DENTAL SERVICE: The dental health of the invading troops was well above average, except in the way of prosthetic requirements which may be classified as average.

Prior to the operation, a concentrated effort was made by all unit dental officers to bring their unit up to the highest standard of dental health possible. However, time and facilities would not allow for a complete prosthetic program.

All units reported an unusually low incidence of dental emergency cases on D-Day and in the following thirty (30) day period. This was due to a combination of several factors. Primarily, the excellent oral health of the troops, the low casualty rate of the first sixty days of the campaign, a fast moving army with little time for minor complaints and the difficulty encountered by medical units in keeping apace with the combat troops.

Ninety (90) percent of the Division dental officers did not commence dental operations as such until after D + 15. In the meantime officer's dental kits were utilized in the treatment of a few dental emergencies which appeared about D + 5. The emergency admissions pertained mainly to the treatment of a few Stomatitis Vincent's cases and an occassional tooth extraction. It was also during this period, and in many cases for several months longer, that fully fifty (50) percent of the dental officers in combat units were employed in a strictly medical capacity.

The major activities of dental officers during the first thirty (30) days of operations, consisted of preparing Maxillo-facial casualties for evacuation and rendering emergency dental treatment.

During the month of August, Seventh Army troops suffered 100 Maxillo-facial casualties. In the period September and October, the number dropped to an average of seventy-five (75) each month. Of the battle casualties receiving this type wound, the greatest number resulted from shell fragments, followed in order by gunshot, grenades, mines, bombs and miscellaneous. This is stated in a very broad sense, as detailed breakdowns of information concerning actual causes are not available.

In the second month of the campaign, it was possible to begin prosthetic work and establish a routine dental service for a large percentage of the troops.

Problems pertaining to lost, broken or unserviceable dentures may be attributed to the following sources; patients losing dentures as a result of vomiting when seasick, sneezing when on night patrol; newly inserted dentures which irritate and cause the patient to remove them from his mouth, resulting in loss or breakage. Accurate figures are not available as to deliberate loss or breakage of dentures which would lead to evacuation from combat, but it is believed that the rate is highest just before and during amphibious operations.

The lack of adequately trained laboratory technicians is always a problem. For this reason, stress has been placed on a training program, the main purpose of which is to assure an adequate number of trained laboratory technicians. However, this condition will continue to exist until provisions are made for adequate T/O vacancies and rating.

PERSONNEL: Reorganization of many units reduced the number of medical officers allowed, and increased the number of medical administrative officers. The extra medical officers were rapidly absorbed by attrition or used to fill long-existing vacancies, but the M.A.C. shortage was actual. In addition, the main shortage of M.A.C.'s was in the capacity of assistant battalion surgeon for the Infantry Battalion and other separate units, and particular training and qualifications were necessary the the M.A.C.'s who were to fill these positions. This problem was solved by encouraging the combat units to select their most suitable enlisted men for commission the the Medical Administrative Corps. There this has been done, the results have been most satisfying. On the whole, men commissioned for these assignments from combat-tried units have proved more capable than those trained in the States and sent over as peplacements.

The exposure of medical personnel to the hazards of combat areas for long periods of time has as deleterious an effect upon them as upon the personnel from any other branch of the service. The factors of fatigue and physical as well as mental exhaustion becomes large and efficiency fails. This is particularly true of personnel of the forward combat zones with the infantry regiments and separate combat units. This personnel must be relieved of forward duty from time to time and be exchanged with suitable personnel from units or areas further to the rear. This practice can be accomplished only to a limited degree within the Army sphere. The better procedure is to have these men exhanged with replacements from fixed units in the communication zone. The Army has made a number of recommendations to the theater commander to effect such exchanges, and a certain number have been accomplished. Where such exchanges have been effected, the beneficial influence upon the combat unit has been most marked.

The rotation of medical personnelf from the Army to the United States presented definite problems as in most instances the rotated individual left long before his replacement arrived. As a temporary expedient, officers care moved within Army from Army medical units to fill critical shortages when the delay in the arrival of requisitioned personnel is excessive. Present Tables of Organization have been cut so close to the minimum that the loss of even a small number of officers or men will compromise the functions of the unit. For example, separate units have only one medical officer and if this man is rotated and a replacement not furnished immediately, the unit is left without medical care, and becomes a burden to some other unit. The best solution to the problem, which is beyond the juridiction of the Army, would be to have the rotation replacements furnished in order to join the unit before the rotated individual departs.

There has not been an adequate number of nurses available in the Field Hospitals to carry out an efficient program for the care of sick and wounded and in order to meet this shortage, it has been necessary to use technicians to assist in these duties. The nurses have been working as much as sixteen and eighteen hours a day since the operation began and had no time for rest or recreational periods. Concentrated efforts have been made to obtain more nurses to relieve this situation but as yet nothing has resulted therefrom.

TECHNICAL DATA: Owing to very light casualties and the delay in establishing the Field Hospitals, much of the blood on hand on D + 1 and D + 2 was wasted. Fifteen (15) units were used on D-Day, sixty (60) were used on D + 1 and two hundred fifty-five (255) were delivered to four (4) platoons of the two Field Hospitals and to one Evacuation Hospital (93rd) on D + 3. Thus in the initial phase of the landings there was a waste of about six hundred forty (640) units of blood. This same figure held for the balance of the month. One thousand nine hundred twenty-two (1,922) units were available, of which only about one thousand three hundred (1,300) were actually used.

Penicillin, in that it has largely replaced the sulfonamides, was used to a very great extent and from the period 15 August to 31 October, more than fifty thousand (50,000) ampoules (100,000 units each) were administered by hospital installations.

Its value in the anaerobic infections seems to be great, particularly in the anaerobic streptococcus group. Under the protection of penicillin the scope of surgery has been considerably extended so that regardless of the time between wounding and surgery thorough debridement of wounds may bex performed without fear of spread of infection and with the assurance that the wounds will remain clean and will be ready for early closure, including compound fractures of the long bones. Under local and general penicillin therapy, wounds of the knee joint have responded especially favorable to debridement and closure of the capsule, even in the presence of early suppuration. Not only many knee joints, but many legs are being saved by careful surgery and use of penicillin.
Infections are not a problem in the Army hospitals except for the anaerobic group. There have been fifty-one (51) of these, twenty-six (26) in U.S. troops, with fourteen (14) deaths (27.4 percent mortality). This incidence at the rate of approximately two per thousand.

There have been forty-six (46) enucleations of the eye performed in twenty-five thousand seven hundred ten (25,710) total casualties treated. A conservative policy has been pursued throughout.

One hundred ninety-three (193) major amputations have been performed in this same group. This is at the rate of 7.5 per thousand, or one case in every one hundred thirty-three (133). In Tunisia, the ratio was 1:64, and in Sicily 1:167. A marked increase occurred in October, when the rate for the month jumped to 1:84.

Arm	39
Forearm	12
Thigh	49
Leg	93

There have been two hundred two (202) wounds of major arteries necessitating ligation or suture, with forty-four (44) amputations or impending amputations. Amputations were performed in the following:

Artery	Total Cases	Amputations
Axillary	13	3

Artery	Total Cases	Amputations
Brachial	30	5
Radial and ulna	7	1
Femoral	31	13
Popliteal	27	17
Anterior tibial	40	1
Posterior tibial	29	1
Anterior & Posterior tibial	7	2

These have been followed only in the Army hospitals. Obviously more amputations were probably necessary in the General Hospitals, particularly in the popliteal group.

The following statistics have been compiled from records of the period 15 August to 31 October, 1944:

1. MRU Records

Overall American Casualties

Missing in Action	2600
Killed in Action	2858
Captured	56
Seriously Wounded & Injured in Action	2162
Lightly Wounded & Injured in Action	11208
Total	18884
Died of Wounds or Injury	394
Returned to Duty	3926

86F Hospital Reports

U.S. Casualties

Disease	22377
Injuries	4438

86F Hospital Reports (Contd)

Battle Casualties..... 14277

Total.....41092

Allies - Injuries & Battle Casualties..... 2467

Enemy - Injuries & Battle Casualties..... 4528

Deaths..... 483

Classification

	Patients Admitted Directly	Deaths
Abdominal	834	93
Thoracic	1626	54
Maxillo-facial	782	3
Neurologic		
Head	1505	74
Spine	196	12
Nerve	45	0
Extremities		
Upper	4693	7
Lower	7245	20
Other	1381	16
Total	18307	279
Number of Patients Admitted With Multiple Wounds	7412	37

Battle Casualties Caused By

Bullets:		
Unclassified	787	19
Rifle	1772	15

Battle Casualties Caused By:(Contd)	Patients Admitted Directly	Deaths
Machine Gun	491	9
High Explosives		
Unclassified	5943	33
Rifle	1338	16
Shell	2670	41
Mine	441	11
Booby Trap	15	0
Bomb	170	0
Blast (Concussion Type Injury)	382	1
Cutting Instrument: (Knife, bayonet etc.)	15	0
Total	14024	145
Intentional Self-Inflicted Wounds	152	0

Plasma: Units of plasma used in hospital installations and clearing installations: 8568

Blood:

Transfusions given	9339
Patients transfused	3549
Total U.S. soldiers, wounded and injured, treated in hospitals	18715
Total allied and EOW casualties treated in hospitals	6995
Total	25710

Transfusions were given to all of above, equally and without prejudice. The ratio, therefore, has been one (1) transfusion (600 cc unit) per 2.7 patients, or 0.36 units per patient. This is somewhat low as the overall rate in the Italian Campaign was about 0.5 units per patient. In the Field Hospitals, the present rate is 4.8 units per patient.

ADMISSIONS

Period 15 August to 3 November 1944

Week of	Disease	Injury	Battle Cas.	TOTAL US Army	US Navy	British	French	Other Allies	Enemy	Other	GRAND TOTAL	Troop Strength
15-18 August	876	260	1121	2257	27	32	116	39	505	20	2996	107,390
19- August	2315	447	978	3740	50	104	1396	15	1131	33	6469	114,301
26 Aug-1 Sept	1757	472	1027	3256	25	30	294	41	1611	31	5288	112,941
2-8 September	1319	287	433	2039	33	36	61	51	213	10	2443	118,229
9-15 September	1632	328	1102	3062	4	12	91	12	623	30	3834	118,313
16-22 September	1537	249	738	2524	2	11	35	22	102	16	2712	121,864
23-29 September	2160	427	1315	3902	0	2	42	12	323	26	4307	146,408
30 Sept-6 Oct	2453	393	2001	4847	0	0	26	48	157	21	5099	154,621
7-13 October	2160	379	1132	3671	0	2	28	11	86	26	3824	157,061
14- October	2261	383	1576	4220	0	2	47	11	93	40	4413	173,856
21-27 October	2448	476	1732	4656	0	0	41	13	207	18	4935	170,963
28 Oct-3 Nov	2237	502	1666	4405	0	0	143	7	147	25	4727	184,542
TOTAL	23155	4603	14821	42579	141	231	2320	282	5198	296	51047	

D I E D I N H O S P I T A L

Period 15 August to 3 November 1944

Week of	Disease	Injury	Battle Cas.	TOTAL US Army	US Navy	British	French	Other Allies	Enemy	Other	GRAND TOTAL
15-18 August	0	1	11	12	1	0	0	1	3	0	17
19-25 August	0	3	21	24	0	1	5	2	11	4	47
26 Aug-1 Sept	0	3	28	31	1	0	6	1	19	1	59
2-8 September	0	4	6	10	2	1	5	0	15	1	34
9-15 September	0	6	27	33	0	0	4	2	28	1	68
16-22 September	3	6	19	28	0	0	0	0	17	2	47
23-29 September	0	0	23	23	0	0	1	1	22	1	48
30 Sept-6 Oct	0	2	41	43	0	0	3	0	10	2	58
7-13 October	0	1	30	31	0	0	1	0	3	2	37
14-20 October	1	3	50	54	0	0	4	0	1	3	62
21-27 October	1	5	53	59	0	0	3	0	9	1	72
28 Oct-3 Nov.	0	3	51	54	0	0	8	0	17	2	81
TOTAL	5	37	360	402	4	2	40	7	155	20	630

SECRET

EVACUATIONS

Period 15 August to 3 November 1944

Week of	Disease	Injury	Battle Cas.	TOTAL US Army	US Navy	British	French	Other Allies	Enemy	Other	GRAND TOTAL	Hosp Ship	Air Evac	Hosp Train	Ambulance	Ambulance To BASE: BASE Air	Ambulance To BASE: BASE Train	Ambulance To BASE: BASE Hosp
15-18 August	519	95	1053	1667	22	69	96	3	364	8	2229	2157						
19-25 August	764	141	637	1542	36	48	1154	0	838	6	3624	3254	314					
26 Aug-1 Sept	138	16	563	717	11	8	234	1	854	0	1825	1118	707					
2-8 September	161	44	352	557	1	5	0	1	444	0	1008	0	1008					
9-15 September	214	41	398	653	0	1	1	1	0	0	656	0	656					
16-22 September	770	214	721	1705	15	38	8	1	266	3	2036	0	1110	0	926			
23-29 September	493	148	885	1536	0	3	0	1	157	0	1697	0	1218	280	199			
30 Sept-6 Oct	1270	188	1447	2905	0	0	0	0	170	0	3075	0	1130	272	1673			
7-13 October	834	156	1173	2163	0	5	16	1	227	0	2412	0	1690	267 *	446			
14-20 October	903	164	1411	2478	0	4	95	0	117	2	2696	0	1755	699	242			
21-27 October	939	294	1225	2458	0	0	171	1	95	0	2725	0	513	401		861	0	950
28 Oct-3 Nov	1075	288	1564	2927	0	0	75	2	176	3	3183	-	----	---	----	697	1039	1447
TOTAL	8080	1789	11429	21308	85	181	1850	12	3708	22	27166	6529	10101	1928	3486	1558	1039	5883

* assumed transposition - correct figure 276 - Totals then check both ways

SECRET

RETURNED TO DUTY

Period 15 August to 3 November 1944

Week of	Disease	Injury	Battle Cas.	TOTAL US Army	US Navy	British	French	Other Allies	Enemy	Other	GRAND TOTAL
15-18 August	114	23	37	174	2	3	2	2	14	2	199
19-25 August	566	82	96	744	19	25	38	6	43	6	881
26 Aug-1 Sept	1300	161	116	1577	32	23	35	9	44	3	1723
2-8 September	1077	166	79	1322	35	30	17	6	12	0	1422
9-15 September	1308	154	142	1604	20	23	27	10	27	2	1713
16-22 September	1392	212	224	1828	17	30	14	15	8	2	1914
23-29 September	1016	108	156	1280	0	4	9	4	1	2	1300
30 Sept-6 Oct	1146	131	271	1548	0	1	3	3	3	4	1562
7-13 October	1256	195	291	1742	0	2	6	2	5	2	1759
14-20 October	1269	157	282	1708	0	0	27	2	2	1	1740
21-27 October	1395	159	296	1850	0	0	51	2	1	1	1905
28 Oct-3 Nov	1437	189	332	1958	0	0	51	8	6	0	2023
TOTAL	13276	1737	2322	17335	125	141	280	69	166	25	18141

RESTRICTED

HEADQUARTERS SEVENTH ARMY
APO 758 US ARMY

30 August 1944

CIRCULAR)
:
NUMBER 14)

STANDARD OPERATING PROCEDURE FOR THE ROUTING OF NEUROPSYCHIATRIC CASES IN SEVENTH ARMY UNDER NORMAL OPERATING CONDITIONS

1. The 1st Platoon of the 616th Clearing Company is designated as the Treatment Center for neuropsychiatric casualties.

a. Admission Policy:

(1) All cases with primary EMT diagnosis of Exhaustion or other neuropsychiatric diagnosis will be sent directly to this Center and to no other medical installation.

(2) Cases in Army Hospitals in which a diagnosis of neuropsychiatric disorder is made will be transferred to the Neuropsychiatric Center immediately without further treatment, unless such transfer is prohibited by a primary, serious medical or surgical condition requiring continued specialized care. Cases which are violently disturbed should be evacuated directly to Base Hospitals when possible, without transfer through the Center.

b. Consultation Services will be available for:

(1) Ambulatory patients brought to the Center from Corps or Army dispensaries.

(2) All medico-legal cases arising in Corps or Army and requiring psychiatric consultation. (See Circular Number 13 on psychiatric consultation in legal cases).

(3) While a limited number of out-patient consultations can be handled for the Evacuation Hospitals and Field Hospitals at the Center, it will not be the policy of this Center to furnish routine consultation service for such installations.

c. Discharge Policy:

(1) Cases returning to duty will be re-equipped at the Center (except for arms) and returned directly to their units without passing through replacement centers or casual battalions. Divisions are instructed to receive soldiers belonging to their

own or attached units who are thus returned to duty, and provide for further transportation to their individual units. Patients who cannot be re-equipped will be returned to duty through replacement centers.

(2) Cases requiring Base hospital care will be discharged from the Neuropsychiatric Center to designated Base Section medical installations without the intermediation of any other Army medical installation.

By command of Lieutenant General PATCH:

ARTHUR A. WHITE,
Brigadier General, GSC,
Chief of Staff.

OFFICIAL:

W. G. CALDWELL,
Colonel, AGD,
Adjutant General.

DISTRIBUTION:

"B"

HEADQUARTERS SEVENTH ARMY
APO 758 US ARMY

9 October 1944

CIRCULAR)
: NUMBER 20)

TRENCH FOOT

1. General

Trench foot was a very common and extremely disabling injury during the winter months of World War I and during the Italian Campaign of 1943, and resulted in a serious loss of manpower. It is preventable and all organizations and unit commanders will become familiar with the measures required for its prevention. It is the direct responsibility of commanding officers to provide repeated instruction to all personnel of their command on the care of the feet and the prevention of trench foot. Frequent inspections will be made to ensure that these instructions are being properly carried out.

2. Trench Foot

a. Poorly fitting shoes and socks, leggins, or other articles tending to restrict muscle or joint action and interfere with the circulation of blood in the feet, sweaty feet, blisters or chafing, and athlete's foot or ringworm, are all contributing factors to the development of trench foot. All may be avoided in large measure by general preventive measures:

(1) Proper fitting and broken-in shoes.

(2) Proper fitting, clean, dry socks.

(3) Proper hardening of feet for marching.

(4) Proper trimming of toenails.

(5) Cleanliness of the feet.

(6) Proper sanitation in common baths.

(7) Frequent inspection of feet and prompt correction of faults observed.

b. Trench foot is produced by standing or sitting about with cold wet feet. Intense cold is not a necessary factor as the condition may develop at temperatures as high as 55 degrees F, especially recurrent cases. The most important factors are cold, moisture, inactivity, and constriction of blood circulation.

c. The symptoms are heavy, woody, numb feet, insensitive to feelings of touch or pain. These areas are most marked around the toes, and the feet are usually cold to touch, swollen and waxy-white in color, with some bluish motling present. When the feet are warmed they become red, hot, swollen, and painful, and blisters may develop.

d. Once trench foot has developed the feet are not to be massaged or warmed, but are to be kept elevated, cool, and dry. The patient will not be permitted to walk and will be sent at once to a hospital.

3. Prevention

a. Under combat conditions every available opportunity will be taken to remove shoes; clean, dry, warm, powder, and massage feet; and to change, wash, and dry socks.

b. Combat boots should be large enough so as not to constrict the feet. As new pairs are issued they should be sufficiently large to permit two (2) pairs of light weight or one (1) pair of heavy socks without constriction.

c. When rubber boots or boots with rubber lowers are worn, the feet sweat. Particular instructions will be given, therefore, so that whenever such boots are worn a dry felt insole will be used, if available, and two (2) pairs of wool socks worn in order to absorb excess perspiration.

d. Socks may be dried by being kept inside the helmet next to the head, inside the shirt next to the body, or pinned inside the field or combat jacket.

e. Troops will carry three (3) pairs of socks in addition to the pair being worn.

f. If troops have to stand or sit in one place they should exercise their feet and legs vigorously to maintain a normal circulation and warm feet.

Cir #20, Hq Seventh Army
9 October 1944, cont'd

g. Under no circumstances will troops be permitted to sleep with their shoes on if the shoes or feet are wet. This is one of the chief causative factors of trench foot, as the circulation is constricted and the socks and feet are prevented from drying.

By command of Lieutenant General PATCH:

ARTHUR A. WHITE,
Brigadier General, GSC,
Chief of Staff.

OFFICIAL:

W. G. CALDWELL,
Colonel, AGD,
Adjutant General.

Distribution "B"