

Annex # 16  
To  
Report of Operations  
First U.S. Army

20 Oct. 43 - 1 Aug. 44

Medical Section

FORM NO. 16

TO

REPORT OF OPERATIONS

FIRST U. S. ARMY

20 OCTOBER 1943 - 1 AUGUST 1944

MEDICAL SECTION

ANNEX No. 16  
10  
REPORT OF OPERATIONS - FIRST U. S. ARMY  
PERIOD 20 OCTOBER 1943 - 1 AUGUST 1944

MEDICAL ANNEX

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The Surgeon's Office, in compliance with directive from the Chief of Staff, First US Army was organized in Bristol, England, on 20 October 1944 with nineteen (19) officers and two (2) warrant officers (One (1) of which was filling the position of Captain, M.C.), and twenty-four (24) enlisted men. With this allocation of personnel, the Surgeon's Office was organized into the following sub-sections:

Surgeon  
1 Off                      EM 6

Executive  
1 Off                      0

Administration  
1 Off 2 WO EM 7

Supply  
1 Off EM 3

Personnel  
1 Off EM 2

Operations  
6 Off EM 3

Preventive  
Medicine  
6 Off EM 7

Dental  
1 Off EM 1

Veterinary  
1 Off EM 1

The arrangement of the sub-sections as indicated above worked very well and much of the preliminary planning resulted from this group. However, in order to simplify intra-office procedures and to clarify responsibilities, a reorganization of the Surgeon's Office was instituted 24 January 1944, into the following sub-sections:

Surgeon  
1 Off EM 0

Executive  
1 Off EM 0

|   |                      |                               |                          |
|---|----------------------|-------------------------------|--------------------------|
| Administration<br>1 Off 1 WO EM 7         | Supply<br>1 Off EM 3 | Hospitalization<br>4 Off EM 1 | Operations<br>6 Off EM 3 |
| Preventive<br>Medicine<br>3 Off 1 WO EM 8 | Dental<br>1 Off EM 1 | Veterinary<br>1 Off EM 1      | Nursing<br>1 Off EM 0    |

Following this reorganization, the active planning phase was instituted for the operations on the continent. It will be noted that the number of officers (officers and warrant officers) remains the same, except for the attachment of one (1) Major, Army Nurse Corps, who acted in the capacity of Army Chief Nurse. The increase of the enlisted personnel from the previous twenty-four (24) to the authorized thirty-five (35) under T/O 200-1 was accomplished several weeks prior to departure from the United Kingdom. This reorganization added materially to the functional operation of the Surgeon's Office. Although the pre-planning and the planning phase, as well as the operations on the continent, were handled in an extremely satisfactory manner, it is believed that the authorized T/O as established by 200-1 should be maintained in order to provide necessary personnel adequate to perform the numerous and highly technical duties required by the Medical Department.

## SECTION III - TRAINING

1. Upon his arrival in the United Kingdom on 20 October 1943, Col. Rogers, Army Surgeon, began a series of conferences with General Hawley, the Theater Surgeon, to determine what troops would be allocated to First U. S. Army. The final troop allocation was as follows:

- 1 convalescent hospital
- 5 field hospitals
- 1 750-bed evacuation hospital
- 10 400-bed evacuation hospitals
- 3 Hq & Hq Det, Medical Group
- 8 Hq & Hq Det, Medical Battalion
- 7 ambulance companies
- 11 collecting companies
- 6 clearing companies
- 1 medical gas treatment battalion
- 1 auxiliary surgical group
- 1 medical laboratory
- 1 medical depot company

All of these troops were assigned directly to Army. In addition, there was with each of the three corps, a medical battalion consisting of one (1) Hq & Hq Det, Medical Battalion, two (2) collecting companies, one (1) ambulance company, and one (1) clearing company; one (1) medical battalion, engineer special brigade with the 1st Engineer Special Brigade and with each of the 5th and 6th Engineer Special Brigades, a medical battalion consisting of one (1) Hq & Hq Det, Medical Battalion, three (3) collecting companies, and one (1) clearing company.

2. As soon as this troop basis had been established, training of the units was started. Full utilization was made of the schools offered by the Theater Surgeon. There were a total of thirty-five (35) courses available for officers, eight (8) for nurses, and ten (10) for enlisted men, plus fourteen (14) miscellaneous conferences. To these schools, First U. S. Army sent a total of 2063 officers, 211 nurses and 935 enlisted men.

3. Fortunately, two (2) of the 400-bed evacuation hospitals, assigned First U. S. Army, had had previous combat experience. Teams of instructors were sent out from these experienced hospitals to give practical help and instruction to all the unexperienced hospitals.

4. Training of the field hospitals presented a unique problem since these units were to be utilized by First U. S. Army in a manner completely different than that for which they were originally trained. No experienced field hospitals were available, but many members of the 3rd Auxiliary Surgical Group had previously

functioned in hospitals trained and equipped along the lines to be used by First U. S. Army and these experienced personnel were used as instructors.

5. During the months of November and December, 1943, all training was along general lines, but with the beginning of the planning for the Normandy landing, early in January training became specialized and was directed toward the accomplishment of this specific mission.

6. Fortunately, the 261st Medical Battalion of the 1st Engineer Special Brigade had had actual combat experience in the landing in Sicily. Instructors were taken from this organization and placed with the medical battalions of the 5th and 6th Engineer Special Brigades. A request was forwarded from First U. S. Army to Theater requesting authority to reorganize the medical battalions of the 5th and 6th Engineer Special Brigades under the same T/O used by the 1st Engineer Special Brigade, but this request was disapproved. Following this disapproval, the medical battalions of the 5th and 6th Engineer Special Brigades were functionally reorganized into three (3) companies each, each company having both collecting and clearing elements.

7. The Army Surgeon, his Medical Supply Officer, and Planning Officer, spent the months of January, February, and part of March in London with the Army planning staff. During this period, most of the medical plans were completed for medical support of the Normandy landing.

8. Many hours were spent with the Navy planning staff integrating the Army and Navy medical plans. Several combined Army and Navy training exercises were held along the south coast of England. Many lessons were learned from these exercises and many faults corrected so that at the time of the actual departure from England for the continent, the Army and Navy medical service had become a smoothly functioning team.

SECTION III - INITIAL LANDING

A. OMAHA BEACH, 6 - 11 JUNE, 1944.

1. D-Day (6 June): The landing of medical units on Omaha (V Corps)

Beach was delayed due to the severe opposition encountered on the beach. Upon landing it was impossible to set up the usual type medical installation. At 1350B, Headquarters & Headquarters Detachment, 61st Medical Battalion, 5th Engineer Special Brigade, closely followed by the 391st and 393rd Collecto-Clearing Companies of this battalion, landed on Easy Red Beach. Since it was impossible to proceed inland to designated location, collecting points were set up on the beach and the task of collecting casualties and administering first aid to the wounded began. Six (6) Surgical teams of the 3rd Auxiliary Surgical Group, attached to the Collecto Clearing Companies of the 61st Medical Battalion were able only to render first aid because their equipment had not as yet landed. By evening of D-Day, these units had established two stations; one in a tank ditch near Easy Green Beach and the other in a pillbox inland from Easy Red Beach.

At 1600B the first elements of the 60th Medical Battalion, 6th Engineer Special Brigade, landed on Easy Green Beach. An attempt was made to clear this beach, but direct artillery and small arms fire necessitated moving to a defiladed position somewhat above high water mark where a collecting station was established inland from Easy Red Beach. The personnel and equipment of the 60th and 61st Medical Battalions continued to arrive ashore during the evening and night of D-Day. The collecting companies of the 1st Medical Battalion, 1st Infantry Division, landed with their respective combat teams, this date. A part of the Clearing Company, 1st Medical Battalion, landed this day, but was pinned to the Beach. Collecting Company "B", 104th Medical Battalion, 29th Infantry Division, landed with its combat team as scheduled and proceeded inland.

Throughout the day and night, casualties were evacuated from the Omaha Beach to LET's. There is no definite figure on evacuation for this day, but it is estimated by the 60th and 61st Medical Battalions that a total of approximately 830 casualties were evacuated.

2. D + 1 (7 June): The two medical battalions, Engineer Special Brigades, plus units of the 1st Medical Battalion and Naval Beach Medical Sections made some progress in clearing the beach of casualties. The 61st Medical Battalion had established a clearing station on Fox Green Beach and one on Easy Red Beach. Most of the equipment of these collecting companies being still afloat, their work consisted mainly of first aid treatment and evacuation of casualties over the beach. More elements of both medical battalions of the Engineer Special Brigades, plus the 1st Section, Advance Detachment, 1st Medical Depot Company, came ashore during the day. By evening a nucleus of all organizations of the Engineer Special Brigade Medical Battalions had landed and were acting as aid stations, and collecting and evacuation points in the locations assumed late on D-Day or early on D + 1. The unloading of medical equipment was delayed so that very little definitive treatment was given by these units. Four (4) Surgical teams were added to the 60th Medical Battalion and a clearing station was opened by that unit approximately 700 yards inland from Dog Red Beach. One platoon of the 1st Medical Battalion, 1st Infantry Division, opened a clearing station on the high ground overlooking the Easy Green Beach entrance, and continued to function at this site for the next 36 hours. Surgical teams were obtained from the beach and definitive treatment was rendered to the more seriously wounded. Employing all possible means, including the loading of wounded into DUKW's at the clearing station, a total of 201 patients were evacuated directly across the beach by this battalion.

At 1900B, the hospital carrier "Naushon" arrived off Omaha (V Corps) Beach and began taking patients aboard from craft

lying offshore. Contrary to plan, this hospital carrier overnight, giving definitive treatment by means of its medical staff and the personnel of the First U. S. Army Medical Detachment "A", which was aboard.

This date, Headquarters and Headquarters Detachment, 104th Medical Battalion, 29th Infantry Division, Clearing Company "D", 104th Medical Battalion, and the 382nd Collecting Company, 53rd Medical Battalion, landed. Collecting Company "A", 104th Medical Battalion, went ashore with its combat team.

Acting upon instructions issued by the Chief of Staff, First U. S. Army, the Army Surgeon, went ashore to make a tour of Medical installations and to obtain information as to the medical situation.

3. D / 2 (8 June): The remaining portions of the 634th Medical Clearing Company, 60th Medical Battalion and Headquarters and Headquarters Detachment, 60th Medical Battalion, landed and proceeded to the clearing station of the 60th Medical Battalion, 700 yards inland from Dog Red Beach. The equipment of the 392nd Collecto-Clearing Company, 5th Engineer Special Brigade was unloaded but artillery fire prevented the movement of this company inland. Between 0915B and 1000 B, personnel of the First U. S. Army Medical Detachment "A" landed on Easy Red and Easy Green Beaches. This personnel consisted of the Station and litter bearer platoons of the 451st and 454th Medical Collecting Companies, 68th Medical Group; the Advance Depot platoon, 32nd Medical Depot Company; six surgical teams, 4th Auxiliary Surgical Group; 10 liaison officers from various medical units including 9th Troop Carrier Command; 7 officers and 10 enlisted men of the Surgeon's Officer, Headquarters First U. S. Army. At 1400 sufficient equipment was landed for the 393rd Collecto-Clearing Company to enable this unit to establish a station approximately 800 yards inland at the entrance to Easy Green Beach, and free the clearing station of the 1st Medical Battalion for forward movement. From this time onward, the evacuation of casualties proceeded as outlined in this section on planning.

Equipment belonging to the 13th Field Hospital was landed during the morning hours and a location was secured through G-4, V Corps, for the setting up of this hospital. The personnel of the 13th Field Hospital and a portion of the 51st Field Hospital came ashore in the late afternoon.

The 38th Combat Team, 2nd Infantry Division, landed with only two battalion medical Sections and no regimental aid station or collecting company. During the early part of the night Headquarters Detachment, 1st Medical Battalion and Collecting Company "C", 10th Medical Battalion landed.

4. D / 3 (9 June): The 453rd Medical Collecting Company, 60th Medical Battalion moved to a point midway between St. Laurent-sur-Mer and Vierville-sur-Mer, from which point it evacuated elements of the 2nd and 29th Infantry divisions. The 1st Medical Battalion Clearing Station moved to the vicinity of Le Grand Hameau, and later in the day moved further south to the vicinity of Le Hau Gros, as the axis of the 1st Infantry Division swung farther to the east and south. One platoon of Clearing Company "D" and half of Collecting Company "C", 2nd Medical Battalion, arrived on the beach without equipment or transportation. Collecting Company "B", 2nd Medical Battalion, landed with the 23rd Infantry Regiment.

An attack was ordered to be launched on Trevières by two combat teams of the 2nd Infantry Division. As medical support, the Division Surgeon employed one platoon of the 2nd Medical Battalion Clearing Company, minus equipment, as a regimental medical detachment for the 38th Infantry Regiment and Collecting Company "A", 2nd Medical Battalion with three ambulances, plus one-half of Collecting Company "C", 2nd Medical Battalion, with ten ambulances borrowed through the V Corps Surgeon. Evacuation was to be to the Clearing Station of the 60th Medical Battalion. Clearing Company "D", 10th Medical Battalion, set up station at Vierville-sur-Mer to support the 2nd and 29th Infantry Divisions but was limited by lack of equipment to first aid treatment. Remaining personnel of the 51st Field Hospital landed this day as did portion of the 68th Medical Clearing Company, 53rd Medical Battalion.

The Surgeon, V Corps, was notified at 1600B by the Commanding Officer, 1st Medical Depot Company, that a medical depot was open in the vicinity of Colleville-sur-Mer (685-394). The Command Echelon, Surgeon's Office, Headquarters First US Army, consisting of the Army Surgeon, the Executive Officer, and two enlisted men landed late in the afternoon and proceeded to vicinity of Grand Camp Les Bains.

5. D + 4 (10 June): The remaining personnel of the Clearing Company, 2nd Medical Battalion landed, plus the remainder of Collecting Company "C" with its transportation and equipment. During the early part of the night, the 383rd Medical Collecting Company, 53rd Medical Battalion, and remainder of 684th Medical Clearing Company, 53rd Medical Battalion, came ashore.

All division clearing stations were functioning in a normal manner in spite of losses in equipment and personnel. At 1000B, one platoon of the 13th Field Hospital opened for the reception of casualties on the Colleville--St. Laurent, road in rear of V Corps. The first transport planes arrived in the Omaha area on the St. Laurent air strip. Four of these planes began the evacuation of casualties by air to the U. K. The Army Surgeon's Office, Command Echelon, Headquarters First US Army, was set up and ready to function in the vicinity of Grandcamp Les Bains.

6. D + 5 (11 June): Two truckloads of critical medical supplies, plus biologicals and whole blood, were dispatched to the Utah area as requested by the VII Corps Surgeon. The 51st Field Hospital opened one hospitalization unit for the reception of casualties on Easy Green Beach. Headquarters and Headquarters Detachment, 53rd Medical Battalion, landed. The Chief Medical Officer, Supreme Headquarters, Allied Expeditionary Force, arrived at the Army Surgeon's Office to view the medical services being rendered within the Normandy Beachhead.

B. UTAH BEACH, D TO D - 5 (6 - 11 June), INCLUSIVE:

1. D-Day (6 June): On Utah (VII Corps) Beach, Naval Beach Medical Sections were ashore by H + 1½ hours and evacuation of casualties began immediately. These Sections had evacuated approximately 75

casualties before the medical companies of the 261st Medical Battalion, 1st Engineer Special Brigade, were ashore and in operation. Collecting Company "C", 261st Medical Battalion arrived ashore at H + 4 hours and established station about 400 yards inland in rear of Green Beach.

A portion of Collecting Company "A", 261st Medical Battalion arrived a little later in the day and established station in rear of Red Beach. Six surgical teams of the 3rd Auxiliary Surgical Group landed with the Collecting Companies of the 261st Medical Battalion (2 teams per company). During the day, the three collecting companies of the 4th Medical Battalion, 4th Infantry Division landed with 26 of their combined total of 30 ambulances. These ambulances were put into operation immediately and utilized to their maximum capacity in the evacuation of casualties.

The 326th Medical Clearing Company, 101st Airborne Division, augmented with one (1) attached surgical team, landed by glider in support of its division and established station at Hiesville. The 307th Medical Clearing Company, 82nd Airborne Division, with one (1) attached surgical team, landed by glider in support of this division and established a clearing station.

2. D + 1 (7 June): During the early part of D + 1, Collecting Companies "A" and "C" of the 261st Medical Battalion were the only holding medical units ashore and were heavily burdened with casualties. Evacuation across the beach continued throughout the day. During the afternoon, information was received that the 307th Medical Clearing Company, 82nd Airborne Division, was established near Ste. Mers Eglise, and that this company was holding some 300 casualties. Even while arrangements were being made to contact this unit for removal of these casualties, they began to arrive at the beach in transportation belonging to the 307th Medical Clearing Company. They were mostly glider and jump casualties from both the 82nd and 101st Airborne Divisions. The 491st Medical Collecting Company and 649th Medical Clearing Company, 50th Medical Battalion, landed. The Operations Officer, and one enlisted man of the Army Surgeon's Office arrived ashore to inspect the medical activities on this beach.

3. D / 2 (8 June): During the night of D / 1 - D / 2, Headquarters and Clearing Company of the 4th Medical Battalion and Collecting Company "B", 261st Medical Battalion landed complete with transportation. By 0630B, Collecting Company "B", 261st Medical Battalion was established adjacent to Collecting Company "C", 261st Medical Battalion, and was receiving casualties. At the same time, the Clearing Company of the 4th Medical Battalion set up approximately three (3) miles inland, in support of the 4th Infantry Division. During the afternoon, the 307th Medical Clearing Company, 82nd Airborne Division, was contacted near Fauville (353 - 952). It was found to be flooded with casualties, both American and enemy. Arrangements were made with the 4th Medical Battalion to furnish trucks to assist in the evacuation of these casualties; part of whom were moved to the 4th Medical Battalion Clearing Station and the remainder to the 261st Medical Battalion in the beach area. The 492nd Collecting Company, 50th Medical Battalion, and the 315th Medical Battalion of the 90th Infantry Division landed, as did the 2nd Section, Advance Platoon, 1st Medical Depot Company. The 4th Medical Battalion Clearing Station was receiving patients by midnight.
4. D / 3 (9 June): The hospital carrier "Lady Connaught" arrived during the night of D / 2 - D / 3 and discharged First U. S. Army Medical Detachment "B". This personnel consisted of the station and litter bearer platoons of the 502nd and 427th Medical Collecting Companies, 31st Medical Group; six (6) surgical teams of the 4th Auxiliary Surgical Group; one Advance Depot Platoon, 31st Medical Depot Company; six (6) Medical corps officers from the 662nd Medical Clearing Company, 134th Medical Group; and ten (10) liaison officers from various medical units, including one officer from the 9th Troop Carrier Command. Despite her rated capacity of approximately 300 casualties, 400 casualties were placed aboard the "Lady Connaught" during the day and it sailed for the United Kingdom that evening. Also, during the night of D / 2 - D / 3, personnel of the 42nd Field Hospital plus three (3) surgical teams were brought ashore after their ship had been sunk and most of their personal and a part of their organizational equipment lost. The remainder of their organizational equipment began to

be landed at this time. The equipment of the 2nd platoon was landed first, and the VII Corps Surgeon decided that this platoon would be established near Le Grand Chemin. During the morning, the medical supply dump was opened at Le Grand Chemin. Prior to this time, the dump had been operated by the 261st Medical Battalion at location of Collecting Company "C" of this battalion. The 315th Medical Battalion set up clearing station at Ste Mere Eglise, but artillery fire forced them to withdraw temporarily. However, they returned to this location later in the day. The clearing station of the 101st Airborne Division suffered a near hit from an estimated 1,000 pound bomb, which cost them six medical officers and forty enlisted personnel. Clearing station of the 4th Medical Battalion was set up just south of Beuzeville-au-Plain.

5. D / 4 (10 June): The 128th Evacuation Hospital, the first army evacuation hospital to land on Utah Beach, came ashore. It was followed later in the day by the 91st Evacuation Hospital and the 45th Field Hospital. The 42nd Field Hospital, which landed the night of D / 2 - D / 3, opened just northwest of Le Grand Chemin. Due to the heavy surf the unloading of medical supplies was delayed and a critical shortage of certain items developed. In view of this shortage, it was necessary for the VII Corps Surgeon to contact the Army Surgeon in the Omaha area for delivery of these items. Arrangements were made for their delivery the next day.
6. D / 5 (11 June): The 128th Evacuation Hospital, the first evacuation hospital to become operational on the continent, opened during the evening in the vicinity of Boutteville; the 91st Evacuation Hospital opening on 12 June in the same vicinity. The 463rd Medical Collecting Company arrived ashore this day.

C. Subsequent landings of remaining First U. S. Army Medical Units  
(assigned and attached) on the Continent were as follows:

D / 6 (12 June)

|                              |   |
|------------------------------|---|
| 24th Evacuation Hospital     | Opened D / 7, vicinity of<br>La Cambe (571 - 877) |
| 449th Medical Collecting Co. |   |
| 450th Medical Collecting Co. |   |
| 577th Ambulance Company      |   |

D / 7 (13 June)

|                              |   |
|------------------------------|---|
| 5th Evacuation Hospital      | Opened D / 9, vicinity of<br>Le Molay (650 - 783) |
| 41st Evacuation Hospital     | Opened D / 8, vicinity of<br>Le Molay (650 - 783) |
| 464th Medical Collecting Co. |   |
| 501st Medical Collecting Co. |   |
| 564th Ambulance Company      |   |
| 565th Ambulance Company      |   |
| 452nd Medical Collecting Co. | Landed night of D / 6 - D / 7                     |

D / 8 (14 June)

|                         |                               |
|-------------------------|-------------------------------|
| 566th Ambulance Company | Landed night of D / 7 - D / 8 |
|-------------------------|-------------------------------|

D / 9 (15 June)

575th Ambulance Company  
451st Medical Collecting Co.  
1st Medical Depot Co (less Advance Platoon)

D / 10 (16 June)

|                              |  |
|------------------------------|--|
| 45th Evacuation Hospital     | Opened D / 13, vicinity of<br>La Cambe (568-882)         |
| 96th Evacuation Hospital     | Opened D / 13, vicinity of<br>Ste. Mere Eglise (337-961) |
| 493rd Medical Collecting Co. |  |

D / 11 (17 June)

|                                      |   |
|--------------------------------------|---|
| 67th Evacuation Hospital             | Opened D / 13, vicinity of<br>La Fiere (323-956)                  |
| 178th Medical Battalion, Hq & Hq Det |   |
| 427th Medical Collecting Co.         |   |
| 502nd Medical Collecting Co.         |   |
| 68th Medical Group, Hq & Hq Det      |   |
| 175th Medical Battalion, Hq & Hq Det |   |
| 176th Medical Battalion, Hq & Hq Det |   |
| 576th Ambulance Company              |   |
| 578th Ambulance Company              |   |
| 618th Medical Clearing Company       |   |
| 97th Evacuation Hospital             | Opened D / 15, vicinity of<br>St. Sauveur Le Vicomte<br>(171-976) |

D / 12 (18 June)

10th Medical Laboratory                      Opened D / 22, vicinity of  
La Cambe (570-875)  
31st Medical Group, Hq & Hq Det  
179th Medical Battalion, Hq & Hq Det  
621st Medical Clearing Company  
622nd Medical Clearing Company

D / 13 (19 June)

44th Evacuation Hospital                      Opened D / 15, vicinity of  
La Cambe (557-882)

D / 15 (21 June)

454th Medical Collecting Co.

D / 17 (23 June)

2nd Evacuation Hospital                      Opened D / 23, vicinity of  
Le Marais (659-738)  
57th Medical Battalion, Hq & Hq Det  
3rd Auxiliary Surgical Group (Less 23 teams)  
426th Medical Battalion, Hq & Hq Det  
134th Medical Group, Hq & Hq Det

D / 18 (24 June)

4th Convalescent Hospital                      Opened D / 22, vicinity of  
La Cambe (570-875)  
Detachment, 91st Medical Gas Treatment Bn.

D / 19 (25 June)

662nd Medical Clearing Co.                      Arrived night of D / 18 - D / 19  
617th Medical Clearing Co.  
633rd Medical Clearing Co.

D / 20 (26 June)

Detachment, 91st Medical Gas Treatment Bn.  
177th Medical Battalion, Hq & Hq Det.

D / 21 (27 June)

47th Field Hospital

D / 34 (10 July)

180th Medical Battalion, Hq & Hq Det.

#### SECTION IV - HOSPITALIZATION AND EVACUATION

In the initial stages of the invasion, the Surgeon, V Corps, on Omaha Beach, and the Surgeon, VII Corps, on Utah Beach, were responsible for the evacuation on their respective beaches. On D-Day, the Naval Beach medical parties, Medical Battalions of the Engineer Special Brigades and unit medical detachments, all rendered medical aid and placed casualties on any available landing craft for transportation to larger vessels lying off shore. Evacuation across the beaches was carried out by elements of the medical battalions of the Engineer Special Brigades. Initially, the corps medical battalions evacuated division clearing stations to the Engineer Special Brigade medical battalions. Clearing stations of the Engineer Special Brigade Medical battalions were augmented with surgical teams which were brought in with them and were reinforced on D / 2 (8 June) by six additional surgical teams on each beach from First U. S. Army Medical Detachments "A" and "B".

Definitive surgery was performed on major cases in the clearing stations of the Engineer Special Brigades from D / 2 on. Two field hospitals arriving on each beach on D / 2 were, of necessity, employed as evacuation hospitals until such time as the latter type of hospital arrived, commencing D / 5. The 261st Medical Battalion on Utah Beach became the evacuation center for that beach. On Omaha Beach, the 60th Medical Battalion operated a clearing station in the vicinity of St Laurent, while the 61st Medical Battalion, 5th Engineer Special Brigade, operated three collecto-clearing stations ranging from Easy Green Beach to Fox White Beach. The first air strip available to transport planes on the continent opened on D / 4 in the vicinity of the 393rd Collecto-Clearing Company for the 5th Engineer Special Brigade above Easy Green Beach. Twelve (12) patients were evacuated by air on that day.

Immediately thereafter, arrangements were made for diversion of walking cases to the clearing station of the 60th Medical Battalion at St. Laurent for evacuation by boat, and the transferring of all litter patients to the 393rd Collecto-Clearing Company at Easy Green Beach for priority travel by air. It was further arranged to start consolidating the entire 61st Medical Battalion in the vicinity of the 393rd Collecto-Clearing Company to form an air holding unit for the airstrip. This was accomplished by D / 6. Commencing D / 6 all evacuation, from the Omaha Beach, both litter and ambulatory, were sent to the evacu-

ation center which was operated by the 60th Medical Battalion, providing a capacity of 600 litter cases and 300 ambulatory cases with the 61st Medical Battalion operating as expansion for this unit. The evacuation from Omaha Beach was primarily by air. On Utah Beach evacuation by air never was available in appreciable amount by 21 July when an evacuation strip was completed in the vicinity of Binneville.

During the first three weeks of the invasion, heavy surf, at times, interfered with the evacuation of patients across the beaches and the weather, on occasion prevented air evacuation. During these periods, casualties accumulated in the hospitals, but as soon as the weather permitted, these were cleared by plane and by boat to the United Kingdom. At other times when heavy surf prevented the evacuation of patients across the Utah Beach, patients were transported by ambulance from Utah Beach to the air strip on Omaha Beach for evacuation by air to the United Kingdom.

As elements of the Army Medical Groups arrived on the continent, they took over the evacuation from the Corps Medical Battalions. All evacuation reverted to army control on D + 6. By 21 June, all First U S Army 400-bed evacuation hospitals were ashore and operating. The Army Surgeon instituted a ten day evacuation policy on that date. Prior to this time the policy had been one of total evacuation with the exception of non-transportables.

Some of the problems which were encountered were the separation of hospital personnel from vehicles containing equipment and from hospital equipment and stores not loaded on unit vehicles but shipped separately. In many instances, the separation caused several days delay between the arrival of the personnel and the time hospital could become operational; this when the need for hospitalization was most critical. Another serious fault due to the separation of personnel from unit equipment was that, in the unloading of preshipped equipment and stores, material became widely dispersed, hospital equipment having been found in dumps other than medical, in personnel transit areas, in Class V Dumps and even along the roadside. Because of this dispersion, beyond the control of the hospital concerned, many of the chests, crates and boxes had been ransacked and pilfered. In some instances, unit medical detachments and organic medical units of divisions were phased in too late to support their unit when the units

were initially committed to combat, necessitating a strain on the already limited resources of corps and later army medical units.

In general, the medical service for the invasion, as planned, was sound and required a minimum of changes. The total evacuation policy was absolutely essential and was possible through the use of medical detachments on LST's to provide proper care for patients evacuated on this type of craft and by the use of Hospital carriers, one being scheduled daily for each beach. The attachment of surgical teams to Engineer Special Brigades and medical companies of airborne units, and the early augmentation of additional medical personnel of First US Army Medical Detachments "A" and "B" undoubtedly saved a great number of lives. The phasing in of litter bearers, technicians and medical officers of Army Medical groups in Medical Detachment "A" and "B" provided a much needed source of replacements, to divisions and increased the capacity of clearing units of Engineer Special Brigades on the beaches. Liaison officers of Army Medical units accompanying Medical Detachments "A" and "B" made it possible to select suitable sites for hospitals and have the sites demined and cleared prior to arrival of the various units, thus enabling units to become operational at the earliest possible moment after arrival on the continent.

The periodic report on evacuation from army hospitals originally was based on a six hour report. It was found from experience that this interval works a hardship on hospitals rendering the report and the units furnishing courier service for same. It was also found to be impracticable to have such reports rendered by telephone from so many units, consequently the report was changed to twice a day as of 0600B and 1800B, which proved to give sufficient timely information from which to base evacuation planning as well as control admissions to the hospitals. The information originally called for in the report should all have been based on the same period of time. This was corrected. Surgical backlogs and total 24 hour evacuation figures as taken from the Combat Statistical Report also were added. See Appendix No. 1 attached hereto, for a copy of this report, and instructions pertaining to same as contained in Operations Memorandum No. 1. On the basis of the twice daily periodic report from the evacuation hospitals, hospital quotas for admission to the hospitals were established by the Army Surgeon for the next twelve hour period. These quotas were

given to the Medical Group responsible for evacuating the division and corps clearing stations. The establishment of such quotas enabled the Army Surgeon to take into consideration the bed status of the hospital and the surgical backlog prevailing, thus enabling him to equalize the load among the available hospitals to prevent any unit from becoming bogged down in a given period. The Medical Group, through the employment of ambulance regulating points in front of evacuation hospitals, distributed the patients among the hospitals on the basis of quotas assigned by the Army Surgeon. The distribution of the load on the hospitals was greatly facilitated by placing evacuation hospitals in pairs in relatively close proximity to each other.

One major evacuation problem occurred immediately after the fall of Cherbourg when it was determined that there were approximately 1,500 wounded prisoners of war hospitalized in the three hospitals in that city. The 68th Medical Group triaged and transported 1,382 of these patients from Cherbourg to the 261st Medical Battalion on Utah Beach over a period of 36 hours. The remaining non-transportable prisoner of war patients were consolidated in one hospital in Cherbourg for treatment by captured German medical personnel, under the supervision of American medical officers.

Evacuation hospitals functioned throughout the entire operations with little, if any, relief. The number of evacuation and field hospitals set up for the First US Army during the planning phase was for an army composed of three corps. With the build-up of the First U. S. Army on the continent, first by VIII Corps and later by Third U. S. Army units, the medical service of the First U. S. Army was augmented during the period 26 June to 1 August 1944, by the following field and evacuation hospitals of the Third U. S. Army:

32nd Evacuation Hospital  
34th Evacuation Hospital  
35th Evacuation Hospital  
39th Evacuation Hospital  
100th Evacuation Hospital  
102nd Evacuation Hospital  
103rd Evacuation Hospital  
104th Evacuation Hospital  
106th Evacuation Hospital  
107th Evacuation Hospital  
109th Evacuation Hospital  
16th Field Hospital

All of these units reverted to the Third U. S. Army control on 1 August with the exception of the 106th and 109th Evacuation Hospitals, which

reverted at a later date. Advance Section, Communications Zone, made the 77th Evacuation Hospital available for use by the First U.S. Army on 21 July, 1944, along with three ambulance companies which were given the task of evacuating from the evacuation hospitals to the beaches. Throughout this period evacuation hospitals were utilized by closing a hospital and leap frogging it forward to a new location. Hospitals were established as far forward as the tactical situation would permit, usually in front of the corps rear boundaries. At the height of operations for the period 6 June 1944 to 31 July 1944, inclusive, there were twenty-two (22) evacuation and six (6) field hospitals assigned and attached to the First U.S. Army for the support of sixteen active combat divisions.

On request of the Surgeon, First U.S. Army, Advance Section, Communications Zone, established a holding unit at the airstrip at Rinneville on 21 July by utilizing the 93rd Medical Gas Treatment Battalion, augmented by one platoon of a field hospital. On 24 July 1944, by mutual arrangement between the Surgeon, First U.S. Army, and the Surgeon, Advance Section, Communications Zone, the air holding units at Rinneville and Colleville and the beach evacuation center on Utah Beach reverted to the control of Advance Section, Communications Zone. Up to the time, Advance Section, Communications Zone, took over the evacuation centers, the First U.S. Army had evacuated 20,117 patients by air and 30,012 by boat, a total of 50,129.

Throughout the campaign hospitalization units of field hospitals, attached, with surgical teams from the 3rd Auxiliary Surgical Group, were utilized at division clearing stations. By operating at the division clearing stations, these units were in a position to give definitive treatment to the most seriously wounded. Upon movement of a hospitalization unit forward with the division clearing station, it was necessary at times to leave sufficient medical personnel at the old site to care for the non-transportable wounded remaining in the hospital. Transportation for these units was usually furnished by one of the evacuation hospitals. Throughout the operation, field hospitals were of great value to the Army Medical Service.

The surgical teams assigned and attached to the First U.S. Army proved to be inadequate in number, but this situation was relieved somewhat by utilizing improvised surgical teams from general hospital personnel assigned to the Advance Section, Communications Zone, prior to

the opening of these general hospitals . From time to time, it was necessary to call on Advance Section, Communications Zone, for other personnel, both commissioned and enlisted, to augment the staffs of the army hospitals.

#### SECTION V • MEDICAL SUPPLY

- A. RE-ORGANIZATION OF FIRST UNITED STATES ARMY.
1. Immediately upon arrival in England an exhaustive study was begun of the adequacy of existing Tables of Equipment with regard of Medical Equipment. The question of the adequacy of the existing Tables of Organization and Equipment was examined in the light of a contemplated combined airborne and amphibious operation against the coast of France with an attendant high casualty rate.
2. After considerable deliberation the Army Surgeon arrived at lists of items by types of unit required in excess of Tables of Equipment in order to satisfactorily perform combat missions anticipated. These lists included items not only of Medical Department issue but items of Quartermaster, Signal, Ordnance and Engineer issue. (See Appendix "2").
3. After having determined the requirements of medical units in this manner it was then necessary that proper justification for the issue of the items involved be given each service and that where stocks were not available in the United Kingdom, a special project be instituted for shipment from the United States. Great difficulty was experienced initially in acquiring accurate information as to availability of the items required. However, it was later possible to see a clear picture as to the status of items involved.
4. A series of conferences followed between representatives of the Army Surgeon and representatives of the Chief Surgeon, European Theater of Operations, including the Chief Surgeon himself, in an attempt to thoroughly review the actual need for the items requested.
5. At a final and informal conference on excess equipment between the Medical Supply Officer, European Theater of Operations and the Medical Supply Officer, First United States Army, a decision was made to issue, within the limits of stock availability, all items requested except those which had been disapproved by the Chief Surgeon.
6. Concurrent with the work being done on the requirements of units for

equipment in excess of Tables of Equipment was the enormous task of equipping all the units of the command. All units had arrived in the United Kingdom without any but house keeping equipment in accordance with the War Department plan of pre-scheduled shipments of unit equipment.

7. The personnel of the Supply Division of the Chief Surgeon's Office, exhibited a cooperative and willing spirit with regard to the equipping of units with their T/E equipment. Correspondence and other time consuming elements were reduced to a minimum and an in-formality was present which enabled individual matters to be greatly expedited.
8. No First Army unit departed from the United Kingdom with any deficiencies in T/E allowances and the bulk of equipment requested in excess of authorized allowances likewise was received prior.

B. OPERATIONS, 15 MAY 1944 TO 1 AUGUST 1944.

1. Mounting of Operation "NEPTUNE".

An approach to the medical supply problems presented by Operations "NEPTUNE" was made through the initial joint appreciation of the plan. It was immediately seen that the combined airborne and amphibious operation against prepared defenses and its expected high casualty rate presented problems beyond the scope of any previously encountered. An examination of what was available to the Medical Service of the First Army in the way of standardized maintenance units revealed that these were inadequate. It was also apparent that to establish maintenance in terms of pounds per man per day would not suffice since peak casualties would occur when the forces were smallest. A decision was made to approach the medical supply problem on an anticipated casualty basis.

Standard War Department and European Theater of Operations maintenance units were minutely examined to determine their adequacy and were found deficient in various critical items. A list was prepared of items which were deemed essential and which were either not included in medical maintenance units or were included in insufficient quantity. This list was presented to the Chief Surgeon, European Theater of Operations, U. S. Army, in the form of a request for the building of units of supply to supplement maintenance units. This list became the focal point of much professional controversy. Again a series of conferences were held between representatives of the Army Surgeons, and the Chief Surgeon, European Theater of Operations, U. S. Army. As a result of these conferences certain items were deleted from the supplemental list and others reduced in varying degrees. It may be said here that this supplemental list became the backbone of supply during the early stages of the operation. Certain of the items which were deleted from the list, and others which were reduced, actually fell into short supply in the period from "D" to "D + 10".

The European Theater of Operations Army Medical Maintenance Units; the Divisional Assault Medical Maintenance Units (two portions - Surgical and Medical); and the Supplemental Unit were the primary maintenance supply. (See Appendix 3). However, individual items on which the consumption rate was anticipated to be abnormal, were phased in, over and above quantities included in any maintenance unit. Such items as plaster of paris bandage, wadding sheet, cocoa and nescafe and medicinal gases (Oxygen, nitrous oxide, etc.), were phased in virtually everyday.

Class II replacements (i.e. T/E replacements items), were phased in a descending percentage loss factor. For example, it was anticipated that troops going ashore on "D" Day would lose 15% of their equipment; troops going ashore on "D + 4" would lose 8% of their equipment; and by "D + 10" this factor would have leveled off at a 5% loss factor. Class II items were phased in only in sufficient quantities to replace anticipated losses.

In view of the ever present possibility that the enemy might resort to gas warfare, provision was made to land sufficient gas casualty maintenance units with the assault elements to treat 5,000 gas casualties in each assault area. A bulk of these gas casualty maintenance units were laid down on the near shore for shipment by fast boat in the event of extensive use of gas.

Since all casualties except non-transportables were to be evacuated by boat to the United Kingdom, and by air as soon as air strips were available, it was necessary to ship to the far shore enormous quantities of litters, blankets and splints. In view of the extremely limited scheduled tonnage available to the Medical Department, a scheme had to be devised to bring these items ashore without having the tonnage charged against scheduled lift. Arrangements were made with the U. S. Navy to place aboard each LST for the first three-hundred trips a unit of supply designed to bring in quantities of these items and quantities of plasma and surgical dressings which could not be phased in under allocated tonnage. This unit of supply consisted of the following items: 100 litters; 320 blankets; 4 splint sets; 3 box of

surgical dressings; and 96 units of normal human plasma. Thus, it was possible to bring ashore in the first fourteen days 30,000 liters, 96,000 blankets; and large quantities of the other items without having to reduce other necessary medical maintenance. An additional 19,000 liters and 40,000 blankets were included in the scheduled lift. Infantry Divisions, Engineer Special Brigades, and other combat units were issued additional quantities of these items. Adequate quantities of these items were always available until the later stages of the operation when returns from the United Kingdom of these items did not keep pace with the great outward suction through air evacuation.

For the assault troops there was also designed a special waterproof unit of supply which could be carried ashore by aid men and which would serve as additional life preservers for them. This unit consisted of seven specially treated mortar shell cases which contained in toto, the following items:

| <u>ITEM:</u>   | <u>UNIT:</u>    | <u>AMOUNT:</u> |
|--|-----------------|----------------|
| Dressing, first-aid, large                                     | each            | 50             |
| Dressing, first-aid, small                                     | each            | 50             |
| Gauze, plain, sterilized, comp.                                | pkg             | 50             |
| Bandage, gauze, 3"   | each            | 50             |
| Sulfanilamide, crystalline                                     | pkg             | 10             |
| Morphine, tartrate, syrettes                                   | box             | 25             |
| Serum, normal human plasma, dried                              | pkg             | 7              |
| Sulfadiazine, USP, 7.7 grain tabs                              | 1,000           | 1              |
| Halosone, 1/10 grain tablets                                   | bottle (100 in) | 1              |
| Sterile gauze packet (impregnated with boric acid or vaseline. | each            | 1              |

It was issued to units scheduled to arrive on the far shore from "D" to "D / 3" on the following basis: one unit per infantry battalion, artillery battalion, chemical battalion, engineer battalion and ranger battalion. Two units per collecting company, divisional. Four units per clearing company, divisional. Six units per medical battalion (Engineer Special Brigade).

This unit proved extremely valuable in the early hours of the assault when a delay in unloading scheduled medical supplies was encountered.

C. ESTABLISHMENT OF THE SCHEDULED - SERVICE "D / 1" TO "D / 4" (7 /

1. OMAHA (V Corps Beach).

On the afternoon of "D / 1" (7 June) the first pre-scheduled Medical Maintenance Units came ashore in the Omaha Sector, although, some IST property exchange units had been landed the previous day. Unfortunately a large portion of the supplies landed on "D / 1" were lost when the tide came in and covered them as they lay on the beach below the high water line.

A fairly large percentage of those supplies which were landed on "D / 2" were similarly lost. The 1st Section, Advance Depot Platoon, 1st Medical Depot Company, landed in two equal increments with the 5th and 6th Engineer Special Brigades in this sector and attempted to set up issue points virtually at the high water line in the vicinity of the Brigade Collecto-Clearing Companies. Units were served here out of Brigade reserve stocks and those stocks which were salvaged on "D / 1" and on "D / 2". On the morning of "D / 2" the Advance Depot Platoon, 32nd Medical Depot Company (attached), and the Commanding Officer, 1st Medical Depot Company came ashore. The Commanding Officer, 1st Medical Depot Company immediately took charge, and the confusion which was apparent in the first two days immediately abated. On the afternoon of "D / 3" the first Army medical dump in France was opened for issue in the vicinity of St. Laurent sur Mer.

2. UTAH (VII Corps Beach).

No medical supplies, except IST property exchange units were landed in this sector prior to the afternoon of "D / 2". Units were forced to rely upon their reserves as well as what little could be diverted from the OMAHA Sector. Here, also, there was some confusion in the landing of personnel and the Advance Depot Platoon, 31st Medical Depot Company (attached) arrived ashore prior to the 2nd Section, Advance Depot Platoon, 1st Medical Depot Company, which was supposed to have landed with medical companies of the 241st Medical Battalion, 1st Engineer Special Brigade. The 2nd Section, 1st Medical Depot

Company took over beach issue while Advance Platoon of the 51st Medical Depot Company was setting up the first medical dump in this sector. This dump opened on the afternoon of "D + 3" in the vicinity of Le Grand Chemin. In this sector the 82nd and 101st Airborne Divisions landed. Both had been given adequate supplies to be self sustaining for at least three days. When contact was established between seaborne and airborne elements it was found that even though much equipment had been lost these two airborne divisions had been able to sustain themselves with the supplies they had carried in.

3. GENERAL.

The biggest problem in this period was the gathering up of medical supplies which had been landed at scattered points along the beaches. Much confusion existed while hospitals endeavored to find their unit assemblies which had been shipped ashore in craft separate from that which carried personnel; and while medical depot company personnel endeavored to comb the beaches for maintenance supplies shipped ashore in order to centralize and localize issue points. Medical Maintenance Units were landed in several elements at scattered points along the beach and an item which was urgently needed had to be sought by beach combing tactics.

D. CAMPAIGN TO CAPTURE OF CHERBOURG.

1. Supply Problems During Period -- A great weakness in the Medical Maintenance Unit became apparent early in the campaign. It was a weakness that cost many man hours and much delay in the issue of supply. A medical Maintenance Unit by its very nature attempts to furnish a broad scope of items consumed in the treatment of casualties. To this end, a Medical Maintenance Unit consists of many repacked boxes containing small quantities of several items. During this period of the campaign it was not uncommon for depot personnel to have to open as many as twenty or thirty boxes to acquire enough of one item to issue to a single requisitioning unit. This work was followed by need to repack or to place in bin

stock all of the other items contained in the boxes. This problem, serious in itself, was further aggravated by the inaccuracy of, or complete absence of packing lists. Many shipments had no packing lists or had a packing list stating that the contents were unknown or were miscellaneous medical supplies. Hence, it was impossible to determine what was actually on hand until every box had been broken open and its contents inventoried and picked up on stock record.

It is strongly recommended that in any possible further operation of the nature of Operation "NEPTUNE" that Medical Maintenance Units as such be abandoned and that Maintenance Units made up from original packages, i. e. bulk stock of items be substituted. If that is not possible an alternate recommendation would be that items be ordered by item rather than by maintenance units in bulk.

Until communications were established between the beaches it was impossible to trans-ship regularly from one sector items which were in short supply in the other sector. Even after the two beachheads were linked this problem continued to be a serious one - due first to enemy action, and later to traffic congestion.

For an interval of seven days in this period no penicillin was available. Stocks were exhausted in the United Kingdom and the automatic daily flow of penicillin to the continent ceased. This problem was finally alleviated by the arrival of several plane loads of penicillin from the United States.

Several items on which the consumption rate was higher than anticipated fell into short supply in this period. These were requested from the United Kingdom for Air and Red Ball Express shipment. Excellent service was provided in this type of shipment and the short supply problems were rapidly solved.

The most taxing problem during this period was the problem of hospital units locating and re-assembling their hospital assemblies. Although, every effort was made by the First Army Surgeon to have hospital assemblies loaded on one craft and to have these assemblies accompanied by one officer and five enlisted men of the hospital concerned, this proposal was rejected except

for these hospitals which were considered part of the assault forces. As a result hospital assemblies were unloaded along with vast bulks of other supplies, at many scattered points along the beaches. Hospitals spent many days going from dump to dump, regardless of service, in an attempt to find a few boxes which might belong to their unit assemblies. The opening of several hospitals was seriously delayed, and no hospital of this command received its complete assembly. An attempt to persuade Engineer Brigades to designate unit assembly receiving points met with failure and portions of hospital assemblies were received in Quartermaster Class I Dumps, Quartermaster Class II & IV Dumps, Salvage Dumps, Engineer Dumps, etc.

It must be recognized that a hospital's operating equipment, as differentiated from tactical organizations, is not carried, nor can be carried, on the individual or on unit transportation, and without this assembly the hospital is emasculated. In any further operations of this type every effort must be made to ship hospital personnel and the hospital equipment in one craft, and if this is not feasible to ship hospital assemblies complete in one craft, accompanied by a detachment of hospital personnel.

It became apparent early during this phase that generators on hand in First Army hospitals were inadequate to handle the power load in round-the-clock operations. Every effort had been made to secure 5 K.W. Generators for all First Army hospitals prior to departure from the United Kingdom. The project had been approved by the War Department, but generators were not received prior to departure. As a last minute emergency measure, double the T/E allowance of Medical Department Generators (2.5 K.W.) was issued. These, however, proved inadequate and once they broke down they could not be repaired, since no spare parts were available in France or in the United Kingdom. Arrangements were made through the Medical Supply Officer, Communications Zone, to ship one large generator for each evacuation hospital. These arrived in due course and the power problem was solved forthwith.

Another operational supply problem encountered during this period was the mechanical difficulty with all gasoline operated equipment, such as, autoclaves, 2-burner stoves, and distilling apparatus. Special spare parts and repair kits were flown from the United Kingdom, accompanied by two expert repairmen assigned to Communications Zone depots. This measure was followed shortly by the more definitive measure of acquiring white gas for the operation of these stoves through Quartermaster, First Army.

E. INLAND OPERATIONS PERIOD - "D / 20" TO "D / 48" (26 JUNE TO 24 JULY).

1. Supply Situation During Period - During this period First Army Surgeon was faced with the problem of supplying a greatly over-size command as compared with the command for which supplies had been planned. Many units from Third Army which were operating under First Army during this period arrived on the continent with shortages of T/E equipment. It was necessary to equip these units prior to establishing them as functioning installations. It was also notable during this period that the Advance Section, Communications Zone, was supposed to have assumed responsibility on "D / 15" but did not begin to function, and the First Army was given the additional burden of supplying certain Advance Section troops and installations, as well as some of the Third Army.

With the increased load of work involved and the growing amount of geography, the need for additional depot personnel became apparent. Should any great movements involving much terrain become actual, there was little doubt that one Medical Depot Company could not meet the requirements of movement concurrent with servicing units of this command.

During this period it became apparent that even though issues in excess of T/E had been made to certain types of units within army, their equipment was still insufficient to meet the burdens imposed upon them. Notable among these deficiencies were the bottleneck in X-Ray in evacuation hospitals, occasioned by lack of adequate film drying facilities, and the general deficiencies in equipment for oxygen administration in all hospital units. Certain projects for equipment in excess of T/E were initiated on

the far shore to the United Kingdom, and shipments were made by Air and Red Ball Express. (See Appendix 4).

Certain items developed as trouble-makers during this period. These were mainly the items which were evacuated with casualties and on which there was no property exchange. Included in this category were pajamas, Levin tubes, trachea tubes, and, toward the latter part of the period, litters and blankets. An attempt to establish an automatic weekly air lift for property exchange items based on casualties evacuated during the previous week met with no success. The problem was largely solved by daily Air and Red Ball Express requests. During the period from 26 June to 24 July, certain non-T/O R E, but necessary, installations within army, presented, and continue to present, considerable equipment problems. Foremost of these are the two combat exhaustion centers which were originally intended to operate as 250 bed installations, and which developed to 1,000 bed and 750 bed, respectively. In addition there was a provisional 1,020 bed hospital installation operated by the 91st Medical Gas Treatment Battalion primarily for medical cases including malarials and contagious diseases; three Neuro-Surgical Centers within three Army evacuation hospitals, and a large Dental Clinic establishment within the 4th Convalescent Hospital. Issues in excess of authorized allowances, but required for the proper operation of these installations, were made in the main from existing First Army stocks, and the balance were ordered from the United Kingdom as special project items.

During this period also there was returned to Quartermaster Depots tentage and other equipment which had been issued in the early stages of the operation, when hospitals had been operating enlarged installations. Hospitals were reduced to amounts authorized by T/E and excess authorization as indicated in Appendix 2. However, combat experience has proved the need for the following quartermaster equipment in excess of all previous authorizations for evacuation hospitals, semi-mobile:

| <u>ITEM:</u>             | <u>AMOUNT:</u> |
|--------------------------|----------------|
| Tent, pyramidal.....     | 9              |
| Tent, hospital ward..... | 4              |
| Tent, storage.....       | 3              |

| <u>ITEM:</u>              | <u>AMOUNT:</u> |
|---------------------------|----------------|
| Tent, large wall.....     | 2              |
| Heater, immersion type... | 3              |
| Heater, water for cans    |                |

#### SECTION VI - SELF-INFLICTED WOUNDS

In the early days of the invasion it was noticed that a number of patients were being admitted to evacuation hospitals with what seemed to be self-inflicted gunshot wounds. Most of these cases were minor wounds and were taking up much needed hospital bed space.

##### A. POLICY.

On 22 June, instructions were issued to Commanding Officers of all First US Army evacuation hospitals to hold all cases of suspicious self-inflicted gunshot wounds in the hospital; that the Army Inspector General was making a round of the hospitals checking into these cases in an effort to develop a policy as regards self-infliction of wound to avoid hazardous duty. After checking into these cases, the following policy was developed. All cases of suspected self-inflicted gunshot wounds would be held in evacuation hospitals pending investigation by a representative of the Inspector General. These cases would not be evacuated from the hospital except on orders of the Army Surgeon. The name, rank, serial number and organization of each such case in hospital at that time or thereafter admitted was to be reported to the Army Surgeon's Office. The Army Surgeon's Office in turn was to turn over to the Army Inspector General's Office this list of names and the Inspector General or his representative would make an investigation of each such case. After investigation, the Inspector General would report action eneachcase to the Army Surgeon's Office. If the wound was determined to be really accidental, the Army Surgeon's Office would direct the hospital concerned to include a form in the patient's medical records to this effect, and clear patient from hospital to duty or further evacuation. To avoid further investigation, this form would indicate to proper authorities in the United Kingdom that the case had been investigated and the outcome of such investigation. Where a patient was found guilty of self-infliction of wound to avoid hazardous duty, the Inspector General or his representative consulted the Army Neuropsychiatric Consultant regarding the particular case, after which the patient was tried. This policy was presented to the Chief of Staff and approved.

B. DISPOSITION.

Several weeks later, it became apparent that these cases were clogging up our evacuation system and were causing quite a problem for the Inspector General or his representative to visit each evacuation hospital to investigate such cases. At a conference between the Army Surgeon and the Army Inspector General, it was decided that the 4th Convalescent Hospital would receive all such cases from the evacuation hospitals. On 24 July 1944, all such cases were transferred to the 16 Field Hospital, a Third US Army unit attached to First US Army. Also, this unit was to receive other medical cases, including malarials. The 16th Field Hospital was responsible for reporting all such cases admitted to the Army Surgeon's Office; the evacuation hospitals merely transferring these cases to the 16th Field Hospital without reporting same to this office. By this procedure, all cases of self-inflicted gunshot wounds were concentrated in one location, thereby saving much time in the investigation of such cases due to shorter distances to be traveled by the Inspector General or his representative. Further, it relieved the evacuation hospitals of holding such cases for a period of time and thereby made bed space available for the more seriously wounded.

During this period 848 cases of self-inflicted wounds were reported, of which 625 were found upon investigation not to be malingering or on which sufficient evidence was not obtained to warrant court-martial proceedings. Twenty-four men were returned to their organizations for court-martial, and 199 were still under investigation at the end of the period.

Upon Third US Army becoming operational on 1 August, it was necessary to turn over to that army certain medical units which had been attached to First US Army for operations. Among these units was the 16th Field Hospital. At a conference held between the Surgeon, Third U.S. Army, it was agreed that all suspected self-inflicted gunshot wound cases in the 16th Field Hospital belonging to units of First US Army would be transferred as soon as possible to the 91st Medical Gas Treatment Battalion, which was to be established for the reception of such cases; Third US Army retaining all such cases belonging to units of that army.

SECTION VII - RETURN OF PATIENTS TO DUTY FROM HOSPITALS

Upon announcement by the Army Surgeon that a ten-day evacuation policy was in effect (D / 15), arrangements for the return of patients to duty from hospitals were made between the Army Surgeon and the Assistant Chief of Staff, G-1, Headquarters First US Army. This policy was to the effect that Commanding Officers of evacuation hospitals were to call Commanding Officers of the Corps Replacement Battalions and notify them as to the number ready for duty for that particular day and the location of the hospital. The replacement battalion would then be responsible for sending transportation to pick up these men for return to the replacement battalion. One exemption to this was that all neuropsychiatric cases ready for duty were to be returned by Medical Department transportation to clearing stations from which they were admitted to hospital.

During the period 6 June 1944 to 1 August 1944, 23,942 patients were treated by hospitals of First US Army and returned to duty.

SECTION VIII - UTILIZATION OF PRISONERS OF WAR  
IN EVACUATION HOSPITALS

Prisoners of war were utilized throughout most of the period at the evacuation hospitals. This arrangement was closely coordinated with the Assistant Chief of Staff, G-1 and the Provost Marshal, Headquarters First US Army. The utilization of prisoners of war became necessary due to the fact that the I/O of evacuation hospitals is such that during periods when large numbers of casualties were being admitted to the hospitals, the enlisted personnel were needed for the more urgent work of caring for the sick and wounded. It was therefore necessary that additional personnel be made available for general work such as litter bearing, digging latrines, garbage pits and other labor. Usually, forty (40) prisoners of war (non-medical) have been attached to each evacuation hospital within First US Army to do such work. To guard these prisoners of war, the Provost Marshal placed two (2) armed guards with each hospital. This arrangement worked out very satisfactorily, enabling the evacuation hospitals to render better care and treatment to the sick and wounded.

The prisoners, with practically no exceptions, worked well and seemed well pleased with the way in which they were being handled.

SECTION IX - HISTORY OF NEUROPSYCHIATRIC CASES

A. PLANNING PHASE.

1. The approved plan for the treatment and evacuation of neuropsychiatric casualties of First Army was derived from a study of reports and circulars, outlining the policies and procedures relative to neuropsychiatry in other theaters of operation. The First Army plan was designed to provide early treatment of Neuropsychiatric casualties as close to the front as was feasible and to return successfully treated individuals direct to their units with the least possible delay.
2. The number of neuropsychiatric casualties to be expected for the first thirty (30) days of the continental invasion was established at 2500-3000. This figure was used as a basis for the following plan for the treatment and evacuation of neuropsychiatric casualties:
  - a. A triage of neuropsychiatric casualties was to be conducted by Battalion and Regimental Surgeons of combat units and in keeping with the tactical situation. Mild cases, whose prognosis was favorable for return to duty within twenty-four (24) to thirty-six (36) hours, could be retained for treatment in the unit area, all other cases were to be evacuated without delay to the appropriate divisional clearing station.
  - b. Neuropsychiatric cases admitted to divisional clearing stations were to be seen by the division psychiatrist who would evacuate all cases requiring more than seventy-two (72) hours treatment. The cases which were to be held at the clearing stations were to be given accepted treatment with a view to accomplishing the early return to duty of those successfully treated.
  - c. During the first ten (10) days of the operation, all neuropsychiatric casualties who were evacuated to the rear of division clearing stations were to be sent to the United Kingdom, at least until evacuation hospitals were in operation.

(1) In order to avoid the possibility of congestion at the evacuation hospitals and to make available a greater number of beds for surgical patients, as well as to reduce the danger of "infecting" lightly wounded individuals with neuropsychiatric symptoms, the Surgeon, First U.S. Army, designated the

622nd Clearing Company of the 134th Medical Group to operate a neuro-psychiatric hospital, the psychiatrists of the evacuation hospitals (on detached service) were to provide the professional service.

(2) The use of an installation such as indicated above would allow for standardization of treatment and would provide facilities for special procedures not necessary for surgical cases but desirable for neuro-psychiatric cases. The 622nd Clearing Company was to be augmented by personnel and equipment so as to provide five-hundred (500) beds, and by arrangement with the evacuation officer was to receive all neuropsychiatric patients directly from division clearing stations.

B. TRAINING PHASE.

1. During the months of November 1943 to April 1944, representative unit medical officers, particularly Battalion and Regimental Surgeons of combat units had the advantage of a one week orientation course in military neuropsychiatry given by the staff of the 312th Station Hospital. This hospital offered additional courses, one for division neuropsychiatrists lasting one month, and another lasting two weeks for evacuation hospital personnel including the psychiatrist, two nurses, and six enlisted technicians. The three courses were presented in an excellent manner and served particularly well in acquainting medical officers not previously experienced in neuropsychiatry with many of the problems which were later met under combat conditions.
2. The Commanding Officer of the 312th Station Hospital, gave a series of orientation talks on "Combat Exhaustion" to line officers of the 28th and 29th Divisions during October and November 1943.
3. A ten (10) day course in neuropsychiatric procedures was conducted by officers of the 45th and 128th Evacuation Hospitals, respectively, for all personnel of the 622nd Clearing Company, beginning 25 April 1944. Thereafter, the company officers carried out further training and instructions for the enlisted men.
4. The above mentioned schools and indoctrination measures contributed materially to the functioning of the neuropsychiatric service of First Army under combat conditions.

5. In March 1944, the Commanding Officer, 134th Medical Group, submitted requisition for equipment, in excess of T/E, required for the operation of the 622nd Clearing Company as a five-hundred (500) bed "Exhaustion Center". Approximately ninety (90) percent of this excess equipment was delivered to the organization prior to embarkation. The remaining deficiencies were supplied after arrival on the continent.

C. OPERATION.

1. A total of three neuropsychiatric cases were reported as evacuated from D-Day to D / 3, inclusive.
2. The neuropsychiatric services of the evacuation hospitals which operated initially follow:
  - a. The 91st Evacuation Hospital neuropsychiatric service opened on 12 June (D / 6) and closed 22 June (D / 16) - a total of thirty-four neuropsychiatric cases were treated.
  - b. The 41st Evacuation Hospital neuropsychiatric service opened 14 June (D / 8) and closed 24 June (D / 18) - a total of twenty-eight neuropsychiatric cases were treated.
  - c. The 5th Evacuation Hospital received neuropsychiatric patients on 16 June (D / 10) and closed the neuropsychiatric service on 28 June (D / 22) having received a total of ninety-one patients.
3. By D / 7 (13 June ) the number of neuropsychiatric casualties occurring in the Utah sector had increased to the point where the

London, England, assigned as the ring company of the 50th Medical Battalion to act as a reserve medical holding unit, and in the course of the next several days, about three hundred cases of combat exhaustion were treated. Most of the patients were either evacuated to the United Kingdom or were transferred to the 2nd Platoon, 622nd Clearing Company, when it opened.

4. The 622nd Clearing Company opened on 18 June and the 2nd Platoon went into operation over the hill of Ste Mere Eglise on 19 June. The 1st Platoon opened an emergency on 17 June. The neuropsychiatric staff consisted of two psychiatric evacuation hospitals which were ashore at that time.

a. In general, the organization of these two (2) exhaustion centers was identical and included the following sections:

- (1) Admission - where a brief history was recorded, a physical examination done and a diagnosis accomplished.

- (2) Observation - where a more complete psychiatric study was done and results recorded and perhaps hypnosis of pentathol sodium exploration done in selected cases. Patients remained in this section for twenty-four (24) hours. Bathing facilities were available both for patients in this section as well as those in rehabilitation.

- (3) Care-treatment - the majority of "anxiety" cases were treated by this method. Deep sleep was induced by large doses of Sodium Amytol and carried out for forty-eight hours allowing patients to emerge sufficiently to have food, to be able to breathe and expand their lungs. During this phase of treatment, patients had 10-40 hours of deep sleep out of forty-eight hours.

- (4) Rehabilitation - the rehabilitation section was separated from the rest of the hospital, organized that soldiers resumed a military rather than a public status. The Army's program on this service was quite full and included reading, lectures, organized athletics and both group and individual counseling. It was in this section that the final evaluation of the patient's mental and emotional status was made and suitable disposition of the man determined. The soldier returning to duty

recovered from the effects of combat.

(b) Recovery of treated patients -

The recovery of treated patients on return of treated patients to their units was recognized as an important therapeutic measure. About 15% of patients discharged to duty as any other type of patients on rejoining their unit or even on rejoining their unit of affiliation. This, occasionally, was the cause of some of the most serious distress on the part of the unit because of the fact that antagonistic attitudes were developed toward the returning soldier in particular.

The recovery of treated patients, as a whole, closer collaboration between the recovery of treated patients and the replacement pools would have resulted in better therapeutic results for the patient. The replacement pools did not have the recovery of treated patients available on the men they received.

The recovery of treated patients returned to their units with recommendations relative to possible disciplinary action or ineligibility for recovery proceedings.

(d) Recovery of treated patients in the Zone. At the end of the period under review this recovery was accomplished without complication.

(e) Consultation -

(a) The recovery of treated patients, First U.S. Army, required an investigation of the recovery of treated patients and developed neuropsychiatric break downs under recovery of treated patients during the type of duty for which they were suited to perform. The recovery of treated patients to hold a commission. The opinion of the recovery of treated patients was reported to the Inspector General in all such cases.

(b) Recovery of treated patients investigations. The Judge Advocate, First U.S. Army, recovery of treated patients and trial for examination. This service proved to be recovery of treated patients.

5. The rate of recovery of treated patients in centers of neuropsychiatric casualties during the recovery of treated patients of operation was in accord with the estimates made recovery of treated patients, the rate thereafter increased to such proportions recovery of treated patients necessary to reinforce each of the platoons

company, the 3rd company by an additional platoon and later by  
a full clearing company plus a full clearing company plus  
all the necessary medical equipment was in use in each of the  
clearing stations. Each provided one-thousand (1,000) beds. The  
casualties were of neuro-psychiatric admission were:

- a. The conditions of the divisions to the Army in excess of  
original conditions.
- b. Difficult terrain, mud, mist, deep water, hedgerows, etc.
- c. Difficult conditions of the enemy in the La Haye de Puits, Car-  
teuse, etc. conditions.
- d. Casualties remained in the division for prolonged periods.
6. The well known clearing station was definitely established as  
indicated by the conditions of the division during the continental invasion.
7. The divisions, 1st, 2nd, 3rd and 30th, on their own initiative estab-  
lished clearing stations for centers. This usually was located in the div-  
ision near the front. All neuro-psychiatric casualties were sent to it  
for treatment. Such an establishment offered several advan-  
tages:
  - a. Kept the neuro-psychiatric casualties within the division, thereby con-  
taining the individual's identification with his unit, and avoided the  
concerns of the medical aspects of his condition.
  - b. Kept the neuro-psychiatric casualties to the front.
  - c. Worked over and up the division clearing stations, as well as of  
the division clearing stations in other divisions.

The same conditions of the division themselves established these centers  
throughly led to the conditions of the division for a table of organization for  
such as the conditions of the division.

9. STATISTICS

1. Admissions and Readmissions of psychiatric casualties to medical installations, from 6 June to 28 July 1944.

|                                     | <u>June 6-28</u>    | <u>June 29-28</u>   | <u>June 6 - July 28</u> |
|-------------------------------------|---------------------|---------------------|-------------------------|
| a. Total admissions from all causes | 30,335              | 11,150              | 95,172                  |
| b. N. T. admissions                 | 3,947 (12.99% of a) | 1,311 (14.73% of a) | 11,150 (11.61% of a)    |
| c. To duty from Div Cir Sta         | 308 (7.8% of b)     | 1,077 (27.51% of b) | 2,966 (16.60% of b)     |
| d. To duty from Exhaustion Centers  | 102 (2.59% of b)    | 3,777 (41.68% of b) | 3,974 (18.64% of b)     |
| e. Total - to combat duty           | 410 (10.41% of b)   | 5,254 (69.17% of b) | 6,940 (62.24% of b)     |
| f. Non-Combat Duty                  | - - -               | 1,390 (15.27% of b) | 1,390 (12.46% of b)     |
| g. Evacuated to U.S.                | 1,325 (33.57% of b) | 1,177 (12.76% of b) | 3,121 (27.99% of b)     |
| h. Readmissions                     | - - -               | - - -               | 299 (4.32% of e)        |

2. DIAGNOSTIC RESULTS OF EXAMINATIONS AT THE EXHAUSTION CENTERS.

6 June to 28 July 1944

| <u>Diagnosis</u>     | <u>No. of Cases</u> |
|----------------------|---------------------|
| 1. Neurosis          |                     |
| Anxiety              | 4,137               |
| Anxiety Hysteria     | 133                 |
| Hysteria             | 241                 |
| Reactive Depression  | 93                  |
| Post Traumatic       | 17                  |
| Others               | 598                 |
| Total                | 5,224 - 74.6%       |
| 2. Psychoses         |                     |
| Schizophrenia        | 62                  |
| Manic Depressive     | 8                   |
| Others               | 73                  |
| Total                | 143 - 2.1%          |
| 3. Psychopaths       | 440 - 6.3%          |
| 4. Mental Defectives | 18 - 0.3%           |
| 5. Other Psychiatric | 262 - 3.7%          |
| 6. Concussion        | 608 - 8.6%          |
| 7. Epilepsy          | 21 - 0.3%           |
| 8. Other Organic     | 284 - 4.1%          |
| Total                | 7,000 - 100.0%      |

The preponderance of neurosis (74.6%) among the neuropsychiatric casualties of World War II, during the period 6 June to 28 July 1944,

was in keeping with the rates in other theaters.

The relatively low rate for cerebral defectives (0.3%) is explained by the fact that non-mental defectives who became casualties showed a predominance of symptoms of amphetamine psychosis and were included under that heading. The majority of those listed in this chart were individuals who were referred for examination by the Judge Advocate General and were not actually casualties.

The number of cases having a diagnosis of concussion (602 or 3.6%) is believed to be considerably greater than is actually the case. However, the limited time available for observation contributed to the percentage reported in this category. Any patient who showed ruptured ear drums, or gave a history of epistaxis, hemorrhoids, etc, in conjunction with a history of amnesia and with headaches was diagnosed as a potential case of cerebral concussion in order to give the patient the benefit of the doubt.

F. REMARKS.

1. The officers and men of the clearing companies of the 134th Medical Group which functioned as exhaustion centers gave wholehearted cooperation and frequently worked for 16 - 18 hours a day for periods of 7 - 10 days on a stretch.

## II. OPERATIONS - MEDICAL

### A. GENERAL REMARKS.

1. From a study of the casualty reports from other theaters, it was estimated that approximately 30-40% of admissions to army hospitals would be for medical causes, exclusive of D. & C. cases. Fortunately, experience has shown this estimate to be too high. The total number of admissions to army hospitals for the period to 28 July was 53,991, of which 7,951 or 14.5% were cases of disease. The table below gives, for army hospitals, the Total Admissions, Medical Admissions, and percentage of medical admissions by weeks.

| <u>Week Ending</u> | <u>Total Admissions</u> | <u>Medical</u> | <u>% Medical</u> |
|--------------------|-------------------------|----------------|------------------|
| 16 June            | 8,402                   | 613            | 11.3             |
| 23 June            | 6,604                   | 751            | 11.2             |
| 30 June            | 8,413                   | 1,132          | 21.8             |
| 7 July             | 7,973                   | 1,232          | 16.2             |
| 14 July            | 11,022                  | 1,168          | 10.6             |
| 21 July            | 7,713                   | 1,393          | 18.1             |
| 28 July            | <u>8,850</u>            | <u>1,447</u>   | <u>14.7</u>      |
|                    | <u>53,991</u>           | <u>7,951</u>   | <u>14.5</u>      |

(Note: Source - GISA Form MD 310)

### B. OPERATION OF THE MEDICAL SERVICE.

1. During the planning period prior to the operation, plans were made for the professional care of medical cases and for the use of the Medical Laboratory. Professional policies were established and conferences were held by the Medical Consultant with the Chiefs of the Medical Services of the evacuation and convalescent hospitals. These policies have been subsequently altered from time to time as the military situation dictated.
2. From D-Day to 21 June 1944, the evacuation policy was twenty-four (24) hours. During this period, therefore, only those patients whose condition did not permit evacuation were held in the evacuation hospitals; when their condition permitted, they were evacuated to the United Kingdom.
3. On 21 June 1944, when the evacuation policy became ten (10) days, the professional policies with reference to the care of medical cases was altered in conformity therewith. Patients with short term illnesses could be kept and treated in evacuation hospitals and either returned to duty or transferred to the 4th Convalescent Hospital for a short period before return

to duty. Cases of recurrent malaria were constituting a problem at this time and in order to conserve manpower "uncomplicated malaria" was defined and it was directed that such patients be treated in the evacuation hospitals and returned to duty therefrom or transferred to the 4th Convalescent Hospital. Professional policies for the handling of other medical cases were established with a view to retaining in the army area all those patients who would be fit for duty in ten (10) days. In general, this involved the defining of simple as opposed to complicated cases.

4. On 24 July 1944, the 15th Field Hospital was designated as the hospital for the reception of cases of the following: uncomplicated malaria, chicken pox, mumps, measles, German measles, scarlet fever and dysentery. This centralized method of handling these cases was adopted due to the necessity of keeping all beds possible in the evacuation hospitals for surgical casualties. Evacuation hospital commanders were made responsible for keeping in their hospitals all patients with the above diseases who were too ill to be transferred. It was also directed that all patients with meningitis, diphtheria, or pneumonia were to be held and treated in evacuation hospitals and not transported to the 16th Field Hospital in order to avoid delay in treatment and the hazards of further transportation. Professional policies, with regard to the handling of medical cases, remained as before.
5. When the 16th Field Hospital reverted to Third U.S. Army control, the 61st Medical Gas Treatment Battalion was designated to take over the functions performed by the 16th Field Hospital. One company of the battalion was designated to care for certain surgical conditions, a second company to care for cases of malaria, and the third company to care for the communicable diseases. A mobile X-ray unit and laboratory chests were procured for use by the battalion and other necessary equipment, such as cots, mosquito bars, laboratory supplies, drugs, etc., were also procured. Cases of communicable disease were isolated in pyramidal tents and the unit instituted the necessary precautions and technique for the handling of such cases. Professional policies were not altered.

6. Of the 7,851 medical cases admitted to army hospitals during the period, 2,913 or 37.1% were returned to duty.

C. NUMBER OF REPORTABLE DISEASES.

1. The following table presents the total numbers of reportable diseases for the period up to 25 July 1944 (From LITOMIA MD Form 310):

|                          |                        |
|--------------------------|------------------------|
| Total Admissions         | 53,991                 |
| Total Disease            | 7,851 (14.5% of total) |
| C.F.D.                   | 500                    |
| Diphtheria               | 9                      |
| Influenza                | 19                     |
| Measles                  | 4                      |
| German Measles           | 6                      |
| Meningococcal Meningitis | 20                     |
| umps                     | 83                     |
| Pneumonia, primary       | 28                     |
| Pneumonia, atypical      | 40                     |
| Pneumonia, secondary     | 4                      |
| ✓ Scarlet Fever          | 9                      |
| Septic Sore Throat       | 1                      |
| T. Sc, all forms         | 6                      |
| Vincent's Angina         | 8                      |
| Common Diarrhea          | 158                    |
| Dysentery, bacillary     | 5                      |
| Dysentery, amebic        | 1                      |
| Dysentery, unclassified  | 26                     |
| Malaria                  | 1574                   |
| Hepatitis, infectious    | 18                     |
| Kerato-conjunctivitis    | 1                      |
| Rheumatic fever          | 4                      |
| Scabies                  | 64                     |
| F. U. O.                 | 241                    |
| Gonorrhea                | 112                    |
| Syphilis                 | 124                    |
| Other Venereal Disease   | 4                      |

D. TREATMENT OF MALARIA.

1. By far, the largest problem, medically, has been that of the treatment of malaria since it constitutes the cause of the greatest number of admissions.
- a. Preventive measures - While the First U.S. Army was still in England during the winter of 1943-1944, a steadily increasing number of cases of recurrent malaria were reported from the 1st and 9th Infantry Divisions, the 2nd Armored Division, the 32nd Airborne Division and the 1st Engineer Special Brigade. All of these units had been in service in malarial regions and had been on suppressive atabrine therapy until arrival in the U.K. The cases of malaria that occurred were all recurrent cases. With the continental operation soon to take place, it was essential that measures be taken to reduce the number of non-effectives from malaria. Accordingly, on the

advice of the First U.S. Army Surgeon, the Commanding General, First U.S. Army, on 19 May 1944, directed the Commanding Generals of the units mentioned above to place all personnel with a history of malaria in the past twelve (12) months on atabrine suppressive therapy. The atabrine was to be taken in doses of one-tenth (1/10) gram with the evening meal, every day except Sunday, and was to be continued indefinitely. In the table below is shown the weekly admissions to army hospitals of cases of malaria.

| <u>Week Ending</u> | <u>Cases of Malaria</u> |
|--------------------|-------------------------|
| 18 June            | 64                      |
| 23 June            | 147                     |
| 30 June            | 231                     |
| 7 July             | 270                     |
| 14 July            | 293                     |
| 21 July            | 260                     |
| 28 July            | 319                     |
|                    | <u>1,574</u>            |

From the above it will be seen that, in general, the incidence of malaria increased during the period. Because of the presence of the anopheles mosquito in the area occupied by First U.S. Army, the question of new cases occurring in France from our own reservoir came up for consideration. This question was discussed with the Chief of Preventive Medicine, ETOUSA, and the Chief Medical Consultant, ETOUSA. Both expressed the opinion that there was no danger of the spread of malaria in the part of France concerned. Nonetheless, all patients with malaria were screened and were put on atabrine when returned to their units. Investigation showed that all patients who developed malaria had been in malarious regions and the vast majority were recurrent cases. A few "new" cases were reported. These also proved to be individuals who had been in malarious regions and on atabrine suppressive therapy while in such regions. It is believed that they became parasitized but did not develop the clinical disease because of the atabrine. Here in France, however, under combat conditions, and not on atabrine, they developed the clinical disease. The vast majority of the cases were truly recurrent. Theoretically, these recurrences should not have occurred as these individuals were ordered put on atabrine as mentioned above. A large number of these patients were interviewed and, with very few exceptions, they had not been

on atabrine previous to coming down with clinical malaria. Various reasons were given by officer and enlisted patients for not taking the drug. Many of them said atabrine was not available under combat conditions when separated from their units. Others objected to the drug on the basis it disagreed with them and caused various unpleasant symptoms and, therefore, they did not take it. It is believed that there would have been few recurrent cases had all personnel with a history of malaria been provided with atabrine at all times and indoctrinated with the necessity of taking it.

b. Treatment of Malaria - On 21 June, the evacuation policy became ten (10) days and in order to conserve man-power and keep in the army area as many patients as possible, malaria was divided into two (2) groups; uncomplicated and complicated. Complicated cases of malaria were defined as:

- (1) Patients with cerebral malaria.
- (2) Those with a history of three (3) or more relapses who showed any of the following:

Persistently palpable spleen  
Failure to regain accustomed weight  
Persistent anemia  
General lowering of resistance and physical status

All patients with complicated malaria were treated until transportable and then evacuated. Simple, uncomplicated cases were initially treated in the evacuation hospitals in conformity with Circular Letter No. 73, Office of the Chief Surgeon, ETO, File 711, dated 20 May 1944, with the following modifications: After 7-10 days of treatment, these patients were discharged to duty (if physically fit) and therapy continued by the unit surgeon. As stated in paragraph above, the 16th Field Hospital and later the 91st Medical Gas Treatment Battalion were designated for the treatment of uncomplicated malaria. The policy of two weeks of quinine therapy was continued, followed by atabrine suppressive therapy.

E. COMMUNICABLE DISEASES.

1. The incidence of communicable diseases was surprisingly low and these diseases did not constitute a great problem. The period of contagion was redefined for each disease based on scientific data and not on custom, thereby saving many hospital days and considerable man-power. There were no epidemics during the period.

- a. Diphtheria - It is doubtful whether the nine (9) cases of diphtheria reported were diphtheria. These patients all had membranes in their throat but smears and cultures were negative for C. Diphtheria. All were treated with anti-toxin and evacuated.
- b. All of the twenty (20) cases of meningococcus meningitis recovered. The necessity for immediate treatment with intravenous sodium sulfadiazine in full dosage and the use of penicillin in severe infections was stressed. These factors were responsible for the recovery of all of these cases.
- c. Mumps constituted a very minor problem. Patients were treated and considered contagious only as long as they were febrile and had swelling of the salivary glands.
- d. Scarlet fever was treated with sulfadiazine and penicillin when necessary. The incidence was low and all patients recovered without complications.
- e. The gastro-intestinal group of diseases occurred in very small numbers. The five (5) cases of bacillary dysentery were of the Sonne type. The one (1) case of amebic dysentery was a recurrence of the disease acquired elsewhere.
- f. During the period of the report, only eighteen (18) cases of infectious hepatitis occurred, a surprisingly small number.
- g. The few cases of primary pneumonia (28 cases) were treated with sulfadiazine and, when severe, with penicillin as well. The results were uniformly good.

SECRET - DENTAL

With a very few exceptions, all units departed from the Marshalling Area with full complement of dental officers. The vacancies existing were shortly filled after arrival of units in France. Most of the dental officers accompanied their units upon landing. Dental officers in the combat zone were assigned to aid and clearing stations, rendering emergency dental treatment, and, in addition, acted as auxiliary medical officers. Some regiments had one dental officer in the combat zone, utilizing the other in the rear.

All the Division Dental Surgeons of the First U.S. Army were energetic, hard workers and rendered a superior service. This was also true of the dental personnel, both officers and enlisted men, assigned to the divisions. They set up their portable dental laboratories in rear echelons or in clearing stations. Some were made mobile through the ingenuity of the Division Dental Surgeon, and under trying conditions, did a remarkable amount of work in accomplishing the repair and construction of broken and lost dental prosthesis. To operate these laboratories, dental officers and men had to be withdrawn from the units they were serving.

Dental officers and enlisted men with some smaller units were used in capacities other than taking care of the dental needs of the command and did not render the dental service that they should have. This was especially true where the I/O did not call for a medical officer.

The Oral Surgeons with the evacuation hospitals were well trained and professionally qualified as such, and rendered a superior service, acting as an assistant to Plastic Surgeon in maxillo-facial cases and assumed full charge of all cases pertaining to strictly oral surgery. All these cases arrived in the United Kingdom after evacuation in excellent condition.

As field hospitals were utilized in First U.S. Army, it was a waste of man-power to have three dental officers assigned to each hospital. There was no dental service since these units were used as surgical hospitals adjacent to division clearing stations for operation of non-transportable wounded. Many of these dental officers were utilized on temporary duty status for dental work in other units.

The Mobile Dental Laboratories, three in number, came over with the 4th Convalescent Hospital. There was no assigned personnel and the units functioned until arrival of the Army Dental Surgeon, with such personnel as the senior dental officer of the 4th Convalescent Hospital could assign from units that were attached to that hospital. Four (4) dental officers were assigned on temporary duty status from the 134th Medical Group. Two Mobile Dental Laboratories, with assigned personnel, were also borrowed from Third U.S. Army. Personnel for Mobile Dental Laboratories, three officers and nine enlisted men, were procured by requisition on Headquarters European Theater of Operations, and reported the latter part of July.

The 4th Convalescent Hospital was used as a Dental Center. Officers and enlisted men were assigned on a temporary duty status to care for both patients and outpatients. At no time was there sufficient dental personnel assigned to take care of the backlog. The T/O for the 4th Convalescent Hospital only calls for four (4) dental officers and there should be a complete dental service set up, but it cannot be done with four (4) dental officers. A great amount of dental work may be accomplished in this type of unit on patients scheduled for early return to duty within the army.

Supplies and equipment were adequate and sufficient on the whole. Requisitions that were back ordered were filled shortly after arrival.

SECTION XII - VENEREAL DISEASE

A. General.

1. The venereal disease rate of the First US Army for the month of June, 1944, was 3.5 per thousand per annum. The total number of venereal disease cases was two hundred and ninety-four (294), of which fifty-six (56) were primary syphilis; two hundred and twenty-nine (229) new gonorrhea; and nine (9) chancroid. Two hundred and seventy-five (275) of the total number of cases were in white troops and nineteen (19) were in colored troops. The total number of days lost from duty was 1,962. A large percentage of the new cases occurring in France were contracted while in the United Kingdom but symptoms did not appear until the patient arrived on the continent.
2. The venereal rate for the month of July, 1944, was 4.2 per thousand per annum. The total number of cases was one hundred and four (104), of which twenty-seven (27) were new syphilis; seventy-five (75) new gonorrhea; and two (2) were chancroid. The total number of days lost from duty was three hundred and eighty-five (385). Eleven (11) of the total number of cases were in colored troops.

B. Treatment.

1. The great majority of patients with gonorrhea have been treated on a duty status, with sulfadiazine. Prior to 28 June 1944, patients with sulfonamide resistant gonorrhea were admitted to evacuation hospitals for diagnosis and treatment. After 28 June, the 4th Convalescent Hospital received all venereal cases. A total dosage of 100,000 units of penicillin was administered intramuscularly to each patient with gonorrhea. Approximately one hundred and sixteen (116) patients were given a total of 11,600,000 units of penicillin. Two (2) patients who failed to respond to penicillin therapy were evacuated to the United Kingdom for further treatment. Both of these patients had previously received penicillin in the United Kingdom for gonorrhea contracted in that country. There were no treatment reactions from the drug.
2. Patients with early syphilis were also diagnosed and treated in evacuation hospitals and, after 28 June, in the 4th Convalescent Hospital. In compliance with Circular Letter No. 86, Office of the Chief Surgeon, European Theater of

Operations, United States Army, dated 22 June 1944, each patient received a total dosage of 2,400,000 units of penicillin administered intramuscularly, with 40,000 units being given every three (3) hours for a total of sixty (60) doses. No additional therapy was given. Eighty-eight (88) patients with early syphilis completed penicillin therapy, having received a total dosage of 198,000,000 units. There were no treatment reactions from the drug. Luetic lesions completely epithelialize in 5-6 days and become dark field negative in 12-14 hours.

3. The venereal disease section of the 4th Convalescent Hospital was placed in operation on 28 June 1944. The base section of the 10th Medical Laboratory was established adjacent to this section which permitted smears, darkfield examinations and serological tests to be performed expeditiously. Patients with sulfonamide-resistant gonorrhea had an average hospitalization period of three (3) days and those with early syphilis were hospitalized for 8-9 days.

#### C. Preventive Measures

1. Prophylactic stations for army troops were established in the following towns: Isigny, Grandcamp, Trevieres, Cherbourg (3 stations), Balleroy (Operated by V Corps), LaMire (Operated by V Corps), Carteret, Barneville. Though all towns were off limits, stations were set up in towns whenever it was thought that the civilian venereal disease situation necessitated a station for the protection of static personnel and stragglers. Mechanical and chemical prophylactics were made available at each prophylactic station. All dispensaries had prophylactic stations.
2. Sixty (60) venereal disease control motto signs were posted on various roadways outside of towns in the army area.
3. Full use was made of off limits authority in relation to houses of prostitution. Up to the end of the period under review, the only brothels found in operation in First US Army territory were in Cherbourg. All were placed off limits to all military personnel and this was enforced by posting off limit signs on the houses and stationing military police at all entrances to the brothels.

4. During the period of this report, eighteen (18) cases of venereal disease were contracted in France. The majority of these were interviewed by the Army Venereal Disease Control Officer in order to obtain pertinent data in regard to the source of infection. Epidemiological investigation resulted in three (3) prostitutes being found and interned for examination and treatment.
5. An attempt was made to learn the venereal disease problems prevailing in the various localities in the army area. The Civil Affairs officers of all town detachments were contacted. A list of names, addresses and pictures of many suspected and registered prostitutes were obtained and filed at the Venereal Disease Section of the 4th Convalescent Hospital. This information was used to help the infected soldier furnish sufficient data to trace the source of contact. French doctors were interviewed in order to ascertain the civilian venereal disease situation. The Public Health Officer in the Army Civil Affairs Office also gave his full cooperation in this regard.
6. Frequent visits to various towns were made with the vice control officer of the Army Provost Marshal's Office.
7. An arrangement was made with the Army Quartermaster to issue mechanical and chemical prophylactics at Class I railheads on a regular allowance.

D. Summary.

1. The treatment of venereal disease has reached a point where the patient is cured in a minimum of time. Failure cases are practically non-existent. Patients with syphilis under penicillin therapy do not get reactions as often as occurs with the use of arsenicals.
2. The venereal disease rate was much lower than expected. This was probably due to the following factors in order of importance:
  - (1) The tactical situation.
  - (2) All towns were off limits.
  - (3) Civilians were scarce in areas occupied by troops.
  - (4) Chemical and mechanical prophylactic material was readily available.
  - (5) Education in regard to personal protection.

## SECTION VIII- SURGICAL

### A. Organization and professional policies.

1. In the organization of the Surgical Service of the First United States Army, full advantage was taken of experience gained by units and individuals that had served in the African and Sicilian campaigns. A careful study of North African Theatre of Operations, United States Army, directives, and information secured by a visit of the Executive Officer, Army Surgeon's Office, to the Italian Theater, were valuable guides in formulating the professional policies.
2. The principles of treatment, surgical procedures, and techniques prescribed or recommended were incorporated in the Manual of Therapy ETO, 5 May 1944.
3. Each medical unit was equipped and staffed for its designed function in relation to the basic policy that only primary aid would be rendered by aid stations, collecting companies, and clearing stations with definitive treatment restricted to field and evacuation hospitals. Exceptions to this general policy were contemplated and allowed for the landing phase of an amphibious operation and for operations of the airborne units.

### B. Management of Battle Casualties During the Assault Phase.

#### 1. Glider Landings.

- a. The earliest surgical treatment during the invasion was rendered by the medical personnel of the airborne medical companies and two surgical teams from the 3rd Auxiliary Surgical Group who accompanied the glider assault wave of airborne operations. The mission was to establish aid stations on the fields of the landing zone and to set up an operating room for major surgical procedures. A report of the activities of one of these teams reveals that the aid stations were in operation by H<sub>1</sub>, and that the operating room was functioning by H<sub>3</sub>.
- b. The experiences of these surgical teams demonstrate that it is possible and advisable for surgical teams to accompany an assault wave of an airborne operation. By this means, facilities for major surgery are provided at the earliest hour and maintained until casualties can be evacuated through routine channels.

#### 2. Beach landings.

- a. Eighteen (18) surgical teams accompanied the medical battalions of the Engineer Special Brigades on the beach landings. They assisted the battalion

medical personnel in rendering primary aid to casualties until the beach was cleared of wounded; established and operated aid stations; and gave definitive surgical treatment to non-transportable cases after operating rooms had been set up in tents. The first surgical teams arrived on the beach at various times from H  $\neq$  4 hours to D  $\neq$  1 (7 June).

b. The first major operation was performed at approximately H  $\neq$  10 hours on Utah Beach. On Omaha Beach, major definitive surgery was not begun until D  $\neq$  1. By the afternoon of D  $\neq$  2, definitive surgery was being done extensively on both beaches. The following tables show the number and disposition of the cases handled by two surgical teams and the medical personnel of Company C of the 261st Medical Battalion:

|                  | DISPOSITION OF CASES |        |        |        |       |
|------------------|----------------------|--------|--------|--------|-------|
|                  | June 6               | June 7 | June 8 | June 9 | Total |
| Total treated    | 155                  | 711    | 446    | 485    | 1797  |
| Returned to duty | 1                    | 3      | 1      | 0      | 5     |
| Transferred      | 11                   | 1      | 0      | 0      | 12    |
| Evacuated        | 38                   | 696    | 343    | 382    | 1495  |
| Died             | 11                   | 27     | 0      | 0      | 38    |

c. All available surgical teams continued to operate in clearing stations until operating facilities were available in field hospitals.

d. As a test, definitive surgery was ordered for all admissions to one Collecto-Clearing company until it became apparent that the number of casualties being received each twenty-four (24) hours continued to exceed the capacity of the operating room.

e. In general, early surgical care of casualties on the beach was governed by the tactical situation. Adequate operating room and hospital facilities were provided as soon as enemy resistance permitted the landing of personnel and equipment and the selection of a site for hospitals. Adequate post-operative care was difficult until hospitals were established.

f. In future operations, it would seem advisable that the surgical care of battle casualties during the first twenty-four hours to forty-eight hours of an amphibious operation should be restricted to the preparation of patients for evacuation. No attempt should be made to render definitive treatment to any patient who can, by primary aid measures, be rendered transportable.

### C. Surgery in Field Hospitals.

1. As soon as field hospitals were established, major surgical procedures were discontinued in the clearing stations of the amphibious battalions. This shift

- of definitive surgery occurred on D / 5 with the exception that one (1) surgical team remained at the holding unit on each beach. These two teams continued to operate on patients arriving in holding units who had developed complications and on casualties occurring on the beach area.
2. The arrival of the nurses on D / 4 and D / 5 afforded a welcome contribution to the efficiency of the operating room as well as to the quality of post-operative care.
  3. At first, field hospitals functioned as evacuation hospitals instead of receiving and treating only the non-transportable cases.
  4. The bulk of non-transportable cases consisted of abdominal, thoracoabdominal and major chest injuries. Non-transportable patients with extremity wounds were comparatively few and comprised only those with multiple or extensive wounds associated with profound shock or active bleeding which did not respond to such shock control measures as the clearing stations could provide.
  5. The employment of field hospitals in separate hospitalization units (platoons) sited adjacent to division clearing stations and moving with the clearing stations provided early and adequate care for non-transportable cases so long as only two platoons were active. When all three platoons of a field hospital were active at the same time or when a division moved forward so rapidly that a change of station occurred every few days, the system broke down because professional care and housekeeping personnel and equipment had to be left behind each time to care for the non-transportable post-operative patients. The assigned personnel of a field hospital is numerically inadequate when the hospital is functioning in platoons and the personnel is working on a twelve hour shift of duty. At least two additional officers and four additional nurses per hospitalization unit should be added to the T/O.
  6. Experienced surgical teams from auxiliary groups provided the professional care of patients in field hospitals. The following statistical report shows the number and type of wounds treated by one general surgical team when attached to an amphibious battalion, a field hospital and an evacuation hospital:

| <u>UNIT &amp; DATE</u>           | <u>PATIENT</u> | <u>ABD.</u><br><u>WOUNDS</u> | <u>CHEST</u><br><u>WOUNDS</u> | <u>EXTREM</u><br><u>WOUNDS</u> | <u>SOFT</u><br><u>TISSUE</u> |
|----------------------------------|----------------|------------------------------|-------------------------------|--------------------------------|------------------------------|
| 261st Med Bn, Co A (6-12 June)   | 30             | 16                           | 5                             | 14                             | 0                            |
| 42nd F. H., 1st Plt (22-30 June) | 121            | 41                           | 32                            | 69                             | 7                            |
| 128th Evac Hosp (12-22 June)     | 37             | 9                            | 5                             | 77                             | 2                            |
| <b>Totals</b>                    | <b>238</b>     | <b>86</b>                    | <b>42</b>                     | <b>160</b>                     | <b>9</b>                     |

7. The value of the field hospital when utilized to care for non-transportable cases is more definitely recognized when an evacuation hospital is in operation without a field hospital between it and the division clearing station. Under these conditions, the evacuation hospital receives non-transportable cases in such numbers that it is unable to give definitive treatment to a large number of casualties until the time consuming abdominal and chest cases have received definitive treatment.

8. The policy of siting platoons of field hospitals close to the front lines and adjacent to the division clearing stations is to be commended and should be continued. It saved many lives since severely wounded patients would not survive transportation to the rear. The mortality rate for surgery in field hospitals will be higher when the hospital is close to the front line in view of the fact that cases are admitted who would have died enroute to a hospital further to the rear.

#### D. Surgery in Evacuation Hospitals.

1. Evacuation hospitals were sited well forward and when moved to new locations, were set up as close to the front lines as safety would permit. Consequently, battle casualties reached evacuation hospitals in surprisingly short time after being wounded. For example, one hospital received casualties on the average of four (4) hours after injury for a period of ten (10) days. During the same period, 80% of the surgical cases admitted to this hospital were on the operating table in the first twenty (20) hours after admission.

2. The outstanding problem of surgery in evacuation hospitals was the size of the "surgical backlog" i.e., the number of cases awaiting operation. On the beach and subsequently during each drive it was not uncommon for evacuation hospitals to have 200, occasionally 300, cases awaiting surgery. This situation was met by the addition of surgical teams from auxiliary surgical groups and ward officers and nurses from other hospitals. Mobile surgical

and X-ray units augmented the surgical facilities of the hospital. When such measures failed to cope with the situation, a policy for evacuation of the lightly wounded without definitive treatment was invoked. Under such a policy from 15% to 35% of the patients could be so evacuated depending upon the type of casualties being received at the time.

3. The influence of the admission rate on the morbidity and mortality of a hospital is definite.
  - a. When 300 to 500 patients are admitted to a 400 bed evacuation hospital during a 24 hour period, it requires approximately three days to complete definitive surgery. The capacity of the operating room can be increased by the addition of surgical teams but the operative turnover is governed by other factors such as the number of operating tables available, and the percentage of severe injuries.
  - b. It is difficult to take patients recovering from shock to the operating room at the optimum time and some of these patients slip back into irreversible shock.
  - c. Gas gangrene develops in wounds that are not debrided early.
  - d. Pre- and post-operative care is not maintained at the highest level.
  - e. All facilities are taxed to the utmost and the hospital does not function as smoothly as during periods of normal activity.
4. Various control measures were instituted to solve problems of the surgical backlog. These measures served as temporary expedients to meet the current situation. Obviously, no control can be established over the number of casualties inflicted by the enemy. To increase the number of evacuation hospitals supporting each division would involve an unnecessary increase in the number of available beds and accessory equipment.
5. From a professional point of view the solution of the problem would be to increase the staff of a 400 bed evacuation hospital to approximately that of a 750 bed evacuation hospital. Such additional personnel would make the evacuation hospital independent of surgical teams and assistance from personnel of other units. The number of beds need not be increased over 400 because the large percentage of casualties admitted to evacuation hospitals can be evacuated within 24 hours after definitive treatment has been administered.

6. In support of this recommendation, attention is directed to the fact that the 750 bed evacuation hospital assigned to First Army functioned without the assistance of surgical teams except for a few days when one three man team was attached without request and after two of the hospital's assigned officers has been sent to a division. On the other hand, rarely was a 400 bed evacuation hospital active for more than twenty four hours without attached surgical teams. The maximum number of surgical teams attached to an evacuation hospital at one time was eight. Often six were attached; usually three or four teams were required.

E. Mobile Surgical Units.

1. At the time of the invasion, the 3rd Auxiliary Surgical Group was equipped with two (2) trucks, surgical, operating, and three (3) Procc Surgical Units.
2. The mobile surgical units landed on D / 22. On 29 June (D / 23), the first unit (a truck, operating, surgical) was set up with an evacuation hospital. From then on, both types of units were in operational employment, chiefly with evacuation hospitals. Of three (3) units sent to field hospitals, only one (1), a truck, operating, surgical, was utilized by this type of hospital.
3. The operational employment of both types of mobile units was identical.
  - a. The practical value of the unit in augmenting the operating room facilities of an evacuation hospital is established. The unit provides additional self sustained two table operating rooms which may be utilized for all types of surgery or only for a special type of surgery, such as neuro-surgical, maxillo-facial, or orthopedic cases. Little or no additional burden is put on the central supply of the hospital since the unit has its own autoclaves, instruments, gloves and surgical dressings.
  - b. The mobile unit was less extensively employed by the field hospital which had two table operating rooms with each hospitalization unit.
  - c. The mobile unit should not be employed for definitive surgery forward of a field hospital unless provision is made for post-operative care of all patients until they have been made transportable.

F. Mobile X-Ray Units.

1. Three mobile X-Ray units, attached to the 3rd Auxiliary Surgical Group, functioned with evacuation hospitals under the operative direction of the Army Surgeon.

2. The first unit was set up on 20 June 1944. The other two units went into operation on 5 July 1944 and 12 July 1944, respectively.
3. The Mobile X-Ray unit demonstrated its usefulness in augmenting the X-Ray facilities of evacuation hospitals.
  - a. Without the assistance of a mobile X-Ray unit, the hospital X-Ray personnel were over taxed when the hospital continued to receive large numbers of casualties.
  - b. Not infrequently, a bottleneck developed in X-Ray when there was a large influx of casualties shortly after the evacuation hospital opens in a new location. A mobile X-Ray unit relieved this situation.

C. Transfusions.

1. There was always a plentiful supply of plasma. It was used in a ratio of approximately three (3) units to one bottle of blood but it is not a substitute for blood.
2. Blood for transfusions was supplied by the ETO blood bank supplemented by the blood banks operated by evacuation hospitals and fresh blood obtained from non-combat troops and the lightly wounded.
3. Unfortunately, the major problem in the surgical care of battle casualties developed on the beach in connection with the transfusion of blood. The rate of flow of blood through the apparatus supplied was too slow to permit resuscitation of an exsanguinated patient. Under air pressure, the flow was still unsatisfactory. To overcome the difficulty, it was necessary to transfer the blood to a salvasar tube. Subsequently, a new filter and larger needles were supplied so that blood could be delivered at a more desirable speed.
4. Blood was always a critical item but there was no shortage during the first two weeks of the invasion when an average of 500 pints, daily, was supplied by the ETO blood bank.
5. The number of severe reactions to blood transfusions was negligible.
6. A comment by the leader of one of the 3rd Auxiliary Surgical teams reflects the universal opinion about the value of blood, "In this campaign we believe the greatest single blessing from the medical point of view has been the availability of blood bank blood. In contrast to the African and Italian campaigns, we are now being able to operate upon and save patients that could never have survived on plasma alone".

#### H. Penicillin.

1. Penicillin therapy was carried out according to the directions incorporated in Medical News No. 6, Office of the Surgeon, First U.S. Army, 13 May 1944.
2. The supply of penicillin was adequate for approximately two weeks beginning about 14 June. At this time its local use in wounds was discontinued. Subsequently, the administration of penicillin in clearing stations was interrupted until an adequate supply was again available.
3. No statistical data can be obtained at this writing concerning the value of penicillin therapy. The impression is that it was of definite value in minimizing wound infection. It did not prevent the development of gas gangrene, but penicillin and sulfadiazine were very effective in controlling the toxemia and spread of infection.

#### I. Forward Surgery.

1. The Manual of Therapy, ETO, 5 May 1944, met all expectations in providing the basic principles for surgical procedures. However, it was necessary to issue other directives in the Medical News in order to clarify or elaborate certain procedures or techniques as well as to emphasize policies that are clearly stated in the Manual.
2. Departures from policy were, in most instances, attributable to personal preference and to the difficulty of teaching surgeons to do what is known to be safest rather than what the individual surgeon considers best. The discrepancies most frequently observed were:
  - a. Failure to split plaster casts to the skin.
  - b. Improperly applied plaster.
  - c. Reluctance to use retention sutures in closure of abdominal wounds.
  - d. Delay in opening colostomies.
  - e. Tendency to plug wounds with vaseline gauze.
  - f. Too early evacuation of post-operative cases.
3. A conservative attitude was followed concerning amputations and discrimination exercised in the differential diagnosis of gas gangrene.
4. It was difficult to establish a policy incorporating definite indications for the removal of foreign bodies in the chest and aspiration of hemothorax.
5. Personal visits and letters from the ETO Consultants, Office of the Chief Surgeon were valuable in supplying information concerning the conditions

of casualties upon arrival in the United Kingdom. The cooperative spirit and the constructive suggestions of the ETO Surgical Consultants is acknowledged with appreciation. It was a contribution to the persistent endeavor to improve forward surgery.

SECTION XIV - VETERINARY

A. Personnel.

1. Of the nine Veterinary officers still remaining with units of this command, seven were brought into France at the beginning of operations. Officers with the 82nd and 101st Airborne Divisions were left in the United Kingdom.

B. Type of Services Rendered.

1. Food Inspection.

a. During the initial phases of operations, army Class I dumps were established at the Omaha and Utah Beaches. Only "C" and "K" rations were received for issue to the hospitals. A considerable portion of the "25 in 1" supplement required overhauling due to damage sustained. This ration, consisting largely of fruit juices and canned milk, was not properly packed for such an operation. Later, "10 in 1" rations were received, followed by "B" rations and finally by "A" rations.

b. As the troops pushed inland, truckheads were established to supply troops in forward areas. Two Veterinary Officers and two enlisted men, MD VS, were assigned to inspect supplies at army depots and truckheads. Veterinary Officers, with divisions, checked food supplies at their breakdown points. Laboratory facilities were available at the 10th Medical Field Laboratory for checking questionable supplies. In addition the above mentioned rations, enemy food stores including fresh chilled beef, frozen pork sides, fresh butter, cervelat style sausage, frozen fish fillets, and a large variety of canned and dehydrated foods, were uncovered at Cherbourg. A considerable quantity of these supplies were inspected by Veterinary Officers of this command and issued to troops. The balance was to be salvaged by Advance Section, Communication Zone, who took over immediately from army. They had no Veterinary Officer with them and the balance of the perishable items were allowed to deteriorate. Some troops purchased cattle to provide fresh meat for their troops, who were rather run down after the Cherbourg campaign was completed. These cattle were slaughtered under the supervision of army Veterinary personnel. In addition, some wounded livestock had been salvaged for food under Veterinary inspection. The question of purchasing dairy products was brought up, but after a thorough investigation, it was recommended that no purchases

of such products be made for the following reasons:

- a. Cattle were not routinely tested for TB. Civilian authorities claimed incidence of this disease in cattle of the Normandy area to be very low, but stated that the incidence of Brucellosis (Disease producing Undulant Fever in man) to be very high.
- b. Milk was not routinely pasteurized in creameries or dairy plants. Only cream to be used for butter was so treated.
- c. Equipment in most dairy plants inspected was found to be in a poor state of repair.
- d. Due to heavy traffic on highways and lack of civilian transportation, only about 25 - 30% of milk produced on farms was being delivered to dairy plants. The balance was processed into butter and cheese on the farms under varying sanitary conditions.

2. Civil Affairs Work.

- a. Veterinary Officers frequently were requested by G-5 Sections of this command to treat wounded civilian livestock. A large number of such animals were treated by our personnel. Due to the fact that good dairy cows were valued at \$450 to \$500 and good draft type horses valued up to about \$1000, this service was greatly appreciated by owners of such livestock. Our Veterinary Officers were handicapped in this work by lack of proper equipment. Veterinary Chests No. 81 and 81 were set up during planning for this operation, but had not arrived on the continent by 1 August. The Army Veterinarian assisted the G-5 Section of this headquarters in procuring drugs, instruments, and biologicals required by civilian veterinarians to re-establish their practices. In each case the veterinarian was investigated to determine whether he was properly licensed by the French Republic before supplies were furnished. To 1 August, there were no outbreaks of diseases such as Anthrax, Blackleg, etc., reported in local livestock. It was recommended to G-5 Section, this headquarters, during pre-invasion planning period, that they include a Veterinary Subsection in their section. The recommendation was not favorably considered by them. The G-5 Section of this Headquarters finally requested the assignment of one (1) Major, VC, one (1) Staff Sergeant, MD VS, and one (1) Technician Fifth Grade, MD VS.

3. Captured Livestock.

a. It was recommended to G-4 and the Quartermaster, this headquarters, that all horses and cattle captured from the enemy be concentrated in specified areas for processing and identification before being released to civilians through Civil Affairs town detachments.

4. Service for Army Sentry Dogs.

a. On 1 August there were a total of forty-six Army Sentry Dogs assigned to units of this command. Veterinary Officers inspected these dogs at frequent intervals and units with such animals were informed where Veterinary Officers could be contacted in case emergency treatment was required. Arrangements were made with the Army Quartermaster for the issue of proper rations for these dogs. Veterinary Officers with the 9th Air Force Service Command were very cooperative in providing service for units with Sentry Dogs located near their installations. Service was also provided by Veterinary Officers of this command for privately owned and organizational mascots. A program was started to vaccinate all such dogs against rabies. All Sentry Dogs were vaccinated prior to their departure from the United Kingdom.

SECTION XV - NURSING

A. Planning.

The three months previous to 6 June 1944 was a period of intensive training for First Army nurses. Three conferences were held to acquaint Chief Nurses and operating room supervisors with First Army policies and directives, and the importance of adequate supplies and the necessity for teaching enlisted men.

1. Supplies: A mimeographed copy of the minimum amount of sterile supplies to be available for initial operations was given to each operating supervisor. Classes for enlisted men were held in each hospital, emphasizing sterile technic and preparation of sterile supplies. The 13th Field Hospital was situated close to the 91st Medical Gas Treatment Battalion. These two organizations exchanged personnel for instructional purposes. The instruction in nursing care and preparation of supplies received by the 91st Medical Gas Treatment Battalion was fully utilized as this unit functioned as a communicable disease hospital.
2. 3rd Auxiliary Surgical Group: The nurses of the 3rd Auxiliary Surgical Group devoted their time to the field hospitals to which they were to be attached; making supplies, sewing, aiding in the teaching of enlisted men and in general, familiarizing themselves with this type of organization. The plan, devised by the Chief Nurse of the 3rd Auxiliary Surgical Group, for the utilization of surgical group nurses contributed immeasurably to the efficiency of First Army field hospitals. She determined, by personal observation and examination, which nurses were qualified operating supervisors. These nurses, with three others, were placed in each platoon of a field hospital and were charged with the responsibility of the operating room and central supply room, thus permitting the six field hospital platoon nurses to be responsible for patient care.
3. Equipment: Conferences were held with the ETO Quartermaster and the Army Quartermaster regarding clothing and nurses supplies. In addition to the normal issue of nurses clothing, each nurse was issued a combat jacket and trousers, and one pair of arctic overshoes. Maintenance units of nurses

clothing were set up to arrive with each specified number of normal troop maintenance units. Post exchange items such as Kleenex, powder, were provided for in the prior planning.

4. Courses of Instruction: Short courses for selected nurses were given in anesthesia, operating room, central supply, field transfusion set, narcosis, and diet at general and station hospitals throughout the United Kingdom. One hundred and ninety-one First Army nurses attended these courses
5. Personnel: Hospital commanders were notified of the availability of physically fit and professionally qualified nurses to replace those in the First Army units not entirely fit for field duty. All together, ninth-five nurses were replaced. These replacements gave each evacuation hospital a minimum of one graduate nurse anesthetist and ten qualified operating room nurses. Those nurses in First Army units who did not wish field duty were given an opportunity to request a transfer.

Knowing the difficulty in obtaining nurse replacements in North Africa and the inadequacy of field and evacuation hospitals in nursing personnel, permission was requested from the Assistant Chief of Staff, G-1, First United States Army, to allow each unit one nurse over T/O strength and also to have a pool of ten nurses in the army area. This permission was not granted. Frequent conferences were held with the First Army Adjutant General Classification Section, the Field Force Replacement System, and the Personnel Division of the Office of the Chief Surgeon, European Theater of Operations, to determine the most expeditious method of obtaining nurse replacements. A pool of fifteen nurses, fully equipped, and attached to the Field Force Replacement System was established at a hospital in Southern Base Section. This pool functioned efficiently for units under strength before embarkation to France. However, it was not effective for the prompt replacement of nurse personnel in France.

By 1 June, the nurses in First Army units were ready for duty in a combat zone. The days spent in classes, physical conditioning, and dry runs were to bring superior results.

## B. Operations.

1. **Arrival of Nurses in France:** At 1530 hours on 10 June 1944, the 45th Field Hospital nurses and 128th Evacuation Hospital nurses arrived on Utah Beach, and at 1600 hours, nurses of the 4th Field Hospital and 91st Evacuation Hospital arrived on the same beach. Nurses of the 45th Field Hospital were the First Army nurses to do duty in France. The first nurses to arrive on Omaha Beach, those of the 51st Field Hospital, disembarked 2300 hours, 11 June 1944. They walked from the beach to one of the hospital units of the 51st Field Hospital situated alongside an air strip on the promontory overlooking the beach. Medical officers and enlisted men in these field hospitals which had been functioning since 9 June, were overjoyed to see their unit nurses. The technicians had been doing superior work. Nevertheless, the professional orderliness apparent when nurses are present, was lacking and it was only a few hours until these field hospitals assumed the appearance of efficiency and organization noted in a unit having nurse personnel. These field hospitals had been functioning entirely on sterile supplies prepared and packed in the United Kingdom. The time and effort devoted to this phase of planning had paid dividends.
2. **Nursing Service:** The nurses were tireless in their efforts to provide essential nursing care to such a large number of casualties. As the wards became better organized and the nurses became more accustomed to working under constant and increasing pressure, more nursing care was given. The nurses on duty in the Central Supply Room did a magnificent job. This department is the pivot around which the eventual efficiency of the operating room and wards revolves. In no instance did a central supply room fall short of the mission it had to perform. The nurses exercised great ingenuity in creating and improvising equipment to facilitate a more efficient service.
3. **Personnel:** During the period from 7 June to 28 July, thirteen nurses were lost to the army through illness. The first replacements, eight in number, arrived 14 July. The replacement system did function to the greatest efficiency in so far as nurses were concerned.
4. **Uniforms:** The herringbone twill uniform proved to be a satisfactory duty uniform under certain conditions. It is too heavy to wear in hot weather,

particularly in the operating room and central supply room. In these departments, the brown and white seersucker can be worn effectively. The brown and white seersucker dress, however, because of the design, is totally impractical for ward duty in army units where cots are used exclusively. The brown and white seersucker slacks leave much to be desired so far as the professional appearance of the Army Nurse is concerned and were therefore not worn in the First United States Army.

The wearing of leggings presented another problem. Many instances of dermatitis, provoked varicosities, and swelling of soft tissues resulted from the constant wearing of leggings. A request was submitted and approved for obtaining British type leggings. Nurses complained of the lack of support in the women's field shoes. Most of the nurses preferred the Munson last field shoe for support and comfort. Paratrooper boots were made available, but because of the men's size tariff, many nurses were unable to be fitted in this type shoe.

There still remains much to be desired in so far as an appropriate and practical field uniform for nurses is concerned. The nurse in a field army has no suitable uniform to wear for anything but duty hours. The woolen battle dress with slacks would fill a long felt and much needed requirement.

5. Return of German Nurses: On 2 July, nine (9) German nurses arrived at the 45th Evacuation Hospital. These nurses were to be returned to the German lines. They did not know until after their arrival at this hospital they were to be returned. Needless to say, they were overjoyed. These nurses were well fed but were not in complete uniform. However, their clothing was of good quality. All wore the Nazi Ribbon for meritorious service which they very proudly displayed.

The Commanding Officer escorted the nurses through the hospital. They had an opportunity to observe supplies and equipment and talk to German patients and prisoners. They were most curious about the care and treatment given German patients and prisoners in England. They also expressed amazement at the size and amount of equipment and supplies.

After seeing the hospital, the nurses were transported in a closed ambulance to Balleroy. Here, there was a wait of approximately two (2) hours

while final arrangements were being made with the German officers to whom they were to be returned. At approximately 1800 hours they were taken through the lines at Caumont.

C. Remarks.

1. Too much emphasis cannot be placed upon the insufficiency of nurse personnel in field and evacuation hospitals. First Army field hospitals attained their effectiveness and efficiency through the judicious placement of 3rd Auxiliary Surgical Group nurses. It would have been a physical impossibility for nurses of the field hospitals to cope with the operative patient load carried by these units. As the field hospital was employed by the First Army, each platoon should have had fourteen (14) nurses. The four hundred bed evacuation hospital should have had a nurse strength of fifty-eight in order that nurses should not have been required to do duty for more than eight (8) consecutive hours. The seven hundred and fifty (750) bed evacuation hospital should have had seventy-five (75) nurses for the efficient and adequate management of the nursing services. There should have been nurse personnel in the Army convalescent hospital for supervisory purposes.
2. The woolen battle dress should be made available for Army nurses in the field.
3. Nurse replacements in field and evacuation hospitals should be furnished within twenty-four to forty-eight hours.

SECTION XVI - PERSONNEL

A. General.

1. All First US Army medical units, with few exceptions, arrived on the continent at T/O strength. However, by 22 June, it was necessary to request forty-six Medical Corps replacements. These replacements were obtained from Communications Zone station and general hospitals and Replacement Battalions in the United Kingdom. The first of these replacements commenced to arrive on the continent on 24 June, forty-eight hours after the requisition was submitted, and continued to arrive until the 30th of June. Upon arrival on the continent, these replacements were reassigned to corps and by corps to divisions.
2. On 15 July, a tour of divisions and corps revealed a shortage of twenty-eight Medical Corps officers. Inasmuch as no replacements were available, each 400 bed evacuation hospital was asked to designate two Medical Corps officers to be reassigned to divisions; the 750 bed evacuation hospital was asked to designate four Medical Corps officers for reassignment. The replacement of these officers was effected within twenty-four hours, transportation being furnished by Division Surgeons.
3. A request for forty-seven Medical Corps officer replacements was submitted on 20 July, together with a request for the establishment of a pool of one hundred Medical Corps officers. This requisition for forty-seven replacements was reduced to thirty-nine. As of 31 July 1944, these replacements had still not arrived. The request for the pool of 100 Medical Corps officers was disapproved.
4. Division Surgeons were requested to furnish this office the names of Medical Corps officers who had been subjected to prolonged periods of combat duty, and who, although not yet classed as combat exhaustion cases, had shown symptoms of combat exhaustion. These officers were reassigned to the evacuation hospitals and without exception responded well.
5. During the period, forty-nine Medical Administrative Corps officer replacements arrived on the continent for the First US Army. Under the provisions of WD Circular No. 99, as amended by WD Circular No. 108, these M.A.C. officers were reassigned to units to replace Medical Corps officers who had been

performing administrative duties. This procedure relieved Medical Corps officers for further reassignment, and relieved to some extent the shortage of Medical Corps officers.

6. The problem of providing replacements through the normal replacement system proved to be entirely unsatisfactory. Required Medical Corps officers were not in replacement battalions and depots, and the period of time necessary for forwarding requisitions to the United Kingdom made it impracticable to depend upon this source.

## SECTION XVII - STATISTICS

### A. General.

1. This section of the report is intended primarily to provide factual and quantitative data regarding the medical phase of operations of the First US Army in the invasion of Northwestern Europe from D-Day to D + 55 (6 June thru 31 July 1944). Tabular and graphic material are included which provide information as to the number and rates of battle casualties, the incidence of disease and non-battle injuries, the numbers and proportion of combat exhaustion cases, evacuations to the United Kingdom, admissions and dispositions reported by First US Army medical installations, bed status of Army hospitals and so forth.
2. In First US Army the approach to the problem of securing complete, accurate, and prompt medical reports was based on a two-fold objective: first, to secure daily and with the absolute minimum of delay the essential facts regarding the current medical situation which were needed to effect the most efficient disposition and employment of medical units and personnel and thereby to provide the best possible care and treatment of the sick and wounded of this command; second, to insure that the more detailed and comprehensive reports covering longer periods of time were received, consolidated, tabulated, and analysed in order that all of the factors which comprise the medical situation could be seen in their proper perspective and proportion and could be used for long range planning of succeeding phases of the campaign and of subsequent campaigns.
3. As may be seen from the foregoing, the primary concern was for the operational rather than the historical aspect of medical reporting, but it was felt that in so placing the emphasis both purposes were really served. The historical validity of military medical statistics lies in their future actual and potential military usefulness.

### B. Planning.

1. During the months in England preceding the operational phase of this campaign, extensive and detailed plans were made and a program of training and familiarization for records personnel was devised and carried out. Since the reports and records required by War Department and Theater directives and by Army

Regulations do not fully satisfy the requirements of a field army under combat conditions, reports to fill this need were designed. All information available regarding experiences in the North African, Sicilian, and Italian operations was obtained. After due consideration three new report forms were proposed and were approved by the Office of the Chief Surgeon, European Theater of Operations, in fact these same reports: The Combat Medical Statistical Report (ETOUSA MD Form 323), the Daily Admission and Disposition Report (ETOUSA MD Form 324a) and the Monthly Classification of Wounded Report have since been adopted for use by the other Armies operating in this Theater. Meetings and conferences were held at which personnel from the Division Surgeons' Offices and Registrars' Offices of the hospitals and other medical installations were informed and instructed in the plans, policies, and detailed procedures of medical reporting in the forth-coming operation. The fact that this was time and effort well spent was demonstrated in the comparative smoothness with which the reporting system functioned during the difficult period of the initial phase of the invasion.

#### C. Operations.

1. It was decided that a part of the Statistical Section of the Army Surgeon's Office should land on D / 1 to insure that in the critical days of initial operation of the combat reporting system, supervision would be available and a source of information would be at hand to answer the inevitable questions that would arise when new reports were being submitted under somewhat strange and difficult conditions. It is felt that this decision was a sound one for although the statistical group did not actually come ashore until D / 2, the work that was done in the first few days in correcting erroneous procedures, explaining the reasons for certain practices and establishing a close liaison with the persons responsible for the preparation of the reports undoubtedly saved many weeks of correspondence and contacts which would have been required to begin at a later date to solve the problems that could not have been foreseen and to secure corrections on reports made necessary by minor misconceptions so easily corrected when caught early.

#### D. Tables and Charts.

1. The tables and charts contained in Appendices 5-34 inclusive, have been prepared to show the important facts and situations relative to the medico-

military experiences in this campaign for the period covered by this report

## SECTION XVIII - SUMMARY

A study of the foregoing sections shows the problems arising within the various subsections of the Surgeon's Office and the means by which these problems have been solved.

In general, it is felt that the planning for the operation "NEPTUNE" was basically sound. Recommended changes for future operations have been included in the appropriate sections.

Again in this operation, as in previous landing operations, the Medical Battalion, Engineer Special Brigade, proved to be an essential part of the task force. This unit, augmented with surgical teams and certain items of equipment as shown in the supply section, is capable of receiving all casualties from the combat troops, preparing such casualties for evacuation, holding and treating the non-transportables, and placing evacuees at the high water mark for evacuation. The organization should have a landing priority just ahead of the division clearing station and should be landed not later than H + 3 or 4 hours.

Combined training with the Navy Medical Department is a must. Too much cannot be said about the part which the Navy played in the early days of the landing operation.

The Division Medical Service functioned normally. In times of even moderately heavy casualties, there proved to be an insufficient number of litter bearers assigned to the infantry regiments.

The Corps Medical Service functioned normally.

Field hospitals, operating in hospitalization sections, with surgical teams attached and augmented as shown in the supply section, proved to be an essential component of the Army medical troops. The hospitalization units were used in the immediate vicinity of division clearing stations and cared for the casualties which were not in condition to be transported to the evacuation hospital. This not only saved the lives of many persons but also relieved the burden on the evacuation hospitals.

The 400 bed evacuation hospital proved to be a very efficient unit. It is felt, however, that it is grossly understaffed in officers, nurses, and enlisted men. Personnel augmentation whenever the hospital was in operation was necessary.

The 750 bed evacuation hospital functioned well and is still a fine organization during stable periods.

The Medical Groups have the advantage over the old medical regiments of greater flexibility. They functioned well.

Since no planning group can possibly foresee all the problems which will arise during the operational phase, the medical service must remain flexible at all times. With this in mind, no attempt has been made to present our solution to problems as the solution, but as a solution under the conditions encountered.

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First Army

Annex No. 11  
1 Aug 44 - 22 Feb 45

Medical Section

py 335

HD 319.1-2 (1st Army) ETO - 1 Aug 44 - 22 Feb 45 - 1st Army

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REPORT OF OBSERVATIONS

WEST U. S. ARMY

1 AUGUST 1944 - 31 FEBRUARY 1945

MEDICAL SERVICE

ANNEX 10, 11

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During the later phases, as the lines of evacuation were greatly lengthened, it was necessary to move hospitals forward with greater speed than had been called for previously. It was decided that, due to their greater mobility and because of the fewer casualties being encountered, the hospitalization units of field hospital could be employed as small evacuation hospitals. This decision proved of great value.

## 2. The Employment of Evacuation Hospitals.

Throughout the period, these hospitals were utilized as far forward as the tactical situation would permit. This was accomplished by the closing of a hospital and clearing it of patients in order to move forward. Sufficient hospitals were kept mobile so that one was always available to leap-frog a unit that had either been taxed to capacity or, because of its great distance from the advancing front, was no longer of great value to the forward troops.

When, due to the relative immobility of evacuation hospitals, it was no longer feasible to attempt to keep pace with the combat troops and the field hospitals were being utilized as small evacuation hospitals, the evacuation hospitals were employed as transfer points. Serving in this capacity, they materially lessened the distance over which casualties had to be transported in one continuous move. After the patients were rested, wounds cared for, and dressings applied, the casualties were turned over to the control of Advance Section, Communications Zone, for further evacuation to general hospitals in the rear, or to air-strips for evacuation.

Following the break-through at St. Lo, many of our hospitals had large surgical backlogs due, in great measure, to the large numbers of lightly wounded casualties being treated. This condition hampered their mobility and thus, their usefulness to the medical service. At a conference attended by Chief Medical Officer, Supreme Headquarters, Allied Expeditionary Forces; Surgeon, Advance Section, Communications Zone; Surgeon, First United States Army; Executive Officer, Office of the Surgeon, First United States Army; and Operations Officer, Office of the Surgeon, First United States Army, it was decided to establish the 77th Evacuation Hospital, an Advance Section, Communications Zone organization in

the rear of First United States Army to receive these lightly wounded, unoperated cases, thus relieving the backlog in army hospitals.

### 3. Handling of Special Type Cases.

The 91st Medical Gas Treatment Battalion, which was designed for the treatment of gas casualties, was utilized as a hospital for the care of special types of cases. These cases interfere with the primary mission of an evacuation hospital. After having been augmented with the necessary equipment, it was given the mission of handling the following:

a. Contagious diseases; Measles, German measles, mumps, chicken pox, scarlet fever, and dysentery.

b. Malaria: It was found upon investigation that all cases were recurrent in nature and had been contracted during the campaigns in North Africa, Sicily, and Italy, or during maneuvers in the southern section of the United States. The great majority of these cases had not been complying with recent directives for the taking of atabrine for suppressive therapy. This was due to various reasons: not available, did not like it, and did not agree with them.

c. Return to duty cases: Arrangements were made with G-1, First United States Army, and the Replacement System, whereby all cases returning to duty would be handled by the 91st Gas Treatment Battalion, 4th Convalescent Hospital, and the 618th and 622nd Clearing Companies. This arrangement worked well during the earlier stages of the period, but as the movements of combat units became increasingly faster, it fell into a stage of disorganization. At times, medical units were not relieved of their duty cases by the replacement system.

d. Self-Inflicted Wounds: Patients suspected of having inflicted a wound upon themselves for the purpose of escaping hazardous duty were transferred to this unit as soon as transportable. These cases were held pending investigation by a representative of the Inspector General.

### 4. Employment of the 4th Convalescent Hospital.

a. Return of Duty Cases: See paragraph 3, above.

b. Ambulant, ten day cases.

c. Venereal disease cases.

### 5. Employment of the 618th and 622nd Medical Clearing Companies.

a. Return to duty cases: See paragraph 3, above.

b. Combat exhaustion cases.

c. Neuro-psychiatric cases.

#### 6. Employment of Clearing Companies as Holding Units.

The speed at which our combat forces moved forward not only caused the above changes in the policy of employment of hospitals, but also in the utilization of the medical clearing companies. Many hospitals were needed in the forward zones while they were still immobilized with a small number of non-transportable abdominal and chest cases. A method was needed to relieve hospitals of such cases so that the hospitals would not have their efficiency impaired by leaving their own personnel behind, to care for such non-transportables when moved to a new location.

In view of this situation, the Army Surgeon employed clearing companies to take over these cases, thus, relieving the hospitals of their responsibility. The clearing companies cared for these patients until they were transportable and then evacuated them to Communications Zone hospitals in the rear.

Until mid-September, the pursuit of the fleeing German armies continued. Two changes taking place during this period are noteworthy. One, all field hospitals were placed under centralized command, accomplished by assigning them to the Headquarters and Headquarters Detachment, 177th Medical Battalion. The first mission assigned the battalion was to reassemble the field hospitals. Hospitalization units were scattered over an area of one hundred by two hundred miles at fourteen different locations. At the completion of assembly, the Army Surgeon ordered that field hospitals would provide evacuation hospital service to the army, on a basis of one field hospital per corps. The basic plan used to carry out this assignment was to place a hospital headquarters and two hospitalization units forward in support of each corps at all times. One of these two units was designated as the unit of record, set up completely, and augmented as necessary, by the personnel and materiel of the accompanying unit. The third unit remained in reserve until progress made the advance of the hospital necessary. Then it moved up, became the forward unit and was supplemented by addition of the hospital headquarters and one of the units which it had passed in moving forward. Because of the relatively few casualties sustained during the drive through France and Belgium, the system outlined above remained in effect until the army ran into stubborn resistance at the German border.

The second change involved the organization of the Army Surgeon's office itself. Because of the great distances over which medical service had to be rendered, the Army Surgeon inaugurated the plan of detaching a section of his office from the Headquarters of First United States Army and sending the detachment out as an advanced section of the office of the Surgeon. The Executive Officer, Operations Officer, and Medical Supply Officer, and four enlisted men accordingly left the Headquarters at Versailles and proceeded to La Capelle, France, where a Medical Service area was established. Later, this detachment, preceding the movement of the headquarters by many miles, moved to Guffet, Belgium and finally to Eupen, when the Headquarters of First United States Army reached such position that the Army Surgeon decided that adequate control could be supplied from the main command post. By means of this device, immediate knowledge and on-the-spot control was secured. On many occasions, possible stumbling blocks in evacuation were foreseen and dealt with, prior to their reaching a point where serious consequences resulted. This device by shortening the lengthy and difficult communication lines, permitted immediate operational control which would have been, in a large measure, denied the Surgeon, had not the advanced command post been maintained.

The policy of grouping the majority of evacuation hospitals in a centrally located Army Medical Service area, leaving one or at most two, out in support of the right and left flank corps was instituted. The application of these arrangements to a situation where communications were poor and overall operating distances great accomplished two vital needs. First, control of army medical units was simplified, and second, the bulk of casualties were concentrated, simplifying evacuation to Communications Zone establishments.

The solution to the problem of handling special types of cases, a group made up of contagious diseases, malaria and ambulatory convalescents remained the same. Such cases came under the control of the 91st Medical Gas Treatment Battalion and the 4th Convalescent Hospital, relieving the evacuation hospitals of the necessity of filling beds needed for surgical cases with such patients. During the last half of the month of September, the 4th Convalescent

Hospital, because of lack of sufficient transportation, was left behind. The 91st Medical Gas Treatment Battalion took over the cases normally handled by the 4th Convalescent Hospital, in addition to its usual duties. The organization of this unit permitted the setting up of three entirely separate hospital establishments, allowing control over a lengthy axis. Thus, the battalion was able to maintain a hospitalization unit in contact with the troops and open for admissions at all times.

Combat exhaustion and neuropsychiatric cases were, as heretofore, evacuated to the 618th and 622nd Clearing Companies.

#### B. THE SIEGFRIED LINE.

As the combat troops approached the fortifications of the Siegfried Line, enemy resistance stiffened and the tactical situation settled into one of a relatively static front. Opportunity was taken to regroup the medical units of First United States Army so that this new phase of the campaign might be more adequately covered. An area was secured midway between the army's north and south boundaries, and the bulk of army medical units, evacuation hospitals, MF hospitals, 91st Medical Gas Treatment Battalion, the 1st Medical Depot Company, and the headquarters of the Medical Groups were concentrated in this area with all possible speed. The Army Surgeon re-arranged the army medical units to provide three identical groups. One group operated in each corps zone, and was charged with the responsibility for control of army medical service. The composition of the three groups was as follows:

##### 31st Medical Group

|                                |                                  |
|--------------------------------|----------------------------------|
| 178th Medical Battalion        | 566th Ambulance Company          |
| 426th Medical Battalion        | 574th Ambulance Company          |
| 621st Medical Clearing Company | 463rd Medical Collecting Company |
| 564th Ambulance Company        | 501st Medical Collecting Company |
| 565th Ambulance Company        | 502nd Medical Collecting Company |
| 47th Field Hospital            |                                  |

##### 68th Medical Group

|                                  |                         |
|----------------------------------|-------------------------|
| 175th Medical Battalion          | 576th Ambulance Company |
| 176th Medical Battalion          | 577th Ambulance Company |
| 662nd Medical Clearing Company   | 578th Ambulance Company |
| 449th Medical Collecting Company | 594th Ambulance Company |
| 451st Medical Collecting Company | 13th Field Hospital     |
| 454th Medical Collecting Company | 51st Field Hospital     |

##### 134th Medical Group

|                                  |                         |
|----------------------------------|-------------------------|
| 179th Medical Battalion          | 479th Ambulance Company |
| 130th Medical Battalion          | 546th Ambulance Company |
| 450th Medical Collecting Company | 575th Ambulance Company |
| 452nd Medical Collecting Company | 583rd Ambulance Company |
| 464th Medical Collecting Company | 42nd Field Hospital     |
| 617th Medical Clearing Company   | 45th Field Hospital     |

The Headquarters and Headquarters Detachments of the 57th and 177th Medical Battalions were placed directly under control of the Army Surgeon's Office, and were given the task of providing evacuation, reinforcement and, by means of the Provisional Truck Company, transportation to the army medical units which had been concentrated in the vicinity of Eupen. These battalions had the following composition:

| <u>57th Medical Battalion</u> | <u>177th Medical Battalion</u>   |
|-------------------------------|----------------------------------|
| 384th Ambulance Company       | 427th Medical Collecting Company |
| 591st Ambulance Company       | 493rd Medical Collecting Company |
| Provisional Truck Company     | 618th Medical Clearing Company   |
|                               | 622nd Medical Clearing Company   |
|                               | 633rd Medical Clearing Company   |

To increase coordination of the movements and disposition of medical troops, it was decided that group commanders would be given the authority to control all medical transportation within their zone of action. Group commanders were informed that they would be responsible for augmenting and reinforcing, from the units attached to their groups, army, corps, and divisional medical installations in their corps zone. The purpose of this reorganization was to mobilize army medical service as highly as possible. Actual operations throughout the remainder of the month gave proof that the desired ends could be obtained under the above outlined organization.

During the last week in September, heavy rain changed fields and country roads into veritable quagmires. Routine hospitalization and evacuation procedures were greatly retarded, and in some cases, made hazardous for both patients and Medical Department personnel. A decision was made by the Army Surgeon that while such conditions of climate and terrain prevailed, all First United States Army hospitals, and as many supporting medical units as possible would be established in billeting.

While engaging in pursuit of the enemy, the army sustained relatively few casualties. The major problem of evacuation was to conquer the distances involved in all routes. At one time during this period, approximately one thousand German wounded, at one division clearing station, jammed evacuation channels in that area completely. The situation was remedied by augmenting ambulance with truck evacuation for lightly wounded prisoners, distributing the more seriously wounded to field and evacuation hospitals with

the very lightly wounded to Advance Section, Communications Zone hospitals. Since the possibility remained of recurrence of a like situation, the Army Surgeon decided that, henceforth, lightly wounded prisoners should be processed through normal Prisoner of War channels, where provisions had previously been made to treat them, while seriously wounded prisoners would follow normal routes of evacuation. The resultant elimination of large numbers of lightly wounded removed an unnecessary burden from the receiving and evacuating sections of the hospitals and preserved bed space necessary for the seriously wounded.

Lack of bed space provided by the Advance Section, Communications Zone, at reasonable distances from army installations, made it necessary to continue establishment of army evacuation hospitals as transfer points. Without these transfer points, ambulance routes would have at times exceeded one thousand miles in length.

Efforts were made by Communications Zone to alleviate the pinch of evacuation demands. On 11 September it was learned that airstrip A-35 E at Cerfontaine would become available to First United States Army on 13 September. Advance Section, Communications Zone, placed an holding unit at that location. This was the first time since July that First United States Army had been afforded the opportunity to evacuate a significant number of casualties by air. A temporary reduction in the number of army hospital beds necessarily given over to the task of holding casualties was effected by this means. However, because of weather conditions, variations in the number of planes available, and the increase in casualties as German resistance stiffened, the evacuation problem began again to assume critical proportions. At times, evacuation from the army area was closed down for periods ranging from twenty-four to forty-eight hours. Army hospitals formerly held as reserves had to be pressed into service to provide holding capacity. A further temporary easing of this situation was effected by the arrival of hospital trains in Liege. However, an average of three trains daily would have been necessary to maintain complete evacuation of army hospitals and such numbers were not available. The 618th Clearing Company, heretofore utilized for the hospitalization of combat exhaustion cases, was

opened as a holding unit in the vicinity of Ouffet. It was necessary to use this unit in addition to those beds already set aside at army evacuation hospitals to hold cases awaiting evacuation. On the 26th of September, a new airstrip, A-92, was opened in the vicinity of St. Trond, and evacuation from it was instituted. The establishment of the 15th General Hospital in Liege came as a further aid to evacuation. However, a complete solution was not reached until mid-October. Many factors combined to bring about unsatisfactory conditions. The lack of an administrative air field, inability to secure sufficient transport aircraft when a field was available, inadequate numbers of general hospital beds at reasonable distances from the army area, scarcity and irregularity in arrival of hospital trains, all combined to produce this situation. However, Advance Section, Communications Zone continued to make strenuous efforts to improve this situation, and by mid-October amelioration of all conditions mentioned above had been effected. At no time, despite this pressure, did any casualties suffer for lack of medical care.

The month of October was a period given over, in large measure, to the build-up of resources in preparation for launching a major offensive, designed to carry First Army to the Rhine River. A regrouping of armies, carried out in the latter part of the month, saw the newly arrived Ninth United States Army shifted from the south to the north flank of First United States Army. XIX Corps passed from control of First Army to Ninth Army; VIII Corps from Ninth Army to First Army as part of this shift. First Army medical units in XIX Corps sector were turned over intact, with the exception of the 47th Field Hospital and the 4th Convalescent Hospital, to control of Ninth Army. Reciprocally, Ninth Army medical units in VIII Corps sector passed to control of First Army. A list follows of the medical units involved in the exchange:

UNITS LOST

41st Evacuation Hospital  
 91st Evacuation Hospital  
 111th Evacuation Hospital  
 31st Medical Group  
 173rd Medical Battalion  
 426th Medical Battalion

UNITS ASSIGNED OR ATTACHED

102nd Evacuation Hospital asgd fr 9th Army  
 107th Evacuation Hospital asgd fr 9th Army  
 110th Evacuation Hospital asgd fr 3rd Army  
 64th Medical Group  
 170th Medical Battalion  
 240th Medical Battalion

442nd Medical Collecting Company  
463rd Medical Collecting Company  
501st Medical Collecting Company  
502nd Medical Collecting Company  
621st Medical Clearing Company  
564th Ambulance Company  
565th Ambulance Company  
566th Ambulance Company  
574th Ambulance Company

419th Medical Collecting Company  
423rd Medical Collecting Company  
439th Medical Collecting Company  
623rd Medical Clearing Company  
580th Ambulance Company  
581st Ambulance Company  
590th Ambulance Company  
595th Ambulance Company

One additional 400-bed evacuation hospital, the 110th, passed to control of First Army, from Third Army, in the exchange.

Admissions to First Army hospitals occurred on a decreasing scale after the end of the first week in October, and it was realized that due to the tactical situation, this period of relative quiescence would last some time. V Corps and VIII Corps sectors were the scene of patrol activity only. VII and XIX Corps collaborated during the month in the encirclement and siege of Aachen, the town finally being taken by troops of the 1st Infantry Division. The majority of battle casualties sustained by army for the period originated from this operation.

As a corollary to the decrease in the number of hospital beds necessarily held for battle casualties, increased capacity was provided for the care of diseases with a convalescent period of relatively short duration, such as the respiratory diseases usually occurring during late fall and early winter months. These and other relatively less important factors combined to present to the Surgeon the opportunity to retain, within the administrative boundaries of the army, numbers of personnel which would have passed in the normal chain of evacuation to Communications Zone hospitals. The mechanisms by which such advantage was secured were as follows:

a. Corps and division clearing stations were given the mission of holding minor cases of disease for treatment to expedite return of such personnel to duty.

b. The medical group operating in the zone of each corps was directed to establish an army clearing station. This clearing station admitted the overflow of minor cases from corps and division clearing stations, operated a dental prosthetic laboratory in addition and provided dispensary service to troops operating in the immediate vicinity.

c. On the 20th of October, First Army hospitals put into effect the policy of holding for return to duty all patients whose period of illness would last twenty days or less. This was a temporary change in policy, to remain in effect only during such time as casualties were light.

One minor problem occurring during during this period was the hospitalization in Belgian territory of German civilians. Due to the friction existing, it became necessary to set aside a 200-bed civilian hospital to prevent incidents such as would certainly have arisen, had Germans been placed haphazardly in Belgian hospitals.

Because of the distances involved, evacuees from the 110th Evacuation Hospital in VIII Corps sector did not go through the usual channels to rear of First Army, but were sent to the Communications Zone installations to which Third Army was being evacuated. This mild disturbance of routine evacuation was a result of the shift of Ninth and First Armies.

Because of the same dislocation of the axis of First Army, plus the broadening of the First Army front, it became necessary to relocate certain units. The 4th Convalescent Hospital moved to Spa; the 91st Medical Gas Treatment Battalion established a company in the northern corps zone (VII) and made plans to direct the remaining companies to the areas of the central (V) and southernmost (VIII) corps.

Difficulties in evacuation experienced during the preceding month were eliminated gradually. Increase in Advance Section, Communications Zone holding capacity and the advancement of Communications Zone general hospitals provided adequate bed space. Material aid was provided by assignment of a greater number of hospital trains, twelve in all, in the rear of First Army.

November found the tactical situation of First Army little altered from the preceding month. Although major hospitalization policies in effect during the month of October remained unchanged, several minor innovations are noteworthy.

Formerly, patients with self-inflicted wounds were held in the 4th Convalescent Hospital pending investigation by the Inspector General, when suspicion existed that the occurrence involved intent to escape hazardous duty.

The plan reduced the number of hospital beds available for convalescent patients. To remove this condition it was decided that the patient would return to his organization prior to investigation, at such time as his physical condition permitted. The hospital was to inform the patient's unit that his status was undetermined. On completion of the investigation required, the unit was to return the data necessary for completion of records to the hospital. Here, final entries were to be made on the patient's record, or the information forwarded to the Surgeon General, should the record no longer be in possession of the hospital. Such procedure met with approval of the Army Inspector General and was adopted.

In an attempt to gain an overall picture of the results of treatment in army hospitals, First Army medical officers were stationed for short periods in the Advance Section, Communications Zone hospitals in rear of First Army. It was the duty of these officers to check the condition of patients brought into Advance Section, Communications Zone installations and through this estimate, ascertain wherein our treatment could be improved.

On 8 November, the Army Surgeon held a conference at the 4th Convalescent Hospital of all hospital, group and separate medical unit commanders. During this conference, both administrative and professional aspects of army medical service were discussed. Topics considered under the administrative heading were discipline, with particular emphasis on gasoline and tire conservation, improvement of unit messes, passes, rotation of personnel between army and Communications Zone units, arming of Medical Department personnel, and the inception of a system of routine inspections by officers from the Office of the Army Surgeon. The handling of duty cases was re-examined to emphasize the basic idea behind the Army Surgeon's plan for their disposition. This idea is that there lies within the power of the Medical Department the opportunity to render an appreciable service to the army, through salvaging and return to duty by means of the convalescent agencies at its disposal, key personnel who otherwise would pass out of the control of army. Furthermore, this plan frees the replacement systems of both army and Communications Zone from much administrative procedure. A final administrative note emphasized the importance

of continual maintenance of dispensary facilities by all medical units. The Army Surgeon directed the consideration of all present to the fact that the Medical Department is a service, and must function as such at all times and under any conditions. The professional portion of the program was handled by the Army Medical and Surgical Consultants and the Venereal Disease Control Officer, who discussed matters of current importance. The Army Medical Statistician pointed out common errors in reporting. The meeting was concluded by the Army Medical Supply Officer who introduced a questionnaire on the status of excess T/E material.

During the month, preparations were made, by means of conferences with G-1 and G-4 agencies, to furnish medical care to large numbers of recovered Prisoners of War, in the event that such groups were turned over to Army on short notice. A basic detachment was set up, consisting of two medical officers and fifteen enlisted men, plus the equipment necessary to establish dispensary and minor hospitalization facilities in the event of overrunning one of these German installations. This plan included the utilization of medical personnel and supplies present at such installations. After incorporation in the general service plan for care of recovered Prisoners of War, copies of the plan were distributed to those Medical Department units selected for its execution.

Undoubtedly, the most serious problem to confront the Army medical service during the month was that posed by the tremendous increase in trench foot cases. The first case of this condition appeared as early as the 27th of August, and was found in the records of a hospital unit then attached to Third Army. Admissions for this condition remained low during the months of September and October, rising during the first weeks of November, and reaching an all-time high on the 14th of that month, on which date 335 cases were admitted. Following this peak, a mean strength of approximately 100 admissions per day was sustained during the month. The greatest possible number of factors which could aid in the production of the condition were present at this time. The cold, dry weather, combined with the relatively static type of foxhole warfare, produced the wet feet and immobility which are the etiological agents of trench foot.

The following preventive measures were used to combat the disease:

1. On 1 October, Professional Memorandum #5, was published. This memorandum outlined the conditions under which trench foot could best exist and the necessary measures for its prevention. Its main theme was directed at instilling in the individual soldier the knowledge which would enable him to reduce materially, his opportunities for becoming a casualty from trench foot.

2. Circular Letter No. 3, Office of the Chief Surgeon, European Theater of Operations, was distributed to all medical units, to include regimental medical detachments. This circular set forth detailed instructions on prevention, diagnosis, and treatment of trench foot.

3. On 17 November, a letter was prepared by the Army Surgeon, again emphasizing the importance of the disease, and recalling such information already disseminated. It added some new points gathered during the experience of the past weeks. This letter was distributed as an attachment to a letter from the Army Commander to his Corps Commanders.

On the 27th of November, representatives of the Army Surgeon held conferences with all corps and division surgeons at which the following points were emphasized:

a. That sufficient supplies of dry socks were provided for all men.

b. The necessity for wearing overshoes. If only small size overshoes were available, the men should be directed to wear the overshoes over 2 pairs of socks.

General discussion at these meetings brought forth the fact that frequent rotation of units from the front lines to an area where drying facilities were available, was probably the most important prophylactic measure in the prevention of trench foot. Throughout the period, this office continued to lay stress on foot care by the individual soldier, through daily change of footgear, especially socks, and exercise of the feet, meanwhile reiterating the importance of unit rotation as the most efficacious method for reduction of manpower loss from the disease.

To prevent loss of overshoes from division stocks, all army medical units were ordered not to ~~evacuate overshoes with the~~ men taken from division clearing stations.

To check on the incidence of recurrence, persons admitted a second time with a diagnosis of trench foot were reported by name, rank, and army serial number.

Moderately severe to mild cases of the disease were sent to the 91st Medical Gas Treatment Battalion where a thorough study of the conditions and its response to various types of treatment was conducted. Its importance in the production of a high non-effective rate, plus the sometime permanent disability incurred, indicate the necessity for maintenance of continued effort towards its suppression, during the remaining winter months.

Toward the end of November, increasing difficulty was experienced in the securing of buildings large enough to house army medical units. Two factors were responsible; first, the sparse settlement of the central and southern part of First Army zone of action; second, the general rush for covered accommodations.

For the first two weeks and two days of November fighting was limited to patrol activities and artillery duels. As a result, casualty admission rates for the first half of the month were light. However, on the 16th of the month, VII Corps launched an attack employing three infantry divisions, one regimental combat team of a fourth infantry division, one armored division, and one combat command of another armored division. On the 18th of the month, admissions rose to an over-all figure of 1,379 for one twenty-four hour period. The terrain fought over, principally the forests around Hurtgen, was impassable to 3/4 ton field ambulances and the litter-carrying 1/4 ton truck. Inability to use either of these important vehicles in the dense woodlands which were practically devoid of a road net, placed the all-important task of evacuation in forward areas upon the litter bearer. Army medical units were drained of all personnel available for the task. A shortage of Medical Department personnel existed in the replacement system at this time. Thus, when request was made to the Army G-1 for additional litter bearers, it was necessary to process 190 line troops in accordance with the dictates of the Geneva Convention, give them a period of training as litter bearers and use them for 20 days in this role. An indication of the magnitude of the task involved in first echelon evacuation may be gathered from the knowledge that in one corps zone, 215 litter bearers

were employed, in addition to those normally present in divisional medical units. Valuable assistance in solving this problem was rendered by Advance Section, Communications Zone. From staging general hospitals, litter bearers were supplied to First Army by the Advance Section, Communications Zone Surgeon. Using these litter bearers in Evacuation Hospitals, the Army Surgeon was able to free litter bearers of First Army medical units to reinforce the hard pressed divisional medical units. In other respects, evacuation within the army proceeded without incident.

On one occasion, several evacuation hospitals became so jammed with casualties due to the failure of evacuation in rear of the army that it became necessary to shift patients to other evacuation hospitals in a relatively quiet sector. Too few hospital trains, the necessity to evacuate the patients of a general hospital struck by a rocket aircraft, damage to the railheads in the city of Liege by the same type of missile culminated in a lack of sufficient bed space to receive First Army evacuees. Fortunately, all these factors were attacked and ended in time to prevent the disaster that can result from their prolongation.

The first fifteen days of the month of December saw few changes. The bulk of the troops of First Army were concentrated on the northern flank of the army area. No major shift of either policies or units occurred. All resources were being utilized to retain, with First Army medical installations, as many cases for return to duty as hospital bed space would allow.

#### C. THE GERMAN COUNTER ATTACK.

On the 16th of December, report was received by this office that the town of Malmédy was being shelled. This report came from the 44th and 67th Evacuation Hospitals functioning in that town. Report was also received that the city of Eupen was being shelled. Two hospitals, the 67th and 5th Evacuation Hospitals located in Malmédy and Eupen respectively suffered a slight amount of damage to their buildings. (The Commanding Officer and one Non-Commissioned Officer of the 454th Medical Collecting Co., were killed during the shelling of Malmédy while rendering first aid to civilian wounded.)

At 1900 hours word was received that the enemy had made some penetration on the VIII Corps front and along the boundary between VII and V Corps. Based

on this information, decision was made to move the 1st Hospitalization Unit of the 42nd Field Hospital from Wiltz, and the 107th Evacuation Hospital from vicinity of Clerveaux to St. Hubert as fast as it could be entrucked; the 102nd Evacuation Hospital was closed to admissions in preparation for movement. Withdrawal of the Evacuation Hospitals was completed successfully but a portion of the Field Hospital was overrun by the German advance. Lost with the officers and men of the Field Hospital was one Surgical Team of the 3rd Auxiliary Surgical Group.

At 0100 hours, 17 December, an officer from the 134th Medical Group was sent to Headquarters, 99th Infantry Division to determine the tactical situation along the boundary between V and VIII Corps. Although the information with which this officer returned indicated that the Headquarters of the 99th Infantry Division did not think the situation serious, decision was made to withdraw the 1st Hospitalization Unit of the 47th Field Hospital, then located at Walmes, and the 3rd Hospitalization Unit located at Lutgenbach later in the morning. However, the German advances were in excess of all estimates and so rapid that completion of these moves was impossible. The 1st Hospitalization Unit was actually overrun, but before any damage was done American troops reentered the area, and all personnel of the unit as well as the patients were able to reach our forces. However, it was necessary to abandon the equipment of both hospitalization units.

At 1530 hours, 17 December, it was necessary to order the 44th and 67th Evacuation Hospitals in Malsedy to evacuate their installations of all transportable patients and the bulk of their personnel. Later that night and during early hours of the following morning it became possible to complete the total evacuation of these two hospitals. In addition to the hospitals in Malsedy, the 618th Medical Clearing Company operated a Combat Exhaustion Center in the town. On the 18th of December, such patients and personnel as could be moved were evacuated from this installation and a detachment consisting of two officers and eighteen enlisted men remained behind to take care of patients left in the station. On the 20th of December, 247 patients and the remaining personnel of the 618th Medical Clearing Company were evacuated from Malsedy. During this period constant check of the tactical situation was maintained in order to ascertain when it would be safe to attempt recovery of the equipment of the

two Evacuation Hospitals abandoned in Malmédy and of Company "C" of the 91st Medical Gas Treatment Battalion similarly left behind in Grand Halleaux. On the 19th and 20th of December, when it appeared that the northern advance of the German Army had been checked south of Malmédy, the equipment of these organizations was recovered.

On the 18th of December, orders were received from the Chief of Staff, First U. S. Army to evacuate all medical units then located in the town of Spa. Original plans called for evacuation to Remouchamps, but they were amended later and a new destination, the city of Huy, was indicated. On that day 1000 patients were evacuated by army ambulances and trucks, from the 4th Convalescent Hospital, 900 going to the 3rd Replacement Depot and 100 to the 130th General Hospital in Ciney. The 102nd Evacuation Hospital was entrucked and evacuated to Huy, closing there the evening of the 18th.

Later that night report was received that the 107th Evacuation Hospital now in operation at St. Hubert and the 108th Evacuation Hospital at Esch were filled because evacuation to their rear was not keeping up with their admissions. The AOSPO Surgeon's Office was contacted and immediate relief of the situation was effected.

On the 19th of December, because of the necessity for moving the 4th Convalescent Hospital, Co. "C" of the 91st Medical Gas Treatment Battalion, bed capacity was reduced to such levels that a ten day evacuation policy could not be supported. Accordingly, on this date the Army Surgeon instituted a total evacuation policy.

The same day, notification was received from G-4 that the VIII Corps would look to Third U. S. Army for supply and evacuation. This was necessary, since the German penetration had cut communications between this headquarters and VIII Corps.

On the 20th of December a Letter of Instructions was received from G-4 First U. S. Army informing this office that First U. S. Army was to be placed under operational control of 21 Army Group. This office was requested to submit a list of medical units which it wished to retain to provide medical service for the army. The list follows:

2nd Evacuation Hospital  
5th Evacuation Hospital  
14th Evacuation Hospital  
15th Evacuation Hospital  
67th Evacuation Hospital

96th Evacuation Hospital  
97th Evacuation Hospital  
102nd Evacuation Hospital  
112th Evacuation Hospital  
128th Evacuation Hospital

Hq & Hq Det 63th Medical Group  
Hq & Hq Det 134th Medical Group

Hq & Hq Det 50th Med Bn  
Hq & Hq Det 53rd Med Bn  
Hq & Hq Det 57th Med Bn  
Hq & Hq Det 175th Med Bn  
Hq & Hq Det 176th Med Bn

Hq & Hq Det 177th Med Bn  
Hq & Hq Det 179th Med Bn  
Hq & Hq Det 180th Med Bn  
Hq & Hq Det 187th Med Bn

342nd Med Coll Co. Sep  
383rd Med Coll Co. Sep  
422nd Med Coll Co. Sep  
423rd Med Coll Co. Sep  
427th Med Coll Co. Sep  
439th Med Coll Co. Sep  
445th Med Coll Co. Sep  
449th Med Coll Co. Sep  
450th Med Coll Co. Sep  
451st Med Coll Co. Sep  
452nd Med Coll Co. Sep  
454th Med Coll Co. Sep

457th Med Coll Co Sep  
458th Med Coll Co Sep  
459th Med Coll Co Sep  
464th Med Coll Co Sep  
463th Med Coll Co Sep  
469th Med Coll Co Sep  
470th Med Coll Co Sep  
482nd Med Coll Co Sep  
484th Med Coll Co Sep  
471st Med Coll Co Sep  
492nd Med Coll Co Sep  
493rd Med Coll Co Sep

479th Med Amb Co  
489th Med Amb Co  
546th Med Amb Co  
565th Med Amb Co  
575th Med Amb Co  
576th Med Amb Co

577th Med Amb Co  
578th Med Amb Co  
583rd Med Amb Co  
584th Med Amb Co  
956th Med Amb Co

617th Med Clr Co Sep  
618th Med Clr Co Sep  
622nd Med Clr Co Sep  
623th Med Clr Co Sep  
629th Med Clr Co Sep

633rd Med Clr Co Sep  
649th Med Clr Co Sep  
660th Med Clr Co Sep  
662nd Med Clr Co Sep  
684th Med Clr Co Sep

1st Medical Depot Co

Det "A" 152nd Sta Hosp, atand.

13th Field Hospital  
45th Field Hospital  
47th Field Hospital

51st Field Hospital  
66th Field Hospital

10th Medical Laboratory  
3rd Auxiliary Surgical Group with present attachments  
4th Convalescent Hospital

91st Med Gas Tr Bn

Due to the XIX Corps taking over the VIII Corps Sector, it was necessary to move First U.S. Army hospitals out of area immediately. Accordingly sites were secured at Verviers and the 123th and 124th Evacuation Hospitals were directed to establish in that location. On the request of the Surgeon, Ninth U.S. Army, the 96th Evacuation Hospital was instructed to remain open for receipt of Ninth Army casualties. During this period when closure and moving of so many First U.S. Army hospitals became necessary, the A.D.A. Surgeon's Office granted permission

to the army to hospitalize patients directly in the 77th Evacuation Hospital, which unit was acting as a holding unit to the rear of First U. S. Army.

On the 25th of December, G-4 First U. S. Army instructed the Army Surgeon to move all medical units, other than those absolutely essential for operations to a position west of the Meuse River. It was further directed that any installation east of the Meuse be held in readiness for movement on twenty-four hour notice. Accordingly, the 96th, 5th and 45th Evacuation Hospitals, the 4th Convalescent Hospital, plus combat exhaustion hospitals and all hospitalization units of field hospitals not in use at the time, were directed <sup>to</sup> reconnoiter in the specified area. Two of the evacuation hospitals were ordered to find sites where it would be possible to receive patients. Many difficulties were encountered in finding suitable locations as the area contained few large towns. By the 31st of December, movement of medical units was completed. At this time First Army, working under a total evacuation policy, had the following evacuation hospitals open; the 2nd in Eupen, the 123th and 97th in Verviers, the 102nd Evacuation Hospital and all three hospitalization units of the 51st Field Hospital in Huy. Plans were under way to replace the 51st Field Hospital with the 67th Evacuation Hospital at such time as its equipment was checked and ready. The 618th Combat Exhaustion Center was open west of the Meuse at Avesnes.

*fact* (The problem of trench foot continued to receive a good share of attention by the Army Surgeon. In addition to the measures outlined previously, other points of attack were sought out, in order that no detail which could lead to improvement would be slighted.)

This office secured the services of three Sanitary Corps officers. They were sent, one to each of the three corps, with the mission of investigating all factors which could possibly have a bearing on the incidence of trench foot. These officers were instructed to seek opinion and facts not only from officers, both line and medical, but also from the individual soldier himself. As a summary of the more important facts presented in their reports, the following list is included:

a. Overshoes were lacking in the larger sizes (from size 10 up). One corps was short 11,000 pairs of these larger sizes.

b. Rigid disciplinary measures were an aid in preventing trench foot. In one unit this was carried as far as having squad leaders a card which stated that each man in his squad had that day carried out preventive measures.

c. Rotation of units from the actual front line to an area where medical facilities were available was mandatory.

d. Reinforcements lacked knowledge of foot care.

Suggestion was offered to the Army Quartermaster that an experiment be conducted to determine the relative merits of the shoes and galoshes previously used as compared to shoe-pacs, by equipping a battalion with the last type of shoe.

This office approved the issue of reconditioned shoes as another aid in the fight against trench foot. These shoes were to be thoroughly cleaned, reconditioned and issued to the soldier by Quartermaster bath units, thus insuring him a dry pair of shoes following his visit to such an organization.

The 12th Army Group directed that an educational film on trench foot be prepared in First U.S. Army. The technical work was done by a photographic section from Supreme Headquarters, Allied Expeditionary Forces. Clinical material was obtained at First U.S. Army medical installations and medical supervision supplied by a medical officer of First U.S. Army.

In the months prior to the German counter-attack, evacuation was effected by employing one medical group in each corps zone. Two separate medical battalions with their component collecting, ambulance and clearing elements supported Army service area installations and coordinated the activities of the Army Combat Exhaustion Centers. A ten-day evacuation policy was in effect.

The main difficulty experienced as a result of the German counter-attack was that of maintaining contact with rapidly moving or partially encircled clearing units. The problem of evacuating entire hospital installations on short notice placed further strain on the system. Although movement of hospitals was effected as necessary, suitable buildings for their establishment were found only in a few cases. The reduction of bed capacity brought about by this circumstance plus the necessity of keeping available beds open for receipt of fresh casualties made the establishment of a total evacuation policy mandatory.

During the early days of the enemy attack, 16 through 19 December, the army received one medical battalion, hq & hq det, three collecting companies and one ambulance company from Ninth U.S. Army. These additional resources enabled the Surgeon, First U.S. Army, to augment the ambulances of the 134th Medical Group, evacuating the V Corps, and to send a total of thirty ambulances from First U.S. Army reserves, to the 64th Medical Group, evacuating VIII Corps. Further augmentation of VIII Corps ambulances was effected by means of one platoon from an ADEMC ambulance company which was given the mission of evacuating the 107th Evacuation Hospital.

When VIII Corps passed to Third Army control, the 64th Medical Group, composed of two battalion headquarters and one collecting company, four ambulance companies and one clearing company were relieved from assignment to First U.S. Army. In addition, the 169th Medical Battalion, attached to VIII Corps and serving as the corps medical battalion, plus one field and three Evacuation Hospitals, were lost from First U.S. Army in the shift.

XVIII Airborne Corps came to First U.S. Army unequipped with a corps medical battalion. This deficit was made up by using the battalion headquarters and one collecting company, obtained from Ninth Army, plus one platoon of a First Army clearing company. Further, no medical group was available to take over regulation of third echelon evacuation in this corps zone. Thus the end of the month found the 68th Medical Group servicing the entire VII Corps, which had been returned to the line on the right flank of First U.S. Army and, in addition, the majority of the divisions of XVIII Airborne Corps. The 134th Medical Group evacuated the V Corps and the left flank division of XVIII Corps. Plans were under way to secure a third group headquarters, to return Army medical service to the former set-up, wherein one group serviced one corps only, since experience had taught that such a system provided optimum conditions for control.

Medical Department reinforcements continued to prove a source of anxiety to the Army Surgeon. Litter bearers, more than ever essential to evacuation in the terrain facing First U.S. Army, were the focal point of this difficulty. As mentioned in the previous "After Action Report", 190 line troops were serving in this capacity. On 3 December, a ten-day extension of their services was granted and they remained on duty until 13 December, on which day 173 were

returned to reinforcement pools. Seventeen of the original 190 were killed in action, missing in action, wounded or MIA.

The 8th Infantry Division drew sixteen litter bearers from the 134th Medical Group to supplement division litter bearers. On the 20th of December, a request was received from the 2nd Division for 190 Medical Department reinforcements of all types. As reinforcement sources were still unable to aid, six medical officers and ninety-seven enlisted men were supplied from Army medical units to meet these requests. A call for medical officers from the 75th Division was met by again drawing these men from Army medical units. This constant depletion of third echelon medical units to supplement or fill gaps in first and second echelon units forced the Army Surgeon to ask for assistance from Communications Zone medical sources. At one period during this month over three hundred Medical Department personnel from Communications Zone units were on duty in First U.S. Army medical installations. The above figures will serve to show the severe strain placed on the Medical Department by performance of this task in addition to its normal functions.

During the period, evacuation was maintained satisfactorily within Army. At no time did Army installations become so completely filled that they were unable to accept further admissions. Evacuation to the rear of First U.S. Army kept pace with all demands placed upon it.

#### D. THE ALLIED COUNTERATTACK.

The beginning of the month <sup>(Jan 1945)</sup> found the 2nd Evacuation Hospital located in Eupen, the 97th and 128th Evacuation Hospitals in Verviers, and the 102nd Evacuation Hospital and the 51st Field Hospital in Huy. In the Army service area west of the Meuse, the remainder of First Army's Evacuation Hospitals were located and directed by the Army C-4.

At this time, the Medical Service of the First U.S. Army was operating under a total evacuation policy. Building space for establishment of hospitals was extremely scarce, and climatic conditions prevented setting up in fields, as vehicle turn arounds became impassable in a matter of hours, despite all efforts at maintenance. Fortunately, casualties were light at this particular time and their handling imposed no strain on the First Army medical units under conditions of total evacuation.

However, it was the desire of the Army Surgeon to return as quickly as possible to a system whose facilities permitted holding, in army control, the maximum number of cases, whose hospitalization expectancy was of short duration. Accordingly, the 2nd and 5th Evacuation Hospitals were ordered to receive cases of respiratory disease and cases with a hospitalization expectancy of ten days or less. The 2nd and 5th Evacuation Hospitals returned convalescent cases to duty through the 91st Medical Gas Treatment Battalion. In addition, the 91st Medical Gas Treatment Battalion still received cases of disease as before. Inability to open the 4th Convalescent Hospital necessitated this solution, which, though makeshift, served the desired ends. The system went into effect on the 12th of January and provided the basis for return to 10-day evacuation policy.

In addition to the above installations, the 618th Medical Clearing Company operated a Combat Exhaustion Center at Antheit in the vicinity of Huy. Later in the month, the 622nd Medical Clearing Company was established at Eupen and functioned there as a Combat Exhaustion Center.

Venereal disease cases were treated by a detachment from the 4th Convalescent Hospital operating at Company "B", 91st Medical Gas Treatment Battalion. Thus, all functions formerly carried out by the 4th Convalescent Hospital were performed by other medical units, assisted in some cases by personnel from that organization.

For the remainder of the month, all efforts were directed toward re-establishment of sufficient Army hospitals to allow a resumption of the normal handling of casualties. On the 17th of January, the 45th Evacuation Hospital was ordered to leave Jodoigne and proceed to Spa. At Jodoigne, it secured a hospital site and was held in readiness against its possible need in the event of further progress to the west by the German armies. At the same time, the 96th Evacuation Hospital was ordered to proceed from Vela to the same site at Spa, where the two hospitals were set up together. On the 19th of January, they were opened to receive patients. January 24th saw the return of the 5th Evacuation Hospital to Eupen with the 128th Evacuation Hospital taking over its assignment at Hannut. On 31 January, the 5th Evacuation Hospital was opened to receive patients. This move of the 128th Evacuation Hospital was necessitated by a command decision to return the buildings occupied by the 128th and 97th

Evacuation Hospitals to VII Corps for use as a rest center. The 97th Evacuation Hospital was forced to leave the buildings in Verviers at the same time. It was sent to Malmedy, where a hospital was established and opened on the 30th of the month. On the 29th of January, the 120th Evacuation Hospital moved from Hamut to Banneaux, Belgium and established a hospital for the handling of respiratory diseases, thus relieving other evacuation hospitals, which were in better position to provide short ambulance hauls for outside casualties, of the necessity of handling such cases. On the thirty-first of the month, the 44th Evacuation Hospital moved to Vielsalm and opened to admission.

On the 24th of the month, the 4th Convalescent Hospital opened in the city of Dinant. Though far to the rear of the left flank hospitals of First Army, this location was on the best road net and included the only suitable buildings available under the conditions in force at the time. With its re-opening, the handling of convalescent cases returned to the normal set-up, easing the load carried by the 91st Medical Gas Treatment Battalion.

During the month, the 622nd Medical Clearing Company had established a Combat Exhaustion Hospital in the city of Dupen at the former site of the 45th Evacuation Hospital. Combat exhaustion casualties were at a low level during the entire period and at no time were either of the installations, the 618th or the 622nd Medical Clearing Companies, overburdened.

On the third of January, the Army Surgeon called a conference of the Commanding Officers of the 4th Convalescent Hospital, 91st Medical Gas Treatment Battalion, and the 177th Medical Battalion, the latter agency being the administrative echelon governing the two Combat Exhaustion Hospitals. The purpose was to discuss the high rate of AWOL's charged to these units. It was discovered that a fallacy existed in placing the blame on these medical units, since the individuals concerned most frequently committed the violation after discharge from the unit. Such an individual can rejoin his unit and be physically present there while charged against the hospital as AWOL. Such charge will remain until information filters through channels and corrects the error. The Adjutant General charged those going AWOL after being marked duty, or while enroute to their parent organizations, to the parent organization, thus eliminating the set-up which led to

the incorrect figures of AWOL's from medical units. At the same time, the Army Surgeon directed the institution of measures to reduce any opportunities for such dereliction, and to impress on those being returned to duty that they were actually being returned to their parent organization and not to a reinforcement depot.

Advance Section, Communications Zone, again materially assisted First U.S. Army medical units by the loan on a temporary duty status of over three hundred medical personnel from staging general hospitals.

Because of the few buildings which can completely house an evacuation hospital, it is often necessary to erect tents to supplement the covered accommodations used. Particularly, in the case of sections requiring space to permit expansion and freedom of movement such as the receiving station, is this true. It is necessary to provide such tented adjuncts with heat, and in exposed positions, with side-wall bracing to shut out gusts of wind. To meet this need, the First U.S. Army Engineer and the Surgeon agreed upon the construction of sectionalized flooring for tentage. Floor sections measuring 4' x 8' were constructed and side walls to fit both lengthwise and at the ends of hospital ward tents. Twenty-four such 4' x 8' sections completely floor a ward tent.

At the beginning of January, control of evacuation was implemented by two Medical Groups, the 68th and 134th. These groups coordinated third echelon evacuation in three corps zones, each moving one corps and a part of another to service. In response to a request submitted in December, a third Medical Group, the 64th, with two battalion headquarters, the 170th and 240th, was assigned to First U.S. Army, rejoining 10 January 1945. On the 18th of January, using five collecting and two ambulance companies and one field hospital, it became operational in support of the XVIII Airborne Corps. Evacuation presented no insurmountable obstacles. Low temperature, ice and snow made road conditions difficult in the extreme. The lengthening of evacuation routes coupled with the necessity of supplying XVIII Airborne Corps with a medical battalion from Army medical units, depleted ambulance reserves below a desirable minimum. Nevertheless, no breakdown occurred at any time. Evacuation to the rear of First U.S. Army met all demands placed upon it in a highly satisfactory manner.

The opening days of February found eight evacuation hospitals open in support of First U.S. Army. These included the 2nd and 5th Evacuation Hospitals at Eupen, the 97th at Malmedy, the 45th and 96th at Spa, the 67th at Huy and the 44th at Vielsalm. The 128th Evacuation Hospital opened on the 2nd of February at Banneaux for the hospitalization of respiratory diseases, relieving the other evacuation hospitals of the necessity of handling such cases.

On the 5th of February, the VII Corps swung into line on the north flank of First U.S. Army. To support the operations of this corps, the Army Surgeon arranged to take over the Koerner Caserne at Brand, occupied at that time by Ninth U.S. Army medical troops. These buildings had formerly housed First Army medical units, and were well adapted to use as hospitals. On the 6th of February, the 102nd Evacuation Hospital opened in this location, followed on the 11th of the month by the 44th Evacuation Hospital.

Because of the extremely long ambulance haul required to transfer patients to the 4th Convalescent Hospital, it was decided to remove the two evacuation hospitals from the Caserne at Spa and establish the 4th Convalescent Hospital there. Accordingly, the 45th Evacuation Hospital was moved into bivouac in the vicinity of Spa, and Detachment "A" of the 4th Convalescent Hospital was moved to Spa where it opened on the 12th of February. On the 14th of February, the 96th Evacuation Hospital was also closed and moved to Dolhain, being replaced by the remainder of the 4th Convalescent Hospital.

To make room for a rest center, the 67th Evacuation Hospital was moved from the town of Huy to the Caserne at Brand where it went into bivouac.

During this period, from the middle to the end of February because of the flooding of the Roer Valley and the necessity for reorganization following the campaign which brought First Army up to the banks of the Roer and saw the capture of the Uftalsperre and Schwamernneuel dams, casualties declined appreciably in number. Thus, the end of the month saw five of the First Army evacuation hospitals, the 2nd, 45th, 67th, 96th and 128th, closed. A rather remarkable item may be noted here. The 2nd Evacuation Hospital had been in continuous operation in the town of Eupen for a period of one hundred and forty-two days except for four days during which it had been closed to admissions.

No major changes occurred in the hospitalization policy of First Army during this period. It remained on a ten-day holding basis and at no time were the hospitals without a substantial reserve of bed space.

During the month of February, evacuation routes were shortened considerably as the front of First Army decreased in length. Return of the 4th Convalescent Hospital to Spa from Dinant also aided materially in this respect. When the airborne troops employed in the XVIII Airborne Corps were relieved from First Army and replaced by infantry divisions, ambulances assigned from army to cover these units, returned to their normal duties in third echelon evacuation. These factors aided in relieving the strain which the Medical Service of First U.S. Army had felt since the breakthrough and its contingent dislocations.

The thaw occurring during the month removed the menace of icy roads, but, combined with heavy vehicular traffic, soon reduced roadways to rubble. Road after road in the army zone had to be withdrawn from the traffic circulation plan, and in some cases abandoned permanently. A direct route for ambulance evacuation became a rarity. Seeking to circumvent the additional misery and actual damage which could be incurred by the patient forced into long trips by ambulance over such roads, the Army Surgeon gave directions that experiments be made with light aircraft to determine their usefulness, particularly in the field of moving the seriously wounded litter casualty from field hospitals or division clearing stations to evacuation hospitals. On the 17th of February, using an L-5B liaison plane equipped with racks for one litter, a simulated casualty was carried from the 8th Infantry Division clearing station to the 102nd Evacuation Hospital at Brand. The test was successful and on the 20th of February, the first battle casualty was flown from this clearing station to Brand. The trip occupied ten minutes of actual flying time as compared to ninety minutes of travel by ambulance over miserable roads. During the remainder of the month of February, using the same equipment, twenty-three patients were flown from field hospitals and division clearing stations to army evacuation hospitals. Because of the success of earlier missions, the assignment of planes, pilots and ground crews to the Medical Section of First U.S. Army was requested. Four L-1 planes were received and two pilots. These were attached to the liaison squadron serving Headquarters First Army and the pilots, secured from a squadron of P-47

pilots, received training from the Linden squadron in the handling of light aircraft. On the 27th of the month, the first patients were carried in these aircraft. Further plans were laid for the formation of a self-sufficient squadron of these light evacuation aircraft, complete with the necessary ground crews. The aircraft were marked with the Geneva Convention symbol to identify them. Although poor weather made scheduled runs for the aircraft a matter of chance, the advent of spring led to the planning for regular use of air evacuation.

The period covered by this report found the Surgeon of First U.S. Army confronted with three tactical situations which were totally dissimilar in all aspects. At the beginning of the month of August, the rout of the German forces made necessary the establishment of a highly mobile medical service, capable of keeping up with rapidly moving troops. Low casualty rates allowed maintenance of adequate treatment facilities by employment of a smaller medical unit than that normally used as the purveyor of definitive treatment, specifically, the field hospital. To their rear, the evacuation hospitals were used as holding units to break long ambulance trips between Army and Communications Zone medical installations. A change of the tactical situation, brought about by stiffening resistance, increased casualty rates and made necessary the provision of more hospital capacity for definitive treatment, and thus brought the field and evacuation hospitals back to the roles for which they had been specifically selected. The attack of Von Rundstedt's armies dislocated army medical units and, because crowded accommodations prevented establishment of sufficient hospital beds, caused temporary abandonment of the ten-day evacuation policy. However, a rapid return to this policy was made after the progress of the German armies had been stopped and it has been maintained without an interruption since that time.

That the constitution and utilization of the Army Medical Service and the supporting Communications Zone services was basically sound may be deduced from the absence of two elements. There was no serious breakdown in evacuation. Nor was there any complaint indicating that any soldier did not receive all the medical care which the limitations of field service did not exclude.

### SECTION III - TRANSPORTATION

During the initial stages and up to and through the time when the German forces in France collapsed, the system of coordinating the loan of vehicles between units was effected through the Office of the Army Surgeon and accomplished its purpose. But when the distance involved in each trip ran up to 100 miles, communications and turn-around time were controlled by a unit capable of following up the vehicles imperative. Accordingly, a provisional Medical Department Truck Company was set up, finally coming under command of the 57th Medical Battalion, Headquarters and Headquarters Detachment. Trucks and drivers were pooled under the direction of this organization. In periods of rapid movement, one hundred and fifty trucks were out on missions, coordinated by the personnel of the battalion. On other occasions, when the situation was static, the number of vehicles pooled on temporary duty with the Provisional Truck Company was reduced to fifty.

Maintenance equipment was secured and mechanics from various units placed on temporary duty with the organization with this task being rotated at intervals between units. By this means, the all-important bogey of breakdown and loss of service was defeated.

After the German collapse at St. Lo, a new problem presented itself to the medical service. This was to provide hospital care over a front which, as the situation developed, extended for a distance of approximately 150 miles. It was thought best to concentrate all Medical Department transportation, save those few vehicles necessarily left behind in each installation for housekeeping purposes. Using the vehicles of all the evacuation hospitals plus thirty from the 91st Medical Gas Treatment Battalion, three truck fleets of about sixty vehicles were set up, and the hospitals were moved in toto by these fleets, one fleet of sixty vehicles serving to move one evacuation hospital. Due to the shortage of Quartermaster transportation, the Medical Depot which, at that time was carrying approximately 1200 tons of medical supplies, was also moved with these same vehicles, as well as two sections of the Advance Depot Platoon, each of which carried approximately sixty tons of supplies. Between the 21st and 31st of August, ten evacuation hospitals of 400 beds, one evacuation hospital of 750 beds, the 1st Medical Depot Company, the 71st Medical Gas Treatment Battalion, the 10th Medical Laboratory and a 500 bed section of the 4th Convalescent Hospital, were moved a distance averaging 165 miles.

Numerous difficulties arose. In the early part of the movement, the supply of gasoline at the forward end in the vicinity of Senonches, was somewhat uncertain. Tactical troop movements necessitated a lengthening of the route and on occasion made it impossible for supply units to move for periods of time varying from two to twelve hours. Control of the truck fleets was made extremely difficult by all the foregoing factors plus the distances covered. Communications, again because of the distances involved, were entirely by written field message. An added element that made for difficulty was the lack of maps in the possession of the drivers of the vehicles. This was almost completely overcome by having strip maps, or simpler still, type-written sheets containing the numbers of highways involved, plus the main towns through which the routes passed, given to the drivers. At the completion of these series of movements, it was thought wise to form, in anticipation of such moves in the future, a Provisional Truck Company containing one hundred vehicles, under the control of the 68th Medical Group. The Provisional Truck Company was set up, using ten vehicles from each of the ten 400-bed evacuation hospitals. In addition, it was necessary to mobilize all the field hospitals to such an extent that they could keep up with the rapid movement of the divisions. Accordingly, thirty-nine vehicles were allotted to the 177th Medical Battalion under whose control the field hospitals came, with the object of having one field hospital platoon always ready to move in each of the three corps zones. The gasoline situation was even more critical at the forward end of the route but this was partly solved by arranging that each outgoing convoy would carry with it sufficient gasoline to return to its starting point. Further, large quantities of lightly-wounded German prisoners caused a drain on the number of vehicles available for these movements, since it was necessary to press trucks into service for their evacuation.

With the speed of tactical troop movements constantly pulling medical units towards the front, the first two weeks of September were similar to the last two weeks of August insofar as transportation was concerned. The Provisional Truck Company, formerly under the 68th Medical Group, provided the main source of Medical Department transportation during this period. Increased operational flexibility, improved maintenance, and greater control of a useful number of 2½-ton trucks were the benefits resulting from the formation of this organization.

Due to the fact that a multiplicity of tasks must be carried out by a group headquarters with a limited number of personnel, an administrative shift was made which placed the truck company under the control of the 57th Medical Battalion, since this unit would be able to spare more time to an organization which had become extremely important to the Medical Department.

Because of the distances involved, it was necessary to move several units by train. The 2nd and 96th Evacuation Hospitals, and a five hundred bed section of the 4th Convalescent Hospital were moved in this way. The extreme rapidity of movement had left these units so far to the rear that truck transportation would have been uneconomical and was discarded in favor of rail. The end of September found Army medical units in good position with regard to the combat troops. Negotiations were being carried out for the rail movement of the remainder of the 4th Convalescent Hospital, which during the entire month of September had remained at Gathemo. Completion of this movement would complete the regrouping of all First Army medical units.

The abrupt slowing of progress as the Siegfried Line was reached lessened the need for trucks. Therefore, much unit transportation was returned to parent organizations, leaving only sufficient trucks with the Provisional Truck Company to carry out the mission of supplementing Medical Department unit transportation.

The arrival of the detachment of the 4th Convalescent Hospital at Maastricht completed the regrouping of Medical Department units begun during the month of October.

A minimum amount of movement of large army medical installations occurred during the month of November. Because of this, the number of trucks kept with the Medical Department Provisional Truck Company was reduced to 50.

Further, because of the static situation still extant, pooled transportation had been cut to fifty 2½ ton, 6 x 6 trucks, at the beginning of the month of December. Until the enemy attack was launched, only one movement of any size was accomplished. The 128th Evacuation Hospital was moved from Dolhain to Brand. Beginning on the 16th of the month, nine evacuation hospitals, one convalescent hospital, and three field hospitals, one advance section of the First Medical Depot Company, and one company of the 91st Medical Gas Treatment Battalion were moved during the remaining fifteen days of December. 1,726 patients were trans-

ferred from the 4th Convalescent Hospital to reinforcement depots by truck. On seventy-three missions, Medical Department trucks of the Provisional Truck Company covered 44,838 miles. The close of the period found one hundred trucks pooled under the direction of the Provisional Truck Company.

The month of January again saw the movement of Medical Department units. A total of 32,419 miles was covered by one  $2\frac{1}{2}$  ton trucks of the Medical Department Provisional Truck Company on 239 truck trips. It must be realized that in addition to the mileage recorded by these trucks each unit moved supplies in vehicles of its own, although the bulk was made up of trucks from the Provisional Truck Company. Thus, the above mileage appears as an index to movement and is in no way a total recording. As before, the centralized control of a large number of trucks proved of great assistance in the moving of large numbers of medical units.

Only a moderate amount of movement of First Army medical units took place during the month of February. The provisional truck company, under the Headquarters and Headquarters Detachment of the 57th Medical Battalion remained close to Headquarters, First U. S. Army. Rotation of maintenance vehicles and mechanics attached to this organization was effected during the month.

The pooling of  $2\frac{1}{2}$  ton 6 x 6 trucks was found to be of great advantage in the maintenance of centralized control of the movement of Army medical units. Had these trucks been dispersed with the units to which they belong, difficulties of communication would have slowed the movement of units appreciably and in some cases defeated entirely the purpose for which the move was planned. Further, by concentration of repair facilities and maintenance equipment at the headquarters of the provisional truck company, these vehicles received more efficient maintenance than they could have received had they relied on the units serviced. Though flaws existed in the system, it proved a swift, reliable source of transportation.

#### IV. MEDICAL SUPPLY SECTION

##### A. Exploitation of the ST LO breakthrough (1 Aug - 12 Sep 1944)

Up until the collapse of enemy resistance at ST LO and the subsequent breakthrough, Medical Supply was in an excellent position to accomplish its mission. The 1st Medical Depot Company was situated about ten miles to the rear and in the approximate center of the army area. At this location, it was accessible to forward units and at the same time close to its source of supply. Though issues were heavy, there was no serious shortage of supplies, and the supplies on hand were adequate to meet demands. However, with the breakthrough the picture changed from one of a fairly stable warfare to one of rapid movement. This change brought with it many new problems; chiefly, the ability of keeping up with a fast moving tactical situation. In order to do this, the advance sections of the Medical Depot Company were utilized to the maximum and in the month of August moved twice, in order to support forward units. The Advance sections were nearly mobile and transportation was not as critical with them as it was with the Base Section. During the first week in August 1944, it was necessary to move the Base Section to ST LO, France, and using one hundred and eighty trucks it took three days to move 1300 tons of medical supplies. It was now apparent that transportation was not present in sufficient quantity, to move the Base Section any great distance, carrying the tonnage that was currently on hand. The Army Medical Supply Officer realizing this, directed a physical inventory of depot stock, and items that were considered not essential for current operations, or that were bulky and slow moving, i.e., Balkan frames, ward tents and refrigerators, were weeded out and turned over to ADMSC. In order to further lighten the load, forward issues of certain items were made to evacuation and field hospitals. Typewriters and 55 gallon drums of white gasoline were among these. In addition, all units were called upon to bring themselves up to T/E strength on Medical Department areas. As a result, depot tonnage was cut from 1300 tons to 1100 tons. This stream lining process was offset somewhat, however, by a period of light issues due to relatively few casualties.

During the period, Medical Supply was called upon to furnish support to units that were cut off or surrounded. When the enemy counterattacks developed at Mortain, an infantry battalion was separated from its parent unit and badly in need of medical supplies. The Army Surgeon in the pre-invasion planning had foreseen such a

possibility and prepared lists of items essential for one days operations for type units; companies, battalions, regiments. These included splints, folding litters, blankets, plasma, morphine, dressings and drugs and were pre-packaged for air drop. Many of these pre-packaged supplies were dropped to isolated groups during the counterattacks near Mortain and no doubt saved many lives.

With the difficulty encountered by the lack of transportation for forward movement, replenishment of depot stocks from the rear became a problem. Consequently many items appeared in short supply, such as sutures, needles, catheters, oxygen, sheet wadding, and penicillin. Many of these items were available at rear installations, but transportation was not available to move them forward. This necessitated the depot dispatching trucks in emergencies to bring supplies forward. It was fortunate again that trucks were light and casualties few. In the majority of items, stocks on hand at the depot, though low, were sufficient to satisfy demands.

As the pursuit of the enemy continued after the failure of the counterattack at Mortain, lack of transportation continued to be a growing source of concern. The Advance Sections which were easier to move because of the lighter load they carried, were not such a problem, however, the Base Section was a constant source of trouble. From its location at ST 70, France, it moved to Cathemo, France, a position that was useless almost as soon as established. Issues were light due to continuing light casualties and therefore depot stocks were adequate. Toward the latter part of August, a move of 17 1/2 miles was made to Mesnil-Thomas, France, and 75 trucks from the Provisional Medical Department Trucking Company were used.

With the rapid forward movement still continuing, communication, as well as transportation, became a source of difficulty. At times supplies that were needed by units were not on hand in the Advance Sections, and due to lack of communication, the information could not be transmitted back to the Base Section. If it had been possible to communicate readily with the Base Section, these needs could have been met more expeditiously. In order to be closer to the actual situation, the Medical Supply Officer joined the Executive Officer and the Chief of Operations at an advanced CP.

During the first week in September, the Advance Sections continued to carry the bulk of the issues, as they were well forward and supporting divisional units.

The Base Section remained at ~~Moselle, France~~ ~~France~~ ~~Di~~ to the unusual tactical situation, this area became obsolete prematurely and a movement was required to put the Base Section in position again.

B. The Battle of Germany (13 Sep - 15 Dec 1944)

Medical supply difficulties and problems of the previous period remained acute on into September. They were primarily varied transportation difficulties, and the problem of maintaining consistent and adequate support to a fast moving front. During this period, actual demands for supplies represented but a few tons per day, issues being in direct proportion to casualty rates.

Typical of the Army Services' problem of keeping in contact with tactical units was the case of the base medical depot. The number of trucks available to move any or all sections of the depot was limited to Army Medical Department organic vehicles. These trucks were already overtaxed, being used to move all army medical units, many of which had priorities over supply installations. To help relieve the situation, stock levels were again reduced to make the depot more mobile. In this inventory and stock reduction, 340 long tons of slow moving or excess items were returned to ADSEC depots. Transportation for the moving of the depot was not readily available even with the reduced tonnage. At one location, the stock had just arrived and without filling one requisition, the depot was again moved to Soheit-Tinlot, Belgium. Upon arriving at this location, the stock was again moved, this time to Eupen, Belgium. The stock reaching this location represented the most active stock and considerable tonnage remained in the old army service area until more transportation became available. During this period, the two advance sections were used to the maximum.

It was found that the transportation handicap was felt not only by First Army but was just as acute with installations to the rear. This proved to further increase forward supply problems. With supply from the rear falling behind, property exchange supporting ADSEC operated air evacuation failed to function and evacuated items were stripped from the Army area. For a period of 72 hours, the only blankets and litters obtainable were 10,000 captured German blankets and 500 captured German litters. This supplement kept the chain of evacuation functioning. At this time, shipments from the rear on army requisitions dropped to practically nothing. Because of this, 5000 units of penicillin had to be flown in by artillery liaison planes. All requisitions and back orders on Communication Zone were

cancelled due to the confused condition of due-in records. Four requisitions were immediately submitted through channels to replenish fast diminishing depot stocks. Deliveries on these requisitions continued to be slow and incomplete and First Army Medical Department trucks had to be dispatched to the rear to bring supplies forward.

When all sections of the depot were forward, they were situated so as to afford maximum support to the army. The base was established in the center of the army zone and was easily accessible to the many hospitals concentrated in the Eupen area. The two advance sections were operating on the two flanks at Malmedy, Belgium and Valkenburg, Netherlands.

Up until the time of the Aachen offensive, casualties were light. Depot operations were normal, issues slow and the drain on depot stocks was not heavy. This was fortunate as transportation difficulties continued to seriously reduce depot stocks. Certain items remained in short supply as a result of faulty transportation facilities. Requisitions on Army allocated tonnage were placed on Communication Zone but shipments as received were sketchy, incomplete and delayed. To maintain proper due-in records and to keep requisitioning on a 14 day level basis became increasingly difficult with the extended time lag between requisitioning and date of receipt.

Every effort was made to relieve the situation of so many items remaining in short supply. Army Medical Department transportation was dispatched to draw supplies directly from Communication Zone depots. In spite of this, certain items remained in short supply since they were either in craft lying off shore or were in rear Communication Zone depots beyond the reach of army transportation. Mis-directed rail and truck convoy shipments remained a problem. Often, rail cars as well as truck convoys consigned to another command were received in this sector and had to be re-routed. One shipment on a First Army requisition was directed to Ninth Army then misrouted a second time, arriving at some forward installation in the Netherlands. The depot commander as well as representatives of the 25th Regulating Station personally followed the routing of these cars until it was finally received some months after the initial shipment. In addition, many supplies were received that had not been requisitioned and could not be used in army installations. It was during this period that the demand for supplies increased, the Aachen offensive being under way.

SECRET

To ascertain the basis for the difficulty experienced in receiving supplies in forward areas, representatives of the Surgeon's Office, 12th Army Group conferred with this office and attempted to follow an army requisition through its complete processing. These representatives accompanied the requisition from Army G-4 to the 25th Regulating Station, to Advance Section, Communication Zone, to Communication Zone, to the depot and its processing there, and started back with five trucks loaded with a portion of the requisition. These officers found that many days passed before the shipment was finally accounted for. En route the trucks had been unloaded, repacked on rail cars and again forwarded and lost. The conclusion of the investigation as reported these officers was that stocks available in Communication Zone depots often became delayed or lost in transit and that the Transportation Corps had no facilities to follow through or regulate these shipments.

Another problem arose as the result of shifting of army boundaries and the accompanying transfer of corps and supporting army units. First Army lost XIX Corps which was supported by one advance section of the depot company and the 102nd and 107th Evacuation Hospitals. It was felt that the most expeditious way of handling the transfer of supplies was to leave physical stocks in the respective areas; transferring depot personnel to assume control of the stock formerly operated by the other command. This was accomplished and operations were resumed with the 2nd Section supporting VIII Corps at Bastogne. The few necessary stock adjustments were quickly made.

Transferring complete hospital assemblies was more difficult. A sharp discrepancy in the operational equipment between hospitals of the two commands was noted. The Army Surgeon decided that the standards of First Army Hospitals would not be reduced and all equipment furnished the two transferring hospitals in excess of Tables of Equipment as First Army Special projects was directed to be retained within the army. The units leaving objected on the grounds that this equipment was necessary for continued efficient operation. A conference of Army Surgeons was suggested to consider the possibilities of establishing a standard list of equipment for all commands. The Army Surgeon and his Medical Supply Officer represented First Army at the conference held at Communication Zone Headquarters in Paris and detailed recommendations for changes in present Tables of Equipment and Equipment Lists for Evacuation and Field Hospitals. As a result

Of this meeting new allowances based on First Army levels were adopted to be authorized within the Theater.

Late in October the base depot at Eupen operated under a severe handicap using open storage for warehousing. Heavy traffic plus constant rains eventually made operations in the mud impossible. After considerable search, buildings were located at Dolhain, Belgium which could house the Base Depot completely with its Optical and Repair Sections, Bin Stock Section and Warehouse Section. The Depot was moved, and the change afforded greater protection for supplies in addition to increasing the operational efficiency of the depot.

Army hospitals setting up in buildings for the first time found requirements for many supplies and repair services not available through normal supply channels. For such items, local procurement was extensively employed and centrally administrated from the Army Surgeon's Office through the Purchasing and Contracting Officer. To relieve the increased labor burden, civilians were also employed.

In November, the transportation problem in the rear remained acute and shipments of replenishment stock were far below requirements. Against a minimum daily maintenance requirement of 12 tons or 360 tons for a 30 day period only 5 tons of supplies were brought forward. Such irregularities in replenishment stock made operations most difficult and the general supply situation in respect to stock levels progressively deteriorated to an unsatisfactory condition. Many items requisitioned but not received were attributed to the persistent Communication Zone problems of first, being unable to get the necessary priority to unload craft laying offshore, and secondly, the inability to obtain sufficient transportation to move supplies from rear (beach and port) depots to advanced depots in support of First Army. In addition many shipments leaving Communication Zone depots were never received within Army. This condition existing for approximately two months resulted in the accumulation of over 400 zero stock balances.

To relieve this situation drastic action was taken. Direct communication was established with the Office of the Chief Surgeon. The Commanding Officer of the Army Medical Depot Company, personally visited Paris to adjust Army due-in records in coordination with Communication Zone shipping records and thereby accounted for shipments long over due and presumed lost. Army organic transportation was utilized to insure the receipt of supplies shipped from

the rear since the situation did not permit complete reliance on rail transportation. Shipments of critical items were expedited by Communication Zone using hospital trains and air transport. Generally, shortages lists were reduced and with a steady stream of replenishment stock being received, the general supply situation improved. Advance Section, Communication Zone M409 became operational in Liege at this time and greatly alleviated the overall supply situation. Continued improvement was noted during the latter part of November and through the 1st part of December until the supply picture was normal and healthy.

C. The German Counteroffensive and the Drive to the Roer River (16 Dec 1944 - 22 Feb 1945).

As the German counteroffensive developed during the second and third weeks of December Medical Supply was presented with two problems. The first was to insure complete support to the Allies' defensive actions, i.e., to replace the equipment losses and to meet the increased demand for expendable supplies. The second was to remove depot stock from areas that were threatened by possible enemy advances.

Due to the rapid advance of the enemy, divisional and other units were forced to abandon much of their medical equipment and required 100% replacements in several cases and lesser degrees of replacement in others.

Various army units including two evacuation hospitals and units of two Field Hospitals required the complete replacement of equipment for two field hospital hospitalization units and many major items of equipment.

Every effort was made to quickly determine the extent of losses in medical equipment and supplies. Divisions and hospitals were personally visited by representatives of this office and arrangements were made to insure immediate replacement of needed items. For a short period of time, units were permitted to draw directly upon depot M409 located at Liege to relieve the burden on army supply installations.

Concurrent with the problem of re-equipping medical units, the movement of Army dumps away from zones of possible enemy action had to be accomplished. When the enemy offensive began the Base Depot was located at Dolhain, Belgium, the First Advance Section was at Bastogne, Belgium and the Second Advance

Section at Malmedy, Belgium. As the Advance sections were in the area immediately threatened by the enemy, movement of them was imperative. By infiltrating trucks into Malmedy, the entire stock of the Second Advance Section at Bastogne, Belgium, encountered more difficulty in moving. When it was learned that Bastogne was threatened, empty ambulances returning to the rear were commandeered and items in critical supply were loaded. As much as possible was evacuated to Lebin, Belgium by this method. However, even this position was threatened and the section was again forced to withdraw, going to Carlsburg, Belgium. One small contingent of this section in Bastogne, was surrounded, with a few tons of supplies, but continued to supply troops fighting within the city until it was relieved. This section was soon moved from Carlsburg, Belgium, and joined the Base Section at Dolhain. In compliance with orders from First Army G-4 that all major supply installations withdraw to the rear of the Army area, the Base Depot was moved to Basse Warve, Belgium. The entire move was accomplished by rail.

Depot stocks up to this time had been heavily drained. The cooperation and proximity of Forward Communication Zone depots helped immeasurably in meeting the enlarged demand for supplies.

The First Advance Section assumed issue responsibility at Dolhain, Belgium, with stock heavily augmented to meet the expected increased load. A level of approximately 100 Long tons was carried during the period. A large percentage of this was represented by T/E items. The Base Section, moving into army reserve, was accompanied by the Optical and Repair Section. The Flood Bank Detachment remained at Dolhain to supply those hospitals operating well forward.

Every effort was made to restore all units to 100% T/E strength in medical items. In spite of abnormal issues, stock levels remained satisfactory. Units were instructed to inventory their equipment and to requisition shortages through the Army Surgeon's Office. In this way losses could be replenished from available depot stocks or shipments expedited from Communication Zone.

Once established at Basse Warve, the Base Depot began a general stock replenishment program, calling heavily on depots M409 and M413T. With the tactical situation once again fully under control, the Base Depot prepared to return to Dolhain. Some difficulty was experienced in obtaining sufficient goods wagons to effect the transfer in one move. However, obstacles were removed and repre-

representatives of the 25th Regulating Station accompanied the trains to insure their safe and prompt arrival. Once the depot was established, normal depot functions were resumed.

The First Advance Section, being relieved of issue responsibility at Dolhain, moved to Brand, Germany, in support of the Army left flank. The Second Advance Section remained at Huy, Belgium for approximately two weeks and then returned to its former location at Walhedy, Belgium.

The month of February was devoted to Army build up. Generally speaking, issues were light with depot stocks adequate to meet the demand. Stocks carried by the advance sections each averaged 50 long tons. This level was maintained by daily requisitioning on the Base Dump.

## SECTION V - SURGICAL

### A. PURSUIT PHASE.

In this phase the hospitals and professional personnel were entering the third month of combat experience. The surgical service had available, well-staffed, experienced hospitals and an adequate number of qualified surgical teams. As a result of this experience, the following observations are noteworthy:

a. The requirements of a good army medical service are not alone the possession of experienced hospitals staffed with qualified surgeons.

b. The capacity of a hospital to care for a heavy flow of casualties should not be determined by the number of vacant beds that can be made available through evacuation or by increasing the bed capacity. The number of available personnel is of equal importance and must be augmented throughout. More administrative personnel, more nurses, ward officers, surgeons, and even litter bearers have to be provided.

c. Under the pressure of a large and sustained flow of casualties clerical mistakes increase, errors of judgment occur and medical care is less efficient throughout.

d. When the number of cases awaiting operation in a hospital exceeds the 24 hour capacity of the operating room and its potential capacity when augmented by surgical teams, the indication exists for sending back without definitive treatment, patients who would ordinarily be held in the hospital.

e. The quality of medical care and surgical treatment as well as mortality statistics should be judged in the light of the current tactical situation, and the number and type of casualties being received.

f. A qualified surgical team and good operating room facilities should be maintained at holding units and transfer points to care for the wounded that have developed complications or have been improperly selected.

g. Sorting of the minor wounded admitted to Evacuation Hospitals cannot be established on a sound basis when evacuation is sporadic.

### B. THE SIEGFRIED LINE

"This phase of the Campaign", afforded the first opportunities for forward surgeons to visit Communication Zone Hospitals. As a result of their observations improvements were made in the methods of recording important professional data.

Policies were changed in favor of holding certain types of patients for a longer period. Among these were patients with chest injuries, vascular injuries, badly contaminated compound fractures and fever (temperatures over 100° F).

With the onset of winter, cold injury to the extremities made its appearance. The professional care of trench foot a major problem was organized according to the following plan.

(1) All cases of trench foot showing marked objective signs such as gangrene, discoloration, blisters, marked edema or infection, were evacuated to general hospitals.

(2) All other cases were transferred to the 91st Medical Gas Treatment Battalion which was designated as the center for the study of trench foot.

(3) After completing an 8 to 10 day treatment at the center, ambulatory patients were sent to the convalescent hospital where they were refitted with larger shoes and galoshes, given exercises, prescribed walks and, finally, close order drill before return to duty.

(4) All cases of suspected trench foot were held in corps and division clearing stations until objective manifestations of the condition were sufficiently obvious to justify the diagnosis of trench foot. Experience had already established the fact that even with very gradual warming of the feet by exposure to temperature of 65° - 70°, the condition would become obvious within the first 24 to 48 hours. This method of management was of definite value in that a proximately 7.5% of the cases could be returned to duty as having had a mistaken diagnosis, that is, cold feet. As a result of observation and experience with trench foot, the following conclusions were reached:

(1) That the prevention of trench foot and the execution of preventive measures is a command function which can be stimulated and checked as to its effectiveness by medical officers.

(2) That the system of holding these cases at the division level is the most efficient way of assuring the early return to duty of cases with cold feet, at the same time, the treatment of the established cases is not seriously delayed or impaired.

(3) That the return to duty of the minor cases which are the only ones held in army area has been, on the basis of 1000 cases, approximately as follows:

|   |            |
|---|------------|
| Cold feet and returned to duty              | 75         |
| Sorted by evacuation hospitals for center   | 200        |
| Sorted by center for convalescent hospital  | 160        |
| Returned to duty from convalescent hospital | <u>140</u> |
| Total                                       | 215        |

(4) That only the minor cases should be held in Army area. Of these, approximately 20% can be returned to duty.

#### Recurrent Trench Foot.

Up to 1 January, 42 cases of recurrent trench foot had been reported. Only 8 of the 42 occurred among patients who had been treated at the center and returned to duty through the 4th Convalescent Hospital.

#### C. PHASE OF ENEMY COUNTER ATTACK

Professional care of patients during the phase, was confined to preparation for evacuation of all transportable patients and the definitive treatment of all non-transportable cases. It has not been possible to evaluate all the effects of this phase upon the professional care of battle casualties.

#### D. THE ALLIED COUNTERATTACK.

1. At first, when field hospitals were forced to return to tentage, winterized tents were not available for all units but the patients suffered few ill effects. Upper respiratory infections among surgical patients were no greater than the increased rate of respiratory disease among all personnel. Pulmonary complications were attributable to the natural exposure of casualties before they reached hospitals. The necessity for hospitals to utilize tents instead of buildings was short lived.

2. The chief complication during this period was the high incidence of trench foot and frost bite. All battle casualties had to be carefully examined for evidence of cold injury to the feet. Plaster casts applied for extremity wounds were trimmed so as to permit observation of the feet whenever trench foot or frost bite was suspected.

3. The differential diagnosis between trench foot and frost bite involved the problem of the award of the Purple Heart. Clinically the differentiation could seldom be made. Accurate diagnosis hinged upon the degree of chilling. Patients exposed to temperatures below freezing were by directive diagnosed as frost bite.

4. On 23 January a meeting for discussion of the trench foot problem was called at the office of the Chief Surgeon and was attended by the Surgical Consultant. Here it was learned that the management of trench foot as set forth by First Army and as previously described in this report had been adopted by the other armies of this theater.

5. NEW PROFESSIONAL POLICIES AND ACTIVITIES DURING THIS PERIOD COMPRISED THE FOLLOWING:

a. Vascular Surgery.

(1) In an effort to improve the results of treatment of patients with main artery damage to the extremities a vascular clinic was set up in the 45th Evacuation Hospital. One surgical team from the 3rd Auxiliary Surgical Group was attached to this hospital to treat these cases. Special record forms were stencilled for local use and for distribution to other hospitals. Additional equipment in the form of plastic tubing and osillo meters was obtained in sufficient quantity to begin the same study in the 2nd Evacuation Hospital. To date the results are encouraging but too meager to form the basis for conclusions. It may be predicted that some improvement will follow but nothing of a revolutionary nature is expected.

b. Cellulose Acetate Gauze.

(1) Another addition to the surgeons armamentarium was obtained in very limited quantity; namely, absorbable gauze (cellulose acetate) which will be used as a hemostatic agent to control hemorrhage from sources uncontrollable by suture, such as lacerations of kidney or liver. In addition to having hemostatic properties this gauze is absorbable and can with impunity be sutured in place or left as a light pack which does not require subsequent removal. The value of this gauze is fairly well established but it is not yet in mass production.

c. Management of Patients with Self-Inflicted Wounds.

(1) A new directive which requires that S.I.W. patients be held in Army Medical Installations pending the determination of their line of duty status by the forward medical units called for some revision in the plan of management for these cases. To meet the situation an orthopedic surgeon from the 3rd Auxiliary Surgical Group was attached to the 91st Medical Cam Treatment Battalion to supervise the care of these cases, especially the cases that must be held for more than a week after definitive treatment. Certain categories of cases that can not be held without jeopardizing life or prejudicing recovery were defined. Individual patients who may develop complications which bring them into this category will be seen by this officer before evacuation. In addition delayed primary closures may be accomplished under his supervision. A program for active motion of joints and general physical exercises was carried out.

d. Physio-therapy Unit.

(1) Upon direction of the Army Surgeon a small physio-therapy unit was staffed and equipped to provide ultra-violet, infra-red and Swedish massage treatments for staff officers as well as patients.

E. NOTES ON PROFESSIONAL CARE APPLICABLE TO ALL PHASES OF WARFARE.

1. Sorting of Wounded for Treatment and Evacuation in the Army Zone.

a. Sorting is an essential function of forward surgery. It facilitates treatment and evacuation. On the accuracy with which sorting is accomplished, will depend the lives of the seriously wounded, the combat status of the lightly wounded, and the efficient employment of the hospitals in each surgical echelon.

b. There are two kinds of sorting:

(1) The grouping of cases for transport to the proper hospitals.

(2) The sorting of patients within the hospitals for treatment and for evacuation.

c. To accomplish the first type of grouping, the responsible officer should have a clear understanding of the function of each medical installation, a grasp of the current evacuation policy and an average degree of clinical judgment and common sense.

d. To accomplish the second type of sorting, the sorting officer should possess a high quality of surgical judgment based on experience. In addition, he should know the capacity of his operating theater and the qualifications of the surgical teams and individual surgeons so as to arrange the distribution of the more serious cases to the more experienced teams. He must be capable of rapid work and judgment and appreciate the constantly shifting standards by which to judge the distribution of cases. In short, he should be the most experienced officer on the staff.

e. There is a difference of opinion as to where the first sorting of casualties should be done. In the First U.S. Army, the focal point for sorting is at the apex of the division in the division clearing station where casualties are divided into four (4) groups destined for different units:

(1) Lightly wounded. Those whose injuries are so minor as to allow immediate return to duty are held here for treatment.

(2) Special Center cases.

(3) Non-transportables. The primary purpose of sorting of wounded at this point is to divert the non-transportables to the field hospital which is the

furthest point forward at which definitive surgery is done.

(h) Transportable battle casualties destined for evacuation hospitals.

f. The non-transportable cases are those with:

- (1) Continuing hemorrhage uncontrolled by first-aid measures.
- (2) Wounds of the abdomen.
- (3) Wounds of the chest which are serious and producing respiratory distress:

- (a) Large sucking wounds
- (b) Stove-in chest
- (c) Massive intra-thoracic hemorrhage

(4) Trans-thoracic or abdomino-thoracic wounds. These were often difficult to diagnose without x-ray and were occasionally missed.

(5) Extremity wounds with:

- (a) Serious impairment of blood supply or with tourniquet in place.
- (b) Traumatic amputations.
- (c) Suspected gas gangrene.

(6) Patients with compound fractures of the femur and patients with multiple wounds who remain in shock and whose condition cannot be made suitable for transport.

g. Sorting of patients within the hospital.

(1) In the receiving tent of the evacuation hospital, all patients were admitted and further sorted by the receiving officer for assignment to the following wards:

(a) Shock ward. All patients who need resuscitation or were urgently in need of surgery. In this ward, all means for combating shock were assembled.

(b) Pre-operative ward. Those who need surgery but not urgently. This class of patients constituted the bulk of the work in an evacuation hospital.

(c) Evacuation wards. Those who could travel back to receive definitive treatment in the next surgical echelon. It must be realized that all walking wounded are not slightly wounded cases.

(d) Medical wards.

(2) Sorting for operation is the most difficult of all sorting.

(a) The order in which patients were sent to the operating room was determined by the condition of the patient upon admission, the extent of the wound and its potential complications. The selection was made by an experienced surgeon with mature judgment; in a field hospital by the leader of the surgical team, in the evacuation hospital, by the chief of the surgical service.

(b) In the selection of patients for operation, the importance of pre-operative study and preparation must not be lost sight of. Each individual case received separate appraisal with reference to the surgical urgency of the wound, the degree of shock and the response to resuscitation measures. The high priority cases were those with:

1. Uncontrolled hemorrhage, which must be stopped by surgery.
2. An occasional maxillo-facial injury with severe obstruction to the airway which required tracheotomy for relief.
3. Extremity wounds with major artery damage or massive muscle damage of the thigh or buttocks.
4. Thorace-abdominal wounds
5. Abdominal wounds must be attempted as soon as their condition warrants intervention. Hemorrhage and peritonitis were the urgent considerations.
6. Chest wounds. Profound physiologic disturbances could usually be controlled by such measures as needle aspiration of air and blood, insertion of a flutter valve for pressure pneumothorax, aspiration of tracheo-bronchial tree, temporary closure of sucking wounds, novacain injection of intercostal spaces and oxygen therapy. Chest cases proved of most interest as to when to intervene.
7. Major or multiple compound fractures were early priority cases as were wounds of major joints.

3. It must be realized that the above listing of high priority cases is not intended to convey the impression that all cases in one category were sent to the operating room before any cases are selected from the next group. The listing is only a guide to priority. The time of the operation was determined by the condition of the individual case. Many patients had a combination of wounds.

Priorities will change with changes in the patient's condition, but the less seriously wounded can not continue to lose their priority at the threshold of the operating room.

(4) In the shock ward, as elsewhere, the gravity of each patient's condition was assessed on clinical signs. Measurements of blood volume and determination of values for plasma protein, hemoglobin, red cell count and volume and hematocrit readings give valuable information, but in the First Army, such laboratory data have not yet been compiled and correlated on a sufficiently large number of patients to serve as a basis for determining the quantity of blood or the speed of transfusion required for a given case. The first attempt to conduct such studies was made during a pressure period when casualties were so heavy that the investigation officers found themselves giving blood and plasma rather than making detached observations. A second attempt during a lull was more successful.

(a) From a practical point of view, when a patient in shock fails to respond to energetic resuscitation measures, it was recommended that the patient be re-examined on the assumption that a continuing process exists which may be remediable only by surgery. Search was made for evidence of concealed hemorrhage, mechanical disturbances of the cardio-respiratory mechanism, increasing intracranial pressure, spreading peritonitis, or gas gangrene.

(b) On the other hand, when a patient responded to resuscitation measures, it was important to time the operation so that the patient did not pass the peak of improvement. Once past this peak, it was difficult and often impossible to attain the same degree of response. During pressure periods, delay may mean a lost opportunity for selecting the optimum time for surgery.

(c) From the clinical viewpoint, it was recognized that repeated observations of the blood pressure and pulse should be made and recorded. A single reading may be very misleading. Pulse volume may be more important than pulse rate. Collapsed veins and fluctuations of blood pressure sounds with respiration suggest inadequate restoration of blood volume. Turning and changing the position of a patient in shock may be followed by a sudden change for the worse. Conversely, rest is beneficial and warmth, not externally applied heat, but simply getting a patient into a warm room or tent after exposure to cold was definitely worthwhile.

(5) At the other end of the scale of urgency were the less seriously wounded. The actual disposal of these cases will depend upon factors of a logistical rather than purely professional nature. At times of pressure, there never were enough front line hospitals to give immediate and full medical attention to all wounded. Consequently, hospitals were evacuated of such patients as a careful examination indicated as transportable under the conditions imposed. When the number of cases awaiting operation approached 24 hour capacity of the operating theater or its potential when augmented by the addition of surgical teams, the indication existed to by-pass, that is to send on without definitive treatment, all cases that could safely travel, provided these cases received surgical treatment earlier at the next hospital to the rear. The opinion that to send away unoperated cases is a confession of failure is a manifestation of false pride.

(a) Before sending on such cases, they were fed, hydrated, and given the indicated penicillin therapy. We have not found it feasible to give penicillin, plasma or blood transfusions while patients are being transported in ambulances.

(6) The extent to which by-passing was used is reflected in the following statistics:

| Hospital                     | Period (Incl) | Battle Cas. Admitted | Total Surg. Procedures | By-passed cases | Percent By-passed |
|------------------------------|---------------|----------------------|------------------------|-----------------|-------------------|
| 2nd Evac                     | 16-19 Nov '44 | 499                  | 296                    | 203             | 40.8%             |
| 5th Evac                     | 16-19 Nov '44 | 431                  | 185                    | 246             | 57.2%             |
| 45th Evac                    | 16-19 Nov '44 | 602                  | 264                    | 338             | 56.0%             |
| 128th Evac                   | 17-19 Nov '44 | 916                  | 434                    | 482             | 52.8%             |
| Total (4 hospitals)          |               | 2448                 | 1179                   | 1269            | 52.1%             |
| Total (2nd, 5th & 45th E.H.) |               | 1532                 | 745                    | 787             | 51.3%             |

Note: <sup>5/16</sup> 2nd, 4th and 45th Evacuation Hospitals received only litter patients after 1500, 17 November. 128th Evacuation Hospital received only walking patients after 1500, 17 November. 2271 cases were admitted to these four (4) hospitals from 1500, 17 November to 2400, 19 November, of which 1167 (51.6%) were walking.

b. Sorting of Post-operative cases for Evacuation was the final sorting in the army zone.

(1) Since rapid evacuation was a tactical necessity, the sorting of post-operative cases for evacuation to general hospitals in the rear or to the UK went on continuously. Obviously the evacuating officer must evaluate the

condition of the individual patient in terms of the ordeal which he faces. The means of transport and time-distance to the next hospital are factors which influenced his decision. In all cases, the opinion of the operating surgeon was respected and no patient was evacuated without his sanction unless evacuation was by command decision. Surgeons were kept posted as to the pressure being exerted by the number of cases, otherwise the hospitals, in some situations, would soon have been filled with cases marked not to be evacuated. Surgeons were also reminded that evacuation and optimum post-operative care of a single case may conflict.

(2) The decision for evacuation of post-operative cases was as far as possible left to clinical judgment, but experience demonstrated the need for establishing policies which regulated the length of time certain types of cases were held after operation. The necessity for an arbitrary policy of this type first became apparent on the basis of reports emanating from the general hospitals in the UK concerning the abdominal cases. Many of these cases were being transported too early and arrived in poor condition. As a result of these reports, the policy was put into effect that all abdominal cases would be held for a minimum of ten(10) days regardless of clinical factors.

(3) Other policies of a more general nature served as guides to the selection of patients for evacuation, for example:

(a) Chest cases having undergone thoracotomy or debridement with closure of sucking wounds were held until the cardio-respiratory function was stabilized and there was no rapid reaccumulation of blood or fluid.

(b) Extremity cases with main artery damage or impairment of circulation were detained for observation until a definite decision was reached as to the viability of the limb and the necessity for amputation.

(c) Evacuation of neurosurgical cases that still require parenteral or tube feeding was avoided.

(d) Tracheotomized patients were detained for instruction in the care of the tube. Otherwise they were to be accompanied by an attendant.

(e) One of the most difficult decisions to make concerns the lightly wounded. It is axiomatic in military surgery that the lightly wounded who can return to duty within the time limit set by the current evacuation policy must be held in a combat zone. When the evacuation policy is restricted to ten (10) days, the tendency is to hold patients who actually require a much longer convalescence before they can be returned to duty; for example, patients with penetrating wounds of the muscle of an extremity were ready for duty within ten (10) days. So-called ten (10) day cases were sent to a convalescent hospital after receiving definitive treatment in an evacuation hospital.

(f) When patients were being evacuated to a holding unit on a beach or near an airstrip rather than directly to a general hospital, it was necessary to maintain adequate operating room facilities and a qualified surgical team at the holding unit to care for the wounded who developed surgical complications.

(4) Mistakes in the selection of cases for evacuation were quite apparent when viewed from the rear. General hospitals can furnish information as to how well the forward units were working, but unfortunately, the opportunity for forward surgeons to visit the general hospitals for personal observation of their cases came late in the campaign. In the early stages, they learned from reports that were sent forward. Later, during quiet times, visits to the general hospitals in the next surgical echelon were arranged.

## 2. Plasma and Blood Transfusions.

a. Early in the campaign, the question was raised as to whether blood transfusions were being given to patients who might be resuscitated equally well with plasma. To answer this question, a study of the treatment of shock in field and evacuation hospitals was planned with Lt. Col. Zollinger of the Chief Surgeon's Office. Shock teams from general hospital personnel were sent to Army hospitals where they collected data on the ratio of plasma to whole blood given in the shock wards of forward hospitals. A summary of the information contained in Lt. Col. Zollinger's report showed that the ratio of plasma to whole blood given in evacuation hospitals was 1.34 to 1, and field hospitals 1 to 1.63.

b. The administration of plasma began at the battalion aid station.

The transfusion of blood was ordinarily initiated at the field or evacuation hospitals, but a few patients received blood transfusions in the clearing stations. The principle followed was to carry resuscitation only to the point which will permit safe transportation of the patient to a hospital installation. It was believed that the peak of resuscitation should be attained for the first time at the hospital where surgery was available.

c. It was difficult to give an arbitrary figure as to the amount of plasma and blood that should be given to an individual patient. Estimates of the total quantity required were based on a consideration of such factors as the amount of blood lost, the presence of continuing hemorrhage and the presence of blast injury to the lungs. In general, thoracic cases would receive blood in preference to plasma and in such cases, hydration should not be pushed to the fullest extent.

d. Reactions.

(1) Reactions to the transfusions of plasma occurred. On one occasion, it was necessary to discontinue the use of all plasma of a certain manufacture.

(2) Reactions from blood transfusions in the form of a slight shiver or mild rigor followed by a rise of temperature were fairly frequent. Reactions in the form of a severe rigor and a temperature over  $105^{\circ}$ , and even fatal reactions occurred in waves and the cause was difficult to trace. There is some evidence to support the following factors; errors in typing, hemolysis due to the use of blood that is approaching the expiration date, physical changes in the blood resulting from freezing or possibly from not keeping the blood at optimum temperatures during delivery from the base depots in the States or UK, contamination as shown by cultural studies and the presence of pyrogens.

(3) A certain incidence of hemoglobinuria and anuria occurred. Anuria was probably a result of several factors among which may be mentioned multiple blood transfusions, chemotherapy and the damaging effect upon the kidney of certain unknown products of tissue destruction or a prolonged state of shock and low blood pressure.

(4) Alkalinization of patients who exhibit hemoglobinuria or anuria was indicated according to directives.

The drug recommended was Sodium Citrate which was not always available and which the majority of patients received in large quantities along with multiple blood transfusions. Sodium Lactate was never available. As a substitute, a solution of Sodium Bicarbonate was used intravenously in a few cases with good results.

(5) Jaundice was not uncommon. If additional transfusions were necessary for jaundiced patients, the use of fresh blood was safer.

a. Mechanical difficulties in the transfusion of blood at times constituted serious problems. This difficulty was most prevalent on the beach but was manifested at times since then in the transfusion of UK blood. The difficulty was attributed to the filter and to the small bore of the needle in the recipient set. The Paris blood which was received in small quantities to tide over a critical period clotted and would not flow. The Surgical Consultant of the Theatre expressed the opinion that this blood did not contain a sufficient quantity of citrate solution. The U. S. blood (Alscover's) flowed freely but had the objectionable feature of being 50% diluent and 5% blood.

### 3. Anaerobic Infections.

a. Tetanus toxoid afforded complete protection of U. S. soldiers against the development of tetanus.

b. Gas gangrene was diagnosed in 0.5% of all battle casualties admitted to First Army hospitals. Prisoners of War were included in this figure and showed a higher incidence than American casualties. From 6 June to 1 January 1945, there were 552 cases of gas gangrene, 362 of these occurred in U. S. troops. During the summer months of June, July and August, the incidence was 0.51% among 54,991 battle casualties. During cooler weather in September, October, November and December, the incidence was 0.66% among 41,070 battle casualties. The mortality rate for all cases occurring from August to December was 12.2%.

c. The diagnosis of gas gangrene was entirely on clinical findings as it was not feasible for the laboratory to make satisfactory anaerobic cultures or examinations of involved muscle. It is fair to assume that some cases reported as gas gangrene were mistakes in diagnosis. If the diagnosis of gas gangrene is reserved for true clostridial myositis, the number of cases

would be considerably smaller and the mortality rate higher.

d. A study of gas gangrene to be of value required the full time of a specially equipped mobile laboratory unit. The limited number of qualified personnel available did not justify their utilization on a research problem which involved approximately 3 per 1,000 U. S. casualties.

e. Serum therapy was not used as a prophylactic measure except in a few isolated cases. In spite of the routine tests for sensitivity, serious and at times fatal reactions followed the injection of anti-sera in the treatment of gas gangrene.

#### h. Penicillin.

a. After seven months use of penicillin in the treatment of battle casualties, it was not yet possible to assay its value in terms more specific than clinical impressions nor attribute to penicillin beneficial results, the credit for which was not in part due to other factors. For example, was reduced mortality attributable to time, technique, better surgery, blood transfusions, sulfonamides or penicillin? Penicillin was a new factor but not the only new factor introduced.

b. It was obvious that comparative results cannot be obtained by denying penicillin to a large group of battle casualties as long as an adequate supply was available.

c. Penicillin undoubtedly contributed to minimizing wound infection. It has not eradicated gas gangrene although it may have contributed much toward the prevention and control of clostridial infections. There was presumptive evidence that it was beneficial in abdominal wounds in preventing infection of retroperitoneal and mesenteric hematomas. It was injected routinely into the pleural sac where it persisted for at least 48 hours and was probably effective for 96 hours. In the prevention and control of infection in all types of wounds, penicillin was of great value so long as it was not regarded as a substitute for good surgery.

#### 4. Methods of Administration.

1) Parenteral. The current method of intramuscular injection every four hours was practicable but did not maintain an optimum blood level. The British advocate the continuous intramuscular drip method as more efficient and less painful than the intermittent injection.

(2) Local. At present, Trillin is mixed with a sulfonamide powder for local use. A better diluent may be developed. The Australians have used powdered plasma successfully.

1. Primary Aid.

a. In the Medical News No. 5, Office of the Surgeon, First U. S. Army, dated 29 April 1944, the function of the medical installations in the divisional area was defined as primary aid and this was outlined in specific points. It is now possible to review these points in the light of the experience of the past seven months.

1) Measures for the control of hemorrhage and pain. The most important of these were the tourniquet and the morphine syrette.

(a) Tourniquets have saved many lives and decreased an operational list. The danger comes from tourniquets that may be covered over by clothing or blankets and remain undetected from the time the patient leaves the aid station until he arrives at the field hospital. The fact of the tourniquet should always be noted on the emergency medical tag. There were a few cases in which this was neglected and a viable limb was lost.

(b) The morphine syrette contained  $\frac{1}{2}$  grain of morphine tartrate. This amount was given partly because it was thought that the tartrate salt of morphine was less potent than the sulfate. Recent experience has not borne this out. Moreover, in cold weather when circulation is slow, syrettes are very apt to have delayed absorption. When subsequently warmed and transfused, the cumulative effects suddenly assert themselves and the patients pass into morphine poisoning. It is well to keep this fact in mind and to handle the morphine syrette with discretion.

(2) Resuscitation measure (plasma and blood). Plasma was used at the battalion aid station but was not given to the point of delaying the patient on his journey to the rear. Plasma given at this level means time lost. While it was a temptation to give a patient who has not quite responded to his first three bottles, another three bottles, benefits so slowly gained are very apt to be dissipated again under the unavoidable insult of further transportation and once the patient released, his condition was much more likely to be irreversible. Occasionally, it was necessary to hold a patient at the aid station but the rule was to sacrifice full resuscitation for early evacuation.

(a) Blood was not used at the aid stations but it was used by some clearing stations when they were adjacent to field hospitals so that the blood could be taken over very easily. No blood banks were maintained at clearing stations.

(3) Protection of the wound from further contamination. The large Carlisle dressing was sometimes too small and when two or three of them are superimposed, they become bulky and hard to handle. It was recommended that a larger dressing be made available, patterned after the British "shell" dressing.

(4) Initiation of chemotherapy. The instructions for the local and systemic administration of sulpha drugs were well followed, but it was recommended that the local application be discontinued for the following reasons:

(a) The main danger was overdose. The patients were already taking sulpha drugs by mouth and they were not very well hydrated. Absorption from a large raw surface is rapid. Cases of urinary blockage were seen. Secondly, the sulpha cannot be evenly distributed when it was only sprinkled and not rubbed in. Some parts of the wound became caked with a heavy layer and others got none at all. Thirdly, the sulfonamide cannot reach the depths of the wound when it was sprinkled in and it is in the depths where it is most needed. Finally, at debridement, the sulpha was seen to be inseparably mixed with dirt and clotted blood, it had to be removed, together with all the tissues upon which it could have had any effect. It seemed more effective to postpone the local application of sulfonamides until the time of debridement.

(5) Administration of tetanus toxoid. The "booster" dose remained routine with all American casualties. Prisoners of War were given the anti-toxin. No case of tetanus was reported among American casualties in the army area.

(6) Splinting of the injured part for transportation. On the whole, splints were well applied in the forward area. In some instances, splints were carelessly applied and occasionally no splints have been applied to extremities with fractures or extensive wounds. During the assault phase, the outstanding deficiency in the preparation of casualties occurred in connection with dressing the litter, especially the failure to put blankets beneath the patient. Ring splints continued to be a problem in the upper extremity.

They were safe only when the patient could be watched continuously and this was difficult during evacuation. A well-applied Velpeau bandage was probably better for the majority of fractures of the upper arm. In the lower extremity, the ankle hitch led to pressure necrosis when it was left on more than six hours. After this length of time, it should be loosened if there is any question in the mind of the examiner.

(7) Accurate recording of the significant data on the emergency medical team was commensurate with the conditions under which the recording is accomplished.

(8) In the evacuation from forward stations, the  $\frac{1}{2}$  ton truck converted into a litter ambulance was indispensable. It was inconspicuous, roadworthy, and could go where a regular ambulance cannot go. Aid stations would be at a loss without their "jeep ambulance."

(9) The medical officers of the forward echelon acquitted themselves painstakingly and courageously of an exacting and often dangerous task. They treated the casualties during the first critical hours, carried out the primary triage, and solved many a bottleneck. Successful evacuation depended largely on their judgement and devotion. They earned high praise.

## 6. Definitive Surgery.

### a. Surgical Personnel.

(1) Recommendations for changes and additions in the T/O of medical units were submitted by these units and discussed by the various sections of the Army Surgeon's Office. No further comment is necessary.

(2) It was recognized that the chief difficulty in obtaining well qualified surgeons and surgical specialists to staff all the hospitals was the limited number available, but it was also obvious that the chief obstacle to the proper assignment, prompt interchange or adequate replacement of available personnel was in the final analysis contingent upon rank.

(3) Experience answered the question of whether the most skilled surgical specialists should be placed forward in army hospitals or in general hospitals to the rear. The requirements for forward surgery were as follows:

(a) Anesthetists. Surgical teams need the best trained anesthetists. Evacuation hospitals need at least two fully qualified anesthetists to supervise the work of ~~the other less qualified~~ individuals.

(b) Neurosurgeons. The best neurosurgeons should be forward. One in each evacuation hospital and three to lead surgical teams meet the requirements.

(c) Orthopedic Surgeons. The most skilled orthopedists should be placed in general hospitals in the Communications Zone or the Zone of the Interior. There is little need for an orthopedic surgeon, in the civilian sense of the word, on surgical teams. Evacuation hospitals each need one trained orthopedist.

(d) Thoracic Surgeons. The minimum requirements were one for each evacuation hospital and one per four surgical teams.

(e) General Surgeons especially qualified in abdominal surgery and trained in the application of the four major types of plaster casts were essential on surgical teams and in evacuation hospitals; four per evacuation hospital was recommended.

(f) Maxillo-facial Surgeons. The cosmetic type of plastic surgeon was not needed in forward surgery. One oral surgeon (dental) and one maxillo-facial surgeon was required in each evacuation hospital, and on each of three surgical teams.

(g) E. N. T. Qualified ophthalmologists were too few. One was needed in each evacuation hospital. One ENT surgeon per evacuation hospital was a necessity. To find one surgeon qualified in both was rare.

(h) Surgical teams.

1. The model surgical team for First Army was as follows:

a. A mature general surgeon whose primary interest is abdominal work.

b. A thoracic surgeon.

c. A younger surgeon who has had hospital training in orthopedics and is skilled in the application of plaster.

d. A highly qualified anesthetist with additional training in bronchoscopy.

e. A surgical nurse either on the team or provided by the hospital.

f. Surgical technicians. Two to four trained enlisted men

depending upon whether the team was working in a field or an evacuation hospital.

2. Specialist Teams.

a. With properly staffed evacuation hospitals, the only specialty teams needed were three neuro-surgical and three maxillo-facial teams.

3. Auxiliary Surgical Groups.

a. Report has been submitted.

(4) The Policy of employing personnel from inactive medical installations (general hospitals and evacuation hospitals) for temporary duty with active hospitals assured the effective utilization of all available medical personnel in times of stress.

E. CLINICAL NOTES.

1. Introduction.

a. The following comments, observations, and statistical data are intended to reflect the experience of the First United States Army in the application of the surgical principles incorporated in the Manual of Therapy. No attempt has been made in the discussions to deal completely with each subject.

2. X-Ray

a. Field Hospitals have complete X-Ray equipment in each hospitalization unit but only one trained radiologist per hospital. There was no problem of volume.

b. Evacuation Hospitals needed additional equipment as well as more personnel for twenty-four hour duty.

(1) The X-Ray department of evacuation hospitals could not keep pace with surgery and evacuation when there was a large number of admissions shortly after the hospital opened nor when the hospital continued to receive a peak-load of casualties day after day. Mobile X-Ray units were used to avoid or relieve this situation. Without this assistance, the X-Ray department resorted to fluoroscopic examinations and diagnoses to overcome the bottle-neck.

a. In the First U. S. Army, the three companies of the 21st Medical Gas Treatment Battalion were used as a center for certain types of medical cases and for the care of SIV's. This battalion had no X-Ray equipment nor personnel. Two mobile X-Ray units were necessary to provide three companies with minimum

radiologic facilities which left only one mobile unit to service all evacuation hospitals. Three mobile units were needed for an army. Requisitions for X-Ray equipment and personnel for this unit were submitted.

d. The supply of X-Ray films was becoming critical. To prevent loss of films and retakes the flash-box method of marking radiographs was instituted. (See Medical News No. 17, Office of the Surgeon, First U. S. Army, 10 November 1944.)

### 3. Anesthesia.

a. Mention has been made of the necessity for skilled anesthetists in forward surgery--skilled not only in the administration of inhalation, intravenous and block anesthesia but especially qualified in the endotracheal method. Training in bronchoscopy was very desirable.

b. The responsibility of the anesthetists was great. Often they had to administer an anesthetic to a patient who needed extensive surgery but was at best a poor risk. Not infrequently, they were called upon to give anesthesia to two patients at the same time. During the operation, they supervised the administration of blood, plasma, or other intravenous fluids.

c. The relative frequency with which different methods of anesthesia were used varied in field and evacuation hospitals.

(1) As representative of methods of anesthesia used in field hospital surgery, the following percentages derived from an analysis of 4,111 anesthetics given by anesthetists of 3rd Auxiliary Surgical Group Teams are cited:

|                 |                                |
|-----------------|--------------------------------|
| Inhalation      | 62% (70% by endotracheal tube) |
| Intravenous     | 35%                            |
| Block and local | 3%                             |
| Spinal          | Less than 1%                   |

(2) In evacuation hospitals, a much lower percentage of inhalation anesthesia was used. The statistics on anesthesia below are from an evacuation hospital where 9,712 patients were operated upon from 24 June to 24 December 1944:

|                    |        |
|--------------------|--------|
| Pentothal          | 61.06% |
| Local              | 27.94% |
| G. O. E.           | 7.43%  |
| Open Ether         | 1.23%  |
| Combined Pentothal | 2.43%  |
| Spinal             | 0.79%  |
| Gas Oxygen         | 0.12%  |

(3) Spinal anesthesia found little place in forward surgery. Its use was largely restricted to operations on acute abdominal conditions such as appendicitis.

(4) Local anesthesia was extensively used in neurosurgery.

(5) A large number of sympathetic blocks were done for impaired circulation of the extremities.

d. Bronchoscopy was done on 6% of the patients operated upon by auxiliary surgical teams.

#### h. Neurosurgery.

##### a. Available Neurosurgeons.

(1) At the time of the invasion, the First U. S. Army had one neurosurgeon with each evacuation hospital and three neurosurgeons in the 3rd Auxiliary Surgical Group. Two of the latter were on general surgical teams and the third, Major Walter G. Haynes, was appointed an advisor in neurosurgery.

(2) Subsequent appraisal of specialists in the evacuation hospitals revealed that three evacuation hospitals did not have well qualified surgeons in this specialty. To remedy this situation, two of the younger neurosurgeons from the auxiliary surgical group were transferred to two of these evacuation hospitals and the third hospital was provided with a neurosurgical team under the leadership of the Advisor in Neurosurgery.

(3) A second neurosurgical team was obtained from the 4th Auxiliary Surgical Group and employed until August when it was possible to secure the services of a neurosurgeon from a general hospital to lead a second neurosurgical team. Permanent transfer of this neurosurgeon was subsequently effected.

##### b. Neurosurgical Teams.

(1) The number of neurosurgeons required for an army depends upon the length of the front more than upon the number of divisions. Three neurosurgical teams would be adequate provided each evacuation hospital had a competent neurosurgeon. With only two neurosurgical teams, the work at times taxed the capacity of both teams.

##### c. Plan of Management.

(1) Before the invasion, it was recognized that certain types of brain injuries could undergo definitive surgery as late as 48 to 72 hours after

injury. On this basis, a policy for by-passing neurosurgical cases was worked out with the Neurosurgical Consultant from the Chief Surgeon's Office. (See Medical News No. 14, Office of the Surgeon, First U. S. Army, 20 July 1944.)

d. Spinal Cord Injuries.

(1) Confusion existed with reference to the indications for laminectomy in cases of spinal cord injury. The current policy allowed a liberal exercise of surgical judgement and the tendency has been to operate upon a greater percentage of these cases than was the practice in the early days of the campaign. A conference for clarification of this issue was delayed by the change in the tactical situation.

(2) Reports received at this time indicated a high incidence of decubitus in patients with spinal cord injury. An air mattress to protect the bony prominences was needed and an improvised type made from life preservers had been suggested.

e. Statistics.

(1) Neurosurgical cases admitted to First U. S. Army hospitals (6 June 1944 to 31 December 1944):

|       | <u>ADMISSIONS</u> |            | <u>DEATHS</u> |            | <u>CASE FATALITY RATE PERCENT</u> |            |        |         |       |     |      |
|-------|-------------------|------------|---------------|------------|-----------------------------------|------------|--------|---------|-------|-----|------|
|       | No.               | % of Total | Pre-op No.    | % of Total | Total No.                         | % of Total | Pre-Op | Post-Op | Total |     |      |
| TOTAL | 6835              | 7.2        | 447           | 32.0       | 325                               | 16.5       | 772    | 23.0    | 6.5   | 4.7 | 11.2 |
| Head  | 5925              | 6.2        | 337           | 27.7       | 297                               | 15.1       | 684    | 20.4    | 6.5   | 5.0 | 11.5 |
| Spine | 636               | .7         | 60            | 4.3        | 28                                | 1.4        | 88     | 2.6     | 9.4   | 5.4 | 13.8 |
| Nerve | 274               | .3         | -             | -          | -                                 | -          | -      | -       | -     | -   | -    |

(2) The following statistical report of neurosurgery in the First Army by hospital and surgical team does not include the cases for the month of December. It is noteworthy that the combined mortality of penetrating wounds of the brain is 14% and of compound fractures of the skull is only 1.9%. (See attached table.) In the last war (1917-18) Cushing, the master neurosurgeon, reported 133 penetrating wounds of the brain with 43 deaths, a mortality of 31%.

(3) Electro-coagulation, suction machines and illuminated retractors were new tools since the last war. Penicillin and sulfonamides were new drugs.

These factors enabled better surgery to be performed.

#### 5. Wounds of the Eye.

a. Qualified ophthalmologists were scarce. Each evacuation hospital had one, but none had been available for surgical teams of the auxiliary surgical group. At one time, consideration was given to the organization of "head teams" by adding an eye surgeon to the neurosurgical or maxillo-facial teams. A primary obstacle was the lack of a sufficient number of ophthalmologists to justify employment on such a "part time" basis.

b. The utmost conservation in the enucleation of eyes in the forward area was advisable. When enucleation was done as part of the surgical procedure for a wound of the orbit, the disorganization of the eyeball was such as to preclude the possibility that the apparently shattered eye might be saved. General surgeons did not operate on eye cases.

c. The following statistics from the 97th Evacuation Hospital reflect a conservative attitude toward enucleations:

|   |    |
|---|----|
| Removal of foreign bodies                           | 16 |
| Wounds requiring suture of cornea                   | 7  |
| Wounds requiring suture of sclera                   | 9  |
| Wounds requiring suture of conjunctiva              | 7  |
| Wounds with intraocular foreign bodies              | 2  |
| (Patients evacuated at one for removal of f. b.)    |    |
| Wounds with intraorbital foreign bodies not removed | 5  |
| (Patients evacuated for removal of f. b.)           |    |
| Patients evacuated for enucleation                  | 12 |
| Enucleation of remains of severely lacerated eyes   | 6  |
| Chalazion operations                                | 2  |
| TOTAL   | 66 |

d. The policy of leaving damaged eyes for enucleation in general hospitals overlooked the fact that eye casualties are rarely just eye cases. They usually had multiple wounds of the head or other parts of the body.

e. Complete descriptions of eye injuries and finding by surgeons in the field were invaluable.

#### 6. Maxillo-Facial Surgery.

a. For the care of maxillo-facial injuries, each evacuation hospital had a maxillo-facial surgeon and an oral surgeon. In addition, the auxiliary surgical group had two maxillo-surgical teams whose primary duty is the treatment of maxillo-facial injuries in field hospitals when associated injuries rendered the patients non-transportable. Since relatively few maxillo-facial cases were operated in field hospitals, the ~~team~~ ~~was~~ ~~worked~~ in evacuation hospitals

and went forward only on call from the field hospitals. To cover a wide front, three rather than two maxillo-facial teams were needed.

b. The principles of treatment of these mutilating injuries in forward hospitals was outlined in the Manual of Therapy. Application of these principles in the field deserves comment:

(1) In the primary aid phase of treatment, the correct litter posture (face down) during evacuation to evacuation hospitals had not always been followed.

(2) Tracheotomized patients were accompanied by an attendant or held for four days for instruction in the care of the tube.

(3) Intramaxillary multiple loop wires with intermaxillary elastic traction proved adequate to bring about centric occlusion in the majority of mandibular and maxillary fractures.

(4) Edentulous mandibles offered a greater problem, especially when dentures were also destroyed or lost. The use of Roger Anderson type of pins and bars had been restricted.

(5) Circumferential wiring of the mandible had at times been necessary. Fractures at the angle of the mandible with the upward riding posterior mandibular fragment were left for correction in general hospitals or handled by elastic traction to plaster head cap by means of a stainless steel wire passed through a drill hole in the bone.

(6) Maxillary fractures were supported by a plaster head cap attached to a labial arch bar, an acrylic or Kingsley type splint, or stainless steel wires passed through the cheeks on either side. Some reports from the general hospitals raised considerable objection to the plaster head cap as a very uncomfortable appliance.

(7) A study of statistics showed that 5.3% of the wounded admitted to First Army hospitals had maxillo-facial injuries. From 6 June 1944 to 1 January 1945, 5535 maxillo-facial injuries occurred. The case fatality rate was 1.4%. (0.5% of these deaths were pre-operative.) Breakdown of these statistics for tabulation is difficult but the separate reports of three evacuation hospitals and of one maxillo-facial team are included as representative:

|                            | Operated  | By-Passed | Total      |
|----------------------------|-----------|-----------|------------|
| <b>Compound Fractures:</b> |           |           |            |
| Mandible                   | 5         | 0         | 5          |
| Maxilla                    | 7         | 1         | 8          |
| Maxilla and Mandible       | 2         | 0         | 2          |
| Thyroid Cartilage          | 3         | 0         | 3          |
| <b>Soft Tissues:</b>       |           |           |            |
| Face                       | 49        | 8         | 57         |
| Neck                       | 30        | 5         | 35         |
| <b>TOTAL</b>               | <b>96</b> | <b>14</b> | <b>110</b> |

2nd Evacuation Hospital

|   |    |
|---|----|
| <b>Fractures:</b>   |    |
| Maxilla   |    |
| With sinus involvement  | 30 |
| Without sinus involvement   | 18 |
| Mandible  | 87 |
| Combined fractures of Maxilla and Mandible                              | 11 |
| Teeth with Soft Tissue Injury   | 19 |
| Nasal Bones   | 11 |
| Temporal Bone   | 6  |
| Frontal Bone with Sinus Involvement                                     | 14 |
| Malar Bone  | 5  |
| Maxillo-facial injuries in which loss of soft tissue substance occurred | 14 |

97th Evacuation Hospital

|   |           |    |
|---|-----------|----|
| Total number of operative cases                                   | 200       |    |
| <b>Fractures:</b>   |           |    |
| Mandible  | 20        |    |
| Maxilla   | 19        |    |
| Orbit   | 9         |    |
| Nose  | 7         |    |
| Palatine  | 6         |    |
| Malar   | 2         |    |
| Frontal   | 6         |    |
| <b>Total Fractures</b>  | <b>69</b> |    |
| Number of patients having loss of bone                            | 13        |    |
| <b>Classification of bone loss:</b>                               |           |    |
| Mandible  | 6         |    |
| Maxilla   | 4         |    |
| Orbit   | 4         |    |
| Frontal   | 3         |    |
| Number of patients having loss of soft tissue                     | 31        |    |
| <b>Classification of soft tissue loss:</b>                        |           |    |
| Eye   | 16        |    |
| Ear   | 6         |    |
| Eyelid  | 4         |    |
| Lip   | 5         |    |
| Cheek   | 4         |    |
| Chin  | 4         |    |
| Nose  | 3         |    |
| Eyebrow   | 1         |    |
| Wounds of face and neck in which drainage was deemed necessary    |           | 65 |
| Tracheotomies   |           | 3  |
| Removal of foreign bodies from face and neck, other than from eye |           | 43 |

Maxillo-Facial Team No. 1  
3rd Auxiliary Surgical Group

|                            |    |                            |     |
|----------------------------|----|----------------------------|-----|
| <b>Compound Fractures:</b> |    | <b>Soft Tissue Wounds:</b> |     |
| Mandibular                 | 58 | Face and Mouth             | 143 |
| Maxillary                  | 9  | Pharynx                    | 14  |
| Nasal                      | 8  | Larynx                     | 4   |
| Zygomatic                  | 15 | Neck                       | 10  |
| Frontal, ethmoid           |    |                            |     |
| Temporal                   |    |                            |     |

## 7. Burns

a. Burns did not constitute a major problem numerically. The total number of burns (all locations) admitted to hospitals from 6 June 1944 to 1 January 1945 was 1113, with a mortality of 2%.

b. The principles of treatment have been as described in the Manual of Therapy, which permitted the surgeon a choice between sulfadiazine cream 5%, petrolatum, boric acid ointment with or without sulfanilamide powder on fine meshed gauze to cover the burned surface.

c. All these methods have been used but the preference is for the sulfadiazine cream.

d. A few surgeons objected to no pressure dressing on the face on the basis that the secretions from the eye, nose and mouth collect beneath the dressing.

## 8. Surgery of the Extremities.

### a. Debridement of Wounds.

(1) The practice of minimal removal of skin and bone and maximum removal of vitalized muscle, the use of simple incisions, the relief of tension by fascial incisions and the avoidance of plugging wounds with vaseline gauze are essentials which were well known but not always well executed.

### b. Plaster Casts.

(1) Attention is invited to Medical News No. 11, Office of the Surgeon, First U. S. Army, 13 July 1944, subject: "Transportation Casts".

(2) To insure that the general principles in the application of casts were followed, it was required that the surgeon write his name on the cast.

(3) The Tobruk splint was seldom employed as a transportation splint.

(4) Records of the 1st Auxiliary Surgical Group show that members of surgical teams utilized four major types of extremity casts as follows:

|                |     |
|----------------|-----|
| Hip Spica      | 433 |
| Full Leg       | 631 |
| Shoulder Spica | 173 |
| Wolpean        | 40  |

(5) Experience established the advisability of postponing the application of a plaster hip spica following debridement for compound fractures of the femur in patients whose condition is poor at the completion of the debridement operation. Instead of a hip spica, an arm-leg splint is applied

with skin traction. One or two days later when the patient's condition has improved, the splint is replaced by a plaster spica. In the hands of the general surgeon, this method is less time-consuming and requires less moving and changing of the patient's position.

c. Comparative statistics on compound fractures.

(1) The following table shows the total number of compound fractures admitted by two evacuation hospitals selected at random. The operative mortality is almost identical:

|                     | 45th Evac. | 5th Evac. |
|---------------------|------------|-----------|
| Total Cases         | 2341       | 2584      |
| Operative Mortality | 0.26%      | 0.23%     |

(2) Compound fractures of the femur when studied alone show a somewhat higher mortality:

|              | 45th Evac. | 5th Evac. |
|--------------|------------|-----------|
| Total Cases  | 212        | 225       |
| Total Deaths | 5          | 7         |
| Mortality    | 2.3%       | 3.1%      |

(3) A certain percentage of compound fractures was associated with a severe degree of shock which made the casualties non-transportable. As non-transportables, they were admitted to field hospitals. The figures of one of the more active field hospitals (51st Field Hospital) show a much higher mortality rate than evacuation hospital figures:

|                        | Operations | Post-Op Deaths | Post-Op Mortality |
|------------------------|------------|----------------|-------------------|
| Femur and Pelvis       | 73         | 12             | 16.43%            |
| Tibia, Fibula and Foot | 66         | 12             | 18.18%            |
| Scapula and Humerus    | 54         | 2              | 3.70%             |
| Radius, Tibia and Hand | 16         | 0              |                   |
| TOTAL                  | 209        | 26             | 12.44%            |

(a) When a field hospital functioned as a modified evacuation hospital, the mortality rate was altered by the fact that both "transportable" and "non-transportable" casualties were admitted.

|                        | Operations | Post-Op Deaths | Post-Op Mortality |
|------------------------|------------|----------------|-------------------|
| Femur and Pelvis       | 119        | 7              | 5.88%             |
| Tibia, Fibula and Foot | 194        | 4              | 2.06%             |
| Scapula and Humerus    | 96         | 1              | 1.04%             |
| Radius, Ulna and Hand  | 138        | 1              | .72%              |
| TOTAL                  | 547        | 13             | 2.37%             |

d. Hand and Foot Injuries.

(1) Reports from general hospitals indicated that hand and foot injuries were the most poorly managed of all wounds. The four deadly sins have been:

(a) Insufficient cleansing by gentle scrubbing with soap and water.

(b) Tendency to over-bridement of these wounds.

(c) Use of nail and pulp traction.

(d) Prolonged or over-fixation of the hands and feet in the treatment of injuries of metacarpals, metatarsals, or phalanges.

(2) A large percentage of injuries of the hands and feet belong in the category of self-inflicted wounds (SIW's). Special provision was made for the care of these cases. At one time the difficulties involved were primarily administrative and secondarily professional in that SIW's had to be held until cleared by the Inspector General. The delay in evacuation of these patients thus occasioned was subsequently overcome.

(3) The principles of treatment of these wounds incorporated in Circular Letter No. 131, Office of the Chief Surgeon, ETO, 8 November 1944, were an improvement based on experience over the methods previously recommended and employed.

e. Vascular Surgery.

(1) The handling of extremities with main artery damage was disappointing. Blakemore's non-suture method of blood vessel anastomosis had been employed a few times without convincing results. It is doubtful if this Blakemore method has much application. To date heparin had not been available for use except on two or three patients.

(2) Paravertebral sympathetic nerve block has not prevented a high incidence of gangrene but has apparently permitted amputation to be accomplished at a lower level. Improvement in the circulation was observed with sufficient frequency to justify the continuation of the policy of employing sympathetic nerve block routinely and as early as possible.

(3) Periarterial sympathectomies were not advocated.

(4) Lateral sutures and a few anastomoses of main arteries were done successfully but it was ~~not possible to~~ attribute the result to the

repair when viable limbs also followed ligation at similar levels.

(5) The results of treatment for main arterial damage to extremities were most discouraging. When heparin and papaverine become available, a vascular clinic will be established to afford a better opportunity for study of these cases and for a more controlled test of the various methods of restoring the circulation including the use of glass tubes, a method developed by the Canadians.

(6) The following are vascular surgery statistics of operations performed at the 45th Evacuation Hospital:

| ARTERY              | TOTAL      | ADEQUATE CIRCULATION         | AMPUTATION                         | DRY GANG (1) | DEATHS (2) |
|---------------------|------------|------------------------------|------------------------------------|--------------|------------|
| Axillary            | 6          | 3 (3)                        | 2                                  | 0            | 1          |
| Brachial            | 29         | 24 (4)                       | 4 (with one inevitable)<br>(5)     | 1            | 0          |
| Radial              | 10         | 9                            | 0                                  | 0            | 1 (6)      |
| Ulna                | 3          | 3                            | 0                                  | 0            | 0          |
| Radial & Ulna       | 1          | 0                            | 1                                  | 0            | 0          |
| Femoral             | 20         | 8                            | 9 (with one inevitable)<br>(7)     | 2            | 2 (8)      |
| Popliteal           | 16         | 5 (with one probable (9)     | 8 (with one inevitable)<br>(10)    | 1            | 1 (8)      |
| Prof. Femoris       | 2          | 1                            | 1                                  | 0            | 0          |
| Post. Tibial        | 25         | 23                           | 1                                  | 0            | 1 (11)     |
| Ant. Tibial         | 1          | 1                            | 0                                  | 0            | 0          |
| Ant. & Post. Tibial | 6          | 1                            | 5                                  | 2            | 0          |
| Common Carotid      | 1          | 1                            | 0                                  | 0            | 0          |
| Common Iliac        | 1          | 0                            | 0                                  | 0            | 1          |
| Ext. Iliac          | 2          | 0                            | 0                                  | 0            | 2          |
| Int. Iliac          | 1          | 0                            | 0                                  | 0            | 1          |
|                     |            | <u>VEINS</u>                 |                                    |              |            |
| Inf. Vena Cava      | 2          | 0                            | 0                                  | 0            | 2          |
| Common Iliac        | 1          | 0                            | 0                                  | 0            | 1 (12)     |
|                     | <u>127</u> | <u>79 (with one probable</u> | <u>31 (with three inevitables)</u> | <u>6</u>     | <u>13</u>  |

**Notes:**

- (1) All cases resulted in amputation and are included in the figures for amputations.
- (2) Unless otherwise noted are operative.
- (3) One anastomosis with adequate circulation.
- (4) Five were sutured and circulation was adequate in all.
- (5) Dry gangrene distal phalanges.
- (6) Death due to pulmonary edema six hours post-operative.
- (7) Dry gangrene of foot.
- (8) One died of shock prior to operation.
- (9) No note as to circulatory status on evacuation.
- (10) Cellulitis and dry gangrene of foot.
- (11) Due to pulmonary infection. Lacerated femoral vein was ligated at time of operation.
- (12) Nine days post-operative due to associated injuries.

(7) The following are vascular surgery statistics of operations performed by members of the surgical teams of the 3rd Auxiliary Surgical Group:

|  |     |
|--|-----|
| Number of patients                         | 191 |
| Suture or anastomosis                      | 15  |
| Major ligations                            | 173 |
| Number of patients with sympathetic blocks | 98  |

f. Amputations.

(1) A conservative attitude was maintained toward amputations. Consultation was required. Devascularized limbs were given a chance, and not amputated as a primary operation. Inadequate circulation following damage of the main artery, certain types of gas gangrene and the completion of a traumatic amputation were the usual indications.

(2) Physiologic amputation with a tourniquet in patients who do not respond to resuscitation had a limited application but had to be advocated with caution.

(3) Amputation under nitrous oxide anesthesia was satisfactorily accomplished a few times.

(4) The number of amputations of the lower extremity was almost twice that of the upper extremity. The following table shows the number of extremity amputations of all types:

| Month       | Upper | Lower |
|-------------|-------|-------|
| June        | 99    | 154   |
| July        | 263   | 470   |
| August      | 135   | 216   |
| September   | 49    | 88    |
| October     | 43    | 127   |
| November    | 84    | 217   |
| December    | 109   | 76    |
| Total       | 782   | 1348  |
| GRAND TOTAL | 2130  |       |
| PERCENTAGE  | 36.7% | 63.3% |

9. Thoracic Wounds.

a. Early in the assault phase it became apparent that the management of chest cases was attended by a certain amount of confusion. This observation led to the preparation of Medical News No. 11, Office of the Surgeon, First U. S. Army, 5 July 1944.

b. Gradually a more conservative trend developed with reference to removal of foreign bodies. Measures for control of the urgent physiologic disturbances were more effectively employed pre-operatively and operations were better timed.

c. Approximately 60% of sucking wounds were treated by debridement, aspiration of blood and closure in layers. When thoracotomy was indicated, adequate access could usually be gained by extension of the wound. Separate thoracotomy incision was made when the nature and location of the missile tract was unsuitable for extension.

d. Bronchoscopy as a pre and post-operative measure was done frequently to clear the tracheo-bronchial tree of mucus and blood.

e. Experience supported the opinion that chest cases must be resuscitated more carefully than other severe casualties, that the too liberal use of intravenous fluids invites pulmonary edema, and that blood is safer in this respect than plasma. The over transfusion of chest cases must be avoided.

f. A study of evacuation revealed that too many chest cases arrived at general hospitals with a large amount of bloody fluid in the chest. Special attention was directed to this finding in an attempt to correct the fault, but it was not considered feasible to require a routine x-ray or aspiration of the chest before evacuation of each patient.

g. The number of patients with thoracic wounds admitted to First Army hospitals from 6 June to 31 December 1954 was 8770 which was 9.1% of the total admissions. The case fatality rate was 8% (pre-operative 3.4%, post-operative 4.6%).

#### 10. Thoraco-abdominal Wounds.

a. The fundamental problem in the management of thoraco-abdominal wounds was the question of surgical approach. A combined chest and abdominal operation is difficult to withstand, and was less often employed than a single approach. The choice between a thoracic and abdominal incision is contingent upon many factors and must be made for the individual case.

b. Thoraco-abdominal wounds are serious injuries which might be expected to have a higher mortality rate than abdominal wounds without associated thoracic injury. In small groups of cases, this was usually true but in a large series, the mortality was actually lower. There were 1239 patients admitted to Army hospitals with thoraco-abdominal wounds (1.3% of the total admissions). The mortality by case was, pre-operative 6.9%, post-operative 12.4%, total 19.3%. The mortality for abdominal wounds was 22.4%. This was difficult to understand. Probable explanations are:

(1) The most serious thoraco-abdominal wounds may not have reached a hospital alive.

(2) Surgical procedures carried out through a thoracic approach have been less severe on the patient, and the majority of cases were approached from above.

(3) Chest wounds have a lower mortality rate than abdominal wounds and in some instances the abdominal operations were only exploratory in extent.

c. The statistics given below represent an analysis of thoraco-abdominal operations performed by members of surgical teams:

|                                |     |
|--------------------------------|-----|
| Number of patients             | 413 |
| Through thoracotomy approach   | 238 |
| Suture of diaphragm            | 226 |
| Splenectomy                    | 57  |
| Closure of GI perforations     | 34  |
| Through laparotomy approach    | 173 |
| Exploration only               | 42  |
| Suture of diaphragm            | 99  |
| Operations on abdominal organs | 168 |

## II. Abdominal Wounds.

a. The incidence of abdominal wounds among battle casualties admitted to Army hospitals was 4.1%. The mortality rate (case fatality) for 3925 patients was 22.4% which does not take into account the deaths which occurred in patients after they had been evacuated from the Army zone. This represents a striking improvement when compared with the mortality of abdominal wounds in 1917-1918 (AEF) which was 66.3%. It is recognized that a number of variables arise in calculating the mortality rate of abdominal wounds, but the large number of cases handled offsets many of these factors and establishes this figure as an accurate calculation during all types of warfare on the continent.

b. Reduced mortality may be attributed to several factors among which penicillin and sulfonamides must be given due credit. The time element, the technique and the quality of surgery and post-operative care each contributed to the successful management of these cases. Selection of patients for operation could obviously result in a low post-operative mortality but the figure 22.4% includes both pre and post-operative deaths. The post-operative mortality was only 16.2%. Furthermore, the policy of accepting the risk, and not adjudging a bad-risk patient inoperable was followed. Some of the pre-operative deaths occurred shortly after the arrival of the patient in the hospital.

Evaluation of the patient before operation is an important principle which depends upon the experience and judgment of the surgeon. The recognition of continuing or concealed hemorrhage was a deciding factor in undertaking a poor-risk operation rather than persisting in repeated blood transfusions and futile resuscitative measures. The time factor stressed so graphically by Sir Gilbert Wallace in the statistics of the last war is still important but to a less extent. Blood transfusions, Levine and Miller Abbott tubes and other methods of treatment represent advances in surgery since 1917-18. The availability of blood for transfusion has been an outstanding factor in this campaign. The policy of holding all post-operative cases for ten days or longer decreased but did not eliminate the complications incident to travel, such as evisceration.

c. Comments on Technical Procedures.

(1) Drainage of the peritoneal cavity for infection is not indicated. In the presence of liver laceration, drainage below diaphragm was done. Drainage of the retroperitoneal spaces for perforation of retroperitoneal portions of the colon and drainage of the space of Retzius following perforation of the bladder were necessary.

(2) Experience has demonstrated the necessity for supporting the incision with an adequate number of well placed retention sutures to prevent evisceration. The sutures should incorporate all layers at least down to the peritoneum and should be tied loosely over the skin, not over gauze or through rubber tubing. Removal of retention sutures before the patient is evacuated was avoided.

(3) Small bowel injuries were treated by suture of perforations, or when necessary, by resection and anastomosis by an adequate method. Exteriorization of small bowel and intestines were avoided.

(4) Large bowel perforations. There is a difference in the management of injuries of the right and the left side of the colon.

(a) For lesions of the rectum and pelvic colon, the indication for complete diversion of feces is met by an ample spur colostomy with complete transverse division of the bowel and covering the distal stoma with vaseline gauze. Wounds of the rectum demand free drainage by incision of the fascia

propria in addition to spur colostomy. Proctoscopic examinations were often of diagnostic value in determining the presence of injuries of the rectum.

(b) In dealing with injuries of the right colon, the indication is for decompression of the colon. The dangers of leakage and the known insecurity of sutures makes simple closure of a wound of the colon a hazardous procedure. Large bowel perforations were exteriorized. Some of the distal perforations in an exteriorized segment were closed provided the proximal perforation afforded sufficient decompression. Otherwise exteriorized perforations were left open. Sigmoid colostomies were opened when they were made.

(c) Combined injuries of the ileum and the right side of the colon presented the greatest problem. Exteriorization of the ileum and end of the divided colon as a double barrel ileo-colostomy has not been a satisfactory procedure. End to side anastomosis of the ileum to the transverse colon with exteriorization of the distal segment of ileum and colon was advocated. The patient's condition would not often permit an additional resection which is the ideal procedure.

(d) The hazards of leaving the scar and the small risk of producing a peritonitis in patients with colostomies led the surgeons responsible for reconstructive procedures of the bowel to prefer the procedure of taking down the colostomy and completely restoring the continuity of the colon. For these reasons, a loop colostomy was preferred. Spur colostomies are indicated when resections of a segment are necessitated by perforations of the mesenteric border, injuries to the mesentery resulting in non-viable segments or extensive lacerations of a segment. Accurate descriptions of operative procedures were of utmost importance to the surgeon responsible for re-establishing intestinal continuity.

(5) The management of injuries of the liver, spleen, and kidney are described in the Manual of Therapy. The importance of drainage of liver injuries below the diaphragm has been repeatedly demonstrated by the subsequent development of thoraco-biliary fistula or bile peritonitis in cases not drained.

(6) Injuries of the ureter were surprisingly few and not always detected until their presence was revealed by the drainage of urine from a posterior wound.

(a) Patients who have a suprapubic cystostomy can be kept dry by the attachment of a suction apparatus to an indwelling urethral catheter.

(7) Surgical Procedures.

(a) An analysis of 1334 abdominal operations by auxiliary surgical teams shows the relative frequency with which various surgical procedures were employed:

42% had closure of gastrointestinal perforations.  
34% had colostomies and various exteriorizations.  
19% were negative or not amenable to surgery.  
17% had intestinal resections.  
14% had operations on the liver.  
13% had operations on the urinary bladder.  
5% had acute inflammatory conditions.  
4% had splenectomy.  
2% had operations on the biliary tract.  
2% had transperitoneal nephrectomy.

These percentages add up to more than 100 because many patients had more than one procedure.

ACTIVITIES

A. Operation of the Medical Service.

During the early part of this period and during the pursuit across Northern France the evacuation hospitals and the convalescent hospital were not employed at all times. At these times the field hospitals took over the functions of the evacuation hospitals. Similarly during the early part of the break-through the evacuation hospitals and convalescent hospital were not used in the usual manner and the evacuation policy was changed so that patients were sent to AMSEC hospitals as soon as transportable.

When the situation became more stable and the battle of Germany began and again after the battle of the bulge, the evacuation and convalescent hospitals and the 91st Medical Gas Treatment Battalion functioned as they did prior to these periods.

B. General Remarks.

From a study of the casualty figures from other Theaters and Medical Intelligence publications it was estimated that approximately 30-40% of admissions to army hospitals would be for medical causes, exclusive of M.P. cases. Fortunately, experience indicated this estimate to be too high. The table below gives, for Army hospitals, the total admissions, medical admissions, and percent that were medical admissions by weeks for the period concerned.

| <u>Week Ending</u> | <u>Total Admitted</u> | <u>Medical</u> | <u>% Medical</u> |
|--------------------|-----------------------|----------------|------------------|
| 4 August           | 1350                  | 1838           | 13.6             |
| 11 August          | 930                   | 1365           | 13.9             |
| 18 August          | 6019                  | 1305           | 25.0             |
| 25 August          | 2333                  | 936            | 40.1             |
| 1 September        | 2623                  | 703            | 26.3             |
| 8 September        | 2407                  | 678            | 28.2             |
| 15 September       | 3162                  | 949            | 30.0             |
| 22 September       | 6616                  | 1240           | 18.7             |
| 29 September       | 3611                  | 1411           | 29.1             |
| 6 October          | 4610                  | 1623           | 35.2             |
| 13 October         | 5759                  | 1574           | 27.7             |

|             |                |                 |             |
|-------------|----------------|-----------------|-------------|
| 20 October  | <del>422</del> | <del>1304</del> | 32.7        |
| 27 October  | 2678           | 1296            | 48.4        |
| 3 November  | 2915           | 1407            | 48.3        |
| 10 November | 4817           | 1800            | 37.5        |
| 17 November | 6787           | 2925            | 43.1        |
| 24 November | 9078           | 2111            | 23.3        |
| 1 December  | 6834           | 1183            | 21.7        |
| 8 December  | 5357           | 1645            | 30.7        |
| 15 December | 8430           | 2045            | 24.3        |
| 22 December | 9096           | 1852            | 20.3        |
| 29 December | 7404           | 1792            | 24.2        |
| 5 January   | 6341           | 2022            | 31.9        |
| 12 January  | 7591           | 2514            | 33.1        |
| 19 January  | 8364           | 2159            | 25.8        |
| 26 January  | 6141           | 2092            | 34.1        |
| 2 February  | 5638           | 2227            | 39.5        |
| 9 February  | 6244           | 2445            | 39.1        |
| 16 February | 3831           | 2082            | 54.4        |
| 23 February | <u>2965</u>    | <u>1597</u>     | <u>53.9</u> |
| TOTAL       | 175,310        | 50,718          | 28.8        |

Source: ETOUSA MD Form 310.

From a study of the above figures it will be seen that the number and percent of medically sick was less than might well have been expected. There was a gradual rise in the number of patients with disease treated in army hospitals. The increase in percent of medical cases in most instances is a false one since at those times battle casualties fell off while disease casualties remained more constant.

#### C. Incidence of Reportable Diseases.

The following table presents the total number of reportable diseases admitted to First U. S. Army Hospitals for the period. (Source: ETOUSA MD Form 310).

|                  |         |
|------------------|---------|
| Total Admissions | 175,310 |
| Total Disease    | 50,718  |
| Percent Disease  | 28.8    |

|                             |       |
|-----------------------------|-------|
| Common Respiratory Diseases | 7,307 |
| Diphtheria                  | 30    |
| Influenza                   | 112   |
| Measles                     | 31    |
| Measles, German             | 26    |
| Meningococcal Meningitis    | 34    |
| Mumps                       | 113   |
| Chicken Pox                 | 5     |
| Pneumonia, primary          | 191   |
| Pneumonia, secondary        | 33    |
| Pneumonia, atypical         | 596   |
| Scarlet Fever               | 44    |
| Septic Sore Throat          | 1     |
| Tuberculosis (all forms)    | 22    |
| Vincent's Angina            | 47    |
| Common Diarrhea             | 1973  |
| Dysentery, Bacillary        | 27    |
| Dysentery, amebic           | 25    |
| Dysentery, unclassified     | 51    |
| Malaria                     | 2201  |
| Hepatitis, infectious       | 150   |
| Kerato-Conjunctivitis       | 1     |
| Poliomyelitis               | 2     |
| Pneumatic Fever             | 13    |
| Scabies                     | 344   |
| F.U.O.                      | 525   |
| Gonorrhea                   | 1018  |
| Syphilis                    | 575   |
| Other V.D.                  | 18    |

D. Respiratory diseases. This group of diseases occupied first place as the cause for medical admissions to army hospitals. At no time, however did they constitute a real problem. The incidence of these diseases was low at the beginning of the period, but with the advent of colder weather and more

stabilized warfare there was a steady increase. However, the actual numbers were less than might reasonably have been expected. There was about 3 times as many cases of atypical pneumonia as of bacterial lobar pneumonia. Patients with pneumonia were considered as non-transportable beyond the evacuation hospital. Bacterial pneumonias were treated with sulfadiazine and with penicillin when the clinical situation indicated, with uniformly good results.

E. Malaria. During the previous period malaria was responsible for the largest number of cases of disease admitted to army hospitals. At the beginning of the period being reported on the incidence of malaria was high also but the number of cases steadily decreased so that at the close of the period it constituted no problem. The table below shows the weekly admissions to army hospitals of cases of malaria:

| <u>Week ending</u> | <u>Cases of Malaria</u> |
|--------------------|-------------------------|
| 4 August           | 239                     |
| 11 August          | 246                     |
| 18 August          | 251                     |
| 25 August          | 104                     |
| 1 September        | 102                     |
| 8 September        | 119                     |
| 15 September       | 132                     |
| 22 September       | 137                     |
| 29 September       | 85                      |
| 6 October          | 89                      |
| 13 October         | 79                      |
| 20 October         | 65                      |
| 27 October         | 46                      |
| 3 November         | 49                      |
| 10 November        | 46                      |
| 17 November        | 56                      |
| 24 November        | 55                      |
| 1 December         | 34                      |
| 8 December         | 31                      |
| 15 December        | 19                      |
| 22 December        | 36                      |

|             |           |
|-------------|-----------|
| 29 December | 35        |
| 5 January   | 16        |
| 12 January  | 25        |
| 19 January  | 18        |
| 26 January  | 14        |
| 2 February  | 25        |
| 9 February  | 21        |
| 16 February | 17        |
| 23 February | <u>10</u> |
| Total       | 2201      |

The vast majority of the cases were truly recurrent. A few "new" cases were reported but these also proved to be individuals who had been in malarious regions previously and on atabrine suppressive therapy while in such regions. It is believed that they became parasitized but did not develop the clinical disease because of the atabrine. The incidence of so much malaria is believed due to the fact that personnel did not take atabrine as directed. Many patients were interviewed and none were found who developed the disease while taking atabrine. The only way that men can be induced to take the drug regularly is by thoroughly educating them as to the necessity for so doing.

During this period patients with malaria were hospitalized and treated with quinine for two weeks. Those who did not respond well or had complications were evacuated out of the army area.

F. Diphtheria. Every patient with a membrane in the respiratory passages was considered as diphtheria and treated as such without waiting for cultures or studies of smears. Initially patients were treated with anti-toxin alone in large doses. Later, however, penicillin was used in conjunction with anti-toxin. The importance of early treatment and adequate treatment were stressed. Diphtheria patients were considered non-transportable. They were kept in the evacuation hospital until clinically and bacteriologically well and were then evacuated as litter patients to the Communications Zone. Two deaths occurred from diphtheria, both the result of faulty diagnosis. The first patient was diagnosed as having a peritonsillar abscess and was evacuated to the U.K. where he subsequently died of diphtheria. The second patient was diagnosed as having

a Vincent's Throat and was treated with Mapharsen and peroxide gargles. As the result of these two deaths a further directive was issued to make medical officers more "diphtheria conscious."

G. Meningococcus Meningitis. Patients suspected of having meningococcal infections were treated with intravenous sodium sulfadiazine by the first medical officer suspecting the diagnosis. Subsequent study and treatment was carried out in the evacuation hospital and such patients were regarded as non-transportable. Penicillin was used both intramuscularly and intrathecally where indicated. The results were uniformly good. Only one death occurred. This patient was diagnosed late and, though adequately treated when the diagnosis was made, he died. The autopsy showed a considerable area of encephalitis as well as meningitis.

H. Mumps, Measles, German measles and Chicken-pox. Mumps, measles, German measles and chicken-pox were not a problem. They were treated in Army medical installations and returned to duty therefrom unless complicated.

I. Scarlet Fever. Only forty-four cases occurred. These were treated with sulfadiazine and, in a few instances, with penicillin. No deaths and no complications or sequelae were noted.

J. Diarrheal Diseases. The common diarrheas were constantly present but in small numbers. There was never an epidemic of these diseases. There was some increase during the summer months and again in December associated with an increase in respiratory disease. A few cases of bacillary dysentery occurred but these were all of the mild types. A few cases of amebic dysentery were reported; all of these were recurrences of infections acquired elsewhere. The common diarrheas were treated expectantly; the bacillary dysenteries with sulfadiazine and/or sulfaguanidine with good results.

K. Infectious Hepatitis. It was reasonable to expect that there would be many cases of this disease but there was only one hundred and fifty and they presented no special problem. They were treated in the accepted manner and evacuated to the rear when transportable. There were no deaths and all cases were mild.

L. Summary. In conclusion it can be stated that the incidence of disease was less than might reasonably have been expected; the health of the command was good, and, except for malaria, there were no epidemics or special medical problems.

VII -- NEUROPSYCHIATRY ACTIVITIES

A. Neuropsychiatry Casualties.

During the period 1 August 1914 to 22 February 1945, 20585 or 9.84% of the total number of patients admitted to First U. S. Army medical installations were neuropsychiatric casualties; of this number 9596 or 46.62% of the neuropsychiatric casualties admitted were returned to full field duty. A tabulation of the incidence of neuropsychiatric casualties by month follows:

| <u>MONTH</u> | <u>TOTAL ADMISSIONS</u> | <u>N.P. ADMISSIONS</u> | <u>% OF TOTAL ADMISSIONS</u> | <u>N.P. CASES RET TO DY</u> | <u>% NP ADM RET TO DY</u> |
|--------------|-------------------------|------------------------|------------------------------|-----------------------------|---------------------------|
| August       | 34235                   | 5766                   | (16.84)                      | 3661                        | (63.49)                   |
| September    | 19620                   | 2609                   | (13.30)                      | 986                         | (37.79)                   |
| October      | 22877                   | 1944                   | (8.50)                       | 602                         | (30.97)                   |
| November     | 33669                   | 3560                   | (10.57)                      | 1336                        | (37.53)                   |
| December     | 44036                   | 4078                   | (9.20)                       | 1615                        | (39.60)                   |
| January      | 35173                   | 1802                   | (5.10)                       | 1052                        | (58.03)                   |
| To Feb 22    | <u>19692</u>            | <u>826</u>             | <u>(4.19)</u>                | <u>344</u>                  | <u>(41.64)</u>            |
| TOTAL        | <u>209302</u>           | <u>20585</u>           | <u>(9.84)</u>                | <u>9596</u>                 | <u>(46.62)</u>            |

B. Discussion.

1. August. The tremendous push required to break thru at St Lo, Vire, and Ia Haye Du Puits during the last few days of July and the first ten days of August was responsible for the high incidence of N.P. casualties during this period. (80% of the N.P. casualties for August occurred during the first two weeks.)

The sharp increase in the rate of return to duty of N.P. patients was the result of experience gained by the line and medical officers as well as the psychiatrists during the preceding weeks.

2. September. The race across France into Belgium up to the Saigfried line from 15 August to 15 September produced a low incidence of N.P. casualties for obvious reasons. During September, the percentage of N.P. cases returned to duty dropped to about one-half of the previous month. This was because lines of evacuation were severely stretched, the division clearing stations were moving so rapidly that very little treatment of combat exhaustion cases could be accomplished there; and the exhaustion centers were often out of touch with the front or were in the process of moving so that N.P. patients from the divisions reached these installations ~~too late to be satisfactorily~~ treated and many such

patients by-passed the exhaustion centers entirely, furthermore, during ten days of this month a total evacuation policy was in force.

3. October and November. The tactical situation during these two months, except for the localized severe fighting in the Hurtgen forest 20 November to 1 December 1944, was largely static hence the low rate of incidence of neuropsychiatric conditions.

During this period the ratio of N.P. patients returned to duty was influenced by two factors. First many of the casualties showed a very low tolerance for emotional stress and therefore did not make good risks for return to duty (a large percentage of this group were replacements). Also in this category was found a number of previously wounded soldiers who discovered, upon return to combat duty that they were "not able to take it anymore." Second, incident to the long continued action (4 - 5 months) with proportionally few breaks - an increased number of excellent veteran soldiers appeared to be emotionally "burned out" and offered poor prognosis for duty without prolonged rehabilitation which is not available within a field army.

4. December. The Ardennes break-thru by the German Army was responsible for a much lower incidence of neuropsychiatric casualties, than were previous military reverses experienced by the American Forces, for instance in the Kasserine Pass action in North Africa where over 40% of admissions were neuropsychiatric. During the December "break-thru" only 1752 neuropsychiatric casualties were reported out of a total of 19403 admissions, or an incidence of 9.02%. Several reasons for the discrepancy between the expected and the actual incidence of neuropsychiatric conditions during this period are apparent.

a. An undetermined number of individuals who underwent neuropsychiatric break-downs in this action probably became battle losses, K.I.A., W.I.A., or M.I.A. directly as a result of the breakdown, thereby somewhat lowering number of cases reported.

b. Probably more important was the reaction on the part of the individual, based upon a personal hatred of the enemy which developed suddenly as a result of the German tactics and practices in this action. To many soldiers, for the first time, war became personal and not just a maneuver. In reinforcement of the above mentioned motivation must be included that of "chagrin" and "surprise", that the heretofore victorious American Armies could be "pushed"

around in this way.

c. During this period 35.6% of neuropsychiatric admissions were returned to duty - this figure undoubtedly would have been higher had it not been necessary to evacuate all casualties to the rear of the army area for seven of the fifteen days involved.

5. January and February. The successful comeback from the battle of the Bulge during January was reflected in the relatively low incidence of neuropsychiatric disabilities, as well as in the increased rate of return to duty of such casualties, and the continued gains achieved during February produced the lowest incidence of "combat exhaustion" for any period during the entire campaign.

Passes and Furloughs. Greater emphasis upon recognition and treatment of so called "combat exhaustion" in forward areas (battalion aid stations) coupled with the expansion and elaboration of division and corps "rest areas" and the introduction of the policy providing for thirty day furloughs in the United States has materially contributed toward reducing the incidence of disorders of this type among combat troops.

Survey. A survey was conducted to determine the ultimate fate of individuals who had been returned to duty from army exhaustion centers. As of 1 February completed reports had been received on 708 men, many of whom were returned to duty during July and August. The report is submitted below:

- |  |         |
|--|---------|
| 1. Total Cases Reported  | 708     |
| a. On Duty with Units  | 217     |
| b. Killed In Action  | 21      |
| c. Wounded In Action   | 34      |
| d. Evacuated for Neuropsychiatric Disabilities   | 278     |
| 2. Decorations (exclusive of Purple Heart)   | 30      |
| a. Promoted  | 11      |
| b. Commissioned  | 2       |
| 3. Average time on duty since release from exhaustion center   | 4 Weeks |
| 4. The majority of those who had a recurrence of "Combat Exhaustion" were evacuated within the first 48 - 72 hours after their return to duty. |         |

Operations. First U. S. Army operated two "exhaustion centers" at Army level during August, September and part of November - for the rest of the period covered in this report one exhaustion center was found to be adequate to carry the load of the treatment of neuropsychiatric casualties evacuated by divisions.

As a rule these exhaustion centers were in operation alternately thereby permitting the one which was in the process of moving to do so unencumbered by patients.

Each "exhaustion center" was basically an army clearing company augmented by equipment to provide facilities for five hundred beds. Psychiatrists were added to the professional staffs of the company from the evacuation hospitals. One of the exhaustion centers (the 622nd Clearing Company) had six weeks training in neuropsychiatric procedures prior to the invasion, the other did not. Both companies functioned in an outstanding manner and turned in superior performances throughout the campaign. During the first two weeks of August each of these five hundred bed installations were caring for over one thousand patients, however after that time the patient load was in proportion to the five hundred bed capacity.

SECTION VIII -- DENTAL SERVICE.

A. Report of Operations.

The report of Dental Operations between 011200 August to 222400 February 1945 may be divided into three phases, namely the period of movement across France and Belgium, the more static period from 12 September 1944 to 15 December 1944 when movement was of units rather than of the entire Army, and the movements of retirement and of advance during the Battle of Germany.

During the period of exploitation and pursuit, Chests #60 were used whenever an outfit remained in one location for a few days and the field kits for emergency treatment at other times. Divisions continued to operate efficiently Chests #60 and even while in combat did prosthetic repairs by using their Chests #61 and #62. During the third phase the use of Chests was greatly restricted due to the tactical situation.

The streamlined dental laboratory, made up of three Mobile Dental Laboratory Trucks, continued to operate at capacity with the 4th Convalescent Hospital and continued to do so through the second and third phases as a part of the 3rd Auxiliary Surgical Group.

In the second and third phases two Mobile Dental Laboratory Trucks, on loan from ADSEC, operated in conjunction with Corps units helping greatly the prosthetic situation. Five Impression Chests were rotated among small units, the necessary fabrication of prosthesis being done by the Central Dental Laboratory, Paris or the 3rd Auxiliary Surgical Group Laboratory. The greatest weakness of the Prosthetic Service is the lack of a T/O for Prosthetic Teams to operate the Mobile Dental Laboratory Trucks on hand and the inadequate number of such trucks. All such personnel have to be drawn from the units being surveyed and changes constantly.

Activation of five Dental Prosthetic Detachments was authorized on 11 February 1945, but no personnel was made available.

The operative dental work of the army, divisions, and hospitals was adequate and satisfactory except in some instances where the unit commanders continued to use dental personnel for duties other than dentistry.

SECTION IX - VENEREAL DISEASE CONTROL AND TREATMENT ACTIVITIES

A. Venereal Disease Control.

The following rates per thousand per annum are for white and colored troops during the period covered by this report:

|                    |           |             |
|--------------------|-----------|-------------|
| <u>August</u>      | White     | 1.6         |
|                    | Colored   | 19.5        |
|                    | Aggregate | <u>1.9</u>  |
| September          | White     | 14.6        |
|                    | Colored   | 150.4       |
|                    | Aggregate | <u>18.1</u> |
| October            | White     | 18.8        |
|                    | Colored   | 181.3       |
|                    | Aggregate | <u>26.6</u> |
| November           | White     | 18.5        |
|                    | Colored   | 162.9       |
|                    | Aggregate | <u>23.2</u> |
| December           | White     | 16.5        |
|                    | Colored   | 175.9       |
|                    | Aggregate | <u>23.2</u> |
| January<br>(1945)  | White     | 19.3        |
|                    | Colored   | 243.6       |
|                    | Aggregate | <u>28.0</u> |
| February<br>(1945) | White     | 19.3        |
|                    | Colored   | 153.2       |
|                    | Aggregate | <u>24.3</u> |

In September and October many soldiers had opportunities to go through large cities, where brothels were operating and there were many street walkers. During the month of October, 254 new cases of venereal disease were contracted in Paris. The November rate was somewhat lower than that for October, with the majority of cases being contracted in Liege or Verviers. In January 1945 the majority of new cases of venereal disease were contracted in Liege, Verviers and Paris, with Liege being the source of 129 cases. In February the majority of new cases were contracted in Paris. There was a considerable drop in the number of cases contracted in Liege and Verviers. Houses of prostitution were not a great problem from the standpoints of serving as sources of infection because all known houses were placed off limits as soon as discovered. However, there remained the problem of some soldiers who entered these off limit areas despite off limit signs and daily periodical checks by military police.

The greatest sources of infection were from street walkers and cafe bars operating as clandestine brothels. Whenever evidence was obtained to prove that the latter was true, steps were taken by the military police to put the place off limits. One of the ~~most~~ **SECRET** ~~difficult~~ in the attempt to establish

a successful control program was the utmost cooperation given by the Army Provost Marshal and G-5.

Vice surveys of all army territory were conducted in collaboration with the Army Provost Marshal's office.

All Civil Affairs detachments were contacted in order to ascertain the status of registered or clandestine brothels, the number of prostitutes in the area and the procedure used in the treatment of civilians with venereal disease. Whenever brothels were found to be in operation, a recommendation was made to the Army Provost Marshal to place these houses off limits.

Regular visits were made to Corps Surgeons to discuss pertinent venereal disease control problems. Some of the divisions were visited, although their problems continued to be minor in character because of the tactical situation.

Periodic visits were made to Surgeons of various army troops, especially those organizations in which there was a high venereal disease rate. Pertinent problems were discussed with the Commanding Officer and his Surgeon. Some of the various suggestions offered were as follows:

- (1) Increase in educational program, particularly to small groups of men.
- (2) Use of sulfathiazole prophylaxis.
- (3) Special emphasis was placed on obtaining epidemiological data of value and follow up on this information by unit venereal disease control officer in so far as was practicable.
- (4) Recommending the immediate placing of all suspicious "houses and cafes" off limits if it were thought that they served as sources of venereal infection.

Initially information gathered from WFOUSA Form 302 Md were turned over to respective Civil Affairs Detachments in order that the individual might be apprehended and examined for venereal disease. Later an SOP was suggested by the Surgeon's Office to the Public Health Division, G-5, Army. This was concurred in by the latter section and distributed to all Civil Affairs Detachments. The contents of the letter are as follows:

\* \* \* \* \*

726.1 (E)

18 November 1944

SUBJECT: Standing Operating Procedure for Coordination of Venereal Disease Control Procedures with the Office of the Army Surgeon.

TO : Corps, Division and Detachment Military Government Officers, and Detachment Civil Affairs Officers.

1. To facilitate execution of established policies for Venereal Disease Control, increased coordination of Civil Affairs public health procedures is desirable with those control procedures utilized by the Army Surgeon. This will be accomplished as follows:

a. Reporting of Cases. The Army Surgeon's V.D. Control Officer will submit to the CO of the detachment the name, and address of every prostitute who has been reported as a source of V.D. infection, acquired by soldiers in the area of the detachment's jurisdiction. The Detachment Civil Affairs Officer for public health will then present this information to the local health officer, or Burgemeister. He will request that the named prostitutes, or suspected source of infection, be placed in custody, and examined for the presence of venereal infection, as authorized under Belgian laws.

b. Medical Examination of Venereally Infected Persons is authorized, and is required by Belgian law, for all persons named as probable or suspected sources of venereal disease. Under present laws prostitutes or others may be released after one examination, if the findings show no infection. It is the desire of the Army Surgeon that those individuals reported as V.D. "Suspects" should be given a total of three examinations on each of three consecutive days before release, and that release from custody be given only if all three examinations are negative. Civil Affairs Officers will therefore endeavor to enlist the cooperation of the civilian authorities to accomplish this procedure.

c. Results of Clinical Examination, whether negative or positive, will be requested from the local health officer after the third successive examination. The health officer will be requested to submit the findings of the examination of the reported suspect, and the action taken with regard to compulsory treatment, or release from custody. Such information will be requested within five days after prostitutes, or other suspected individuals, are reported to the civilian authorities. This information will be forwarded as a separate report to the Army V.D. Control Officer, through the Public Health Department, G-5, First United States Army,

2. A specialist for assisting detachment Civil Affairs Officers, and coordinating civilian venereal disease control with the Army control program, will be provided by the Public Health Department, G-5, this headquarters. He will work closely with the Army Venereal Disease Control Officer, and will assist detachment Civil Affairs Officers in accomplishing the foregoing instructions.

\* \* \* \* \*

Seventeen prophylactic stations were established by the Army Surgeon's Office. Personnel of these stations gave approximately 3100 prophylactics during the period covered by this report.

A list of all prophylactic stations in army, corps and Communications Zone territory was distributed to corps, division and separate unit commanders.

Several issues of the Medical News, First Army, contained notes on venereal disease. Particular emphasis was placed on the obtaining of pertinent data for the ETOUSA Form 302 MD. Unit Surgeons were also requested to give information on the monthly sanitary report in regard to the following items:

(1) Whether or not there were brothels in the vicinity or any form of activity in prostitution.

(2) Note on control measures taken if there were isolated instances of activity in prostitution.

(3) Availability of mechanical and chemical prophylactics in addition to the regular dispensary prophylactic station.

(4) Note on control measures taken by unit venereal disease control officers in collaboration with the Provost Marshal or Civil Affairs Officer in the locality. The latter office was consulted in regard to prostitutes who were known or suspected as sources of contact.

Intensive control campaigns were carried out in Liege, Verviers, and Charleroi with the military police and Civil Affairs Detachments. All houses of prostitution and "suspicious cafes" were posted off limits. In Liege, during the two month period that this city was under army jurisdiction, over 100 brothels and cafes were posted off limits and checked day and night by military police of the vice squad. In Verviers and Charleroi the same procedure was carried out.

Local Civil Officials were contacted periodically in order to ascertain the various problems that were confronting them relative to civilian venereal disease control. All discussions of this type were coordinated through G-5.

## B. Treatment of the Venereal Diseases

The venereal disease treatment center of the 4th Convalescent Hospital continued to be the reception unit for all cases of venereal disease not treated on a duty status. This arrangement proved very satisfactory, as patients received diagnostic study and treatment in the army area, thus obviating the transfer of patients out of the army area.

Sulfonamide-resistant and new cases of gonorrhea not treated on a duty status were given 100,000 units of penicillin intra-muscularly. Patients not cured by this procedure were given a second course of penicillin, total dosage 200,000 - 500,000 units.

Darkfield examinations were performed on three successive days on all penile lesions when indicated.

Cases of primary and secondary syphilis were treated by the intra-muscular injection of 2,400,000 units of penicillin, over a period of seven and one-half days.

Reactions from penicillin were noted in a very small percentage of the patients and were of a mild Herxheimer type.

Results from penicillin therapy were excellent. The cure rate for gonorrhea cases was 95-98%. A quick disappearance of spirochetes from lesions was noted following penicillin therapy given to cases of early syphilis. Darkfields that were performed on positive lesions 9-12 hours after initial darkfield examination were negative. Lesions epithelialized in from 5-7 days.

In September, due to the tactical situation, the personnel and equipment of the venereal disease center were transferred to the 91st Medical Gas Treatment Battalion, which acted as the treatment installation. This was for a period of approximately four weeks. This arrangement proved to be satisfactory, considering the numerous problems involved.

The Army Venereal Disease Control Officer made several visits weekly to the treatment center for the purpose of seeing patients in consultation and checking records.

Patients needing further study and treatment were evacuated to general hospitals.

At the close of the period, arrangements were being made to begin the six month follow-up of penicillin treated ~~acute cases~~ which consists of complete

blood and spinal fluid study.

In August 1944, individual medical installations were given permission to administer penicillin for gonorrhea (Circular Letter 107, OCS, 25 August 1944.) The instituting of this procedure reduced the burden on the venereal disease treatment center and at the same time enabled the patient to remain with his organization. In the event of relapse or therapeutic failure patients were admitted to the venereal disease treatment center for further study and treatment.

## SECTION X - VETERINARY SERVICE

### A. Exploitation of the St. Lo Breakthrough (1 August - 12 September).

1. Inspection of food supplies. During this phase it was very difficult to maintain contact with veterinary officers of the various units and to cover inspection of all food supplies because of frequent changes of locations of units and installations. Field rations were used by most of the combat troops. Rations were issued from temporary railheads, from Class I depots and from truckheads. Arrangements were made for the veterinary officers from the 10th Medical Laboratory and the 282nd Signal Pigeon Company to inspect food supplies at depots and truckheads. Each officer had an enlisted assistant. Tests were made on questionable supplies at the laboratory. At the request of the Army Quartermaster food supplies of both animal and non-animal origin were inspected by the Veterinary Service. Veterinary officers with divisions checked food supplies at their respective breakdown points. Enemy food dumps were found in numerous towns, but many of them contained canned and dehydrated items which could not be readily incorporated into the Army ration. Such supplies were released to local populations through Civil Affairs channels. Inspection of supplies released for civilian use was usually performed by civilian health authorities. Standard Operating Procedure for handling captured food supplies required reports through channels to Army G-4, who notifies Army Quartermaster and Surgeon. Numerous instances came to the attention of the Army Veterinarian where this procedure was not followed and such supplies were used by capturing units without being inspected by the Veterinary Service. A large store of frozen carcass beef was found at Namur, Belgium. It had been imported from Denmark by the Germans. Quality of carcasses varied from canner grade to good grade. A total of 738,200 pounds was issued to army troops. This plant was then used for storage of Class I perishables.

2. Care of animals. Guard dog teams were inspected at least once each month and arrangements were made with each unit to contact the Army Veterinarian in case emergency service was required. Service was then provided from closest organization having a veterinary officer assigned. Since all guard dogs were obtained from the British, arrangements were made with the Veterinarian, 21 Army Group to evacuate dogs requiring lengthy treatment to British Veterinary

Hospitals. Dogs remained in good health during this phase. Care and treatment of pigeons was supervised by the veterinarian of the unit. Paratyphoid infections, coryza and conjunctivitis were the prevailing diseases among the birds. Very few enemy horses were captured during this phase and there were not many requests for treatment of wounded civilian livestock.

3. Personnel. Due to the changes made in Tables of Organization during the year 1943, which eliminated the veterinary officers from corps, infantry and armored divisions, the problem of providing adequate veterinary service was complicated. On 1 August 1944 there was a total of eight veterinary officers with units of this command. Two were with armored divisions, which had been authorized to continue to operate under former Tables of Organization. Two were with infantry divisions and had been reported as being in excess of Tables of Organization. There being no position vacancies within this command or in other commands under ETOUSA Headquarters, they were authorized to remain with their divisions. Two officers were with airborne divisions. One officer was assigned to a Pigeon Company and one to the Army Medical Laboratory. Of the eight veterinary officers assigned to units of this command at the time of the assault only six arrived on the continent. Two officers with the airborne divisions did not accompany their units.

4. Equipment. Although not authorized by Tables of Equipment, it was requested that Veterinary Officer and NCO kits be made available in the Army Medical Depot for all veterinary personnel. It was also requested that three each of veterinary Chests 80 and 81 be made available for issue as authorized by the Army Veterinarian. During this phase the only veterinary equipment available was that which was brought along by individual officers. Most of them had Meat and Dairy Inspection Cases and Veterinary Officer's kits. No additional equipment was received through supply channels and no veterinary equipment was captured. Equipment was adequate for duties being performed.

B. The Battle of Germany (13 September - 15 December).

1. Inspection of food supplies. Food supplies consisted of various types of Quartermaster rations supplemented by fresh fruits and vegetables. No captured supplies were inspected during this phase. A large Class I army railhead was established for receipt of all food supplies except perishables. A Class I

depot was also established. Operational rations were retained at the railhead and issued to truckheads directly from this installation. Type "B" rations were stored and issued at the depot. Perishables were stored at the large refrigeration plant at Namur, Belgium and hauled directly to truckheads in refrigerated trailers. There were usually six army truckheads in operations. A recuperage section was set up at the army railhead where all damaged supplies and those suspected of being deteriorated were inspected by veterinary personnel to determine proper disposition. Army truckheads were inspected by a veterinary officer once each week. Inspection of supplies in division and separate unit breakdown points was covered by veterinary personnel where available. In units having no veterinary personnel, this responsibility was assumed by other officers of the Medical Department. Heavy rainfall during this period made protection of supplies a serious problem. No closed warehouses were available for storage. Dunnage, tents and tarpaulins were difficult to obtain. There was some loss of food supplies caused by contamination and deterioration due to exposure to weather. Damage due to freezing was slight.

2. Care of animals. Dogs were inspected at least once each month.

Each unit was notified where emergency Veterinary Service could be obtained. Health of dogs continued to be good. One Quartermaster War Dog Platoon of twenty-four dogs was received from the United States during this period. One Sergeant, MD (VS), is attached to this team for supervision of care and treatment of minor conditions. The unit was informed of location of nearest veterinary officers who could be contacted in case of emergency. Sixty horses, draft type, were obtained by the 9th Infantry Division during this period for the purpose of packing in supplies and bringing casualties out. Thirty of these animals were obtained by local requisition and thirty were horses which were captured. The captured horses were badly infested with ringworm. Some of these animals were used for a short period but with improved weather they were disposed of. The 4th Infantry Division requested riding horses for their command. Sixteen were obtained by local requisition and sixteen were procured through the Army Quartermaster, who obtained them by purchase on reverse lend lease. These animals were only used for a short period and were then turned in to Army Quartermaster, where they were held for reconditioning and disposition. Nine were returned to owners before the end of the year. Forage was obtained from captured supplies and by requisition. Veterinary service was provided by the division veterinarian, 9th Infantry Division, and the Army Veterinarian. **SECRET** These animals of Wolf and Mouth Disease were in-

investigated during the period. Two outbreaks were confirmed in southern Belgium and Luxembourg. Outbreaks affected both cattle and hogs. The infection did not seem to be very virulent and mortality was reported to be low. Control measures were taken over by local health authorities. Disinfectants were requested and furnished from Civil Affairs Medical Supply Depot. Hoof and Mouth Disease Serum, which was requested by local veterinarians, could not be obtained. It was reported that serum had been used during the German occupation with good results in checking the spread of this disease. Destruction of infected animals and contacts was not practised. Quarantine of infected premises and disinfection were the only control measures used. Infected animals were given symptomatic treatment. An outbreak of Rotlauf Disease (Swine Erysipelas) was reported in Luxembourg, 540 hogs being affected. This outbreak was controlled by use of serum, which was obtained from a laboratory in Brussels, Belgium. All control work was performed by civilian veterinarians. It was reported that all livestock disease control work during the German occupation was supervised by German Army officials. No requests were received for treatment of wounded civilian livestock during this period.

3. Personnel. The veterinary officer from the 282nd Signal Pigeon Company was assigned to the Army Veterinarian as assistant and placed on detached service at the army railhead and depot. His enlisted assistant from the Pigeon Company was also placed on detached service at these installations. The veterinary officer from the 10th Medical Laboratory was detailed as Army truckhead inspector. Two division veterinarians were lost by transfer during this period. One sergeant, MD (VS), arrived with the War Dog Platoon which was assigned.

4. Equipment. Two Veterinary Chests No. 80 and one Chest No. 81 were received by the Army Medical Supply Depot during this phase and were available for use by units which were using horses. Other equipment was adequate for duties being performed.

C. The German Counteroffensive and the Drive to the Roer River (16 December - 22 February).

1. Inspection of food supplies. Continued as during previous phase. Sanitary inspection of Army QM Bakeries was also taken over by the Veterinary Service at the request of the Army Quartermaster.

2. Care of animals. Units with Guard Dogs and War Dogs were visited in new locations and notified where Veterinary Service could be obtained. Two units abandoned kennels and had to kennel dogs in buildings until new houses could be built. The health of the dogs continued to be good. Horses from the 4th Infantry Division, which were being cared for at a Quartermaster Salvage Depot, were left temporarily under civilian care. These animals remained in good condition during the period.

3. Personnel. The Veterinary Officer assigned as assistant to the Army Veterinarian was transferred back to the Pigeon Company, but continued to carry on the inspection of food supplies at the Army Class I Railhead and Depot. In addition to this duty he assisted the officer from the Medical Laboratory in inspection of Army truckheads. Inspection of Quartermaster Bakery units was handled by these same officers. Two Veterinary Officers were gained during this period by transfer.

4. Equipment. No equipment was lost or acquired during this period. There was adequate equipment for duties being performed.

D. Remarks. Present Tables of Organization do not provide adequate veterinary officers to perform all duties normally required of this service. It is impossible to extend the inspection service for food supplies beyond army truckheads except where veterinary officers are assigned to receiving units. Care of animals presented a problem at times due to lack of veterinary personnel and would have become a serious matter if horses suddenly had been put into use by army units on any large scale.

E. Recommendations. That one veterinary officer with rank of Lieutenant Colonel be authorized for each corps. This officer should be authorized two enlisted assistants in the grades of Staff Sergeant and Technician 5th Grade. With this additional personnel in the army it would be possible to provide much more efficient service in units under their respective corps.

## SECTION XI - NURSING SERVICE

During August and September many First Army hospitals were not operational. This gave the nurses their first real rest since arriving on the Continent.

In September many First Army hospitals were in the vicinity of Eupen. For the first time since the invasion First Army nurses were living in buildings instead of tents. A well stocked nurses sales store was provided in this area, and a beauty shop was placed "on limits" in the town proper.

On the 15th of October a letter from this office was sent to hospital commanders recommending 50% of the T/O for Second Lieutenants be given battlefield promotions.

One hundred and sixty MTO-type woolen battledress came into the army area on 20 October. This three-piece suit comprising jacket, skirt and slacks was placed on sale with priority for field hospitals and auxiliary surgical group nurses. This was the first uniform made available which was warm, smart and practical. A three-piece ATS British battle dress uniform was later issued to all First U. S. Army Nurses.

Early in November a list was compiled of all First Army nurses thirty-eight years of age or over, together with all data pertaining thereto. This list was submitted to the Office of the Chief Surgeon, European Theater of Operations, for the purpose of rotating these nurses to Communications Zone units.

On 15 November the fourth conference of First Army Chief Nurses was held at the 45th Evacuation Hospital in Eupen. All Principal Chief Nurses, Assistant Chief Nurses, and Platoon Leaders were present. The purpose of this conference was to ascertain the status of clothing and Post Exchange supplies for nurses, to reemphasize the importance of bedside care for patients, and to encourage greater efforts toward standardization within units.

On the 17th and 18th of December approximately one hundred First Army nurses lost all their clothing and equipment, due to a hurried exit from their hospitals. Ten of these nurses in the First Hospital Unit of the 47th Field Hospital set up in a school house in Walses, Belgium, were almost taken prisoner. Through the intercession of the platoon commander and a German civilian in whose small hotel these nurses were housed, the German officer permitted them to remain in the ambulance in which these

nurses were eventually evacuated was strafed and bombed by enemy planes. They finally reached the 298th General Hospital in Liege where they were cared for until they rejoined their unit on 23 December.

The fifth conference of First U. S. Army Chief Nurses was held at the 96th Evacuation Hospital on 27 January 1945. Agenda of the assistant directors conference in Paris early in December was discussed. Statistics relative to First U. S. Army nurses were given to the group. The new efficiency report was discussed in detail along with reemphasizing the importance of adequate and superior nursing care.

There were no major problems concerning First Army nurses or the Nursing Service during this period. Adequate recreational facilities were made available and were fully utilized. The nurse reinforcements coming into First Army continued to be nurses who had requested duty in a field unit and in many instances had requested a First Army unit.

**Nurses Statistics:**

1. Forty-two nurses were evacuated as patients.
2. Thirty-five nurse reinforcements came to First Army hospitals.
3. Two hundred and thirty nurses were promoted to 1st Lieutenant.
4. Fifty-four nurses received the Bronze Star Award.
5. Five nurses were awarded the Purple Heart.
6. Five nurses were awarded the Certificate of Merit.

#### SECTION XII - PERSONNEL

The usual procedures for the transfer of medical personnel both into and out of First U. S. Army units were effected.

The provisions of War Department Circular 99, 1944, were placed in effect insofar as Medical Administrative Corps officers were available. In addition to the twenty-nine Medical Administrative Corps officers received in July, another shipment of twenty was received early in August and were immediately assigned to corps for reassignment to divisions.

In order to release as many Medical Corps officers for reassignment as quickly as possible, the policy of battlefield appointments of Medical Administrative Corps officers was cleared through the G-1 Section, this headquarters, and units were instructed to submit recommendations for appointment on enlisted men who were considered eligible. This move facilitated the filling of vacancies created by the reassignment of Medical Corps officers. At that time Medical Administrative Corps replacements were not available except in small numbers.

Informal arrangements were discussed and made with the Office of the Chief Surgeon, European Theater of Operations, to establish a policy for rotation of Medical Corps officers who, either because of age or prolonged periods of field and combat duty, were considered not qualified for duty with forward units. These officers were to be rotated to hospitals in the Communications Zone and replacements were to be furnished in company grade and not to exceed thirty-five years of age.

With the concurrence of the Deputy Chief of Staff, Administration, this headquarters, the reassignment of one Medical Corps officer was made from each Antiaircraft Artillery Battalion as called for under provisions of War Department Circular 99, 1944. The necessary Medical Administrative Corps replacements were not available but it was agreed that the urgency for Medical Corps replacements was great enough to warrant this reassignment with the understanding that Medical Administrative Corps replacements would be furnished as soon as they became available. This was accomplished shortly thereafter.

Throughout the period, the policy of rotating Medical Corps officers from combat units to evacuation hospitals was effected insofar as the limited Table of Organization of army hospital units would permit.

On numerous occasions it was found necessary to supply divisions by detailing Medical Corps personnel to forward units on a temporary duty status.

In cases where acute shortages arose, informal arrangements were made for obtaining necessary personnel by telephonic communication with the Office of the Chief Surgeon, European Theater of Operations. The personnel thus obtained were assigned to Headquarters First U. S. Army and upon arrival reassigned to lower units.

In order to expedite the obtaining of necessary Medical Department personnel reinforcements, arrangements were made with the Corps Surgeons to communicate frequently with this office and to forward verbal reports of personnel shortages in units under their command. This proved helpful in determining status of Medical Department personnel throughout First Army.

Permission was obtained for substitution of Medical Administrative officers for Medical Corps officers in separate Army Medical Collecting Companies. Due to the nature of the mission of these units it was thought that services of Medical Corps officers were not required and that these officers could be better utilized in a professional capacity elsewhere.

Further arrangements were made with European Theater of Operations for immediate appointment of Medical Administrative Corps officers from First Army medical field units. The Medical Corps officers thus released were used in professional assignments.

## SECTION XIII - MEDICAL STATISTICS

A. General. This portion of the report of the Medical Section provides a summary of salient facts pertaining to the medical phase of operations of First United States Army from the beginning of the exploitation of the St. Lo breakthrough to the close of the period. Insofar as possible the tabular and graphic data included have been arranged to coincide in date with the various actions which comprise the operation. These tables and charts provide information as to the numbers and rates of battle casualties, the incidence of disease and non-battle injuries, the numbers and proportions of combat exhaustion cases, evacuations from the army area, anatomical distributions of wounds, distribution of wounds by causative agent, and so forth.

B. Operations. The previous report, for the period from 6 June through 31 July 1944 outlined the planning in England of the procedures for the combat medical statistics reporting system and its institution effective with arrival on the continent, and also covered the first seven weeks of operations. During that period most of the purely mechanical flaws in the system, such as are inherent in any new and extensive process, were found and corrected. When it became evident that if the Combat Medical Statistical Report were to serve the purpose for which it was designed its submission would have to be expedited to such an extent that the consolidated report for the entire army could be completed sometime during the day following that covered by the report it was decided that the Medical Groups would be given the responsibility of establishing a special courier service for the transmission of the reports from units within their respective areas to the Office of the Army Surgeon. The Medical Groups further delegated this responsibility in part, at least, to the battalions under their command until it evolved into a supplemental function of the evacuating agencies in the lower echelons. In this way it was, in most instances, possible to obtain these essential reports within the time limits imposed without violating the letter or the spirit of the policy. In certain instances it was difficult to impress those not directly concerned with the consolidation or use of these data of the imperative need for meeting the deadlines established. Eventually, however, the prompt, efficient handling of this report became a matter of habit and the entire situation was more satisfactory to all concerned. There were times, however, especially during the rapid advance across France when the

to the great distances involved, or the tactical situation, some slight delays were encountered. In general the reporting system functioned, as it should, in an almost automatic manner. This made it possible for the major effort to be made in giving maximum distribution of the information gathered to the offices or agencies where it would be of most value for immediate operational use or for planning purposes. Distribution of these data were made to the interested staff sections and to higher medical authorities in the form of extractions and analyses as well as complete consolidations. In addition to the latter which are required by regulations or directives, informal arrangements were made to furnish the following items of information regularly to the persons or offices indicated:

1. Daily Consolidated Combat Medical Statistical Report to the Chief of Staff, First Army.
2. Number of Civilians remaining in hospitals daily to G-5.
3. Disease tabulations to the Army Medical Consultant.
4. Classification of Wounded tabulations to the Army Surgical Consultant.
5. Data on Admissions and Dispositions of Prisoners of War to the Provost Marshall.
6. Location of hospitalized personnel to interested agencies upon inquiry.
7. Name, Rank and Unit of Prisoners of War admitted to G-2, Order of Battle.
8. Name, Rank, A.S.N. and unit of S.I.W. cases to the Inspector General.
9. Weekly Cumulative Totals of Combat Statistics to 12th Army Group, 21st Army Group, SHAEF and the Office of the Chief Surgeon.

In September a part of the Medical Records Division, Office of the Chief Surgeon, ETOUSA, was established in Paris to process the weekly reports (86ab and 310) and to receive and transmit the other Medical Department reports to that portion of the Medical Records Division still remaining in the U. K.

Some difficulties were encountered in the Office of the Chief Surgeon because of the differences in methods of preparing and consolidating the Weekly Statistical Report (Form 86ab) and the Combat Medical Statistical Report (Form 323) and because of other variations in procedure which existed among the armies. A meeting of Medical Records personnel from all the Army and Base Section headquarters was called the latter part of October. Representatives from First, Third, and Ninth Armies and from all the Base Sections on the continent attended. The informal preliminary ~~conferences~~ **CONFERENCE** and a major portion of the principal meetings

were devoted to analysis of the reporting procedures and the problems of the field armies. The methods of report preparation and consolidation within each army were explained, major variations were studied and compromises were agreed upon which would aid in the approach to uniformity of methods.

The first week of December 1944 a second meeting of the Medical Records personnel of the armies was called. The prime purpose of this conference was to consider the possibilities of revamping the medical reporting system as it applies to field armies to eliminate overlapping and duplication of reports and to decrease to the greatest extent possible the reporting burden on units in the field. A draft outlining in general terms First Army's suggested plan for the attainment of these objectives was presented to the representatives of the Third, Seventh and Ninth Armies for consideration and discussion. This plan met with general approval in principle suggested the discontinuance of the present Weekly Statistical Report (Form 86ab) and Hospital Statistical Report (Form 310). A modification of the Combat Medical Statistical Report form would be used for both the daily and weekly information desired. The weekly reports from clearing stations and from hospitals would be prepared by a simple summation of the entries on the daily reports for the period covered. Aid stations and dispensaries would submit a report weekly on this standard form covering only those cases of which they make final disposition. It was decided that the medical statistics group in each army would prepare a draft of a proposed revised Combat Medical Statistical Report and submit it to the Office of the Chief Surgeon for correlation of the ideas contained and for preparation of the final form and issuance of the directive putting the new reporting system into effect.

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