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# HEALTH

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## DISEASE AND INJURY

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TRENCH FOOT IN THE EUROPEAN THEATER

Trench foot has again loomed into importance as a factor contributing to noneffectiveness, giving prophetic significance to the statement made in the June 1944 issue of HEALTH that "a winter campaign in northwestern Europe could create a trench foot problem of major importance if the lesson of Italy were not heeded". During November alone it caused more than 11,000 casualties in the European Theater, more than 6,000 in the Third Army alone. There is evidence that an alert command, intensifying a well-rounded program of control begun much earlier, has effected some reduction in incidence during the latter half of the month, when it was somewhat warmer but otherwise conditions favored its continued rapid climb. Nevertheless the speed with which the situation developed proves that adequate control had not been assured by the numerous measures instituted in the theater, and the prospect of a vigorous winter campaign arouses deep concern for the future. Last winter in Italy both January and February were worse than December from the standpoint of incidence. If no better progress were to be made in France and Germany than was made in Italy last winter, the prospect would indeed be grim.

A condition resulting from prolonged exposure of the feet to cold and moisture, trench foot differs from frostbite in that its development does not require freezing temperatures. Continued exposure in cold, wet trenches or foxholes, with restricted movement, and the wearing of wet socks and footgear, often for days on end without change, are the typical predisposing conditions. Its great significance from a military point of view is the fact that almost invariably it incapacitates front-line fighting troops, the greatest proportion of whom can never return to combat duty. The elements of a satisfactory control program were summarized in HEALTH for June, and published in WD Circular 312 dated 22 July 1944, and in WD TB Med 81 dated 4 August 1944. The basic principles are:

1. Provision of Suitable Equipment. Loose-fitting, water-proof or water-resistant boots with thick replaceable felt innersoles and heavy woolen socks may be the best footgear under certain conditions. However, even with existing footgear adequate protection against trench foot can be achieved by careful observance of the measures listed below.
2. Avoidance of Unnecessary Risk.
  - a. Standing or resting in water or mud-soaked areas should be avoided as much as possible.
  - b. Cramped positions, prolonged immobility, and dependency of the extremities should be avoided. These can be counteracted by stationary exercise of the feet and legs.
  - c. In cold wet weather troops should be rotated and relieved from front line duty as often as the tactical situation permits.
3. Enforcement of Adequate Individual Foot Care.
  - a. Wet socks or innersoles should be changed to dry ones as often as possible. Troops should carry a dry, extra pair at all times.
  - b. Shoes should be removed at least once daily, and the feet cleaned and dried.
  - c. The upper part of the body should be kept as warm and dry as possible.
  - d. Non-commissioned officers must be prepared to supervise their men in the care of their feet. Frequent inspections by unit commanders will be valuable in enforcing proper foot hygiene and also in detecting any early clinical manifestations of the injury when men are exposed to trench foot.

Apart from the provision of equipment, control rests with the individual himself. The measures to be taken are elementary but relatively unfamiliar to soldiers without either appropriate pre-combat training or combat experience on cold, wet terrain, and they require diligent application to be effective. An otherwise well conceived and executed control program can be defeated as it sifts down the chain of command unless all echelons enforce individual hygienic measures and foster policies of relief and rotation calculated to minimize exposure. Daily foot inspections by commissioned or non-commissioned officers, and enforced exercise and change of footgear exemplify the type of rigorous surveillance which is most difficult to insure yet which must be attained if control is to be achieved.

A recent radio from the theater provides approximate data on incidence by Army. The number of October cases was small, and the reported peak occurred about 15 November. The absolute numbers of cases reported have been converted to rates on the basis of the assigned strengths of the various armies as given in the G-1 daily casualty summaries for the Twelfth and Sixth Army groups. These data have been plotted in the first panel of the accompanying chart. The uneven periods reported hamper direct comparison of the armies somewhat, since the inclusion of time in October, when there were evidently very few cases, serves to depress the rate. The dotted lines indicate what the rates would be if time in October were excluded

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# DISEASE AND INJURY

## TRENCH FOOT IN THE EUROPEAN THEATER (Continued)

and all cases attributed to the reported interval in November. The average rate of about 155 is more than twice the December 1943 rate for the Fifth Army and 75 percent greater than the peak Fifth Army rate of 89 for January 1944. Moreover, the rate of 470 for the Third Army during the eighteen-day period reported is even greater than the worst experience of World War I. In the chart the November rates in Europe are also compared with those of the Fifth Army last winter, and the World War I BEF rates with the Fifth Army rate for a calendar year. The heavily engaged 26th Infantry Division reported roughly 900 cases in the week ending 17 November and 200 in the following week. The 30th Infantry Division is cited as an excellent example of what can be accomplished by an energetic and sustained program of prevention. The report lists the following underlying and precipitating factors on the basis of the November experience.

- Underlying Factors
- Intensity of Combat
  - Type of Duty
  - Terrain
  - Degree of Exposure
  - Opportunity for Rotation

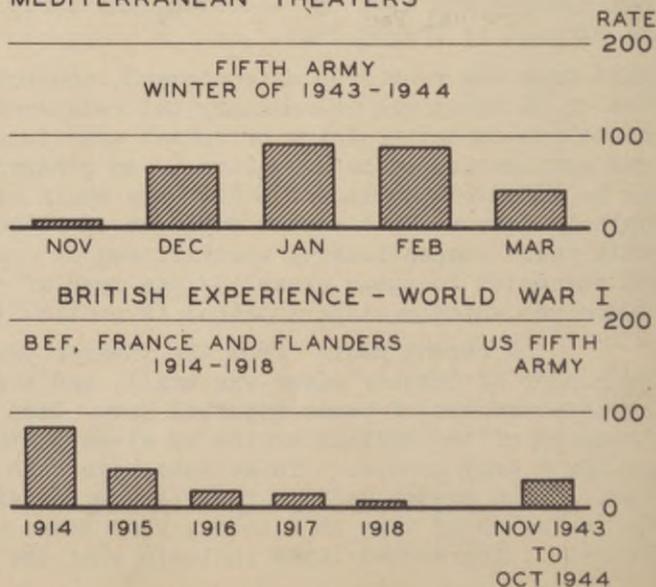
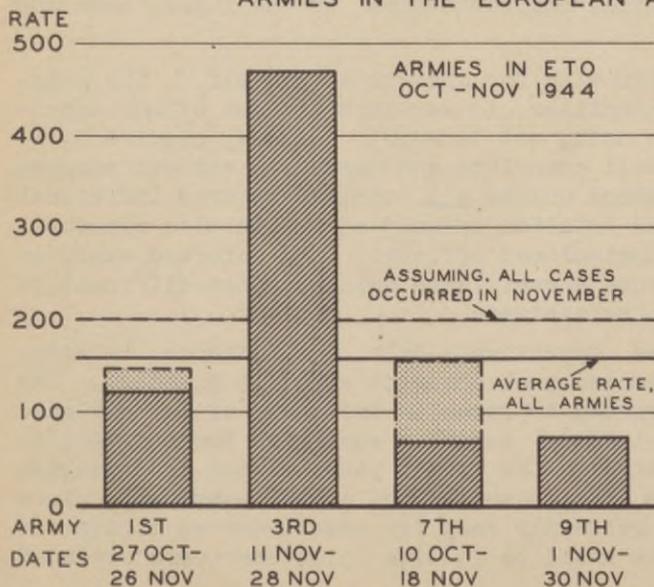
- Precipitating Factors
- Wet - Incidence High in Flooded Areas
  - Cold
  - Improper Clothing
  - Poor Foot Discipline
  - Inadequate Mobility

The possibility that a critical situation might develop in the European Theater was early appreciated there and directives stressing command responsibility for its prevention were implemented by personal letters from army groups to army commanders and by them in turn to division and corps commanders. There is evidence of a sympathetic understanding of the problem throughout the higher echelons of command, but the initial break-down of control can mean only that the enthusiasm and support of higher headquarters has failed to be transmitted in full effect to the level of the squad and the platoon where the pressure must be placed to be effective. One favorable sign is that incidence is reported to have fallen off markedly towards the end of November, with continued improvement in early December. However, this period corresponded with some amelioration in the weather and it is by no means certain that events are moving toward a satisfactory state of control. Another favorable sign is that fairly early detection of the condition is reported, evidenced by the fact that about 10 percent of the men reporting at clearing stations for trench foot are found not yet to have developed the condition.

Medical opinion will not agree that trench foot is inevitable in the face of unfavorable environmental conditions such as those existing on the western front, but nevertheless the current experience is a measure of the toughness of the problem. Shortages of equipment play an important but secondary role. Only particularly vigorous command action to enforce individual foot discipline will hold these casualties to a reasonable level and prevent a heavy unnecessary drain on front-line fighting strength.

## TRENCH FOOT, ADMISSIONS PER THOUSAND MEN PER YEAR

### ARMIES IN THE EUROPEAN AND MEDITERRANEAN THEATERS



# DISEASE AND INJURY

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## CASUALTIES BY MILITARY OCCUPATIONAL SPECIFICATION

In September HEALTH carried an analysis of casualties by MOS among four infantry divisions of the Fifth Army during the period 9 September 1943 to 4 April 1944. The following table gives the essentials of this material in relation to similar data recently made available on the Saipan operation and on the campaign in France and the Low Countries up to 29 August. The observations are not perfectly comparable in that those for Saipan include the strength and casualties of units attached to the 27th Infantry Division, and represent an aggregate force of 21,000 men. Also, the data for the European campaign pertain to infantry as an arm rather than to the strength of infantry divisions composed of individuals of many arms and services as in the case of the Fifth Army information. Also included is a breakdown of the casualties for all arms and services in the European campaign.

The first four columns of the table present distributions of casualties according to MOS and separately for officers and enlisted men. Only the infantry casualties in the European data lie behind the first column, while all casualties lie behind the second. The last two columns give comparable strength figures in percentage form.

Of particular interest are the disproportionate numbers of casualties sustained by riflemen, squad leaders, and ammunition handlers. The relative breakdown of casualties among officers and enlisted men is almost identical in each instance and closely parallels the proportions of strength.

### BATTLE CASUALTIES BY MOS, ITALY, FRANCE, AND SAIPAN

Military Occupational Specification		Percent of Casualties for Arms and Services - ETO		Percent of Division Casualties		Percent of Strength	
		Infantry	All Arms and Services	NATO**	Saipan*	NATO**	Saipan*
Number	Title						
745	Rifleman	34.1	28.6	38.1	23.8	11.2	7.2
653	Squad Leader	11.3	9.6	8.1	11.2	5.9	4.4
504	Ammunition Handler	10.0	8.6	8.3	10.4	9.0	5.1
521	Basic	10.0	10.8	4.0	5.4	10.1	4.0
746	Automatic Rifleman	4.8	4.0	3.9	6.4	3.1	1.5
674	Message Center Chief	2.8	2.4	.02	.1	.05	.2
651	Platoon Sgt.	2.6	2.5	1.8	3.1	1.8	1.4
604	Light Machine Gunner	2.5	2.5	-	2.4	-	.8
607	Mortar Gunner	2.3	2.1	-	1.5	-	.6
605	Heavy Machine Gunner	1.3	1.2	-	.1	-	.02
245,345	Truck Driver, Light & Heavy	1.2	2.1	2.6	1.9	9.4	7.3
652	Section Leader	1.1	1.1	1.4	1.5	1.4	.8
761	Scout	.8	.8	1.1	.9	.9	.8
657	Litter Bearer	.8	.9	1.2	1.4	1.4	.6
531	Cannoneer	.8	1.7	1.2	1.4	3.0	5.7
861	Surgical Technician	.8	.8	-	1.1	-	1.2
776	Radio Operator, Low Speed	.5	.9	.2	.7	.2	1.5
675	Messenger	.4	.4	2.6	3.2	3.7	1.7
060	Cook	.4	.5	.7	.6	2.0	2.6
641	Field Lineman	.4	.6	.1	.6	.2	1.8
542	Communication Chief	.4	.4	.2	.1	.3	.3
585	First Sergeant	.4	.4	.3	.3	.6	.6
603	Gunner	.3	.4	8.0	.9	4.7	2.0
610	Anti-Tank Gunner	.3	.4	1.0	-	1.4	-
511	Armorer	.2	.2	.2	.3	.5	.4
821	Supply NCO	.2	.2	.2	.3	.8	.9
238	Lineman, Tel. and Tel.	.1	.1	1.4	.03	2.0	.2
014	Automobile Mechanic	.1	.3	.4	.2	1.4	1.5
539	Section Chief	.03	.2	.2	.1	.8	1.0
	Other Enlisted	3.7	9.2	7.4	14.7	19.2	38.5
	Total Enlisted	94.6	93.9	94.6	94.6	95.0	94.6
	Total Officers	5.4	6.1	5.4	5.4	5.0	5.4
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

\* 27th Infantry Division and attached units.

\*\* Four Infantry Divisions of Fifth Army.

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# DISEASE AND INJURY

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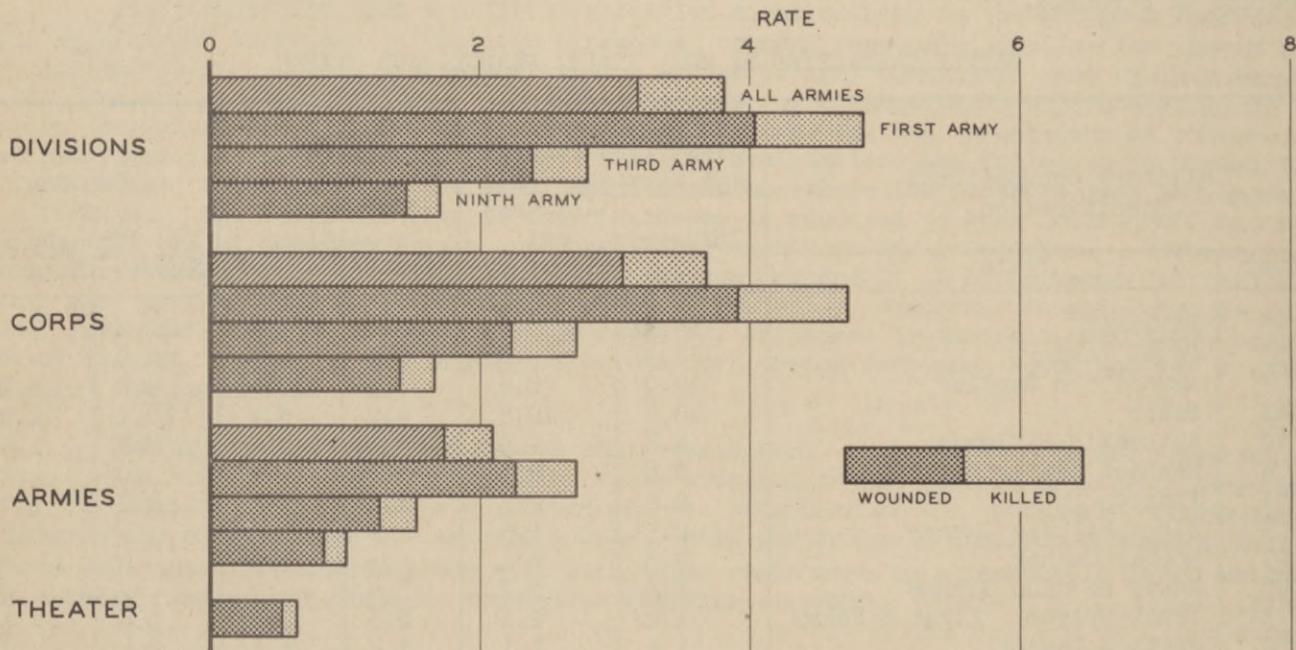
## BATTLE CASUALTIES IN THE EUROPEAN THEATER

Definitive analysis of the incidence of battle casualties in the European Theater must await the accumulation of information greatly superior to that presently available to The Surgeon General. There are certain problems in reporting strengths and casualties and there is insufficient tactical information to permit close comparisons to be made of the rates for individual units even at the army level. Nevertheless, it is believed that the presentation of even preliminary information is of great value for planning purposes.

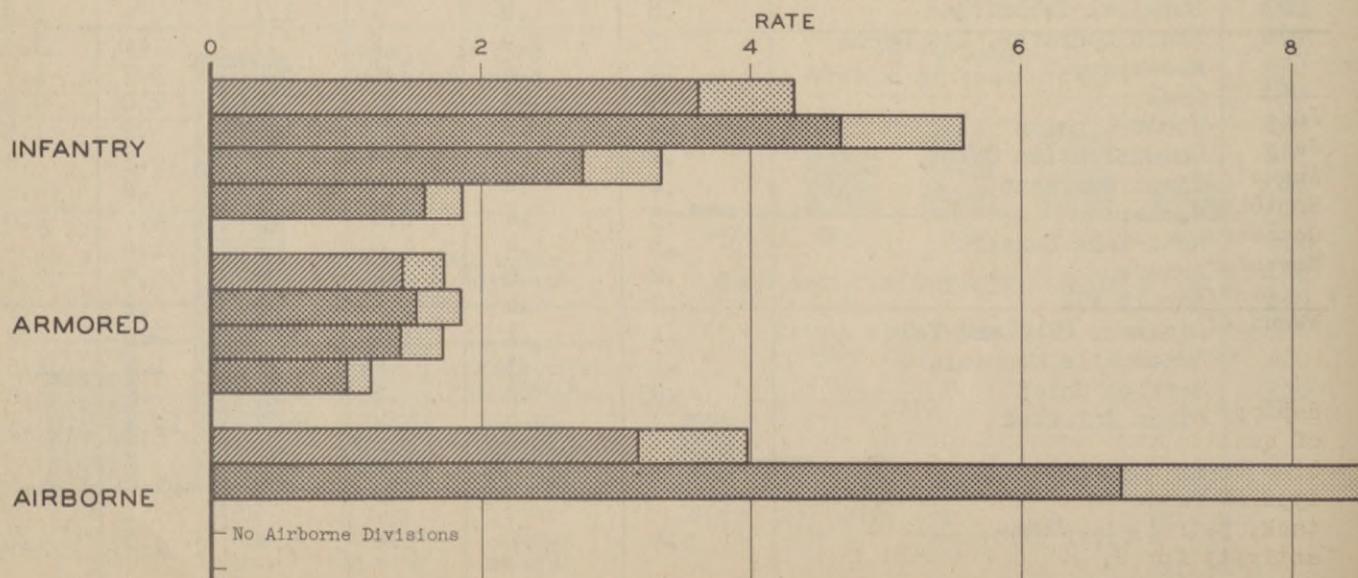
During the first half-year following the invasion of northern Europe, American armies on the Continent sustained casualties at the rate of 1.7 men wounded and .4 killed per thousand strength per day. These rates, like those given below for all echelons except the entire European Theater, are based upon the strength of the field forces on the Continent as reported in the semi-monthly strength reports of the theater and exclude the casualties and strength of base section troops in the communications zone both on the Continent and in the

**BATTLE CASUALTIES, ADMISSIONS PER THOUSAND MEN PER DAY**  
ARMIES ON THE CONTINENT, 6 JUNE - 30 NOVEMBER 1944

### ECHELON OF ASSIGNMENT



### TYPE OF DIVISION



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## DISEASE AND INJURY

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## BATTLE CASUALTIES IN THE EUROPEAN THEATER (Continued)

United Kingdom. The interval over which the experience has been accumulated includes the entire time spent by each unit on the Continent from the time it disembarked. The rates are provisional, being based upon radios to The Adjutant General and on machine record tabulations prepared in the theater, giving the reported numbers of men killed, wounded, and missing. Although there is a variable lag between the occurrence of casualties and their confirmation by the theater, it is not believed that the casualties reported either during periods of maximal activity or over the entire period deviate appreciably from those which actually occurred. The casualties for each unit are reported according to the assignment of the personnel involved, and the rates are also based upon tabulations of assigned strength by unit and echelon at the time casualties were experienced.

The first panel of the chart on the preceding page gives the relative incidence of wounded and killed among all combat troops in France, the Low Countries, and Germany from 6 June through 30 November, according to echelon of assignment and by army. Data for the Seventh Army, which was assigned to ETO on 1 November, have not been shown separately because of the short period involved. However, its casualties for the month of November, as well as those of the First Airborne Task Force and the XVIII Corps Airborne after 19 September, have been included in the rate for all armies. The First Army, which moved on the northern flank of the 12th Army Group, sustained the heaviest casualty rate. It bore the shock of the initial landing and all the casualties in the fighting on the Cotentin Peninsula. In addition, except during the month of September, it encountered heavier resistance moving across France and through Belgium than did the Third, the advance of which was relatively unopposed until it moved into the Moselle River Valley before Metz and Nancy. Rates by echelon of operation or attachment would differ materially from those shown only at the corps level, for which the rate would lie somewhere between the divisional and the army rates since both the casualties and the strengths of attached corps troops are included with those assigned to the army. The bar for the theater is based upon casualties sustained by all personnel in the theater during the six months, including those among air force and communications zone personnel. The second panel gives rates by type of division, the average for which appears with the rates by echelon. Infantry divisions had the highest average rates for the entire period although the airborne divisions (see HEALTH for July) suffered the highest daily casualties during the first phases of the invasion. The 82nd and 101st airborne divisions were the first U. S. units in France, and remained there from 6 June until 10 July when they were withdrawn. During this period they suffered casualty rates of 1.8 per thousand men per day killed, and 6.8 wounded. The divisions were retained in the U. K. until 19 September when they were landed in Holland to participate in the operation of the Allied Airborne Army in the Nijmegen-Arnhem area. Their casualties during this operation were lower than they had been during the first month of invasion. For the period until 30 November their rates averaged .4 men killed, and 1.6 men wounded per thousand divisional strength per day. The table below summarizes the average daily casualty rates by months for the armies on the continent. The monthly rates for all armies differ slightly from those shown in HEALTH for September because a more complete strength series was obtained, because information was secured on the day each unit landed as distinguished from the date when it first sustained casualties, and because MRU reports of casualties were used to recalculate the casualty rates after July.

CASUALTY RATES\* PER THOUSAND MEN PER DAY, ARMIES IN ETO

Month	All Field Forces	Army				XVIII Corps Airborne
		First	Third	Ninth	Seventh	
June	3.77	3.77	-	-	-	-
July	3.06	3.06	-	-	-	-
August	2.35	3.18	1.27	-	-	-
September	1.16	1.14	1.21	1.04	-	.68
October	1.01	1.43	.86	.45	-	3.34
November	1.26	1.05	1.25	.84	1.16	1.79
Average	1.74	2.26	1.25	.84	1.16	1.79

\*Wounded in Action Only

By the use of daily operational reports defining the front-line in Europe and the deployment of the various allied divisions, it has been possible to accumulate a daily series of qualitative descriptions of the activity of each division in terms of its disposition in line or in reserve. The experience in the line is further subdivided roughly according to type of resistance, whether light or heavy, and according to tactical activity, whether attack, patrol, holding, consolidating, etc. In all, it was possible to obtain descriptions of activity for 2,710 divisional days between 6 June and 31 October which were distributed approximately as follows, in ascending order of tactical activity:

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## BATTLE CASUALTIES IN THE EUROPEAN THEATER (Continued)

shows the proportion of the rates for divisional weeks which were between stated limits. The first bar, indicating that 45 percent of all divisional weeks had casualty rates (WIA) between 0 and .99 has been subdivided to distinguish the proportion for which the wounded in action rate was zero. Eleven percent of all weeks had zero rates, a greater proportion than for any other interval except the remainder of the first class. In addition, the inset panel presents the distribution in cumulative form. The straight diagonal drawn within the inset indicates what form the cumulative distribution would have taken had an equal proportion of all the division weeks fallen into each of the intervals shown. Fifty percent of all the division weeks had rates less than 1.5 per thousand men per day. The major portion of weeks for which the divisional rates were zero, however, were intervals between the time a unit landed on the continent and the time when it began to participate in the battle. Although the daily divisional activity was tabulated only through 31 October and therefore covers a shorter period than the distribution of casualty rates, no substantial error arises from the use of the distribution of tactical activity over the shorter period. Observations of divisional activity in November would have the effect of expanding slightly the proportion of days of higher activity at the expense of the "reserve" category. The first bar of the second panel, labelled "Reserve", shows that 22 percent of all divisional casualty rates were between 0 and .49 men wounded per thousand strength per day. The second bar shows that 28 percent were between .5 and 1.5 and represents the possible range of experience under conditions of attack against light opposition. Similar ranges for holding and heavy opposition are 1.6 to 6.3 and 6.4 to 21.0 per thousand men per day respectively. The arrow in each bar represents the average rate under the conditions described for divisions within the particular intervals. Thus, the average rate for divisions in reserve was .25 men wounded per thousand strength per day, whereas it was .8 for action against light opposition, 3.3 for holding actions, and 9.3 for attack against heavy opposition. The casualty experience of the individual divisions in ETO has been extremely variable. During their entire period of time on the Continent the rates range from 6.1 men wounded per thousand strength per day for the 29th Infantry Division to .3 for the 94th which arrived on the Continent on 10 September. The maximum rate for an armored division was that of 1.9 for the 3rd Armored Division.

The reports which were used as a source of divisional activity also make it possible to determine which divisions participated in particular phases of the campaign. The initial goal of the invasion, the establishment of a beachhead and the capture of Cherbourg, witnessed some of the heaviest fighting of the campaign. In comparison to rates of .7 men killed and 2.9 wounded per thousand strength per day on the part of the 3rd Armored division and the 1st, 9th and 30th Infantry divisions fighting in the Aachen area from 15 September to 31 October, the 4th, 9th, and 79th Infantry divisions assaulting Cherbourg lost killed and wounded at an average rate of 1.6 and 8.6 per thousand strength per day from 16 June through 28 June. During the action which culminated in the investment of the port, the divisions holding on a line facing outward from the Cotentin peninsula sustained rates of 1.1 and 4.8 killed and wounded respectively.

From 6 June through 30 October, 344,740 battle casualties (killed, wounded, and missing) were sustained by all allied armies on the continent (ETO). A British intelligence document reports the following provisional numbers of casualties among the various forces. The total number of casualties represents an increase of 121,789 since 8 September (see HEALTH for September). Through 7 December 1944 U. S. forces reported 42,600 men killed, and

MEN KILLED, WOUNDED, AND MISSING, AND NUMBER OF PRISONERS  
TAKEN BY ALLIED FORCES IN FRANCE, THE LOW COUNTRIES AND GERMANY

Force	From 6 June to	Number of Allied Casualties				Enemy Captured
		Killed	Wounded	Missing	Total	
British	31 Oct	19,587	64,747	15,944	100,278	104,216
Canadian	31 Oct	6,518	20,008	2,261	28,867	63,347
Polish	31 Oct	810	2,652	326	3,788	10,423
Belgian	31 Oct	26	76	2	104	10
Netherlands	31 Oct	18	94	-	112	36
French	28 Oct	3,770	10,830	420	14,020	94,575*
Czech	31 Oct	34	102	6	142	417
U. S. **	31 Oct	35,455	144,127	17,847	197,429	388,572
All Forces		65,218	242,716	36,806	344,740	661,596

\* Includes approximately 20,000 captured by FFI. \*\* Ground only, excluding 7th Army.

191,000 wounded. During the last week of November 19,600 men were reported as wounded, at least 7,500 greater than any other report period since early June. For the first week of December, however, the number reported dropped considerably to about 11,700.

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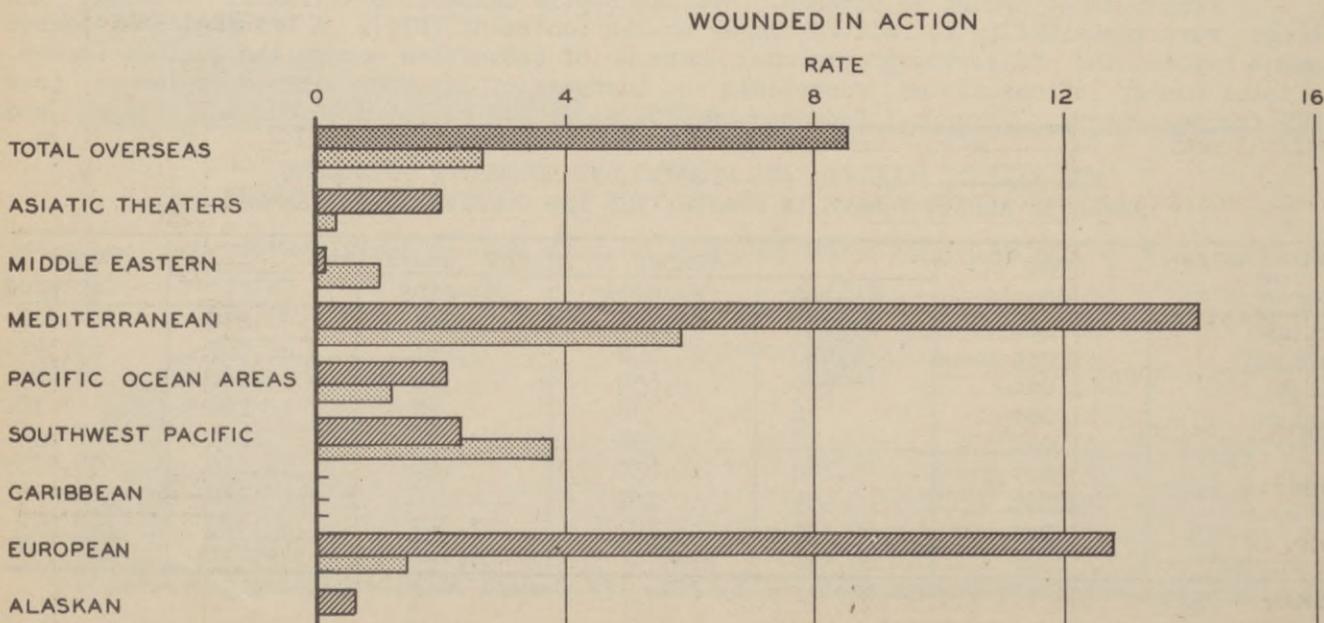
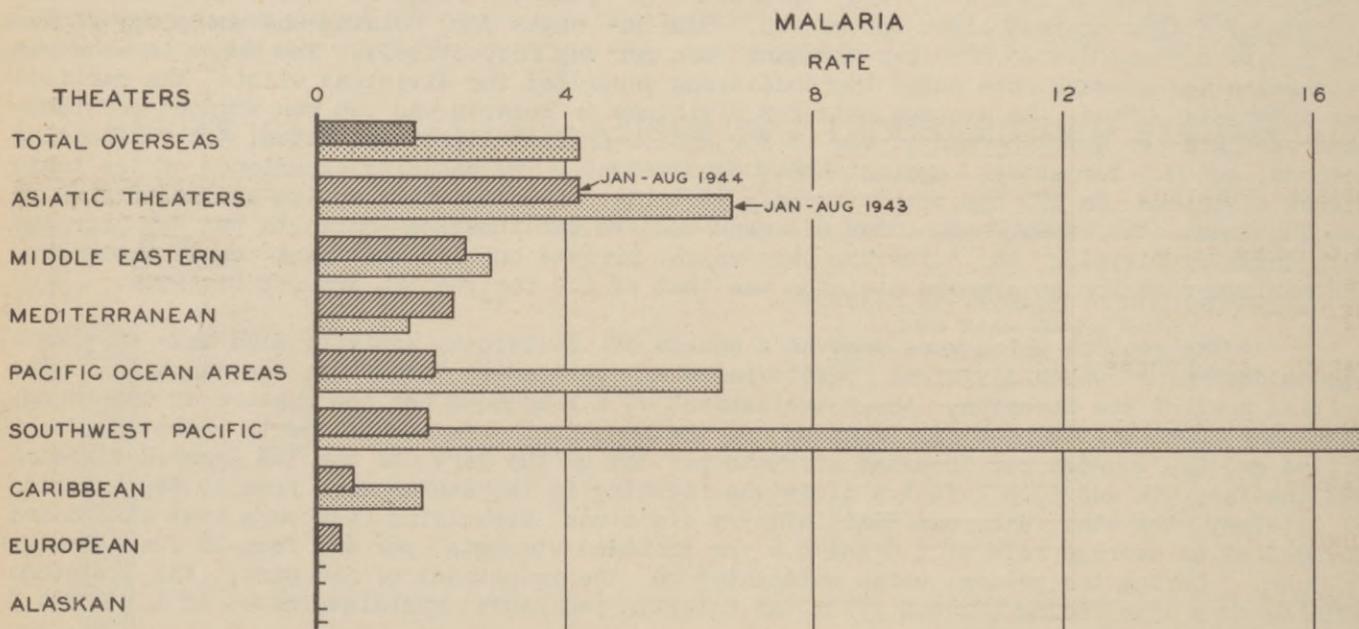
# DISEASE AND INJURY

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## NONEFFECTIVE RATES, SELECTED DIAGNOSES

In December 1943 the overseas noneffective rate of 45 was the highest of the war. Throughout the following spring it fell steadily until June. It rose swiftly thereafter and had reached 48 by August 1944. The accompanying charts compare the major components of the average rates for the first eight months of 1943 with those for 1944. More than half the total rate is represented by the six causes shown individually and by theater. Except for the wounded and nonbattle injury components, data for the European Theater are available only through June, but no distortion is caused by the omission. The noneffective rate from wounds received in action increased by more than 300 percent between 1943 and 1944 for the eight months under review. For the Mediterranean alone the rate more than doubled, and of course the rate for the European Theater increased many fold. There was no change in the average rate of 6.2 per 1,000 men per day for nonbattle injury, but moderate increases occurred in the Mediterranean Theater and in the Pacific Ocean Areas. In the Southwest Pacific Area, on the other hand, the rate declined from 8.6 to 7.0, almost 20 percent.

## MAJOR CAUSES OF NONEFFECTIVENESS, RATES PER THOUSAND STRENGTH OVERSEAS COMMANDS, JAN - AUG, 1943 - 1944



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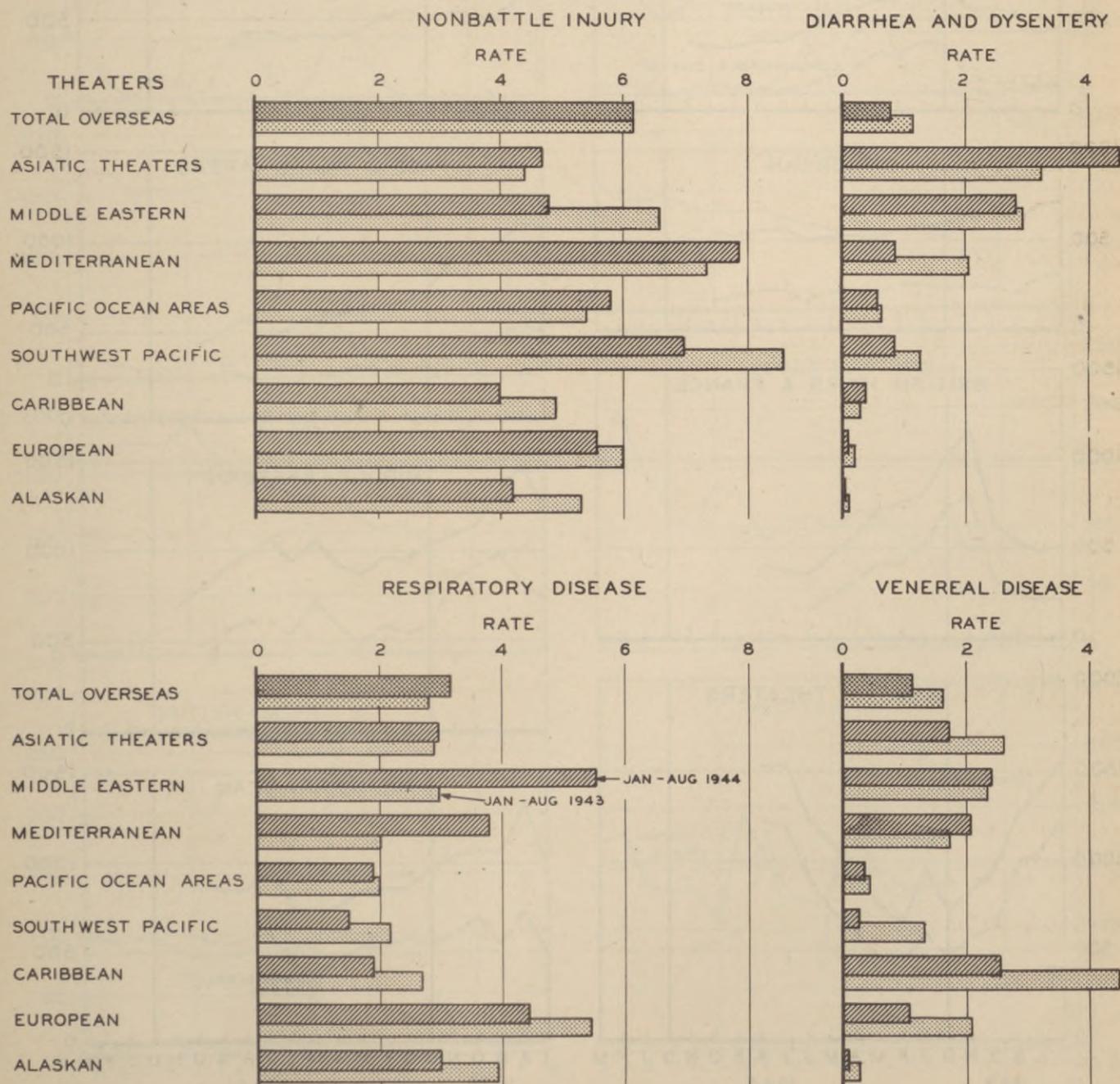
# DISEASE AND INJURY

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## Noneffective Rates, Selected Diagnoses (Continued)

The decline in noneffectiveness from malaria is the most striking single feature of the comparison, especially in the Pacific, Asiatic, and the Caribbean. In the Pacific the change occurred primarily because of effective atabrine suppression coupled with mosquito control and in the latter two commands primarily because of mosquito control. The increase in the Mediterranean Theater does not represent increased transmission but relapses during the spring in patients infected during 1943. A considerable improvement in the diarrhea and dysentery picture is evident from the panel below, the average for all theaters having declined by a third. However, the rate for the Asiatic theaters, highest of all in 1943, is even higher in 1944. With the exception of the Mediterranean Theater and the Middle East all theaters registered a decline in noneffectiveness from venereal disease, the changes being most noteworthy in the Caribbean, the Southwest Pacific, and in the European Theater for the period shown. The increasing incidence of venereal infection in France suggests that the gain in the European Theater may be short-lived.

### MAJOR CAUSES OF NONEFFECTIVENESS, RATES PER THOUSAND STRENGTH OVERSEAS COMMANDS, JAN - AUG, 1943 - 1944



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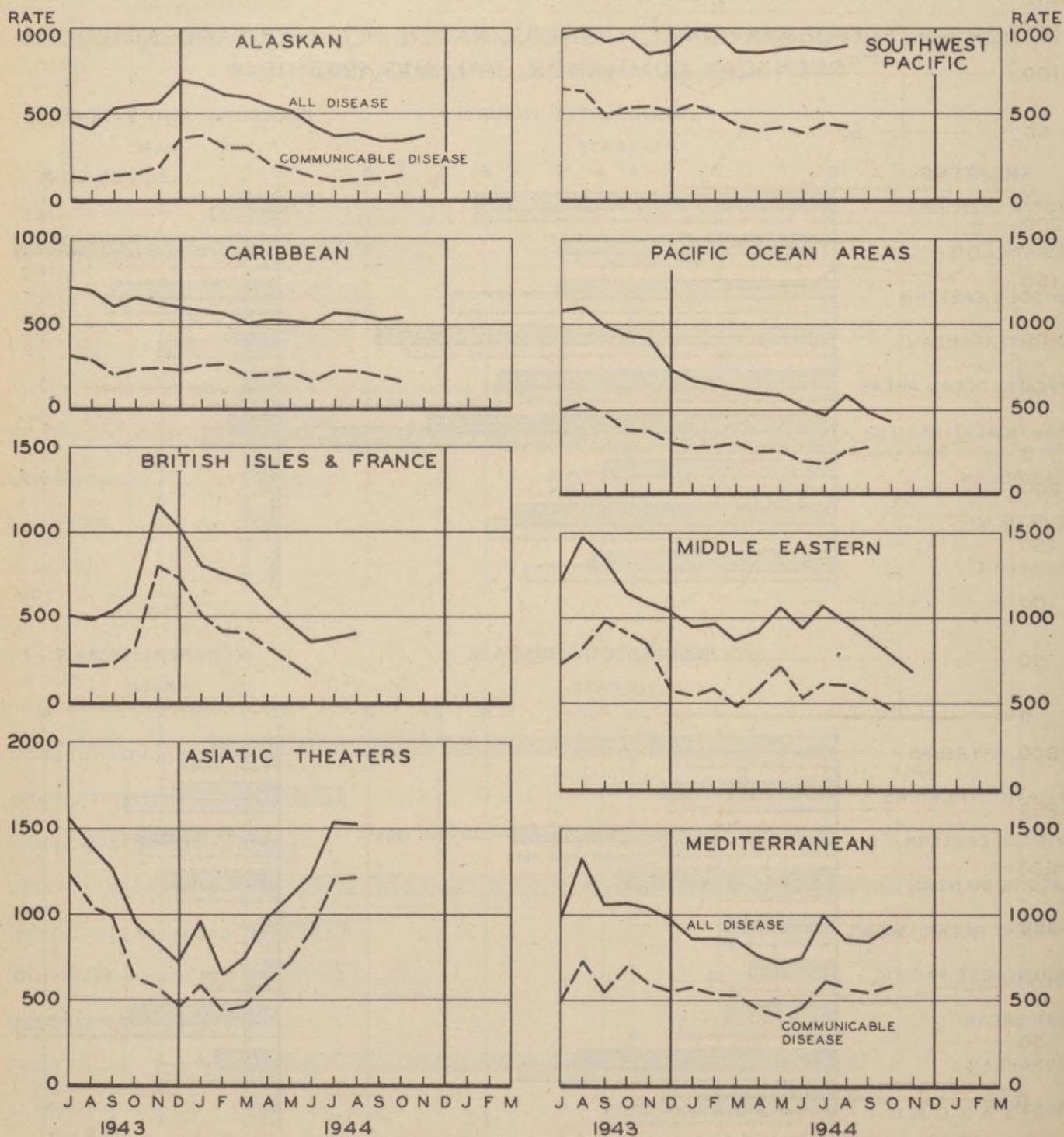
# DISEASE AND INJURY

**CONFIDENTIAL**

## DISEASE AND INJURY OVERSEAS

Admission rates for disease declined sharply in several theaters during the first half of 1944, rising steeply only in the Asiatic theaters. The charts below give the admission rates for all diseases and for communicable diseases for each theater. Rates for the European Theater are not shown beyond August 1944 but it is known that there has been some increase since that time. Preliminary reports from the continent suggest a marked advance in respiratory disease admissions during the last week in November. The 1943 rates shown for the Pacific Ocean Areas may be slightly too high because of some duplication in the reporting of South Pacific admissions at that time. The great reduction since 1943 is nevertheless very real.

ALL DISEASE AND COMMUNICABLE DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR, OVERSEAS COMMANDS



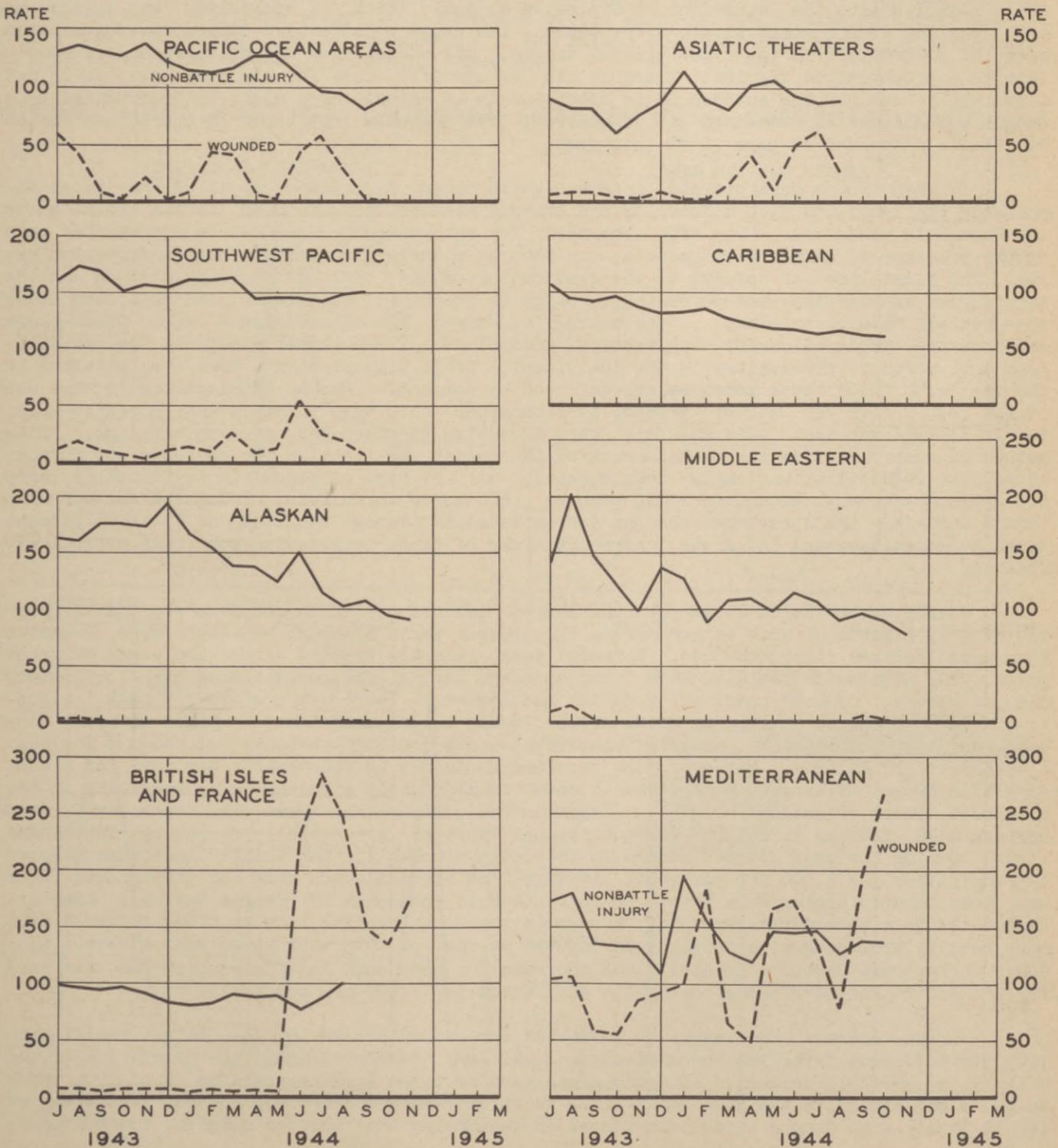
# DISEASE AND INJURY

**CONFIDENTIAL**

## DISEASE AND INJURY OVERSEAS (Continued)

Nonbattle injury admissions have been on the decline in most theaters, the Asiatic being a notable exception. The current rates in the Caribbean are exemplary, even for an inactive theater. Since January 1943 the rate for this command has been halved. The Middle East, the Pacific Ocean Areas, and the Alaskan Defense Command have also reduced their accident rates remarkably. The rates for wounded vary tremendously both among and within theaters, but overshadow those for nonbattle injury only in the European Theater. Reports are not yet available on the Philippine area, so that the most recent admission rates for the Pacific Ocean Areas and the Southwest Pacific Area are several months behind.

NONBATTLE INJURY AND WOUNDED IN ACTION, ADMISSIONS PER THOUSAND MEN PER YEAR, OVERSEAS COMMANDS



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## DISEASE AND INJURY

**CONFIDENTIAL**DENGUE

The recent epidemic of dengue fever on Saipan, Tinian, and Guam focuses attention upon a disease of prime military importance in the tropical and subtropical regions of the world. Dengue is caused by a filterable virus which is present in the blood of the infected person for one day preceding and several days after the onset of the disease. It is transmitted by the bite of infected mosquitoes of the *Aedes* genus. The *Aedes* mosquito becomes ineffective eight to eleven days after feeding upon an individual having dengue and remains so for life. Persons bitten by infected mosquitoes customarily develop the disease within three to thirteen days. The typical attack lasts but three to eight days, and is itself almost never fatal. One attack ordinarily confers immunity for a variable length of time, perhaps one year or more.

Troops from dengue-free areas are highly susceptible to the disease. Hence the introduction of the virus into an area well populated by both non-immune individuals and the *Aedes* mosquito sets the stage for an explosive epidemic which, if unchecked, may involve up to 50 percent of a command within a few weeks. The drugs so effective in suppressing malaria have no counterpart in the fight against dengue, and success has not yet attended efforts to develop a prophylactic vaccine. There is also no specific cure for the disease. It is not difficult to see how the success of an operation in an endemic area might be jeopardized by a dengue epidemic which remained out of control. Its probable importance in operations in the Pacific is discussed on page 20 of this issue.

When troops must operate in areas where dengue is endemic it is of the utmost importance that anti-mosquito discipline and control measures be developed to the point where the hazard is minimized. Too often the need for anti-mosquito measures is appreciated only in the presence of danger from malaria, so that on malaria-free bases their enforcement may lag. The first line of defense is the eradication of the adult mosquito population and the suppression of breeding, but screening, protective clothing, repellents, bed nets, and other measures all have their place in preventing exposure. The effectiveness with which these measures are employed varies with tactical conditions. Close combat militates against diligent anti-mosquito precautions by the individual. Great significance, therefore, attaches to the zeal with which these measures are enforced by command. Recent developments in the use of DDT (see HEALTH for October) promise to strengthen this weak point in anti-mosquito work, for it is apparent that this agent is very effective when sprayed from an airplane. This method of control evidently merits much of the credit for halting the epidemic on Saipan, where its feasibility was amply demonstrated. A C-47 type of plane can be fitted to carry 800 gallons of spray, enough to cover perhaps 1,600 acres in an hour. Mosquito surveys made before and after the spraying on Saipan demonstrated an average reduction of 75 to 85 percent in adult mosquitoes and in larvae, although areas of dense vegetation were less effectively treated.

The outbreaks on Saipan and the nearby islands of Tinian and Guam are characteristic of Army experience with dengue during the present war, although somewhat more dramatic than usual because they occurred in bases very recently wrested from the enemy at great price. The disease is said to have first appeared during the combat phase but fortunately did not get out of hand until after combat had ceased. There was a sharp outbreak in Australia in 1942 almost as soon as U. S. troops became established there. Since then the disease has been an important cause of noneffectiveness in that theater, although it has been overshadowed by malaria. Moreover, the reported incidence is undoubtedly too low, for a considerable amount of dengue is believed to occur in clinically atypical form, resulting in the diagnosis "fever of unknown origin". Experimental evidence has been obtained recently that certain mild febrile infections without typical symptoms are actually caused by the dengue virus. During the past summer season in the Southwest Pacific the theater incidence reached 133 admissions per 1,000 men per year. At that time the admission rate for undiagnosed fever was considerably higher than this, so that the true incidence of dengue may well have exceeded 133 by a considerable margin. Troops in the South Pacific have at times suffered even more heavily from dengue, especially during the spring of 1943 when there was a severe epidemic on Espiritu Santo. In April 1943 the rate for the South Pacific reached 268, the rate for the entire Pacific Theater being 135 admissions per 1,000 men per year.

The Japanese are known to have had serious outbreaks in the Central Pacific but very little dengue fever was reported among U. S. Army personnel until the occupation of the Gilbert and Marshall Islands. Endemic areas such as these were regarded as foci from which dengue might spread to the Hawaiian Islands where the *Aedes* mosquito is common. Units arriving in Hawaii with dengue have been placed in quarantine and special mosquito control meas-

# DISEASE AND INJURY

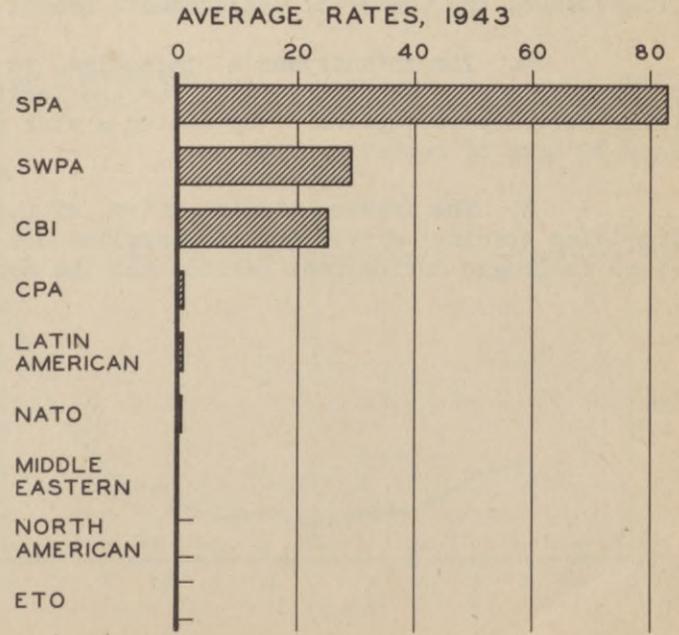
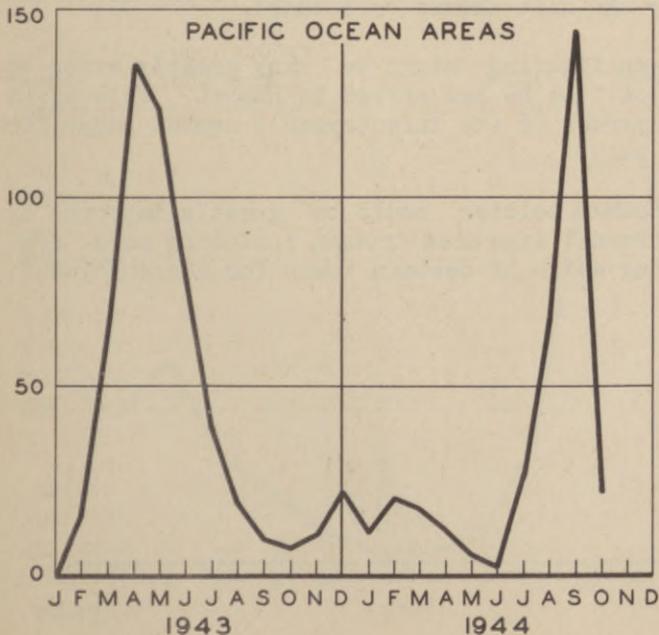
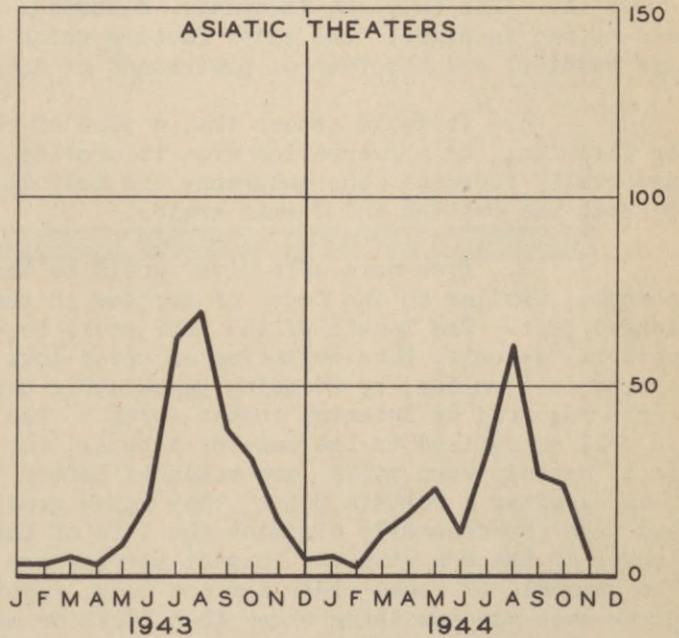
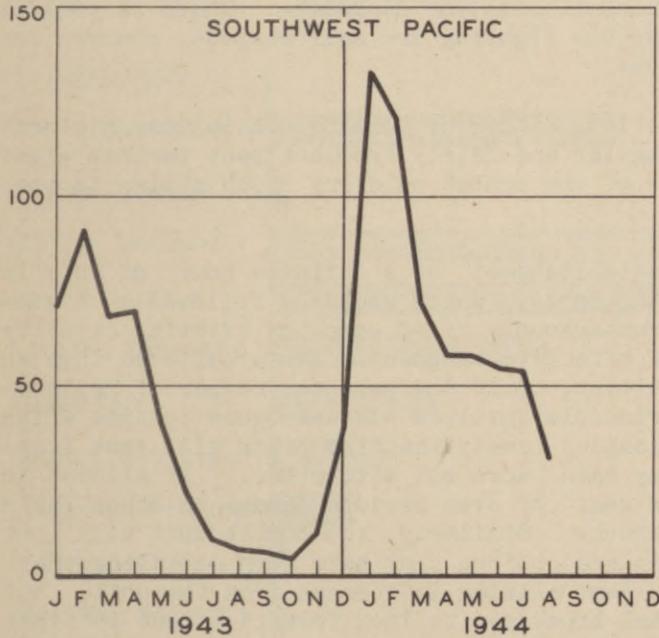
**SECRET**

## DENGUE (Continued)

ures instituted in and around the area of quarantine. The earlier outbreak among civilians on Oahu, T. H. late in 1943 was well controlled and very few military cases resulted. The severity of the recent epidemic in the Marianas is reflected in the high rate of 144 for the entire Pacific Ocean Areas during September, 5,900 cases having been reported in that month and 2,100 in August. At the height of the epidemic, during the week ending 1 September, the theater rate was roughly 240 admissions per 1,000 men per year. The disease has also been important in the Asiatic theaters where its seasonal incidence parallels that of malaria as is also true in the Southwest Pacific. In August 1943 the admission rate reached 70 in the Asiatic theaters, and the August 1944 rate was 61.

Theater rates of the order mentioned can mean only that some units and some areas have been very heavily hit by the disease. In some of the smaller units nearly 100 percent of the command has suffered from the disease. Striking quickly as it does, the disease can have a temporary crippling effect on a localized area, although its lasting effect is negligible. For this reason, early recognition of the hazard of dengue and prompt establishment of preventive measures are of paramount importance.

### DENGUE, ADMISSIONS PER THOUSAND MEN PER YEAR, OVERSEAS COMMANDS



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## DISEASE AND INJURY

**CONFIDENTIAL**FURTHER NOTES ON THE PREVENTION OF PSYCHIATRIC DISORDERS

In August, HEALTH featured a discussion on how psychiatric disorders might be prevented from developing in combat, the observations having been drawn from the experience of the North African Theater. A somewhat similar study has just been completed in the European Theater by the neuropsychiatric consultant to The Surgeon General, with results which corroborate those presented previously. The following points are believed to be significant:

1. The major psychiatric problems in the European Theater focus on the psychoneuroses and personality disturbances which occur in combat. Ninety percent of the combat psychiatric cases occur among infantrymen and their immediate associates.

2. There is no evidence that American youth is decadent. An understanding of the problem comes with appreciation of the situation of the combat infantryman. He has the toughest, the most dangerous job in the Army. He lives in the same clothes for days and weeks, often in a muddy fox-hole, continually exposed to the elements. He is the most deprived of all soldiers because of the frequently unavoidable difficulties of reaching him with supplies. He is continuously exposed to the sight of violent death and mangling disfigurement. He has disproportionate pay and glamour as contrasted to men in the other arms and services. He has nothing to look forward to but more fighting and an unending physical ordeal, with his life in the balance twenty-four hours a day. He is entirely expendable and knows it. His only out is death, a wound, mental illness, or desertion. There is no goal and no end in sight; the chief factors which keep him fighting are self respect, concern for his buddies, and the fear of punishment or disgrace.

3. It would appear that a plan of rotation, either by company, battalion, regiment or division, to a recreation area to provide regular and fairly frequent rest periods might materially increase the endurance and usefulness of the combat soldier. Such a plan is used by both the British and German armies.

4. Even more effective would be the establishment of a definite tour of duty in combat, similar to the tour of sorties in the Air Force, which would be followed by a prolonged rest. The length of the tour could be advantageously based upon the existing casualty rate in the unit, thus obviating an undue loss of effective manpower. It is believed that an appropriate policy, by reducing psychiatric casualties, could decrease the number of replacements required by infantry combat units. The principle involved is analogous to that which is well recognized in the case of a truck, for example, namely that the truck will last longer if certain worn parts are replaced before they have worn out altogether. If allowed to remain, after a certain point they cause greater wear or even serious damage to other parts and thus unnecessarily diminish the life of the truck. Similarly, the combat unit will last longer if the men with the longest service are replaced before they have worn out altogether. The removal of these older men not only removes demoralizing influences from the unit, but gives each man something other than death or mental breakdown to look forward to and to fight for, thus decreasing the rate at which men become noneffective for psychiatric reasons. In consequence, the number of replacements needed by the unit should be reduced.

5. The infantryman's incentive to keep fighting might be very greatly aided by giving him credit and recognition for the length of time he has served in combat. This might be effectively accomplished by adding a star or marker to the infantryman's combat badge for each 30 days of combat service.

6. The morale and incentive of the combat soldier could be greatly improved by providing special privileges and supplies not afforded base area troops, including more frequent furloughs during rest periods and the setting aside of certain towns for his enjoyment.

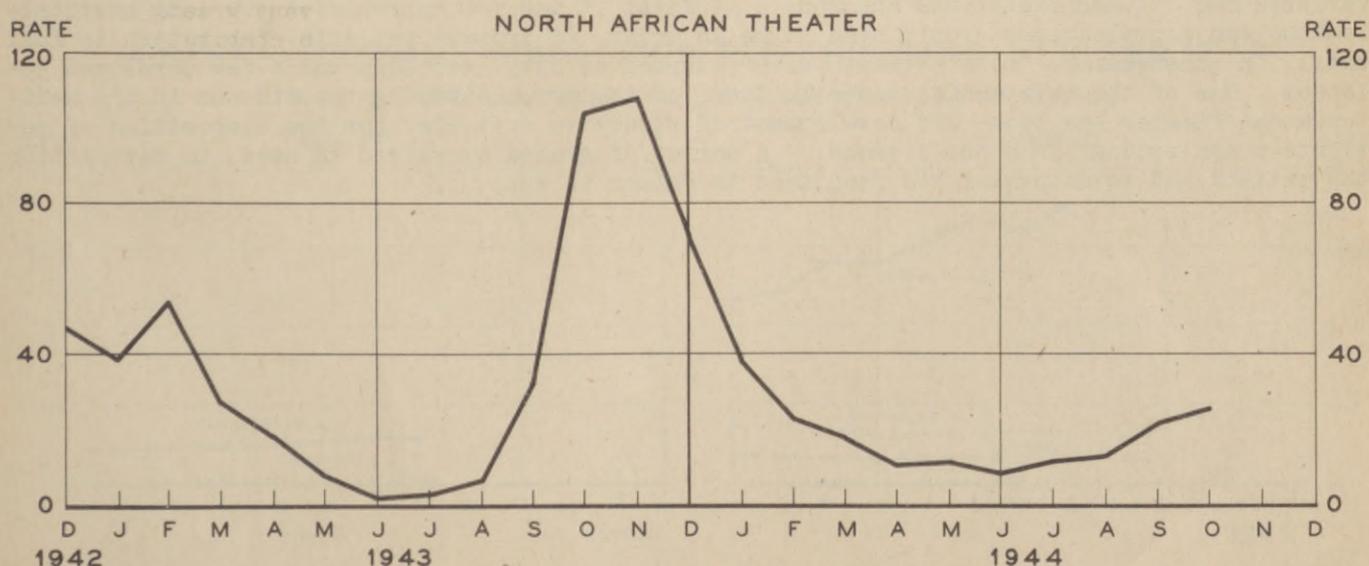
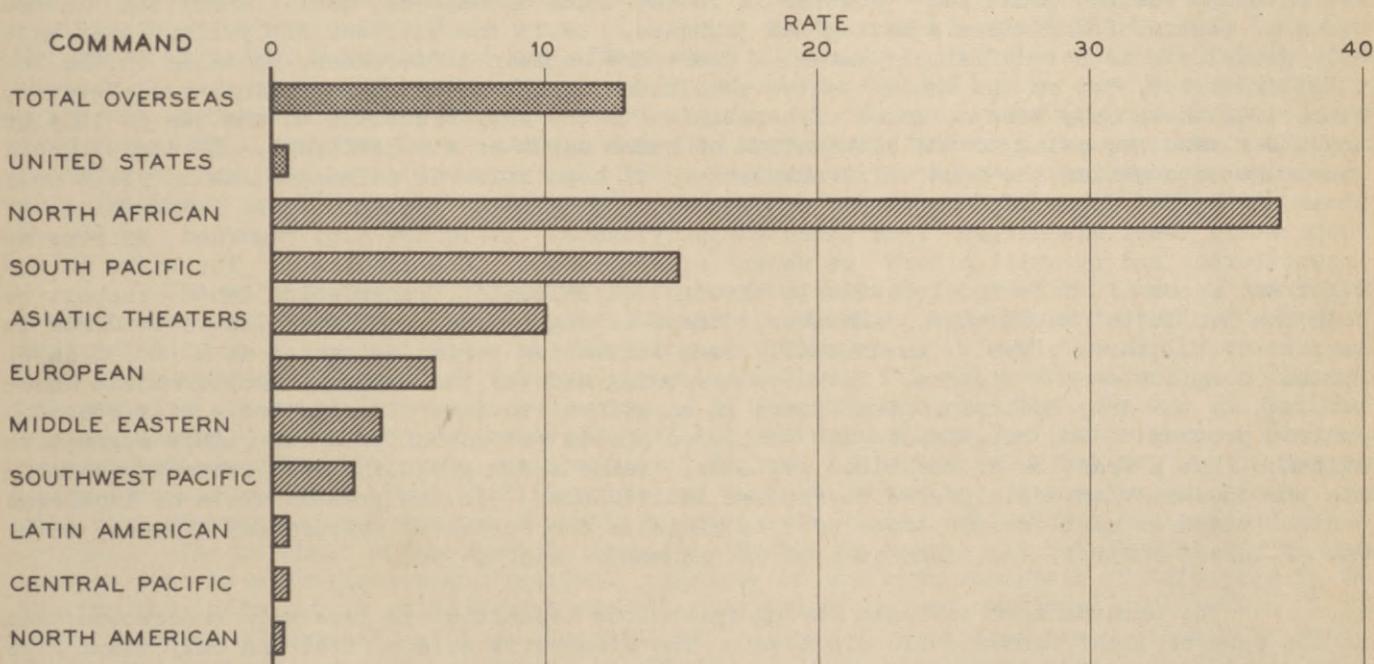
# DISEASE AND INJURY

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## INFECTIOUS HEPATITIS

The war in Europe appears to have fostered the spread of infectious hepatitis to a point where it poses a major problem for both civil and military authorities. The disease is not new, but is well known as an affliction of armies in the field. In the American Civil War more than 50,000 cases were reported among Federal troops, and the Army of Occupation experienced a small epidemic in 1919. Jaundice has been common among armies campaigning along the eastern littoral and hinterlands of the Mediterranean Sea. The forces of Napoleon suffered severely from jaundice a few months after their invasion of Egypt and the disease was reported in both French and British troops during the Crimean War. During World War I allied forces were afflicted with jaundice in the Balkans, at Gallipoli, and in Palestine, Egypt, and Italy. During the spring and summer of 1939 the French concentrated a large body of troops in southern Tunisia to counter a possible Italian thrust from Libya. An epidemic of jaundice made its appearance among them in September and reached its peak in December. Shortly after the opening of the African campaign in 1940 jaundice was encountered in epidemic form by the British Army, and reappeared in 1941 and 1942. The German Army is known to have suffered heavily from the disease in Europe and it is widespread throughout Central Europe.

**INFECTIOUS HEPATITIS, ADMISSIONS PER THOUSAND MEN PER YEAR  
ARMY IN THE CONTINENTAL U. S. AND OVERSEAS, 1943**



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## DISEASE AND INJURY

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INFECTIOUS HEPATITIS (Continued)

Although the incidence of infectious hepatitis attracted notice in the South Pacific early in 1943, when average rates of 50 to 60 per 1,000 men per year were reported for a period of two months, it was not until admissions in North Africa attained epidemic proportions later that year that the disease constituted a serious military threat to U. S. Army troops overseas. The chart on the previous page compares the various theaters from the standpoint of their average rates during 1943, and traces the incidence of the disease in the Mediterranean Theater since December 1942. Recent technical medical reports from that theater indicate that the initial rates, far from being of the low order originally reported to The Surgeon General and published in HEALTH for January 1944, were probably also of epidemic magnitude. The curve of the monthly rates is characteristic of the disease in the northern hemisphere. The trough for 1944 is higher than that for 1943 and although the rise in September and October has been less precipitous preliminary reports for November suggest that the upswing may be later this year than last. In 1943 there were at least 16,000 admissions and more than 300,000 man-days were lost because of the disease. In the Southwest Pacific Area an outbreak of hepatitis began on Biak in July, and the theater rate climbed rapidly from 3 in May to 27 in August. The provisional rates for September and October indicate a marked reduction in the average theater incidence.

Infectious hepatitis is a virus disease of varied clinical manifestations often difficult to distinguish from certain other diseases. There is evidence that some cases do not develop visible jaundice. Whether it is the same disease as that transmitted in the serum or plasma of individuals having had jaundice, as in the outbreak of "yellow fever vaccine jaundice", is not definitely known. There are certain differences, notably in the incubation period, but on the whole the two conditions appear to be closely similar. However, since 1942 there have been no cases of hepatitis in the Army traceable to the use of this or any other vaccine, owing to the elimination of human serum as a constituent. Epidemiological knowledge concerning the mode of transmission of hepatitis is so meager as to yield only hints as to the appropriate methods of control. Originally thought to be transmitted by respiratory tract discharges from infected individuals, it is now also regarded by some as insect-borne and by still others as water- or food-borne. The finding of the virus in the blood and feces of infected individuals through experimental transmission lends support to both the two latter hypotheses. However, there is suggestive but inconclusive evidence in support of all three views. An unusually long incubation period, estimated at 20 to 40 days, further complicates the picture. Studies are being made by the Surgeon, Mediterranean Theater, and by the Army Epidemiological Board in an effort to determine the basis of a specific control program. One experiment just concluded yields yet unconfirmed but highly suggestive evidence that a fraction of the blood proteins, immune serum globulin, will prevent or attenuate the disease when administered to exposed individuals. In the present state of knowledge control measures must include those used to minimize the spread of respiratory disease, methods of insect control, and techniques of environmental sanitation.

The treatment of patients having infectious hepatitis is less well understood than in the case of most communicable diseases. The disease is seldom fatal and only about five percent of admissions are said to require evacuation to the U. S. However, its course is variable and its manifestations numerous. At first it was not appreciated how long hospitalization and convalescence would need to be in order to prepare patients for return to full duty. In consequence, some patients were returned to duty too soon and a few developed relapses. One of the outstanding contributions of the group studying the disease in the Mediterranean Theater has been its development of objective criteria for the disposition of patients convalescing from the disease. A series of graded exercises is used to recondition the patient and to determine his readiness to return to duty.

# DISEASE AND INJURY

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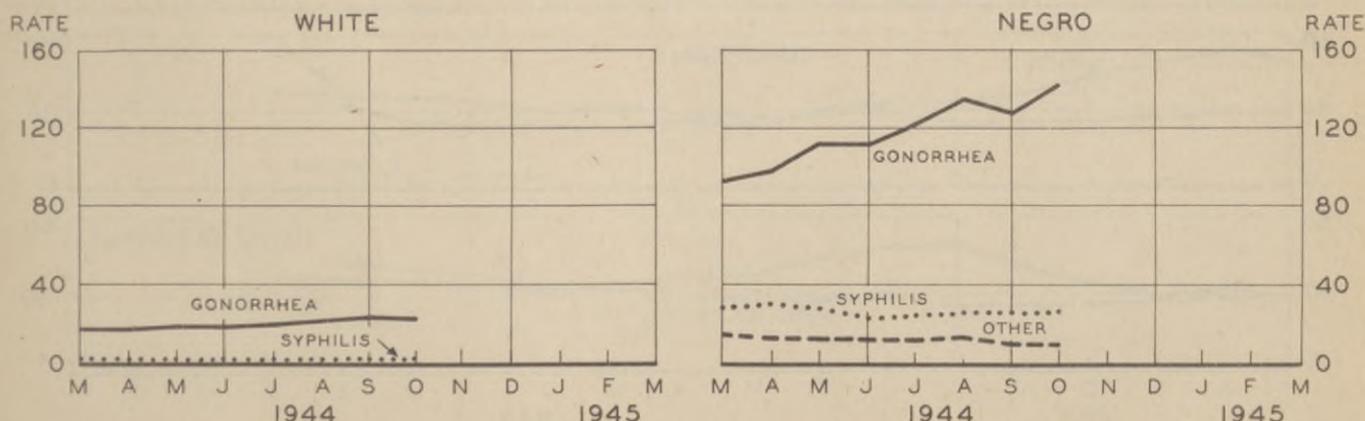
## VENEREAL DISEASE, U. S. AND OVERSEAS

The incidence of venereal infection (excluding any acquired prior to service) among troops in the Continental U. S. has steadily mounted since early 1944 until the rate of 38 for October represents the highest reported since February 1942. The rise may be ascribed for the most part to the spectacular increase in gonorrhoea among Negro troops, although rates for white troops have also risen moderately. Syphilitic infection remains at a fairly low level among both white and Negro troops, any trend being slightly downward in direction. The panels below show admissions per thousand men per year, by color, for syphilis, gonorrhoea, and all other venereal disease since March 1944.

The present trend carries the implication that, despite the success achieved by both civilian and military authorities in the control of syphilis, gonorrhoea continues to present an epidemiologic problem of major size. Although rapid therapeutic advances have reduced the average days lost per case, the mounting incidence serves to counteract their savings in total noneffectiveness. It is also possible, however, that the increase of infection is more apparent than real and that it reflects improved reporting in large measure. Relaxation of regulations relating to loss of pay and other disciplinary measures for military personnel contracting venereal disease has encouraged many men to report for treatment who formerly sought treatment elsewhere and thus eluded the official counts of incidence. Many medical officers express the opinion that the publicity accorded the wonder-cures for syphilis and gonorrhoea has diminished the fear of infection, thus encouraging exposure and discouraging prophylaxis. Optimistic over the prospect of an early end to the war in Europe, many soldiers seem to have lost their sense of urgency and personal responsibility and feel that the war will be won regardless of any effort they might make. Both the venereal and the AWOL rates index the morale of troops to a certain extent and the AWOL rate has been observed to be on the increase in recent months. As the number of troops returning from duty overseas increases, still another factor may operate to increase the venereal disease rate. Although there is at present no good measure of incidence among men who have completed overseas service, it is believed that many infections are acquired in the initial period after return to the U. S.

The problem among troops overseas resolves itself largely into one of attaining adequate venereal disease control in two theaters. Because a preponderance of strength is deployed in highly endemic areas on the European Continent, in both the Mediterranean and European theaters, the trend of venereal disease incidence for all overseas troops is largely determined by the rates for these two areas. By June of this year the rate for the Mediterranean Theater had fallen far below the peak of 121 admissions per thousand men per year reached last December after the occupation of Naples. However, with the capture of Rome in early June and the subsequent stabilization of tactical activity on the Italian front, the rate rose sharply in July and has steadily mounted ever since, achieving a new peak of 140 in October. The movement of the Seventh Army into France in August did not depress the average theater rate as might have been expected. Because of the high reservoir of infection in the Italian population it is evident that exceptionally vigorous and continued application of all known measures of control will be essential as long as U. S. troops are stationed in Italy. Either the control program previously in effect in Italy has bogged down, or the epidemio-

**VENEREAL DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR  
ARMY IN THE CONTINENTAL U.S., EXCLUDING EPTS CASES**



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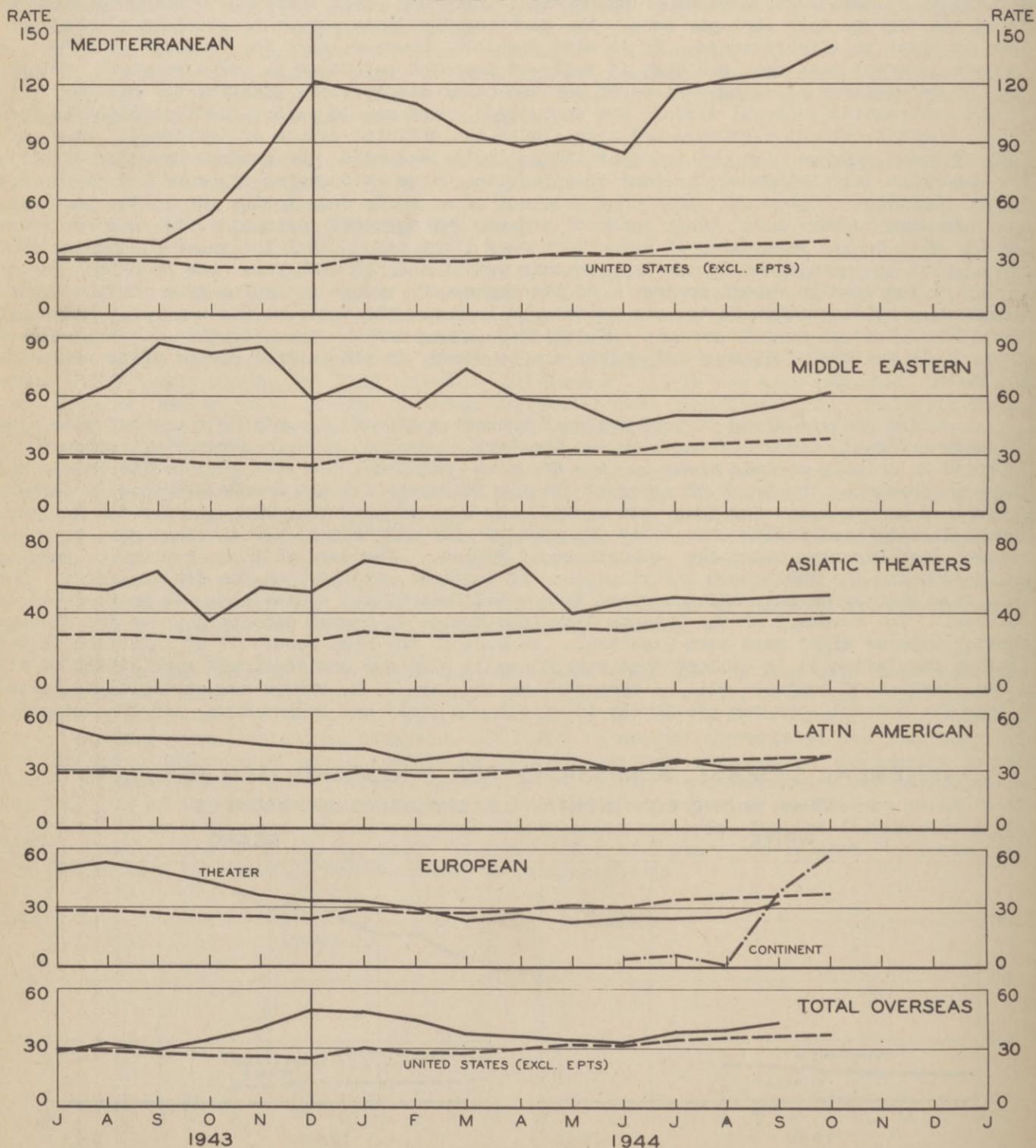
**DISEASE AND INJURY**

**VENEREAL DISEASE, U. S. AND OVERSEAS THEATERS (Continued)**

logic situation following the capture of Rome is so much more unfavorable as to require more stringent methods.

Information on disease incidence in the European Theater is quite fragmentary but provides some basis for estimation of the relative amount of venereal infection encountered by troops both on the Continent and in the United Kingdom since the invasion. Rates in the United Kingdom are now at a somewhat higher level than they were during the second quarter of

**VENEREAL DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR  
OVERSEAS COMMANDS**



## DISEASE AND INJURY

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### VENEREAL DISEASE, U. S. AND OVERSEAS THEATERS (Continued)

1944, a fact which may owe its explanation to the same factors producing a parallel trend in the U. S. rates. Venereal disease admissions were practically negligible on the Continent until the fall of Paris the last week in August. With the influx of large numbers of troops into the metropolitan area and the lessening of tactical activity the rate rose rapidly to reach about 58 admissions per thousand men per year in October. Reports indicate that approximately 50 percent of new patients named Paris as the place where infectious contact occurred. A comparison of admission rates of base sections on the Continent for the eight-week period ending 17 November reveals that such extreme rates as 178 and 141 per thousand occurred in the Oise and Seine sections respectively. Reims and Paris are the geographical centers of these two areas. Infection among troops on the Continent is prevalent chiefly among those stationed in the Communications Zone, where rates are nearly four times those in the Combat Zone.

Rates in the Asiatic theaters remain well above the average for all troops overseas and no definite trend in incidence has been evident in the past year. The existence of a number of small units scattered over rough terrain makes difficult the provision of adequate recreational facilities and the enforcement of strict discipline. A similar problem of control exists in the Middle East and the Persian Gulf Command. Although the rates there are now on the order of 55 per thousand, they are far below the peak of 88 in September 1943.

In the Latin American Area venereal infection has progressively declined under the pressure of a rigorous control program instituted by the Caribbean Defense Command. Since May the Caribbean has maintained rates slightly lower than those of the Continental U. S. but incidence in the South Atlantic, where troop strength is small, is relatively high and raises the average level for the entire Latin American Area.

The North American Theater (including Alaska), the Pacific Ocean Areas, and the Southwest Pacific Area have very satisfactory rates, consistently below ten per thousand per year. In the case of the Southwest Pacific, the transfer of personnel northward from the Australian mainland has decreased the incidence by lessening opportunities for exposure. Venereal disease among furlougees returning from the mainland, particularly the Sydney leave area, now constitute the major problem. Only two percent of the command, they contribute 50 percent of the new cases. It is anticipated that a much higher incidence will be experienced with the movement of an increasing proportion of strength into the Philippines where rates for white enlisted men during 1939 and 1940 were 85 and 162 respectively.

The accompanying charts show the trend of admissions for venereal disease since July 1943 for all overseas troops by theater.

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## MAJOR HEALTH PROBLEMS ON THE ROAD TO TOKYO

The areas still ahead on the road to Tokyo present a rather definite pattern of health hazards which differ somewhat from those heretofore encountered. These hazards vary according to the direction of approach to Tokyo as well as the season of approach. Malaria has been a major hazard in the Southwest Pacific but completely absent in the Central Pacific owing to the absence of anopheles mosquitoes in the Marshalls, Carolines, Palaus, and Marianas. However, malaria is a major problem in the Philippines and the China coast, and the problem today is much more acute than it was prior to the Japanese occupation since there appears to have been a gross neglect of mosquito control procedures. Malaria is also widespread in Formosa and the Ryukyus. In Japan, this disease is confined largely to the southern portion where the incidence was formerly about comparable to that in North Carolina. It is probable, however, that there has been a distinct increase since the outbreak of the war. Most of the Volcano-Bonin chain of islands, the northern part of Japan, the Kuriles, and all other possible northern approaches are essentially free of malaria except for occasional imported cases. Particular note should be made of the occurrence of malaria in the Philippines where the disease is found primarily at altitudes between 1,000 and 2,000 feet and not along the coastal plains. The mosquito responsible is a stream breeder.

Dengue fever will be of major significance and, as a disease which may affect the success of military operations, may well play the most important role. Although dengue does not kill, it can immobilize a very large fraction of a military force. On Saipan, over 50 percent of some units were so affected (see pages 12 and 13, this issue). Dengue is widespread throughout the Philippines, Formosa, the China coast, and the Volcano-Bonin chain, and is found throughout southern Japan. It has occurred during the past summer. If it should happen to be present at the time of operations, it may assume major importance unless measures are taken to control breeding of the responsible mosquito, which in this area is chiefly the *Aedes albopictus*.

The role that scrub typhus will occupy is still problematical. As Japanese River Fever (Tsutsugamushi disease), it occurs in northwestern Honshu where it exacts a high toll of deaths among its victims. It is also prevalent throughout Formosa and the Ryukyu Islands. Whether or not the disease exists in the Philippines and along the China coast is not certain. There are no authentic records of the disease in these areas but there are suggestive data from the lower Yangtze Valley. On the other hand experience has shown that scrub typhus is widespread in certain parts of the Netherlands East Indies where it was formerly supposed to be absent. Similarly, it has been found in parts of India and Burma where it had not been previously recognized. There is ample justification for suspecting that scrub typhus is to be found throughout southeastern Asia. Wherever found, it will constitute a serious problem.

Japanese B Encephalitis is a potentially serious problem in Japan, the Ryukyu Islands, Formosa, and possibly on the China coast and the eastern coast of Russia. The disease is particularly prevalent in the southern half of Japan around the inner sea but a disastrous outbreak occurred about 10 years ago in Tokyo. It appears to be spread by several species of mosquitoes. While at the present time the only preventive measure of proven value is mosquito control, procurement of a vaccine for use in case the disease is encountered has been initiated (see HEALTH for 31 October). Another form of encephalitis recognized in Russia is referred to as Spring-Summer Encephalitis. The exact relationship of this to the Japanese B Encephalitis is not clear. The case fatality rate is high. Promising results with vaccines have been reported by Russian workers. The exact distribution is not known but there is evidence to indicate that it spreads down into Manchuria and may possibly occur on the northern China coast.

Among the intestinal infections, both bacterial and amoebic dysentery will be of prime importance. The extensive use of human excreta as fertilizer is a potent factor in the high incidence of such infections. Cholera will be encountered along the China coast and possibly in the Philippines and Formosa to which it may have been introduced by troops coming from the China coast. It is apparently not endemic in Japan. The civil population of these areas suffers from a high incidence of worm infections. Finally, mention must be made of plague. Some parts of the China coast, notably the province of Fukien, are among the most serious foci of this disease. It may be encountered in almost any part of the China coast and might conceivably have spread to the Philippines, Formosa, and Japan. It is not normally present in the northern approaches to Tokyo. The incidence of the disease is quite variable from year to year. Extensive epidemics may well develop among the civil population. The Army, however, is prepared to take active measures against the spread of plague when it is encountered. These measures include rodent control, the use of DDT to combat the rat flea which transmits the disease to man, and the administration of vaccine to troops likely to be exposed.

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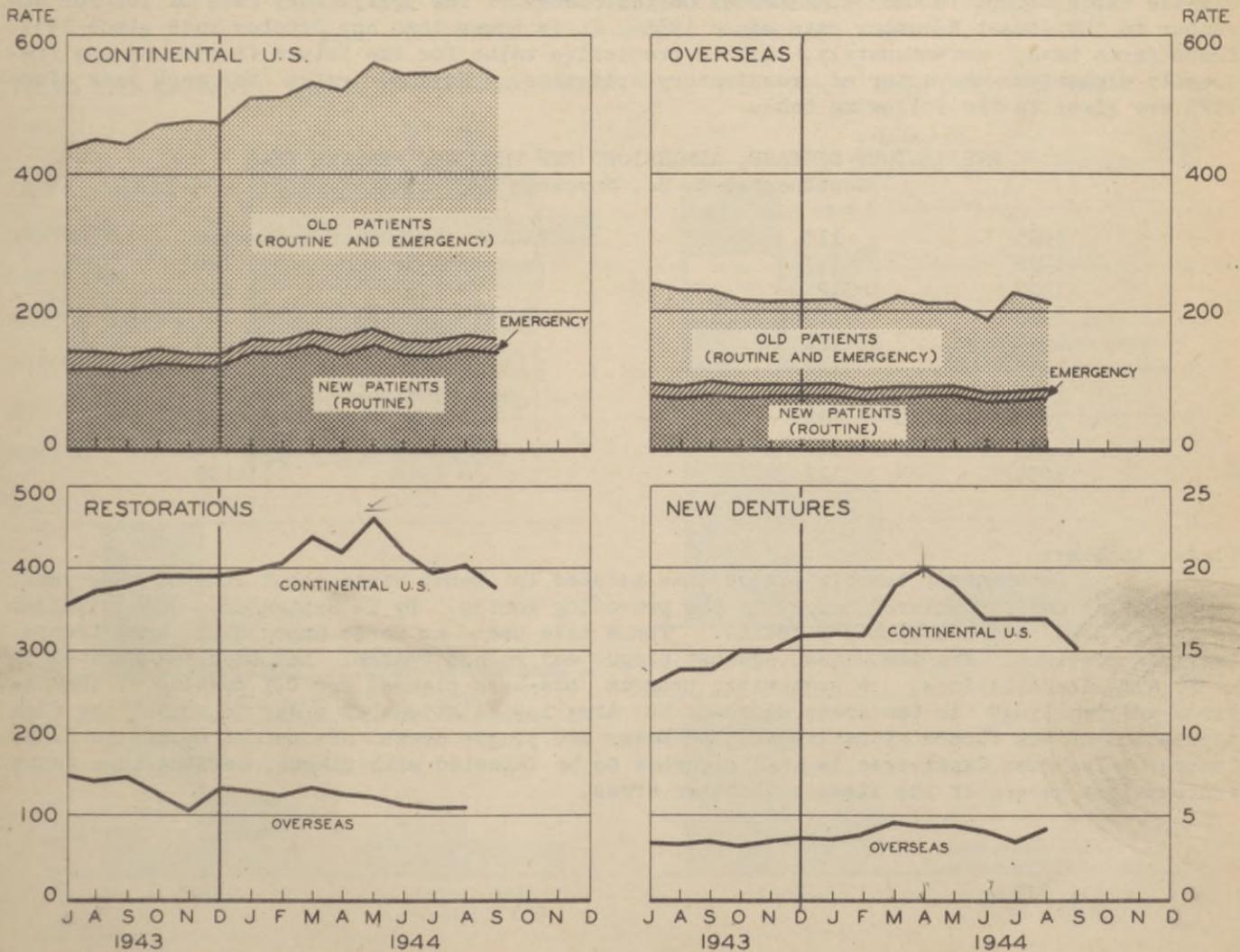
# DISEASE AND INJURY

## DENTAL ADMISSIONS AND TREATMENTS

In August after a steady rise for the past 18 months or more, dental attendance in the U. S. reached the highest point of the war, a rate of 565 per 1,000 strength per month. The continued improvement in dental attendance on the part of new and old patients is attributed in part to the increased availability of supplies, equipment, dental officers, and dental technicians and in part to the August 1943 P.O.M. requirement that dental health be acceptable before men be shipped overseas. In practice this meant that no soldier could proceed overseas without a sufficient number of teeth to masticate the average ration, and that all dental infection must be removed prior to departure. The realization of a more complete dental service in the U. S. has materially reduced the amount of work required overseas, with the result that the overseas rate has slowly declined over the period shown below. Some of the decline may reflect increased combat activity, however. The decline in emergency admissions overseas has been particularly noteworthy.

Until May of this year the number of restorations (fillings) in the continental U. S. increased fairly steadily above the January 1942 level of 174 per 1,000 men per month. The subsequent decline from the May peak of 462 reflects the approach of a more stabilized condition with the elimination of any backlog as well as the great decline in the rate of induction. The situation is similar with respect to dentures. The falling incidence in the U. S. occurs in the face of ample supplies and adequate personnel, a fact which heralds the approach of a stable rate at a much lower level, the needs of newly inducted men having been substantially met. Any great change in the rate of induction would be expected to reverse the present trend, however.

DENTAL ATTENDANCE, ADMISSIONS, AND TREATMENT  
PER THOUSAND MEN PER MONTH  
ATTENDANCE (OLD AND NEW PATIENTS)



## DISEASE AND INJURY

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## HEALTH BRIEFS

Neuropsychiatric Rate in the Mediterranean

The monthly statistical health report for the Mediterranean Theater (including the Seventh Army) gives 4,400 neuropsychiatric admissions and 13,300 wounded during four weeks in October. In both instances the incidence is the highest ever reported by the theater, the neuropsychiatric rate of 82 being almost twice the level of preceding months. The following table shows comparative data on neuropsychiatric admissions and wounded in action for the five months ending 31 October. It will be noted that the ratio remained in the neighborhood of three wounded to one neuropsychiatric admission even though the range of admissions for both causes varied about three-fold.

RATIO OF NEUROPSYCHIATRIC ADMISSIONS TO WOUNDED IN ACTION, MEDITERRANEAN, 1944

Month	Admissions per Thousand Men per Year		Ratio
	Neuropsychiatric	Wounded	
June	50	172	1:3.4
July	52	134	1:2.6
August	28	77	1:2.8
September	50	187	1:3.7
October	82	266	1:3.2

Respiratory Disease in the U. S.

The current season is remarkable for its extremely low incidence of respiratory disease among troops in the continental United States. The preliminary rate of 102 for November is the lowest November rate since 1935. It is lower than any October rate since 1931. These facts have, unfortunately, little predictive value for the future in view of the frequently explosive character of respiratory epidemics. November rates for each year since 1925 are given in the following table.

RESPIRATORY DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR  
Continental U. S., November 1925-1944

1925	113	1935	102
1926	117	1936	128
1927	127	1937	119
1928	179	1938	107
1929	121	1939	119
1930	121	1940	376
1931	109	1941	167
1932	184	1942	278
1933	110	1943	171
1934	112	1944	102

Plague in Dakar

An outbreak of bubonic plague has existed in Dakar since about June of this year, there having been scattered cases in the preceding months. By 24 September, 426 civilian cases had been reported with 382 deaths. There have been no cases among U. S. Army troops. American personnel are immunized against plague and rodent control has been inaugurated in U. S. Army installations. A systematic program has been planned for DDT dusting of the natives and dwellings in the areas adjacent to Army installations in order to combat the flea population on the floors of native huts. Dakar and plague areas are out of bounds to U. S. troops. The Suez Canal area is also reported to be infested with plague, serving as a focus for possible spread of the disease to other areas.

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# HOSPITALIZATION

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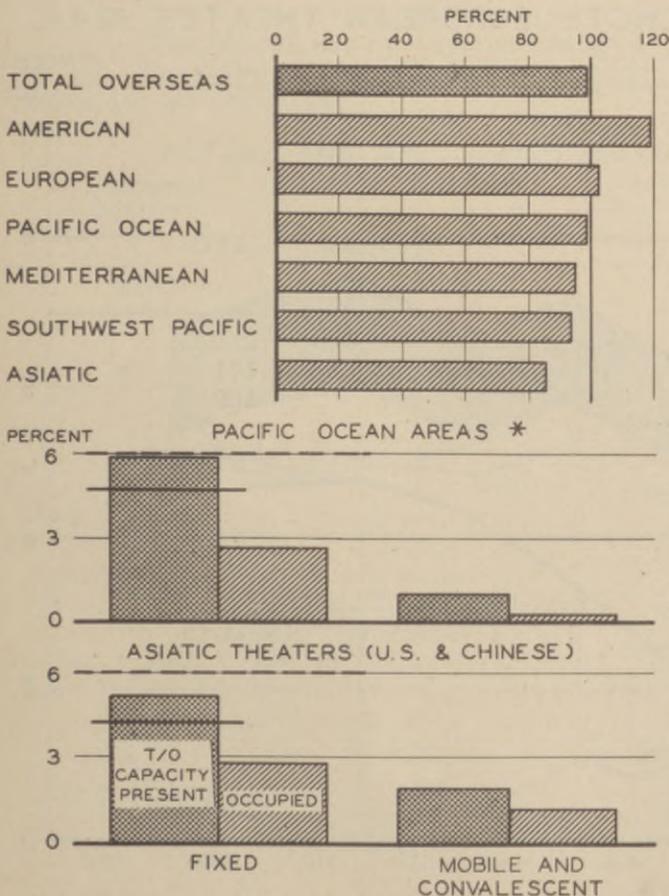
## STATUS OF HOSPITALIZATION OVERSEAS

The reduction of WD authorized levels for fixed bed units in certain theaters early in November brought the total overseas capacity present on 1 November to 99 percent of authorization in contrast to 88 percent on 1 October. Following the revision of the level for the European Theater to seven percent of strength early in October, those for the Southwest Pacific Area and the Asiatic theaters were reduced to seven and six percent respectively, and for both North America and Latin America to three percent. The authorization for the Central Pacific, on the other hand, was raised to six percent which now pertains to the Pacific Ocean Areas as a whole. Of the larger commands only the aggregate of the American commands reported a capacity well in excess of the new authorization, while the greatest shortage was reported for the Asiatic theaters, as may be seen from the top left-hand panel below. The strength used for the Asiatic theaters includes 102,000 Chinese troops, for whom the authorization is also six percent. Although they were not yet in effect on 1 November the new authorizations are used in order to define the situation which they created shortly thereafter.

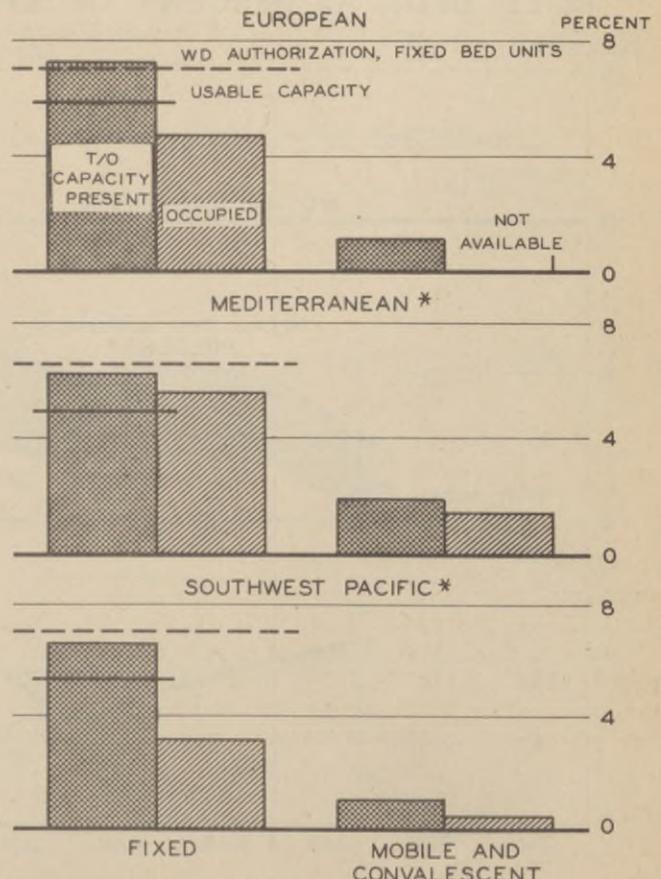
The other panels give, as a percent of strength in the theater, the T/O capacity of all fixed and mobile beds reported to have arrived in the theater, whether or not set up to receive patients, the usable fixed capacity (estimated at 80 percent of the total capacity present), and the fixed and mobile beds occupied. The Seventh Army data are included among those for the Mediterranean Theater. Especially noteworthy is the relative crowding of both fixed and mobile capacity reported by the Mediterranean, 89 percent of the fixed and 72 percent of the mobile beds having been occupied on 27 October. The month of October was the most severe in the history of the theater from the standpoint of the battle casualty rate. Elsewhere there was less pressure on the available bed supply, but later data on the European Theater, discussed on the following page, reveal marked changes during November. In the Asiatic theaters fixed beds would be much more crowded were it not for the constant use of so many mobile units in lieu of fixed units.

## STATUS OF HOSPITALIZATION OVERSEAS BEDS AS PERCENT OF STRENGTH, 1 NOVEMBER 1944

FIXED T/O CAPACITY AS % OF AUTHORIZATION



AVAILABLE AND OCCUPIED BEDS



\* Bed occupancy data apply to 27 October. In other theaters the effective date is 3 November.

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## HOSPITALIZATION

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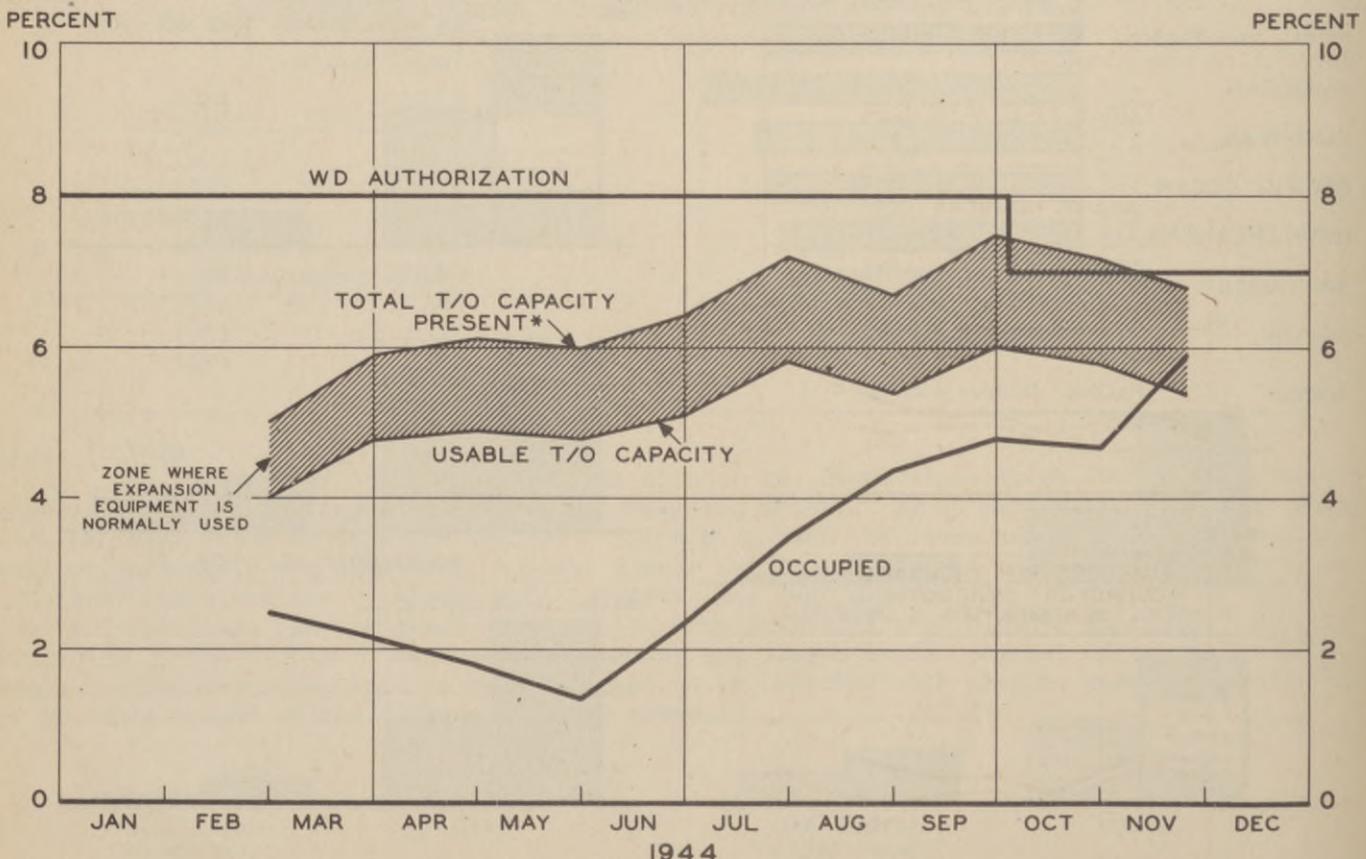
## BED STATUS IN THE EUROPEAN THEATER

Because of delays in reports it has not been possible to show the status of fixed beds in the European Theater in recent issues of HEALTH. The accompanying chart has been prepared on the basis of preliminary telegraphic information in order that this significant gap might be bridged. The chart gives the WD authorization for fixed bed units, the T/O capacity of units reported by The Adjutant General to have arrived in the theater, and the number of fixed beds occupied both in the United Kingdom and on the continent, all as percentages of theater strength. The number of T/O beds reported by the theater to be set up for use is less than the total capacity of all units present because some units are staging, in construction, and the like. In addition to the T/O capacity set up for use the theater has reported up to 25 percent expansion capacity suitable for short-term, emergency use. At theater request additional equipment is being forwarded to enable general hospitals on the continent to expand up to 50 percent of T/O capacity. It is generally considered that fixed installations begin to show signs of crowding when their patients exceed 80 percent of their T/O capacity, with the result that emergency expansion capacity must be called upon. This region of crowding is indicated on the chart. Actually crowding would start at a somewhat lower level dependent upon the proportion of capacity dispersed in staging, etc.

The number of beds occupied declined during the spring to reach the low point of 1.45 percent of strength about the first of June and thereafter rose very steeply to 4.9 about 1 October. Since the incidence of battle casualties remained fairly low during September and October, the bed occupancy percentage fell during October, but it rose very steeply in November under the influence of the heavy offensive in the latter part of the month and reached 5.9 on 25 November, according to radio reports. The November point was derived from data which include the Seventh Army in the European Theater for the first time.

For 1 October the T/O capacity of all units present in the theater was 156,000 beds. The theater reported 140,000 set up on that date, plus 24,000 expansion beds in fixed units, with 101,000 fixed beds occupied. There were 15,000 additional patients in mobile and convalescent facilities on that date. On 25 November the T/O capacity of all units present was 174,000, and 150,000 patients were said to be occupying fixed beds at that time.

FIXED BEDS AS PERCENT OF STRENGTH, EUROPEAN THEATER, 1944



\* Exceeds T/O capacity of units set up by capacity of units staging, etc.

# HOSPITALIZATION

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## TREND OF EVACUATION FROM OVERSEAS

The final count of U. S. Army patients debarked in the U. S. during October is 16,400 and the preliminary count for November is 18,000. Both are well below the estimates made in October and first published in that issue of HEALTH. However, between 1 November and 1 December there was an increase of about 3,000 in the backlog of overseas U. S. Army patients awaiting evacuation. The debarkation counts do not include prisoner-of-war patients, 4,600 of whom were debarked in October and 2,300 in November. However, WD directives to the European and Mediterranean theaters during November sharply reduced the numbers of POW patients to be evacuated, and required that the theaters provide the necessary hospitalization for the patients thus retained. On 1 December less than 50 POW patients were reported to be awaiting evacuation.

With the evacuation of larger numbers of U. S. patients from overseas both the number and the proportion of battle casualties have increased, as may be seen from the following table covering the debarkations from November 1943 through September 1944, the classification being based on original cause of admission which may occasionally differ from the cause of continued hospitalization at a later date. For the third quarter of 1944 a third of all patients debarked were battle casualties in this sense, and the ratio in current months is believed to be more nearly, or possibly in excess of, one-half. This trend has manifest consequences for the need for hospital and convalescent bed capacity in the U. S.

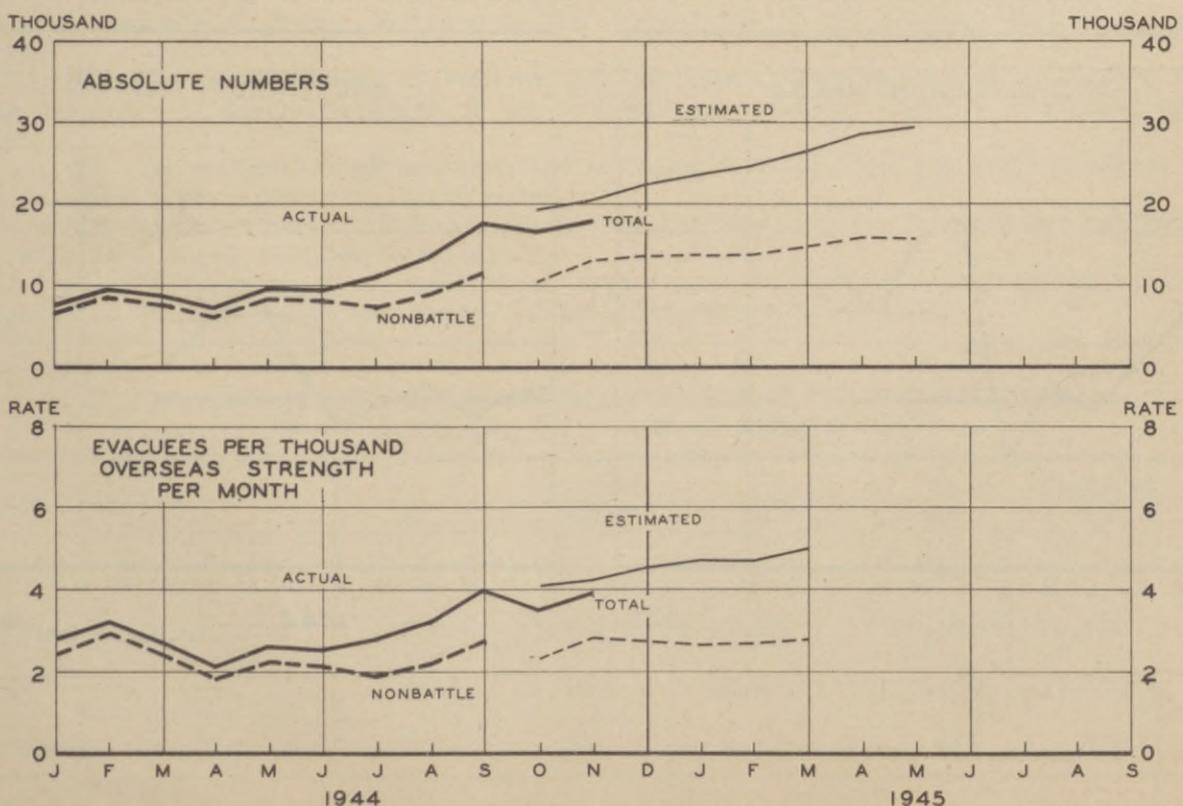
PERCENT OF U. S. ARMY PATIENTS DEBARKED BY TYPE

Debarkation	Disease	Nonbattle Injury	Battle Casualty*	Total
Nov-Dec 1943	83	9	8	100
Jan-Mar 1944	80	8	12	100
Apr-Jun	74	11	15	100
Jul-Sep	57	10	33	100

\* Includes "battle injury".

The actual and projected trends of evacuation are shown below for U. S. Army patients. The forecasts are those first shown in HEALTH for October, when the basis of their derivation was discussed.

## ACTUAL AND ANTICIPATED EVACUATION OF PATIENTS FROM OVERSEAS



# HOSPITALIZATION

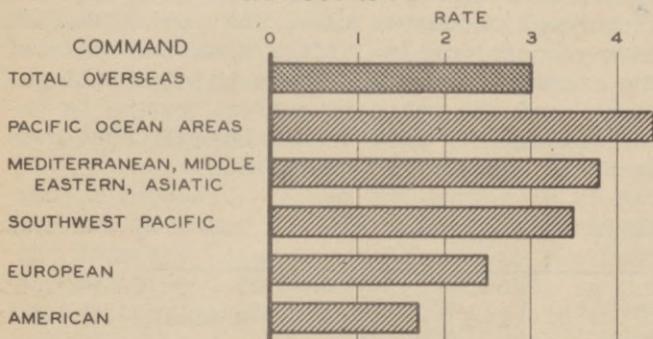
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## TREND OF EVACUATION FROM OVERSEAS (Continued)

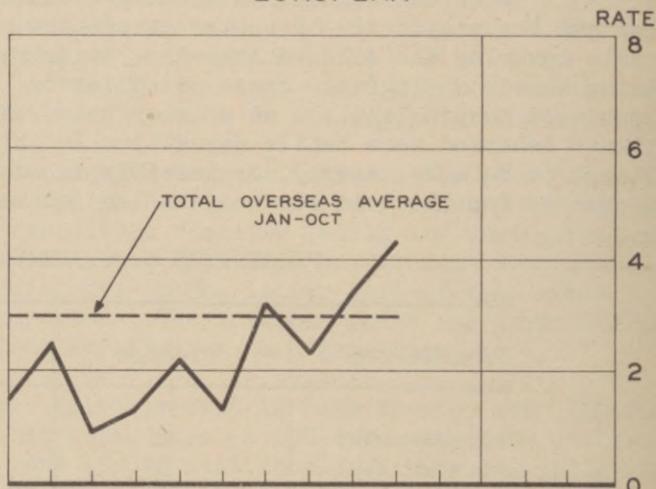
The charts below give the recent evacuation experience of the major theaters and overseas commands on the basis of the best available information on theater embarkation to the U. S. Debarcation data previously used were found to be misleading for recent months, especially for the Pacific, in that patients originating in the Southwest Pacific Area were tallied as having come from Pacific Ocean Areas. The new series thus represents a major revision, although they also are subject to further change on the basis of superior information. Prisoner-of-war patients are not included in the theater counts.

### EVACUEES PER THOUSAND MEN PER MONTH, OVERSEAS THEATERS

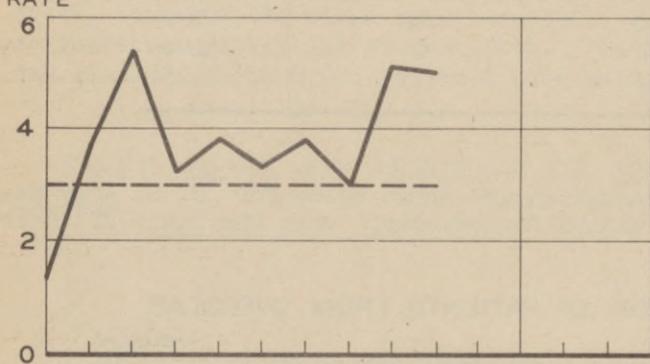
AVERAGE RATES - ALL THEATERS  
JAN-OCT 1944



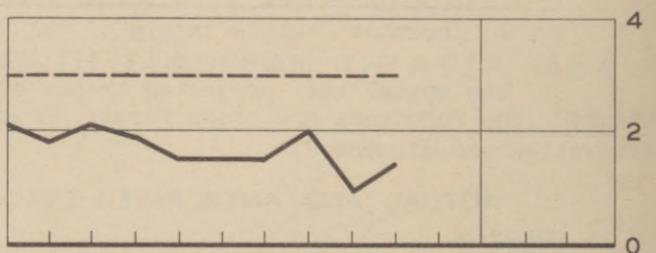
EUROPEAN



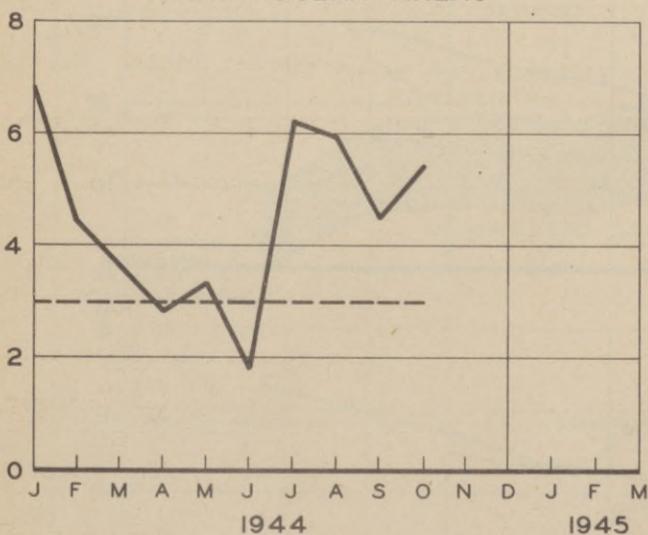
MEDITERRANEAN, MIDDLE EASTERN, ASIATIC



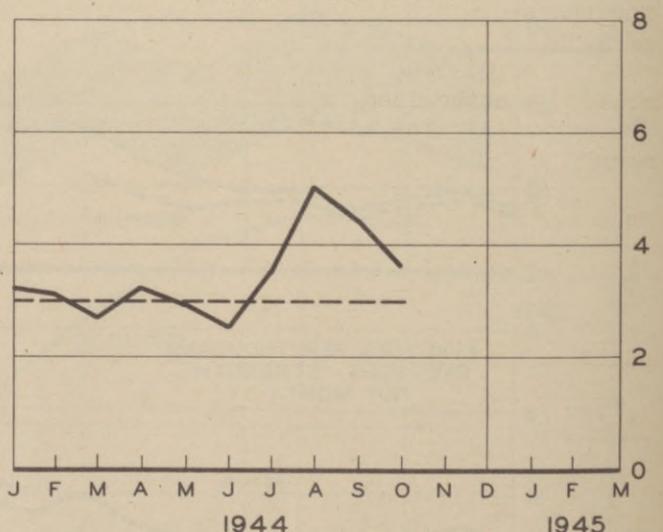
AMERICAN



PACIFIC OCEAN AREAS



SOUTHWEST PACIFIC



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# HOSPITALIZATION

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## HOSPITALIZATION IN THE ZONE OF INTERIOR

During the month of November, the authorized capacity of the general hospital system increased, while the authorized capacity of the station and regional hospital system operated by the ASF declined sharply.

### SUMMARY ASF HOSPITALIZATION IN THE ZONE OF INTERIOR\* \*END OF NOVEMBER

Type of Hospital	Beds or Spaces		Patients Remaining		Beds Occupied#	Personnel Shortages###		
	Author-ized	Effec-tive**	Remain-ing	Percent of Effective Beds		MC	ANC	Total
Total	214,710	172,057	151,263	87.9	134,848	686	4,710	30,696
Station and Regional	65,751	51,241	57,189	111.6	56,939	14	1,530	4,890
General	119,459	91,316	83,329	91.3	67,484	389	3,108	15,908
Convalescent	29,500	29,500	10,745	36.4	10,425	283	72	9,898

\* Excludes station hospitals under the Chief of Transportation.

\*\* Effective beds exclude debarkation beds, less allowances for dispersion of 20 percent for station and regional hospitals and 15 percent for general hospitals. No dispersion allowance is made for convalescent spaces.

# Difference between number of patients remaining and corresponding number of beds occupied is accounted for by number of patients temporarily absent from hospital on furlough, sick leave or AWOL.

## Computed on basis of table below. The shortages make no allowance for the availability of a total of 2,300 protected personnel, 300 Medical Corps officers and 2,000 corpsmen. This protected personnel must be supervised by American Medical officers and, therefore, is not equivalent to corresponding categories of American personnel.

#### General Hospital System

The increase in the authorized capacity of the general hospital system consisted of the following:

a. An increase of over 5,000 beds in the capacities of the general hospitals which arose by:

(1) The establishment of Prisoner of War General Hospital Number 2 at Camp Forrest for the treatment of German prisoner of war patients exclusively with an authorized capacity of 2,500.

(2) The completion of construction at Mason General Hospital which yielded an increase in authorized capacity of 1,286 beds.

(3) The enlargement of Percy Jones General Hospital by 1,260 beds following the merger with Fort Custer Station Hospital.

(4) The raising of the authorized capacity of Ashburn General Hospital by 100 beds as a result of the submission and review of detailed construction plans.

### AVAILABILITY OF AND REQUIREMENTS FOR MEDICAL DEPARTMENT PERSONNEL IN ASF HOSPITALS, Z.I. - END OF NOVEMBER 1944\*

Type of Hospital	Assigned			Required		
	MC	ANC**	TP	MC	ANC	TP
Total	5,225	7,976	107,896	5,911	12,686	138,592
Station and Regional	2,274	3,070	38,361	2,288	4,600	43,251
General	2,770#	4,842#	66,425#	3,159	7,950	82,333
Convalescent	181	64	3,110	464	136	13,008

\* Excludes station hospitals under the Chief of Transportation.

\*\* Cadet nurses included at 80 percent of their number.

# Availability data for general hospitals are as of end of October 1944.

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**RESTRICTED****HOSPITALIZATION****HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)**

The net result of the foregoing increases in authorized capacities combined with a small decrease in the number of beds reserved for debarkation is a net increase of approximately 2,500 effective beds available for the treatment of Army patients.

b. The authorization of 29,500 convalescent spaces by the Assistant Chief of Staff, G-4, to the Commanding General, ASF. These convalescent spaces are intended largely for the care of overseas evacuees and will be put to intensive use upon receipt of the necessary personnel for their staffing. Under tentative manning tables, the operation of these convalescent facilities will require in addition to present staff approximately 10,000 total personnel, including 280 medical corps officers.

**ANALYSIS OF BED CAPACITY OF NAMED GENERAL HOSPITALS**

Item	Number of Beds
Beds Authorized - Total	119,459
Beds <u>Not</u> Available for Treatment of Patients - Total	28,143
Debarkation Beds	12,029
Dispersion Factor - 15 Percent	16,114
Effective Beds Available for Treatment of Patients, Army and Non-Army	91,316
Less: Effective Beds Not Available for Treatment of Army Patients - Total	<u>6,712</u>
Prisoner of War Beds	4,821
Credits for VAF	616
Provision for Other Non-Army Patients	1,275
Effective Beds Available for Treatment of <u>Army</u> Patients	84,604

The process of subauthorization of the total allotment of 29,500 spaces is now actively under way in consultation with the service commands. The location of convalescent facilities is based on two factors: (1) the availability of housing, and (2) the need for compensating for local shortages in general hospital beds. It is recognized that the more scarcely populated areas of the country, like the Fourth, Eighth and Ninth Service Commands, have a larger number of general hospital beds than the more heavily populated areas, like the First, Second, Third, Fifth and Sixth Service Commands. While it may not be possible to send

**GENERAL HOSPITAL SYSTEM  
End of November 1944**

Item	Number
Effective Beds and Spaces - Total	<u>120,816</u>
Effective Beds *	91,316
Effective Convalescent Spaces	29,500
Patients Remaining - Total	<u>94,074</u>
Patients in General Hospitals	83,329
Patients in Convalescent Spaces	10,745

\* Effective beds at the general hospitals proper exclude debarkation beds as well as a 15 percent allowance for dispersion.

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# HOSPITALIZATION

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## HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

patients near their homes for the period of general hospital care, it is the plan of The Surgeon General to send many patients much closer to their homes during the period of convalescence if they are no longer in need of continuous observation and care by specialists. In carrying out this plan it will be the policy to allocate a relatively larger number of convalescent spaces to the populous areas.

The purpose of the convalescent facilities is two-fold:

a. They permit the transfer of part of the patient load from the general hospitals proper as the latter fill to capacity.

b. They provide appropriate treatment for patients in the stage of convalescence and reconditioning immediately preceding their return to duty or to civilian life.

The general hospitals have reached capacity loads only in the First, Third and Fifth Service Commands. Since, however, appropriate treatment for overseas evacuees includes convalescent care, it is necessary to begin operation of the convalescent facilities throughout the country at this time.

### PATIENTS REMAINING IN GENERAL HOSPITALS 1944\*

End of Month	Total Patients Remaining		Beds Occupied **	
	Number	Percent Change from Previous Month	Number	Percent Change from Previous Month
January	61,094		52,537	
February	60,928	- 0.3	51,706	- 1.6
March	58,853	- 3.4	49,224	- 4.8
April	56,697	- 3.7	47,133	- 4.2
May	58,795	+ 3.7	48,562	+ 3.0
June	59,579	+ 1.3	48,352	- 0.4
July	61,954	+ 4.0	48,046	- 0.6
August	68,542	+10.6	52,933	+10.2
September	77,243	+12.7	60,136	+13.6
October	84,229	+ 9.0	64,682	+ 7.6
November	91,523	+ 8.7	67,485	+ 4.3

\* Includes patients remaining under jurisdiction of all general hospital and all general and convalescent hospitals. Patients remaining in convalescent hospitals are excluded.

\*\* Difference between number of patients remaining and corresponding number of beds occupied is accounted for by number of patients temporarily absent from hospital on furlough, sick leave or AWOL.

It is stated War Department policy that the utmost be done for the physical and emotional well-being of men returning from battle. They are to be rehabilitated to maximum usefulness not only to themselves but to the community. It is, therefore, intended that no overseas casualty will be discharged from the armed forces until he has received maximum hospitalization and convalescent care. Convalescent care will include the following features:

- a. Physical and psychological rehabilitation.
- b. Vocational guidance.
- c. Pre-technical training.
- d. Civilian orientation.

In addition to the approximately 84,500 effective beds currently available in the general hospitals proper for the treatment of Army patients, there are approximately 6,700 effective beds available for the treatment of non-Army patients, over 70 percent of which are reserved for the treatment of prisoners of war. Taking into consideration the 29,500 convalescent spaces just authorized, the combined number of effective beds and spaces in the general hospital system will be approximately 121,000. Corresponding to this effective capacity there were 94,000 patients remaining in the general hospital system at the end of November, some 10,750 of them in convalescent spaces.

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## HOSPITALIZATION

## HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

It is to be noted that the 121,000 beds and spaces will not become fully effective until the personnel required for their operation is received. In addition to the personnel required to operate the convalescent hospitals and annexes, there also exists a serious need in the general hospitals for an additional 16,000 personnel, including almost 400 Medical Corps officers and over 3,000 nurses. This large personnel shortage in the general hospitals is accounted for in part by the fact that some personnel has been diverted from the general hospitals proper to operate the adjacent convalescent hospitals and annexes.

PATIENTS REMAINING IN GENERAL HOSPITALS  
End of November 1944

Type of Hospital	Number of Hospitals	Bed Capacity		Patients Remaining**		Beds Occupied#
		Authorized Beds	Effective Beds*	Number	Percent of Effective Beds	
All General Hospitals - Total	61	119,459	91,316	83,329	91.3	67,484
General Hospitals (Less Debarkation and POW)	54	100,566	84,022	72,850	86.7	57,203
Service Commands						
First	2	4,140	3,519	4,176	118.7	2,478
Second	4	9,951	7,736	6,604	85.4	5,511
Third	3	4,815	4,093	4,602	112.4	3,513
Fourth	9	16,994	14,445	11,119	77.0	9,092
Fifth	8	12,741	10,830	12,293	113.5	8,629
Sixth	4	7,141	6,070	5,765	95.0	4,623
Seventh	4	8,928	7,589	6,515	85.8	5,240
Eighth	9	17,520	14,764	12,261	83.0	10,020
Ninth	10	16,279	13,228	7,306	55.2	6,391
The Surgeon General (Walter Reed)	1	2,057	1,748	2,209	126.4	1,706
Debarkation Hospitals - Total	5	14,703	3,732	6,676	-##	6,484
Prisoner of War Hospitals - Total	2	4,190	3,562	3,803	106.8	3,797

\* Effective beds are for Army and non-Army patients at the general hospital proper and exclude debarkation beds as well as 15 percent dispersion allowance.

\*\* Patients remaining exclude patients occupying convalescent spaces.

# Difference between number of patients remaining and corresponding number of beds occupied is accounted for by number of patients temporarily absent from hospital on furlough, sick leave or AWOL.

## Percentage not shown, since no separation between patients in triage and patients receiving definitive treatment is available.

#### Station and Regional Hospitalization

The drastic reduction in the authorized bed capacities of the ASF station and regional hospitals stems from the directive issued by the Assistant Chief of Staff, G-4, ordering a change in the formula for station and regional hospitalization. The new formula calls for station hospitalization at 3.0 percent of strength served plus regional hospitalization at 0.5 percent of strength served. The data on bed authorizations in this article do not relate to beds actually authorized by the service commands under Changes 2, AR 40-1080, but to authorizations computed in The Surgeon General's office on the basis of strength currently served. Because of the recent date on which the reduced formula was promulgated, there has been insufficient time to request a new set of authorizations from the service commands. However, the service commands have been informed that pending publication of the necessary changes to AR 40-1080, the number of authorized beds for station hospitals will be approximately 3.0 percent of the average personnel strength served, with due consideration for special local problems. For regional hospitals, The Surgeon General is reducing authorizations in conformity with the new formula. Likewise, the Chief of Transportation is taking

# HOSPITALIZATION

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## HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

action to reduce the authorizations of the station hospitals under his jurisdiction to 3.0 percent of strength permanently served plus 2.0 percent of the staging capacities of the posts.

It would appear from an overall analysis, including the hospitals under the Chief of Transportation, that literal adherence to the reduced formula will result in considerable excesses of patients remaining over effective beds available for the treatment of patients, after making allowance for dispersion. At the end of November, when the incidence of admissions for common respiratory and other seasonal diseases is usually well below the peak incidence for such admissions for the year, the number of patients remaining was over 60,500; this corresponded to a computed authorization of 73,000 beds, representing an effective capacity of 57,100 beds. It may also be noted that even under the reduced authorizations there exists a shortage of Medical Department personnel in the station and regional hospitals. This is particularly serious in the nursing personnel and less so in the enlisted personnel categories.

### BEDS AUTHORIZED AND PATIENTS REMAINING IN STATION AND REGIONAL HOSPITALS End of November 1944

Command	Authorized Beds	Effective Beds*	Patients Remaining		Beds Occupied**
			Number	Percent of Effective Beds	
Army Service Forces - Total	73,111	57,129	60,941	106.7	60,213
Service Commands - Total	65,751	51,241	57,189	117.6	56,480
Station Hospitals	35,014	26,651	28,916	108.5	29,184
First	2,199#	399	443##	111.0	443
Second	1,643	1,314	1,270	96.7	1,264
Third	2,834	2,267	2,555	112.7	2,546
Fourth	6,611	5,289	5,484	103.7	5,457
Fifth	927	742	1,253	168.9	1,241
Sixth	1,279	1,023	999	97.7	997
Seventh	2,608	2,086	1,347	64.6	1,329
Eighth	11,473	9,179	10,447	113.8	10,388
Ninth	4,553	3,642	4,471	122.8	4,413
MDW	887	710	647	91.1	647
Regional Hospitals	30,737	24,590	28,273	115.0	27,755
First	565	452	309	68.4	298
Second	1,288	1,030	649	63.0	636
Third	2,567	2,054	2,795	136.1	2,746
Fourth	11,254	9,003	10,493	116.6	10,297
Fifth	1,489	1,191	1,082	90.9	1,080
Seventh	3,805	3,044	3,566	117.1	3,517
Eighth	6,752	5,402	6,359	117.7	6,221
Ninth	3,017	2,414	3,020	125.1	2,960
Chief of Transportation - Total	7,360	5,888	3,752	63.7	3,733

\* Exclude 1,700 debarkation beds at Camp Edwards and an allowance for dispersion of 20 percent.

\*\* Difference between number of patients remaining and corresponding number of beds occupied is accounted for by number of patients temporarily absent from hospital on furlough, sick leave or AWOL.

# Includes 1,700 debarkation beds in Camp Edwards Station Hospital.

## Includes 368 patients remaining in Camp Edwards Station Hospital for which no distinction between patients receiving station hospital care and patients in triage is available.

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HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)Conclusions:

The following conclusions may be drawn:

a. If the overseas evacuees are to receive the type of treatment established by present War Department policy, the convalescent hospital program must be accelerated. For this purpose, the requisite personnel must immediately be made available to staff and operate the various activities of such installations.

b. In view of the fact that most of the patients who are evacuated from overseas will not be able to return to military duty, it appears that a large part of the convalescent hospital program must be directed towards the preparation of the convalescent patient for his return to civilian life. This fact contains important implications for the type of program pursued and for the types of personnel required.

c. In addition to the personnel now required for the staffing of the convalescent hospitals and annexes, personnel shortages still exist on a large scale in the general hospitals and to a lesser degree in the station and regional hospitals.

d. The directed reduction in the formula for station and regional hospitalization has produced the overall effect of diminishing effective bed capacities below beds actually occupied.

# HOSPITALIZATION

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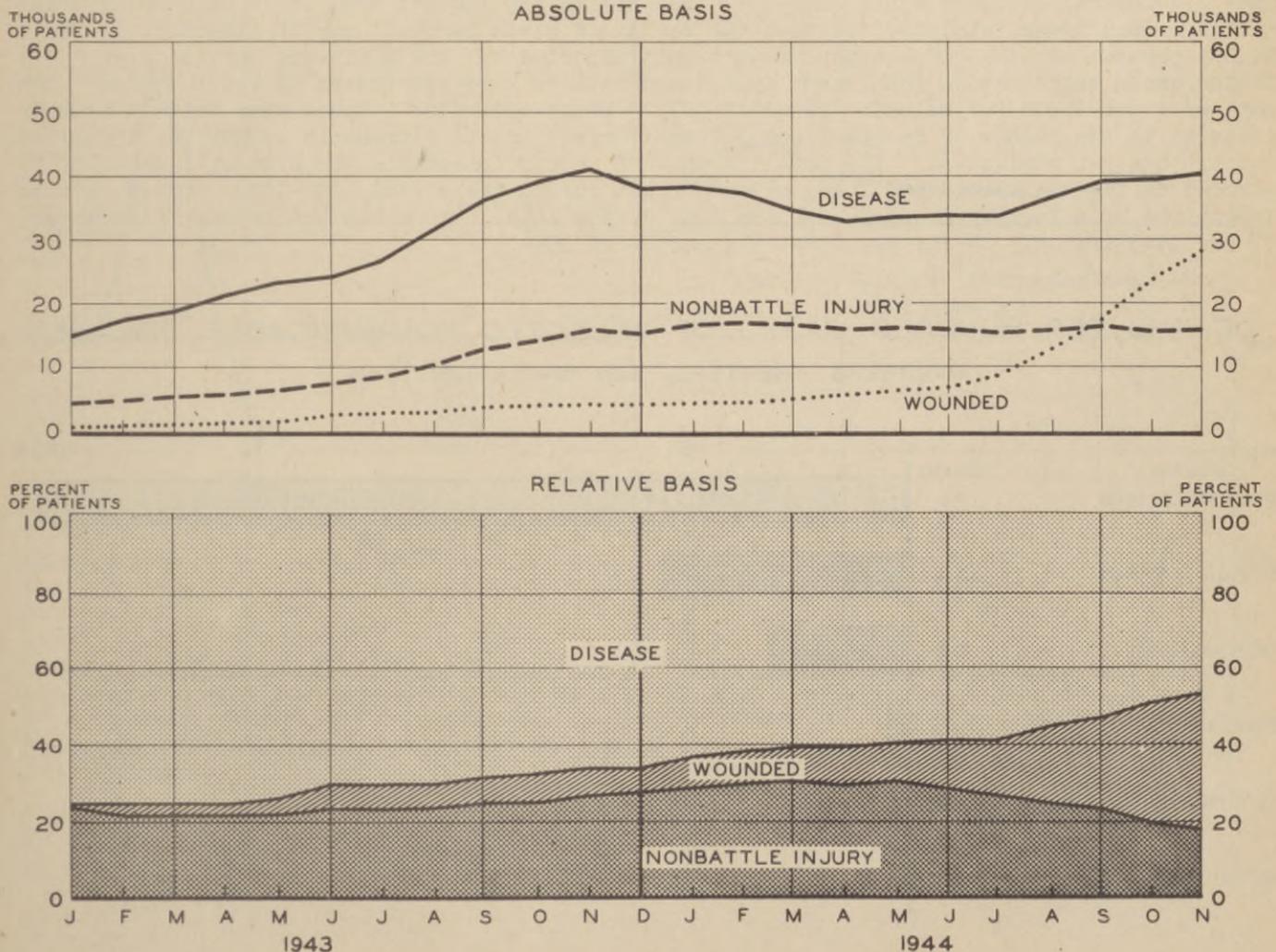
## TYPE OF PATIENTS IN GENERAL HOSPITALS

Throughout 1943 there was a rapid rise in the general hospital population as the strength of the Army in the Continental U. S. increased. From January to June 1944, the number of Army patients remaining was stabilized in the region of 60,000 patients. The disease portion of the patient load showed a slight decrease during the spring and summer months of 1944 but rose to its former level with the approach of winter and the increasing volume of evacuation from overseas; nonbattle injury remained constant at about 16,000 patients. The number of battle casualties increased slowly but steadily until July 1944, when it took a sharp turn upward. Since that time a relatively constant and high rate of increase has been in effect. At the end of November, battle casualties constituted 34 percent of the total general hospital load, an increase of 175 percent since June 1944. The charts below show the three major categories of general hospital patients. Nonbattle injury, battle casualty, and disease patients are shown separately and in both absolute and relative form. The percentages are plotted in cumulative fashion.

The number of Army patients remaining in the hospital and adjacent convalescent facility includes men on leave, furlough, AWOL, etc., and thus differs from the count of beds occupied. The relative number of Army patients who were on leave, furlough, etc., was relatively constant during 1943, but has been increasing this year and at the end of November had reached 19 percent of the Army patients remaining in general hospitals and their convalescent facilities.

There were 28,000 battle casualties, 16,000 nonbattle injury, and 40,000 disease patients in general hospitals and their convalescent facilities at the end of November. Of the total number more than 50,000 patients may be evacuees from overseas theaters.

## PATIENTS IN U.S. GENERAL HOSPITAL SYSTEM, BY TYPE



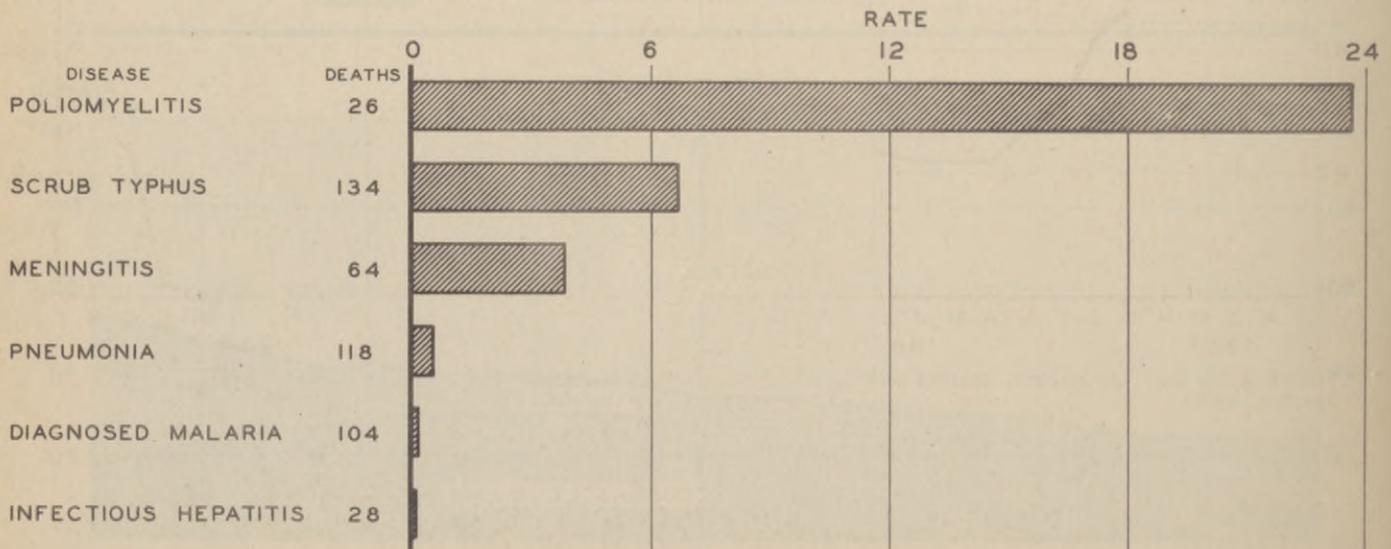
**RESTRICTED**

DEATHS FROM COMMUNICABLE DISEASE OVERSEAS

Despite the great strides which have been made in the prevention and treatment of communicable diseases, the deployment of U. S. troops over wide areas of the globe has greatly enhanced the military significance of the infectious and parasitic diseases. These diseases cause most of the morbidity, as was noted on pages 10 and 11, and also represent the largest single group of deaths from disease. It is fortunate that the diseases causing the most admissions have relatively low case-fatality rates. Otherwise the continued maintenance of the phenomenally low disease death rate of .5 to .6 per 1,000 men per year would have been impossible. Some of the diseases causing significant numbers of deaths during World War I are now quite rare. Others continue to cause some morbidity, but proportionately fewer deaths because of the advances which have been made in treatment. For example, 38 percent of the patients having meningococcal meningitis during World War I died, a total of 1,836 deaths. During 1943 and the first half of 1944 there were overseas 1,679 admissions for this disease with 64 deaths, a case fatality rate of only four percent, a tenth of that which formerly prevailed. Although there have been virtually no deaths from influenza and comparatively few from pneumonia, any comparison with World War I is artificial because of the unique virulence of the influenza pandemic which occurred at that time.

During the 18 months ending June 1944 there were approximately 1,500 deaths from disease overseas. Of this number about 35 percent were attributable to the infectious and parasitic diseases. Among these scrub typhus caused the greatest number of deaths, with pneumonia second and proven malaria third. The accompanying chart gives the absolute numbers of deaths as well as the case-fatality rates, or deaths per 100 admissions. The six diseases shown were selected from among the infectious and parasitic diseases as those having caused the greatest absolute numbers of deaths. Other diseases of smaller incidence have case-fatality rates higher than some of those presented, e.g. smallpox. Among the six diseases of interest the fatality rate is highest for poliomyelitis at 24 percent. The significance of scrub typhus is underscored not only by the large absolute number of deaths it has caused but also by its comparatively high fatality rate of seven percent. The greatest incidence of this disease has occurred since June 1944 (see HEALTH for August) when it is said to have entailed a much lower fatality, so that the value of seven percent may be expected to fall. Eighty percent of the scrub typhus deaths were reported by the Southwest Pacific Area. All deaths among cases having both scrub typhus and malaria were attributed to scrub typhus. The rate of 1 per 1,000 for malaria is admittedly a rough estimate. Based upon certain assumptions as to the number of relapses per original infection, it represents deaths per infection rather than per admission. The fatality rate of .5 for pneumonia compares with rates of 10 percent during the early 1930's and seven percent during the period 1936-1938. There is some indication of a further lowering of the rate during 1944, since the preliminary figures are .7 for 1943 and only .4 for the first six months of 1944.

**DEATHS PER HUNDRED CASES OF SELECTED COMMUNICABLE DISEASES  
OVERSEAS THEATERS, JAN 1943 - JUN 1944**



# MISCELLANEOUS

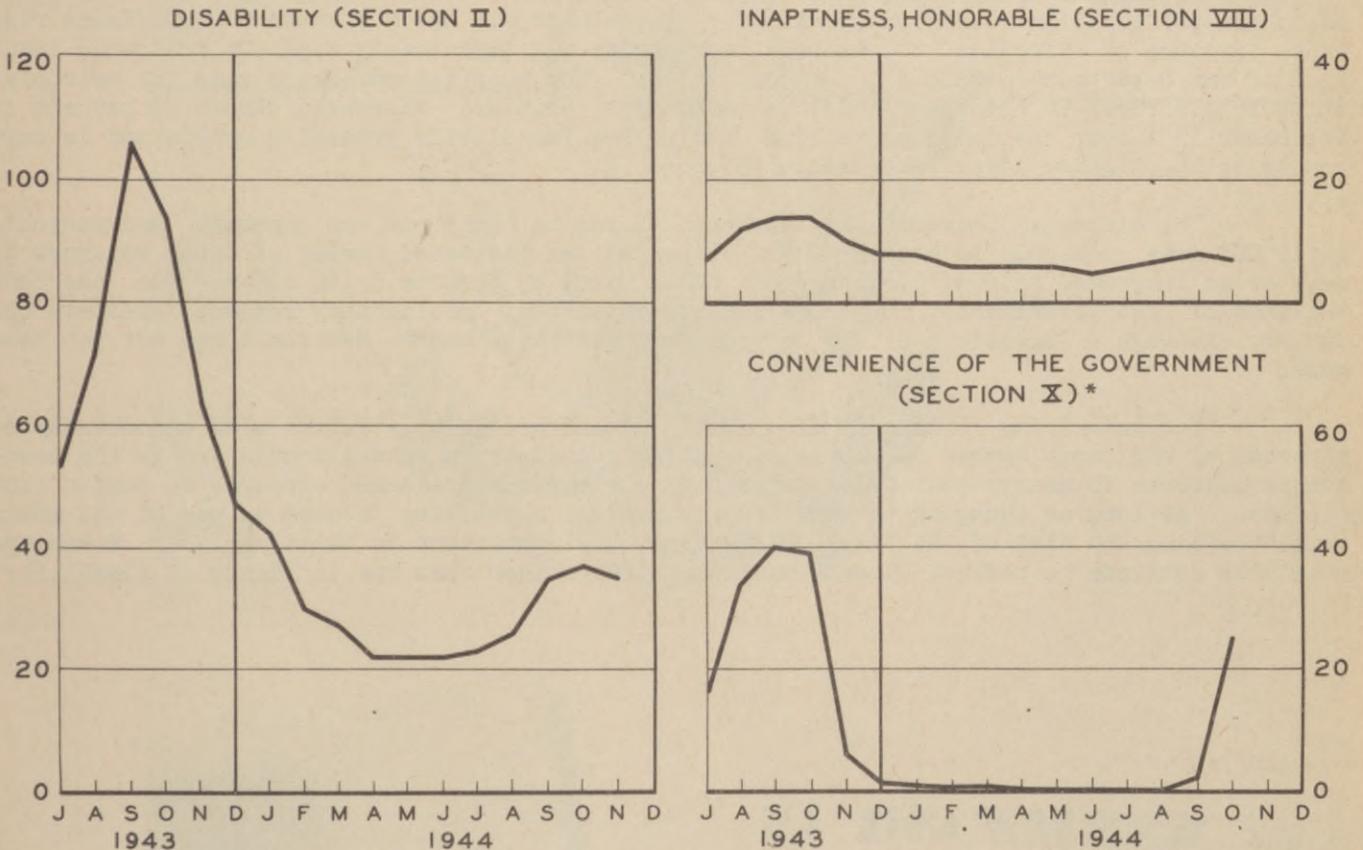
**CONFIDENTIAL**

## DISCHARGE OF ENLISTED MEN FOR DISABILITY

The rate at which enlisted men have been separated from the Army under certificates of discharge for disability has been largely influenced by administrative policies rather than by the prevalence of disability.

During the first half of 1943 the disability discharge rate increased gradually from about 31 per thousand strength per year in January to about 53 in July. An important factor leading to this upward trend was the accumulation in the Army of men who had been inducted and subsequently proved to be physically or mentally unfit for general military duty. In July 1943, W.D. Circular No. 161 provided that the term "limited service" not be applied to enlisted men after 1 August 1943 and that enlisted men whose records indicated that they did not meet current mental and physical standards for induction be discharged under the appropriate section of AR 615-360 if, on physical examination, they were found unable to meet the induction standards. The majority of these men were disabled only to the extent that they could not perform combat duty. Largely as a result of this ruling the rate of discharge for disability under Section II, AR 615-360, rose sharply to a peak of 106 per year per thousand strength in September 1943 and then dropped as the limited service group diminished in size. This does not reflect the full effect of the circular, however. Discharges granted for the convenience of the government (Sec. X, AR 615-360) to limited service men found not adaptable to military service rose from a rate of about 16 per thousand total enlisted strength per year in July 1943 to about 40 per thousand in September before declining, and discharges for inaptness under Section VIII, AR 615-360 rose from 7 per thousand per year in July to about 14 in September.

### DISABILITY DISCHARGES PER THOUSAND MEN PER YEAR, ENLISTED MEN BY MAJOR TYPE OF DISCHARGE



\* Including Section X discharges, limited service not adaptable, and Section X discharges under the provisions of WD Circular 370, 1944.

**CONFIDENTIAL**

**CONFIDENTIAL****MISCELLANEOUS**DISCHARGE OF ENLISTED MEN FOR DISABILITY (Continued)

In November 1943 policy with regard to disability discharges was reversed. W.D. Circular No. 293 ruled that "discharge of an enlisted man for physical reasons because he is incapable of serving in a physically exacting position when he may well render adequate service in a less exacting assignment is a waste of manpower and is prohibited". This directive served to accelerate the downward trend in the discharge rate. By April 1944 the rate had dropped to about 22. W.D. Circulars No. 100, 164, and 212 of 1944 reiterated, in effect, the general policy set forth in November 1943 with the result that the disability discharge rate remained at the relatively low level of 22 to 23 from April through July 1944. Discharges for inaptness under Section VIII, and discharges under Section X, AR 615-360, to limited service men considered not adaptable to military duty were also reduced considerably as a result of these circulars.

In September 1944 administrative policy with regard to limited assignment personnel again changed. W.D. Circular No. 370 provided that "enlisted personnel in the United States who do not meet the minimum physical induction standards for limited service as prescribed by MR 1-9 and for whom there are no appropriate positions reasonably available within the major commands or defense commands in which serving may be discharged . . . under the provisions of Section II (Disability) or Section X (Convenience of the Government) AR 615-360, 25 May 1944". The issuance of Circular 370 resulted in an immediate rise of about 40 percent in the disability discharge rate from a level of about 25 in August to 35 in September. Although there was no further increase in the disability discharge rate in October, discharges for the "Convenience of the Government" of limited service men not adaptable (including Section X discharges under the provisions of Circular 370) jumped from a rate of about 2 per thousand per year in September to approximately 25 in October as the provisions of the circular took effect.

It is noteworthy that although psychoneurosis is the leading cause of disability discharge the disability discharge rate for psychoneurosis has not shown a significant rise since issuance of Circular 370, whereas such a rise was immediately apparent following issuance of War Department Circular 161 in July 1943. The hospital admission rate for neuropsychiatric disorders in the continental United States, however, increased almost 50 percent in September 1944 over the level prevailing during the immediately preceding months and is currently at the highest level recorded in this war.

The disparity between the increased admission rate and the constant neuropsychiatric CDD rate can only be accounted for either by an increased number of cases returned to duty or an increased rate of discharge of these cases by Section X (AR 615-360 for the Convenience of the Government). Of these two possibilities, preliminary reports indicate the latter, although a breakdown of the causes for discharge under Section X has not yet been made.

The underlying trend of disability discharges in the future will undoubtedly be affected by the large number of battle casualties sustained in recent months and by the associated increase in neuropsychiatric admissions arising from prolonged exposure to combat conditions. As long as changing the criteria of medical disability is used as one of the means of controlling the size of the army, the sharpest fluctuations in the disability discharge rate will continue to reflect current manpower needs rather than the incidence of disability.

**CONFIDENTIAL**