.

b. Oven exhaust ducts made of powdered-milk cans welded together carried all soot and fumes out of th bakery. This device eliminated one of the major drawbacks, excessive soot, arising from the use of the Breese burner.

c. Enclosed flour sacks beaters, powered by Briggs Stratton gasoline engines, thoroughly cleaned flour dust from sacks and enabled them to be used for a great variety of purposes in the Fifth Army.

d. The small dough mixers provided as organic equipment proved inadequate to meet the bread production requirements. They were replaced by locally purchased civilian mixers powered by jeep motors.

e. In cold weather considerable difficulty was encountered in bakeries operating British mobile equipment in obtaining tempered water for dough mixing from the standard water heater. An auxiliary water heater was built out of salvaged burner parts and a 55-gallon gas drum. The heater was fired by fuel oil mixed with air under pressure provided by the oven blower system.
[p. 428]
Water was piped from the heater to the tempering tank on the machine trailer.

f. In the British equipped bakeries a water outlet valve was installed directly above the kneader to permit drawing water direct from the tempering tank thus eliminating the use of the semi-rotary hand pump.

3. Distillation of Dry Cleaning Solvent

To supplement the laundering operations carried on in connection with the Clothing Exchange and Bath Units, one mobile laundry trailer was converted to serve as a dry-cleaning unit. This conversion was simple; but difficulty was encountered in devising means of recovering the Stoddard's solvent for re-use. After tests had revealed that this solvent could be vaporized, without losing its cleaning properties, a simple still was made of 55-gallon drums and other salvaged materiel. Heat for vaporizing the solvent was obtained from the steam drawn from the laundry trailer.

4. Hauling Eggs and Cured Ham Without Refrigeration

Non-refrigerated 3-1/2-ton cargo trailers were used to haul eggs and cured ham because the number of refrigerator vans was insufficient to take care of all perishables. No losses occurred when such products were hauled at night or very early in the morning.

5. Portable Break-down Issue Shelves, Class II and IV Depot

The major item of equipment improvised in the Class II and IV Depots was portable break-down issue shelving. It was so constructed that it could be taken apart easily, moved in one 2-1/2-ton cargo truck and speedily re-erected. Uprights were prefabricated and made to stand independently. By making each upright a separate entity the entire break-down could easily be adapted to any size room or tent. This portable and demountable equipment entirely eliminated the need for complete new construction every time the depot moved.

[p. 429]

Section 8. Coordination of United States Army and Foreign Military Systems

A unique supply problem arose when the French Expeditionary Corps became a part of the Fifth Army. Aside from language difficulties which were easily overcome, the problem involved three elements:

a. Although, under our organization, Army is the administrative control headquarters, in the French Army administrative control is vested in the Corps. Since the French Expeditionary Corps was just another corps in the Fifth Army, Army was responsible for its supply.

b. The French received some of their supplies through Lend-Lease channels, purchased some of their own ration components from Africa, and received the balance of their rations, individual equipment and clothing (except shoes) from Fifth Army sources. The ration supply was further complicated by the fact that it included 50% more bread than the American ration, as well as wine, brandy, and Moslem components.

c. The French had their own system of supply, manned by their own service troops, most of whom had never served as units in actual operations. Thus the Fifth Army had the responsibility of

training the French troops and developing the system to operate efficiently alongside the American supply system.

The first problem was solved by bringing into the Office of the Army Quartermaster an officer of the French Intendence, whose rank and position corresponded to that of a Quartermaster battalion commander. His function was to assist in coordinating the operations of the French and American service units. In addition, several French officers of the French Mission conducted supply liaison somewhat similar to that performed by the British Increment.

Recording and correlation of French supply accounting was accomplished by the use of report forms identical with those used by American forces except that they were printed in French.

[p. 430]

After a training period of four or five months during which French and American troops operated French supply installations together, the handling of Class III [Petroleum Products] supplies was turned over to the French altogether. American units at first conducted all operations, then gradually worked French personnel into the systems. The French then also operated their own Class I [Rations and Subsistence] truck-heads, but American key personnel were retained to supervise records and coordinate procedures.

The key to the successful coordination of the two supply systems was that all individuals concerned, officers and enlisted men alike, exercised diplomacy and tact. The French were made to feel that they themselves were accomplishing the task even though American personnel were leading the way.

As a result of the experience gained in this coordination of two very different supply systems, the Fifth Army Quartermaster later was able to more easily solve the problems of supplying the Brazilian and Italian forces when they became a part of the Fifth Army.

Section 9. Anzio Beachhead Experiences

The outstanding supply lesson learned as a result in the Anzio Beach-head was the danger of relying solely on supply by cargo ships in such an operation where there are few or no port facilities. When supplies have to be transferred from cargo ships anchored off-shore to landing craft for lightering to shore, even mildly rough seas can completely interrupt the flow of supplies. Such interruptions to the landing of supplies can endure for days at a time; and can cause the failure of an entire operation. The use of LSTs, with supplies bulk-loaded, is a far more practical means of delivering supplies. The use of at least some LSTs will offset the danger cited above.

When time is a factor in unloading supplies and getting them issued to the troops, the "B" ration should not be used in the initial assault supply plan.

[p. 431]

The "10-in-1", "5-in-1", "C", or "K" rations are much better suited to rapid handling. The use of the "B" ration should be delayed until a sufficient stock of supplies has been built up and there is sufficient time available to segregate, sort, and warehouse the various "B" ration components.

It is advisable to include a Quartermaster Mobile Laundry Company on the troop list if one or more hospitals are to be included in the operation. Shipping of hospital laundry back to a base installation for processing is impractical because of the time element.

Quartermaster supplies were found to be essentially invulnerable to artillery fire when they were properly dispersed. The only major losses of supplies in the Anzio Beach-head were of gasoline; and then, out of the total supply of gasoline shipped to the beach-head, less than 2% was lost. Losses of rations and Class II and IV supplies were negligible.

Section 10. Modifications of Daily Telegram System in Fifth Army

The daily telegram system as described in standard military texts was inoperable in Italy. It was impossible for forward units to deliver daily telegrams to the Army Quartermaster. Though telephone communications existed, it was often unreliable when distances were even moderately great. It was impractical to funnel daily telegrams through Corps because the same difficulties existed between the units and corps headquarters. It would have taken days progressively to consolidate daily telegrams from front to rear. In addition, throughout the campaign, the situation was usually so fluid that even had certain units' subsistence requirements been known, there often would have been no information as to where to deliver it. Small units frequently moved from one sector to another on less than 24-hours notice.

[p. 432]

In view of the above, the system was modified to provide automatic supply of subsistence to Fifth Army units. Units were not obliged to anticipate requirements several days in advance as they would have been under the orthodox daily telegram system.

Units, when drawing rations, turned into the truckhead issue office a daily "telegram" which listed unit designation, strength, and quantities of rations by type desired. Rations were issued that day as called for on the "telegram".

At the end of the day's issue three reports were prepared in the truckhead office and sent by courier to the Class I Division of the Office of the Army Quartermaster. The UNIT ISSUE REPORT listed by name the units drawing, together with strength and types of rations drawn.

This was a control form which enabled the Army Quartermaster to check on over-issues and to detect units which drew supplies from more than one truckhead on the same day. The DAILY REQUIREMENT SHEET listed, by type, the rations that would be required three days later. This latter figure was adjusted by facts concerning probable moves and changes obtained from drawing units. The truckhead commander, knowing what he had on hand, what he expected to receive that day and the next, and what the issue had been that day, was able to maintain a stock level very close to that desired. The third report was compiled by taking the balance of stock on hand the previous day, adding total receipts, and subtracting total issue to obtain a new balance-on-hand figure.

Experience indicated that it was desirable to maintain in truckheads a stock level of 2 days "B", 1/2 day "C", 1/4 day "K", 1/4 day "10-in-1", and 5,000 units "D" rations. A level of approximately double that was considered desirable in the Army Base Dump.

Each evening a Daily Shipping Order was made up in the Class I office with data taken from the three reports received from each truckhead. It called upon Peninsular Base Section to deliver specific quantities of rations, by types, to the Army Base Dump or Rail Transfer Point three days later. In preparing the Daily Shipping Order the Class I Division also took into consideration the knowledge it had available concerning the tactical situation.

[p. 433]

Bread ingredients were called for on a separate Daily Shipping Order based on daily consumption as reported by the bakeries.

The system was flexible and excellently adapted to the conditions of limited road and rail net which exited in Italy.

It was necessary, however, to watch closely the stocks in truckheads, and to anticipate changes in the tactical situation in order to avoid the risk of building up excess stocks. The problem was overcome by leap-frogging truckheads. Information that a truckhead was to close generally was available several days in advance. By stocking the new truckhead in advance of opening and letting the troops eat up the stocks of the closing one, a minimum of transportation was required to move the supplies left over.

Section 11. Army Base Dumps and Rail Transfer Points

The physical handing over to Army by Peninsular Base Section of subsistence supplies was accomplished by several methods, depending on the tactical situation and the availability of transportation facilities. Experience throughout the campaign indicated that either of two fundamental methods were equally satisfactory.

Whenever rail facilities permitted shipment of supplies by that means, a Rail Transfer Point was established. Trains were block loaded, and Army Quartermaster personnel checked the transfer of supplies directly to Army Transportation truck convoys destined for the various ration dumps. Shortages and overages were corrected at a nearby Army Base Dump.

When rail facilities were not available, base section truck transportation delivered subsistence supplies to an Army Base Dump where they were checked, reloaded on Army Transportation trucks, and dispatched to the truckheads.

[p. 434]

There were minor variations of both these systems, but in all cases it was found essential to maintain a central control installation for the physical correction of overages and shortages.

Section 12. Innovations in Fifth Army Class I Truckheads

1. Physical Layout of Truckheads

As a result of trial and error, a standard layout of Class I truckheads was adopted. Conforming as close to the shape of the letter "U" as the terrain permitted, layouts of all truckheads were identical in principle. Entrance, with the truckhead issue office close by, was at one end of a direct flow of traffic; exit at the other. This enabled units drawing subsistence to flow through the dump in a steady line past every item of the issue. It avoided all confusion, and even permitted receipt of supplies during issue hours. The tracks of small units used the inside road of the U-shaped dump while those of divisions and large units used the outside.

2. Elimination of Subsistence Salvage Problems

Ever-present in Class I installations was the problem of salvaging loose cans and packages and components in broken cases. In Army Base Dumps loose items and broken cases were piled beside stacks of the same items, instead of being hauled to a central pile. A crew constantly toured the dump to pack them in sandbags. The bags were immediately tagged to list items and quantities, and were placed on top of the stack where they could be issued before unbroken cases. Flour received in 100 lb. sacks, not covered with waterproof paper, were resacked in 50 lb. cloth and paper sacks obtained from field bakeries. A special crew re-cased critical items in rebuilt original cases.

In the truckheads, loose items were kept at their proper stacks and were issued first without recasing or sacking.

[p. 435]

3. Soup Kitchens

Vegetable items and some meat items obtained from broken cases of "10-in-1" rations were used to make hot soups served with "C" biscuit to truck drivers and ration truck guards at all truckheads during the winter. It would have been difficult and impractical to salvage these items for issue, and the hot soup was a tremendous morale factor among drivers and guards. Except when truckheads operated all night, dump personnel consumed very little of the soup.

4. Truck Tallies

Whenever any subsistence was hauled between Class I installations, each truck was accompanied by a truck tally signed by the checker at the shipping point and by the truck guard. Losses were reported to the Class I Division by the receiving installation. Losses on hauls between installations were practically eliminated.

5. Roller Conveyors

Roller conveyors became an indispensable item of equipment in Army Base Dumps and at Rail Transfer Points.

6. Dunnage

Discarded 155 MM howitzer ammunition cases, with the ends bolted back on them made ideal dunnage for subsistence. They were available in practically unlimited quantities and conformed to all ground contours and stack sizes and shapes.

Section 13. Bakery Equipment - United States vs British Equipment

Experience in the operation of field bakeries using both the American non-mobile and British mobile equipment afforded an opportunity for comparison of the two. Throughout the campaign bakery companies operated as complete units. Hence the fact that American bakeries were organized so as to enable sections to function separately provided no advantage.
[p. 436]
The British mobile bakeries being completely self-reliant on organic vehicles for movement and for transportation of ingredients and finished product; and being 22% more effective in capacity of pounds of bread per man per day, proved to be the more desirable for operations in Italy.

To operate efficiently, the American type bakeries had to procure civilian mixers and power them with jeep motors. The M-42 mixer was too small and too light to enable full capacity bread production.

Some improvisation was necessary in the British equipment, but only because the flow of spare parts from British sources was inadequate.

The experience gained in the operation of the mobile equipment resulted in the submission of recommendations to be considered in development work in the United States on mobile equipment of American manufacture.

Section 14. Ration Improvements Resulting from Combat Experience

Extensive study of rations, ration components and ration packaging were conducted by the Fifth Army Quartermaster. Some of these studies, together with reports and recommendations resulting from them were immediately responsible for improvements and changes. Others gave specific direction to development work that has been started. Still other changes, the desirability of which met agreement, were not effected at the time because of shortages of critical materiels and labor.

The elimination from the "10-in-1" ration of the "K" ration component which served as the noon meal and the substitution of more palatable items quickly followed reports of studies conducted in the Anzio Beach-head. Also arising from Fifth Army studies was the use of only popular brands of cigarettes in gratuitous issues.

The improvement of the "C" ration, elimination of certain "C" ration components from the "B" ration and substitution therefor of new meat items, the development of the "V-2" container for most ration components, and of the Kitchen Accessory Pack which contains proportionate condiment components for a specific number of men, all were aided by reports of ration studies conducted by the Army Quartermaster.

[p. 437]

Section 15. Operation of Cold Storage Plants

Distance and the restricted highway net and rail net between Base Section and Army obliged the Army Quartermaster to maintain cold storage facilities for handling perishable items. The number of refrigerator vans was insufficient to permit their use for any purpose other than transportation.

Quartermaster representatives scouted newly liberated cities to locate cold storage facilities that could be restored to operation without extensive repairs. Plants not completely destroyed could usually be quickly put to use provided four major items were available: electric power, anhydrous ammonia, lubricating oil, and non-freezing oil.

In most cases, power presented the most serious problem because the enemy generally damaged generating facilities to a considerable extent. Ammonia generally was difficult to locate. Lubricating oil was easily obtainable from Army supplies, but non-freezing oil was rarely available. Ingenuity and diplomacy usually provided some electric power for the cold storage plants and succeeded in obtaining other supplies from civilian sources. A sufficient number of such plants were found, repaired, and operated to meet requirements.

Section 16. Distribution of Class II and IV Supplies through Class I Truckheads

During the first winter campaign there was only one main supply route, Highway 7, available to the Fifth Army. Traffic became so congested on this highway that G-4 was obliged to establish traffic limiting restrictions.

[p. 438]

Few of the many trucks that came to the Class II and IV depot ever carried away full loads, and all somewhere along their routes had to use Route 7. However, ration dumps were so located that units drawing at them had to make little use of the main route, so the Army Quartermaster established a method of distributing Class II and IV supplies at the ration dumps.

Units drawing rations turned in at the truckhead office their requisitions for Class II and IV supplies. The regular daily truckhead courier to the Office of the Army Quartermaster was routed past the Class II and IV depot where he left all requisitions received in the preceding twenty-four hours.

The requisitions were immediately edited, and during the night the supplies were assembled into "packages" which were tagged with the name of the requisitioning unit. The next morning they were shipped to the truckheads and were picked up the following day by the proper units.

This system substantially reduced the number of trucks on the main highways and proved excellent in a stable situation. It later became impractical when the situation became one of rapid movement, and was replaced by a system of Class II and IV sub-depots.

Section 17. Class II and IV Sub-Depots

In anticipation of the problem of keeping combat units quickly resupplied with essentials in a situation involving rapid movement, a Class II and IV sub-depot system was developed. As the lines moved forward, a sub-depot was set up as far forward as possible. This sub-depot was stocked with about 100 tons of Class II and IV supplies, representing four days essential clothing and equipment for combat soldiers.

When requisitions were received, items available at the sub-depot were issued and checked off. All requisitions not completely filled were sent by daily courier to the base depot. There supplies were assembled, tagged, and forwarded to the sub-depot the next day.
[p. 439]
In addition, the sub-depot was restocked daily.

Because of the quantity and nature of its stock, the sub-depot was easily restocked, and it was a simple matter to lead-frog sub-depots in order to keep one close to the consuming units. The sub-depot system was flexible and could be made to conform to any road net.

Section 18. Class II and IV Back-order System

Class II and IV supplies were shipped to Army on the basis of anticipated consumption. Hence shortages were inevitable. The Army Quartermaster developed a back-order system, similar to that used by a large mail-order house in handling orders, to relieve consuming units of paper work.

Items not available, or placed on a priority for issue, were extracted from requisitions and placed on back-order. The back-order book listed, in order of oldest requisition, the name of the requisitioning unit opposite each unit.

When supplies reached the Class II and IV depot, the tally-in went first to the back-order department. A clerk, after checking the back-order book, went through the depot and physically picked up

items available for issue to clear back-orders. The depot assembled in a "package" the items for each unit concerned.

Units for whom back-ordered supplies were ready were notified by form letter to come to the depot and pick them up.

Army published instructions requiring units to maintain active back-order files, and forbidding the duplication of requisitions for items subject to back-order.

Back-orders could be cancelled only by the requisitioning unit and not by the Class II and IV depot.

Section 19. Suitability of Winter Clothing

All major units of Corps and Divisions were circularized early in February 1945 to obtain a consensus of opinion concerning various items of winter clothing and equipment.
[p. 440]
Replies were consolidated into the following conclusions.

1. The following items were considered generally satisfactory:

Cap, Field, Cotton, OD, and *Hood for Jacket, Field*.

Gloves, Shell, Leather with *Gloves, Insert, Wool*.

Sock, Wool, Cushionsole, as basic sock for Combat Boot.

Sock, Wool, Ski, as basic winter sock for use in Shoepac.

Inner Sole, Felt, except that initial issue to accompany the Shoepac was inadequate. Three pairs per individual, although resulting in considerable increase in the maintenance factor were found necessary. This change was a decided factor in the prevention of trench-foot. Experience of units during the winter indicated that two pair of innersoles per individual were not enough to insure the availability of a dry pair once the foot had become wet. The increased maintenance was due to the fact that in the drying of these Inner Soles there was considerable shrinkage, and after a number of such dryings the Inner Sole became useless.

Muffler, Wool.

Sweater, High Neck.

Jacket, Field, Cotton, M-1943.

Jacket, Field, Wool.

Jacket, Field, Pile, except that this garment was somewhat tight in the armpits and across the shoulders. It was preferred to the Jacket, Field, Wool, as both items were not needed during the winter months when the Jacket, Field, Pile, was worn. However, the Overcoat, Parka, or the Mackinaw were needed as indicated below.

The combination of *Trousers, Wool, OD*, and *Trousers, Field, Cotton*, worn over woolen underwear were satisfactory only generally as far as warmth and appearance were concerned.
[p. 441]
The combination was not satisfactory for providing the necessary warmth for personnel subject to severe weather conditions. For such personnel, *Trousers, Kersey Lined* were more suitable. Within the Division 100% were needed and within supporting troops up to approximately 25% of their strength, for the use of military police, anti-aircraft artillery, OP parties of Field Artillery battalions, and others who had to remain in stationary positions for long periods of time.

2. Not considered essential or required were *Pad, Insulating, Sleeping*; *Tent, Mountain*; and *Mittens, Camouflage*.

3. *Cap, Field, Pile*, was suitable during the winter season for all troops who, in the performance of duty were directly exposed to the elements, e.g., infantrymen, artillerymen, vehicle drivers, signal linemen, military police, etc.

4. *Shoepacs* were needed by 100% of Division troops, 90% of Corps troops, and 20% of Army troops; in other words, all combat troops required Shoepacs. The balance of Corps and Army troops, who normally were in a position to change footgear when weather demanded, found overshoes more suitable.

5. *Overcoats, Parka* were required for the use of infantry and artillery observation personnel to an estimated total of 50% of the Division, and for supporting troops in the combat zone who, in the performance of duty, must remain exposed to the elements in stationary positions for long periods of time, e.g., military police, anti-aircraft artillerymen, etc.

6. *Overcoats* were not required for Division or Corps troops who were issued the Overcoat, Parka or Coat, Mackinaw, but were required for all other Division and Corps troops and for all Army troops.

7. *Coat, Mackinaw, OD* was suitable for drivers and mechanics.

8. *Parkas* and *Trousers, Wet Weather* were needed for 40% of the personnel in a Division. These items were also suitable for certain troops in Corps and Army, such as signal linemen, engineers, drivers, and mechanics.

[p. 442]

9. *Ponchos* were suitable for all troops in the combat zone.

10. *Bag, Sleeping, Wool* would have been more satisfactory if the lower portion were not tapered in width, but were the same width as the upper portion.

11. *Bags, Sleeping, Mountain* were suited for use by all combat troops.

12. *Blankets, Wool* were issued on the basis of 2 or 3 per individual, depending upon weather conditions or the type of Bag, Sleeping issued.

13. The two-piece *Parka* and *Trousers, Camouflage*, similar to Parka and Trousers, Wet Weather, were preferred to the nightshirt type of camouflage garment. Requirements were one suit per individual in the Division area when operations demand.

Section 20. Salvage Collection and Repair Operations in Italy

From the beginning of the Italian Campaign, it was the Army Quartermaster's policy to process and renovate salvaged Quartermaster materiel as far forward in the combat zone as possible. The objective was to keep the maximum quantity of Quartermaster equipment, commensurate with Army needs, within the Army Area. It aimed to keep a continuous supply of equipment available at all times to combat troops and to conserve transportation by holding to a minimum the amount of equipment evacuated from the Army Area and forwarded to it.

The carrying out of this policy posed a particularly complex problem. Technical training manuals and other texts were explicit and detailed concerning salvage operations in the Zone of the Interior [Continental US], but were vague and general about salvage in the combat zone. In the beginning there were neither standard salvage repair equipment nor Army salvage repair personnel with the Fifth Army. Nor was there ever a really adequate amount of either during any period of the campaign despite the fact that eventually a Quartermaster Salvage Repair Company was assigned to the Fifth Army.

[p. 443]

From October, 1943 until mid-July, 1944 a single Quartermaster Salvage Collecting Company provided the only military personnel available for all salvage operations. This unit had to be used to supervise the repair, as well as the collection and segregation of salvage.

Text books said little more than that salvage collection personnel would scout the battlefield for lost and abandoned equipment. The battlefields of the Fifth Army spread halfway across all of Italy. So field collection had to be limited to scavenging the main roads and hillsides. It was necessary to educate troops to collect the bulk of their own salvage and deliver it to either a Class I truckhead or the salvage depot. This was accomplished by publishing directives, setting up roadside signs after the "Burma Shave" fashion, and by the use of spot announcements on the Army radio. Salvage personnel were assigned to the ration dumps to receive and segregate materiel in preparation for its shipment to the salvage depot.

At first, the salvage collecting company was concerned chiefly with operating the salvage depot and segregating and classifying materiel. It began its repair activities after improvising equipment for repairing mess gear, entrenching tools, and other metal equipage.

Mobile field range inspection and repair groups and a mobile typewriter repair unit were initially under control of a non-salvage unit; shoe repair was conducted at the Class II and IV depot. Clothing repair was initially a function of the Quartermaster Purchasing and Contracting Section. Woolen shirts, trousers, underwear, etc. were contracted out to contract tailors who farmed bundles out to housewives. However, the sanitary conditions in some houses where work was done were unsatisfactory. Lice were discovered in finished bundles. Adequate control and supervision over this system being impractical, it was abandoned.

[p. 444]

Gradually all salvage repair activities were turned over to the salvage collecting company for supervision. In July, 1944, when the salvage repair company joined the Fifth Army, the operations of the two companies were coordinated under a single Salvage Officer. Civilian labor and local resources were exploited to the utmost; as many as 1200 seamstresses and tailors were employed in the Salvage depot.

Mobile repair units for stove fire-units, typewriters, and shoes were developed in order to take repair services to the combat troops whenever possible, rather than to require them to bring their work to the central shop.

Quartermaster materiel which could not be processed in the Army salvage repair installation was shipped to PBS [Peninsula Base Section] where it was exchanged for equal quantities of serviceable equipment of the same type.

Over thirty million dollars worth of salvage materiel was completely processed and returned to use by the Army in little over a year's operation.

By accomplishing this work within the Army Area instead of shipping all salvage to Base and back again, several hundred thousand truck miles were saved in this same period. A vast saving in shipping space and time was also gained.

The advantages gained by having the materiel processed through salvage operations conducted in the Army Area when need for it was critical, proved the effectiveness of this system.

Section 21. Mobile Field Range Inspection and Repair Group

Developed by the Fifth Army Quartermaster and operated directly under his control was a mobile Field Range Inspection and Repair Group. The function of this unit was to go out into the field directly to unit kitchens, and there inspect field ranges and fire units, and make any repairs found necessary. To supplement this service, members of the unit gave operation and maintenance instruction to all kitchen personnel.

[p. 445]

In Italy this group operated primarily within divisions. Some corps and army troops were served.

A 2-1/2 ton cargo truck was remodeled to convert it to use as a shop truck. It was fitted with the necessary equipment and tools, and stocked with spare parts. An additional stock of maintenance parts and tools were carried in order to replenish tool kits in the kitchens visited. The unit was manned by experienced fire-unit mechanics.

When the idea had been tested and found satisfactory a second truck was added. This was an Ordnance shop truck, M-7, small arms.

Division Quartermasters were unanimous in their praise of this service and expressed desire that it be made available to them at regular periods.

The operation of the Field Range Inspection and Repair Group over a period of more than a year resulted in the following conclusions:

a. It performed a definitely useful function with an army in the field. All kitchen personnel received greatly needed instruction in fire-unit operation and maintenance.

b. It operated at greatest efficiency with divisions because it could cover the greatest number of kitchens in a given time. Corps and army units could be served when divisions were engaged and at other opportune times.

c. The repair group worked best when the division was out of the lines in a rest area. Then the two-truck team could cover the division kitchens in approximately two weeks time.

d. The fact that throughout its period of operation the group made repairs on about 70% of the fire units inspected indicated a need for closer maintenance supervision.

e. Regular visits of such a group eliminated undue wear on field range equipment and thus decreased the demand on the supply system for parts and complete replacement units.

f. The data compiled from the reports of such a group provided factual figures for requisitioning spare parts and tools.

[p. 446]

It was possible to present definite experience data to support demands when the need for apparently excessive quantities tools and parts was questioned.

The work of fire-unit and field range repair shops of Salvage Repair Companies was supplemented and eased by the operation of the Mobile Field Range Inspection and Repair Group.

Section 22. Mobile Typewriter Repair Shop

Two typewriter mechanics serving under the Fifth Army Quartermaster were assigned to operate a mobile repair shop mounted on a 1-1/2 ton truck chassis. The shop was equipped to make all types of repairs to typewriters, adding machines, and other business machines. This unit supplemented typewriter repair facilities operated in conjunction with salvage repair activities.

The routing of the mobile typewriter repair shop generally coincided with that of the mobile field range inspection and repair group; it worked directly within the division areas. Thus all machines within the division were cleaned, adjusted, and repaired close to where they were used.

While the work of this unit did not eliminate the need for maintaining a central typewriter repair shop, it kept machines in better maintenance and reduced the time that would have been lost in bringing many to the repair shop and leaving them there for repair.

Section 23. Clothing Exchange and Bath Units

Experiments were conducted as to ways and means of providing combat troops with facilities for a hot shower and a complete change of clothing well forward in the combat zone. As eventually developed and perfected, the operation of Quartermaster Clothing Exchange and Bath Units became one of the outstanding morale factors during the war in Italy.

Normally, a Quartermaster Sterilization and Bath Company was intended to be established well to the rear of the Army Area. Its purpose was to provide facilities to which a unit known to be infected with body insects could be brought, and the men given an opportunity to bathe while their clothing was being sterilized.
[p. 447]
The first experimental set-up, which soon evolved into the Quartermaster Clothing Exchange and Bath Unit, consisted of one platoon of a Sterilization and Bath Company and one platoon of a Mobile Laundry Company. These units, after several months of operational experience, were capable of bathing and reclothing three hundred men an hour. Each man processed was provided with soap, a clean sterilized towel, and a complete change of clothing except for shoes and headgear. The clean clothing, except for socks, was issued in small, medium, and large sizes after experience had revealed the impracticality of exchange in exact sizes. Socks, because of their importance in foot care, were issued by size. All old clothing was sterilized, especially the bath towels which men finally used to dry their feet, in order to safeguard the health of the troops. Wool shirts were sterilized after laundering because sterilization before laundering set the body oils which accumulated on collars and cuffs. Improvised dry cleaning equipment was used to clean oily and greasy garments.

Generally these units were centrally located in areas of greatest troop concentrations. Whenever a division came out of the lines and went into a rest area a Clothing Exchange and Bath Unit was set up in that area. Unit commanders had only to arrange schedules with the Clothing Exchange and Bath Unit commander. Combat troops out of the line for rest were given priority over all other troops until each man had received an initial bath and change of clothing. Because of the irregular working hours of service units

which precluded definite schedules, their men were infiltrated along with scheduled units unless the scheduled unit was a large one. Night schedules were arranged only under exceptional circumstances.

Two major supplementary services were offered Fifth Army troops in addition to the standard operation of the Clothing Exchange and Bath Units.

During the winter months while the Fifth Army was engaged in the mountains north of the Arno River, the area in and about the resort town of Montecatini was established as a large rest center.
[p. 448]
One of the facilities requisitioned for Fifth Army use in Montecatini was a large public bath house. This was operated under the supervision of Sterilization and Bath Company personnel who also provided a clothing exchange service.

Divisions whose units had been issued portable field bathing equipment were provided with an initial stock of clothing so that they could themselves make a direct clothing exchange. The laundering and cleaning of soiled clothing was handled through the Quartermaster battalion headquarters which supervised all Clothing Exchange and Bath Units. Such divisions made a direct exchange of soiled clothing for clean clothing.

Direct exchanges were made through the Quartermaster Salvage Depot to replace unserviceable garments.

The Cleaver-Brooks Portable Field Bath Unit, part of the equipment of a Fumigation and Bath Company, was used successfully in the Clothing Exchange and Bath Unit as a substitute for two Sterilization and Bath trailers.

The complete success of this method, and its great value to combat troops, indicating the desirability of establishing the Clothing Exchange and Bath Unit as a standard unit in the United States Army.

Section 24. Remount Problems

Early in the campaign, there developed an urgent need for pack trains. The organization of pack units of Italian military personnel developed slowly, due to the disorganized state of the Italian Army. Divisions, therefore, organized provisional units from their own personnel, and used them until such time as the organization of the Italian units permitted their disbandment.

A remount depot was organized with personnel selected from Quartermaster Service Companies. Horses and mules were obtained from Sicily, Sardinia, and Corsica as well as from southern Italy. Many of the animals were in poor condition and were badly infected with lice. Rehabilitation of these animals was necessary before they were fit for use.
[p. 449]

White and gray animals were sprayed with a 5% solution of potassium permanganate to darken them. The expedient was practical and the animals showed no obvious ill effects.

U.S. pack saddles were too large to fit the Italian mules, so complete reliance had to be placed on local procurement. Supplies of all pack equipment from both civilian and military sources were inadequate and had to be supplemented by local manufacture and improvisation.

Section 25. Gasoline Supply

1. Gasoline Dispensing

Gasoline was delivered to Army in three principal ways: by pipeline, in tank trucks, and in 55-gallon drums. This caused the problem of gasoline supply in the field to be one of breaking down the bulk supply into easily handled containers.

Quartermaster Gasoline Supply Companies assigned to the Fifth Army, because of shortages of equipment and numbers of units, were obliged to improvise means of increasing their daily dispensing capacity in order to meet requirements.

The system eventually developed provided for reception of gasoline by any method. If pipeline construction had reached a Class III [Petroleum Products] installation it was connected directly to the dispensing system. Tankers also discharged their loads directly into the feeder mains. Cargo trucks laden with 55-gallon drums backed up ramps to dumping vats where several drums were emptied at a time.

All receiving points were connected by a 4-inch main to a 350-gallon-per-minute pump which fed two or more 4-inch mains. At intervals of 110 feet along these mains were smaller service lines which branched out to either side. Each service line terminated in a dispensing hose fitted with a spring valve nozzle. 5-gallon cans or 55-gallon drums were filled from these hoses while unit organic tankers were filled from a fitting at the end of the main.

[p. 450]

This system enabled canning 250,000 gallons of gasoline a day. Entirely dismountable and portable, the material used in it was hauled in three 2-1/2 ton cargo trucks.

2. Roadside Gasoline Stations

Whenever the tactical situation permitted, the Army Quartermaster set up portable gasoline stations along main highway routes. All military personnel were encouraged to use these stations, and all authorized military vehicles were served. Only gasoline was dispensed; no air, oil, or other conveniences. Reservoirs at these stations were normally captured German tanks set about ten feet off the ground. Filled from tankers, the reservoirs fed gasoline by gravity.

3. Unloading 55-gallon Drums from DUKWs

At Salerno and at Anzio gasoline was delivered to the dumps in 55-gallon drums by DUKWs. To ease and speed up unloading, and to eliminate the personnel danger involved in lifting full drums up and over the side of the DUKW, an A-frame was bolted to the front of a winch-equipped truck. By using a sling attached to the winch cable, one man and the winch-truck driver easily and safely unloaded a DUKW in about 15 minutes.

4. Gasoline Can Washing

Despite every effort to prevent it, dirty gas cans were an ever-present problem. A can washer was improvised and all empty cans received at the dump were flushed. The washer used a pressure pump to force gasoline into inverted cans through a spray nozzle. The same gasoline was used over and over, flowing from the washer trough through sediment cans and back through the pump.

5. Fire Fighting

The foam type fire extinguisher proved somewhat unsatisfactory for fighting fires in stacks of canned gasoline and drums. The foam had a tendency to remain on top of the stacks and failed to filter down to smother fire close to the ground.
[p. 451]
Mud and water proved more effective.

To obtain maximum dispersion, dump areas were computed on the basis of two square yards of surface per gallon of gasoline capacity.

Gas drums were stood bung end up when afire after it was found that when on their sides the ends often blew out with great force, throwing flaming gasoline a considerable distance.

When gasoline dumps were established where they were under artillery fire, dirt was pushed up around the stacks with a bull-dozer. If time permitted, pits were dug and containers placed therein.

Section 26. Graves Registration Procedures

1. General

The paucity of technical and training materiel concerning field operations hampered Graves Registration personnel just as it did other Quartermaster services in developing their operations to fit the policies and tactical situation which governed the conduct of the Italian Campaign. The Table of Organization of a Graves Registration Company contemplated the attachment of a company to a corps, with three platoons serving divisions and one serving corps. During a great part of the campaign, however, only

one such company was available to the Fifth Army which comprised two corps of US troops. Because of these factors, the Fifth Army Graves Registration Service of necessity developed innovations in both field operations and office procedure.

2. Field Operations

Few divisional cemeteries were established in Italy. Instead, extensive use was made of graves registration collecting points which were always kept well forward behind various major elements of the Fifth Army. Their value was quickly recognized when units had become accustomed to their use.
[p. 452]
The use of larger corps or sector cemeteries supplanting numerous division cemeteries provided much more efficient operation.

Starting in the collecting points, the greatest possible emphasis was placed upon identification of the dead. There, primary search for identification was made. Vehicles used for evacuating the dead were held until this primary search was completed. Then, if additional evidence of identification was required on any body, request was made directly to the evacuation unit for further possible identification.

Every effort was made to ascertain the exact place of death. In cases of unidentified dead, close grid coordinates were obtained to facilitate identification search through units known to have been in the vicinity.

Personal identification of a body was accepted as conclusive, provided the associate of the deceased had known him over a reasonable period of time.

When a body reached the cemetery still unidentified, anatomical descriptions, clothing sizes, and laundry marks or other inscriptions on the clothing, as well as fingerprints and dental charts were recorded. Clothing stripped from long-exposed bodies usually had to be washed in order to make markings legible. If laundry markings or initials were obtained from garments removed from the body, they were accepted as clues upon which to initiate an investigation.

The principle of unit evacuation to the graves registration collecting point proved very successful in Italy. It resulted in quick recovery of bodies by units generally familiar with the circumstances and place of death, and this greatly increased the likelihood of definite identification. This procedure avoided long exposure of bodies to the elements with resultant preservation of evidence of identity. It enabled graves registration companies to operate cemeteries efficiently and to conduct their task with compassion and dignity.

Despite the fact that the use of temporary grave markers is prescribed, Crosses and Stars of David were erected in United States Military Cemeteries even in the combat zone in compliance with the desires of Fifth Army Commanders.

[p. 453]

3. Office Procedures

The Graves Registration Division was constituted as a major element in the Office of the Army Quartermaster. It so elaborated and specialized its procedures that it was able to establish the record of having secured identification in 98.5% of all American dead buried by Fifth Army personnel. It obtained evidence which may lead to the identification of many still unidentified.

Whenever possible, substantiating evidence to support identification tags, in the form of letters, identification bracelets, social security cards, statements of personal identification, etc., was required to be recorded in the report of burial.

Every report of burial was reviewed thoroughly to insure that only correct reports would be forwarded. All reports of burial of unidentified dead, or of those of whose identity there was any doubt whatsoever were withdrawn, and correspondence was initiated in effort to establish, corroborate, or substantiate the identification. Such correspondence sometimes required numerous indorsements before reports were complete.

The complete correspondence corroborating identification or serving as a basis for the establishment of an identity was attached to each copy of the Report of Burial in order that the War Department and every headquarters concerned might have a complete document.

Tentative identifications of unknowns were based on circumstantial evidence, contained in correspondence or other documents and identity was specifically indicated as tentative, with the possibility of later being made definite as a result of review of the evidence in higher headquarters.

Divisions known to have been in an area from which an unidentified body was recovered were canvassed. Clues to identity found on the remains were presented in order that division personnel sections could compare identification concerning the unidentified remains with casualty and personnel records.

[p. 454]

The exact place of death, as shown on the report of interment was the key point in the initiation of such investigations.

The filing of reports of burial of unidentified dead according to grid coordinates of the place of death was an important innovation in the Fifth Army Graves Registration Service. This facilitated comparison with casualty statements, and in many cases led to the establishment of identity.

Close liaison with the AG [Adjutant General] Battle Casualty Section was maintained to coordinate casualty and burial information. This, together with the rapid recovery, early identification and burial of the dead resulted in changing the casualty status of many Missing In Actions to Killed in Actions.

Close liaison was developed with the Air Corps to obtain casualty information pertaining to plane crashes discovered in the Army Area. A comparison of the investigation made at the scene of the crash by graves registration personnel with the information contained in the casualty statement resulted in the identification of many Air Corps dead that would otherwise have been interred as unknown.

The thorough and efficient manner in which Graves Registration Service was conducted in Italy was of tremendous morale value to combat troops and undoubtedly to all on the home front. American troops could not help but gain spiritual peace of mind from the sight of the well kept and dignified United States Military Cemeteries.

[end of chapter]

[The document as presented here is - within the limits of my vision, alertness, and stamina - an accurate rendering of the original; but it is not a "true copy". Occasional misspellings and typographic errors in the original have been corrected. Further annotations - primarily abbreviation and acronym expansions - and insertions of clearly dropped words appear in 'square brackets'.
- Patrick Skelly, for milhist.net]

[Transcribed 2002-03-25]