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AUTH: *ASF. Cir 323-25 Aug 45*

DATE: *17 April 46 Charles S. Juliano*

CHARLES S. JULIANO, Capt., USA
Asst. Security Officer, SSO

HEALTH

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AUTH: *EO-10501*
DATE: *2 Sep 55*
SECURITY OFFICER
Frank B. Rogers



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CONTENTS

	Page
DISEASE AND INJURY	
Trench Foot in ETO	1
Respiratory Disease, U.S.	4
Campaign Casualties.	5
Noneffective Rates, U.S. and Overseas.	11
Neuropsychiatric Disease	12
Scrub Typhus	15
Diphtheria	16
Convalescent Reconditioning Program.	17
Civilian Health in Europe.	18
Dental	19
Health Briefs.	20
HOSPITALIZATION	
Projected Availability of Fixed Beds Overseas.	21
Available and Occupied Beds Overseas	22
Evacuation	
Trend, All Theaters	24
Trend, Individual Theaters.	25
Causes.	26
Evacuation Policy	29
Means of Evacuation	35
Hospitalization in the Z/I	37
MORTALITY	
Causes of Accidental Deaths in the South Pacific	42
MISCELLANEOUS	
Officer Separations.	44

DISEASE AND INJURY

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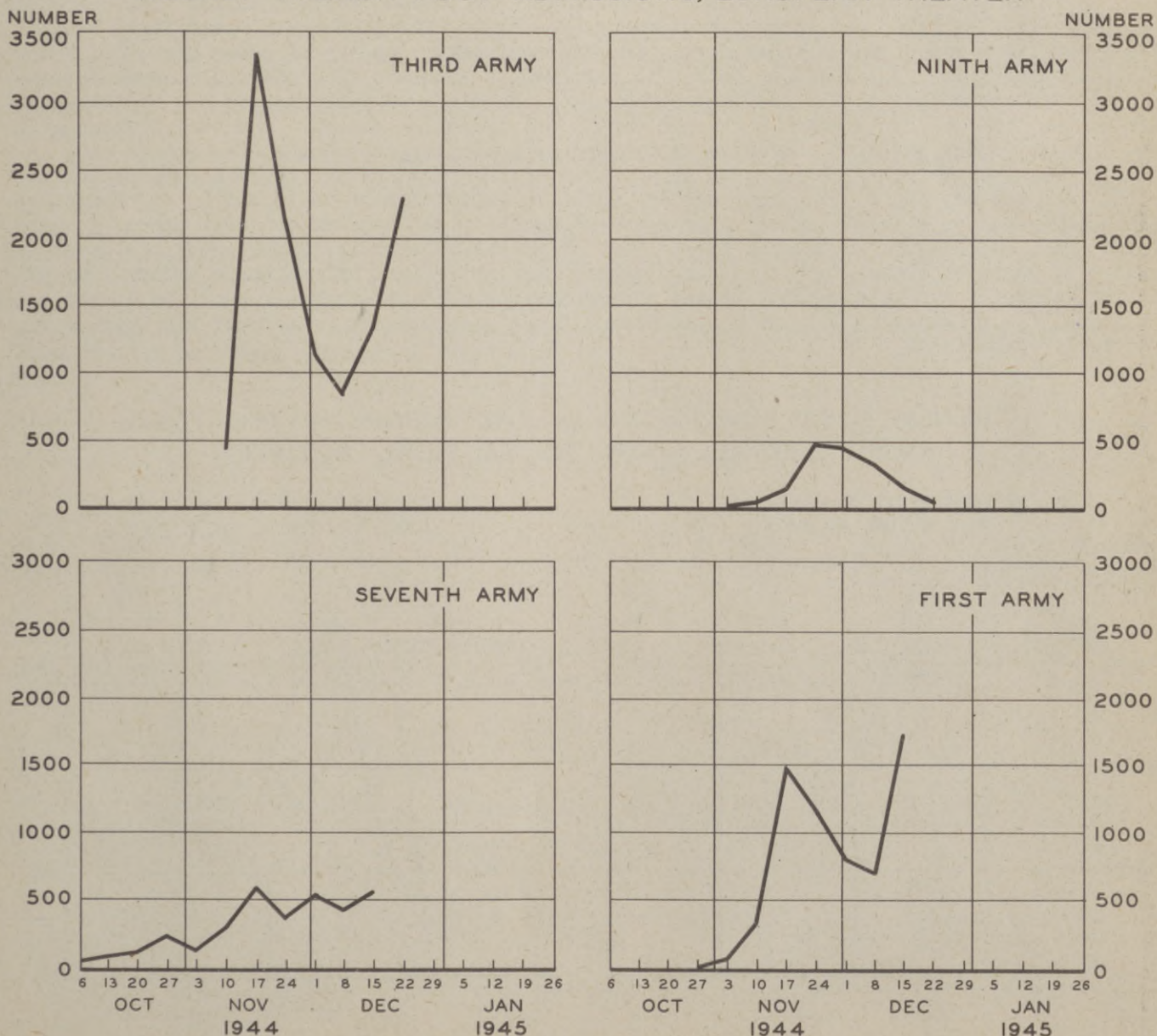
INCIDENCE OF TRENCH FOOT

Trench foot continues to be an urgent problem in the European Theater, but there is evidence that some measure of control is being achieved by the steps taken by the theater to prevent its occurrence. However, the incidence of trench foot is so closely tied with tactical activity that it is difficult to separate the effects of lessened activity during the last part of November and early December from those of the increasingly tight control program.

War Department Circular 312, dated 22 July 1944, which made unit commanders responsible for preventive measures, is reported to have received complete distribution in the theater on 2 September 1944. Technical medical bulletins were distributed in October, and all armies and army groups have published individual directives implementing theater and War Department directives. Following the sharp outbreak of trench foot in the first half of November, precipitated by a large-scale attack on the enemy and by unfavorable weather, control measures were further developed, especially in the direction of education of the individual soldier and provision of such needed foot-gear and clothing as was available. The records of individual divisions are being continually scrutinized with a view to determining the efficacy of preventive measures enforced by command. An additional requirement of 500,000 shoe-pairs with which to equip forward units has been stated by the theater and approved by the War Department for delivery as soon as possible.

The weather has been uniformly favorable to the development of trench foot. There

WEEKLY TRENCH FOOT ADMISSIONS, EUROPEAN THEATER



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DISEASE AND INJURY

INCIDENCE OF TRENCH FOOT (Continued)

has been an extraordinary amount of rainfall and for much of the time the temperature has been just above freezing in the range most conducive to trench foot. Virtually all troops in army areas have been required to operate continuously ankle-deep in mud and water.

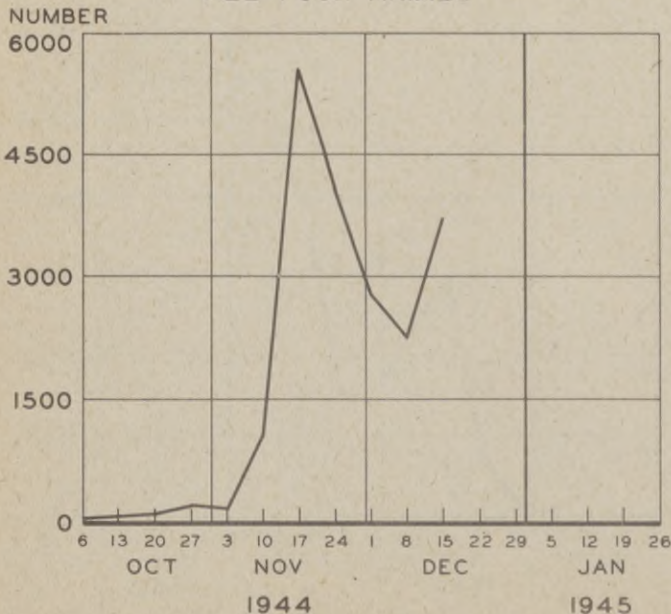
The entire reported experience in the European Theater is summarized in the accompanying charts. Four individual panels give the absolute numbers of admissions by weeks for each of the four armies. The Third Army has contributed by far the greatest number of cases with the First Army second. The Ninth Army was less active over the reported period and enjoyed more protection from buildings, cellars, and the like. For the First Army there was a sharp upswing in reported cases for the week ending 15 December, before the German breakthrough. Since this time little information has come out of the First Army, but informal reports suggest that the incidence may have declined despite the tactical situation. For the week ending 22 December, the Third Army reported 2,300 cases, two-thirds of its previous peak of 3,300 for the week ending 17 November.

The close parallel between tactical activity and trench foot late in November and early December, followed later by sharp rises in trench foot both in the First and in the Third Armies, suggests that the problem of preventing trench foot is by no means solved. Deterioration in the tactical situation beginning 16 December presumably put control measures to a severe test. If trench foot failed to rise proportionately with casualties during this period, the effectiveness of the control program in the theater will be more firmly assured than the presently available information would indicate.

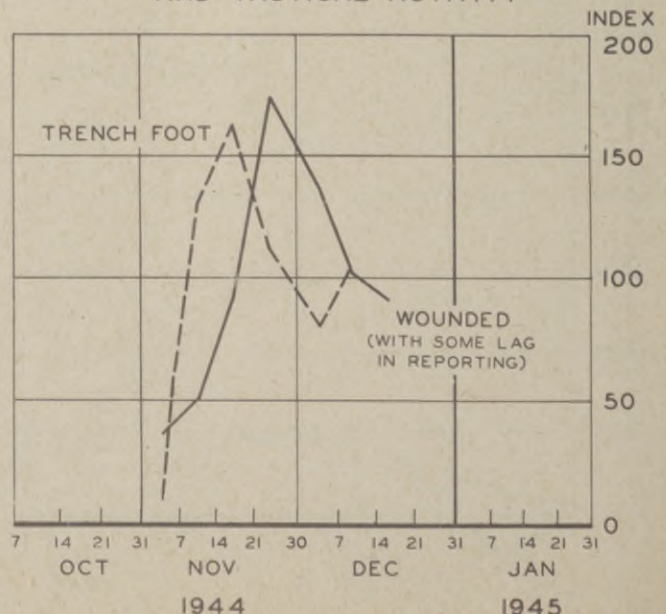
The bottom right-hand panel illustrates the common pattern in the incidence of battle casualties (WIA) and trench foot among the First, Third, Seventh, and Ninth Armies. The two series are shown in index form, the average weekly number of cases for the period being used as 100. The wounded series is composed of numbers of confirmed casualties reported quarter-monthly to The Adjutant General and contain a variable lag of one or two weeks behind the date of occurrence. The similarity of trend is marked, and the downswing in the casualty index early in December is matched by a similar movement in the trench foot index two weeks earlier. The relation shown here for the four armies is more evident for the Third than for any one of the other armies when the experience of these units is considered separately and on a daily basis. The correspondence in the indices is most exact for the Third Army, especially during the first half of November when it experienced its greatest number of cases of trench foot, although during the latter part of the month trench foot exhibited a lag of two to five days behind the occurrence of battle casualties. Daily reports of casualties prepared by G-1 of the 12th Army Group were used to construct WIA indices for the daily comparisons.

TRENCH FOOT ADMISSIONS IN THE EUROPEAN THEATER AND THEIR RELATION TO TACTICAL ACTIVITY

TRENCH FOOT ADMISSIONS
ALL FOUR ARMIES



INDICES OF TRENCH FOOT
AND TACTICAL ACTIVITY



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DISEASE AND INJURY

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INCIDENCE OF TRENCH FOOT (Continued)

The correlation of casualties and trench foot has not been very close among divisions. Part of the lack of correspondence may be attributable to the fact that many cases of either trench foot or wounded are not picked up for treatment at divisional medical installations, and so not included in reports for this echelon, while they are counted in the army totals. Moreover, the relationship is at its maximum when environmental conditions are constant, and perhaps more variation exists among divisions at any one time than for an army at different but not widely separated time periods.

Comparative statistics on the experience of other Allied armies are meager, but it is understood that British troops of the 21st Army Group have suffered very little trench foot. This is said to be explained in large part by the type and fitting of British boots. The Canadians are reported to have had more cases than the British, perhaps proportionately as much as the U. S. troops of the Ninth Army adjacent to their sector. Reference to superior British boots and their fitting is fairly general but difficult to evaluate, for the British also rotate units in and out of the line at shorter intervals and may also have better individual and unit foot discipline. Equipment must be viewed as decidedly secondary to foot discipline, but nevertheless important. Of the two special types of foot gear available, the overshoe and the shoe-pac, all evidence both in Italy and France points to the superiority of the shoe-pac. The combat infantryman is likely to discard the overshoe as an impediment when the going is rough. Some also find the previous shoe-pac clumsy to a lesser degree, however. Modifications have been made in the shoe-pac to improve its "ground-grip" and to afford better support for the foot. This new shoe-pac now is being issued against requisitions received.

Just as frequent rotation from line positions should be a means of preserving the morale and combat efficiency of combat units, so it should make easier the enforcement of superior individual foot discipline so necessary to the prevention of trench foot (see HEALTH for November). Its feasibility, however, can be determined only by command.

In the Mediterranean Theater the November incidence is roughly comparable with that of 1943 before the situation became serious, but reports for the first two weeks of December provide no suggestion of a repetition of the 1943-1944 winter experience. Most reported cases have been among individuals who had trench foot last winter and who were not equipped with the shoe-pac. Although the present degree of tactical activity on the part of the Fifth Army is evidently considerably below that of a year ago, the possibility of another serious trench foot condition cannot be dismissed. It is, therefore, disheartening to know that training in the care of the feet in accordance with NATOUSA training directives and WD Circular 312 has not been effected by most units.

DISEASE AND INJURY

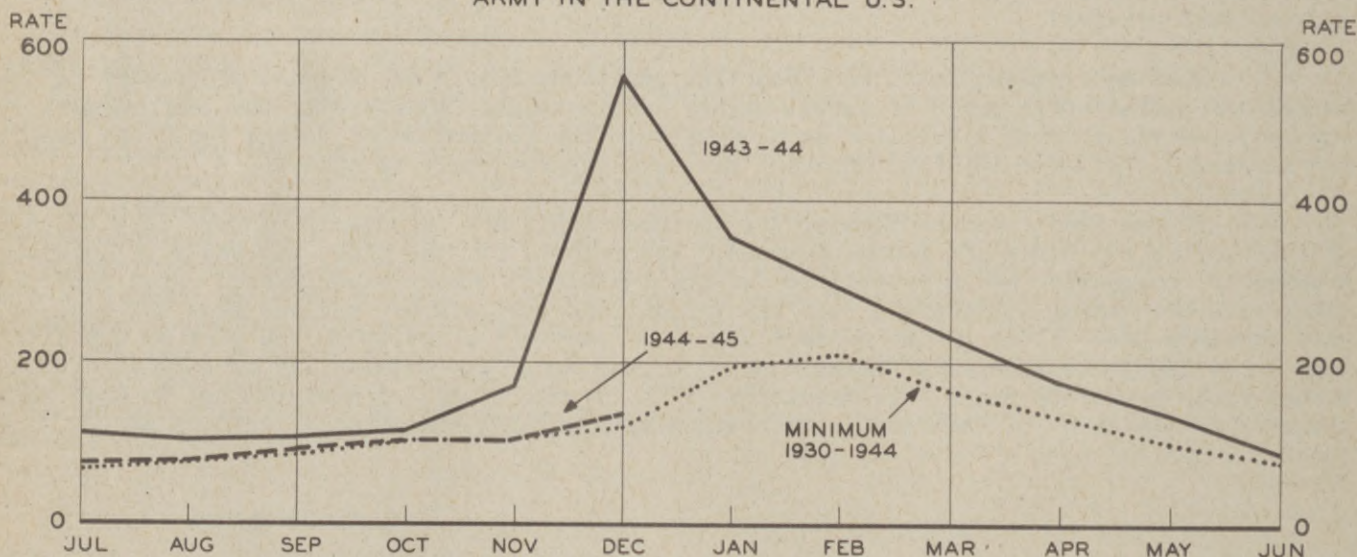
RESPIRATORY DISEASE, CONTINENTAL U. S.

The absence of a definite rise in the incidence of respiratory disease among troops in the U. S. this winter is remarkable. The low incidence of respiratory disease is largely responsible for the fact that the admission rate for all disease during the past year was the lowest of the entire war period. It is improbable, however, that the present low rate will continue throughout the winter. In the winter of 1941-1942 the rise did not occur until January.

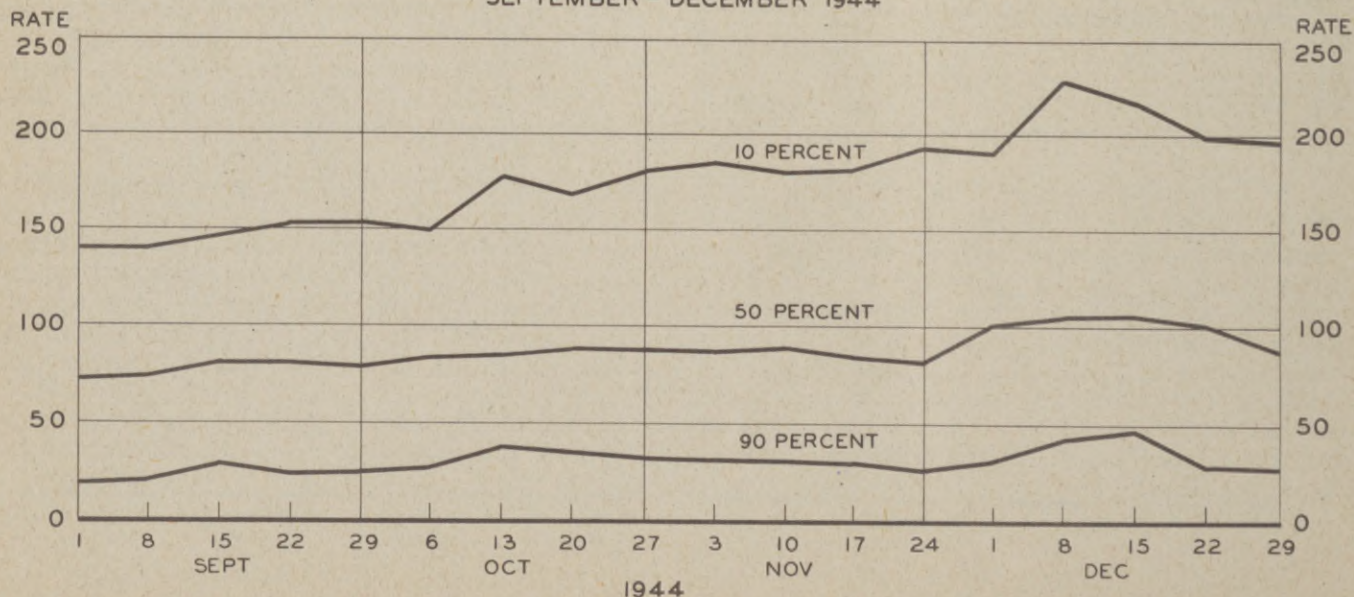
The upper panel of the charts below compares the admission rates for respiratory disease for the last half of 1944 with the 1943-1944 season and the lowest monthly rates over the 15-year period 1930-1944. In December 1943 the epidemic peak was more than four times as high as the rate for December 1944. The current rates closely approximate the minimum of the past fifteen years.

In the lower panel, stations having an average strength of 5,000 or more have been grouped according to their admission rates during each week of the past four months, and a line drawn connecting the points above which 10, 50, and 90 percent of the station rates fall each week. The top line should be especially sensitive to changes in trend, and it is readily seen that it too offers no evidence of any real upswing in 1944.

**RESPIRATORY DISEASE, ADMISSIONS PER THOUSAND MEN PER YEAR
ARMY IN THE CONTINENTAL U. S.**



**RATES ABOVE WHICH SPECIFIED PERCENTAGES OF STATION RATES FELL
SEPTEMBER - DECEMBER 1944**



DISEASE AND INJURY

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PRELIMINARY TABULATION OF CAMPAIGN CASUALTIES

The table below presents the casualty experience of U. S. ground forces in the campaigns which have been undertaken in the Atlantic and Pacific theaters. The data are preliminary, although they represent the best information available to The Surgeon General and are issued for planning purposes in advance of the official tabulations which should eventually appear. The casualties and strengths for the Pacific operations have been obtained from unit and special medical reports received by The Surgeon General, from tactical radio reports submitted to the War Department by the various areas, from operational reports transmitted at the conclusion of or during operations, and from tactical summaries prepared in theater headquarters. However, the reports received in Washington are not wholly adequate for this purpose, at times tend to be fragmentary and inconsistent, and very often fail to give both strengths and casualties on a basis suitable for computing rates.

The information presented below represents an extension and revision of a similar presentation in HEALTH for September 1944. Casualties have been included for all of the major operations which have been fought to date, although the story is especially preliminary for the Guadalcanal and the Papuan Campaigns. The total number of casualties reported below agrees rather well with the cumulative totals established by The Adjutant General for both killed and wounded. The number of soldiers killed in action listed below approximates 90 percent of the official total through 30 November 1944. The count for wounded is 110 percent of the similar Adjutant General's sum adjusted for reports not yet received from ETO for casualties incurred during November. Counts of the number of men wounded in action will vary, even within a single operation, depending upon the echelon of treatment at which tabulation ceases. The Adjutant General receives notification of all admissions to hospital, that is, the more serious cases. Medical reports, on the other hand, may include most or all of the less serious cases treated at forward medical echelons and returned to duty after a loss of but one or two days.

The inclusive dates noted for each action do not mean that the casualties noted for the particular operation represent a complete count of all which were incurred. Definition of a campaign in terms of dates, especially for the more recent operations in the Pacific, is impossible. In most instances the closing date noted is the one on which a particular area has been declared "secured". However, subsequent to this date many casualties may be sustained in the process of "mopping-up" operations which extend for weeks and even months after the area is "secure". On Saipan, for example, scores of Japs were killed daily several months after 9 July when the island was officially declared secured. In addition, several of the battles in the Pacific have been holding operations designed to compress the Japs into small areas, to split up their forces, and to secure an advancing series of bases from which to move further west. The operations around Aitape, Sansapor, and on Morotai and Bougainville are of this nature. While all initial objectives have been attained, contact is still maintained with Japanese units and casualties are still suffered.

In order to show the overall casualty experience which has been associated with amphibious operations in the Pacific Islands, the available experience of the Marine Corps has been incorporated with the known Army experience shown separately. The casualties of Navy units operating in support of the Marines have been excluded entirely except in the case of the New Georgia operation. The casualties sustained by Army and Marine forces in the capture of Eniwetok, Marshall Islands, have not been secured for the separate forces. The Marine casualties noted for Bougainville include only those of the 3rd Marine Division. For only two of the three Army divisions employed are the casualties available. The rates for the New Georgia operation exclude the strengths of and time spent by Army units in their unopposed seizure of Kolombangara and Rendova Islands.

The analysis of battle casualties sustained in the European and Mediterranean Theaters has been rendered difficult by the problem of obtaining appropriate strengths for the various echelons of the forces involved. In general, the reporting of casualties from North Africa and Europe has been more systematic and complete, although the radio reports of the European Theater have been rendered on an "as confirmed" rather than on an "as occurred" basis. The casualties noted for the Tunisian and Sicilian Campaigns represent the final tabulations of the Mediterranean Theater. The strengths behind the rates at the various echelons for the Sicilian campaign are derived from Lt. General Patton's report submitted at the conclusion of the operation. Although casualties by echelon are available for the Tunisian Campaign, the strengths are lacking and therefore only the average theater rate has been included.

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DISEASE AND INJURY

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CAMPAIGN CASUALTY RATES

CAMPAIGN CASUALTIES

Theater and Campaign	Period	Average Days	Average Size of Force	Remarks
<u>SOUTH PACIFIC</u>				
Guadalcanal				
Marines	7 Aug 1942- 7 Oct 1942	62	20,000	Incomplete Data
Army	12 Nov 1942- 9 Feb 1943	90	16,200	
Average		152	17,750	
New Georgia				
Army	30 Jun 1943-22 Sep 1943	85	19,000	
Navy & Marines	30 Jun 1943-22 Sep 1943	85	6,000	
Average		85	25,000	
Bougainville				
Marines	1 Nov 1943-11 Jan 1944	72	17,000	Operation Not Over 3rd Marine Div. Only 37th Inf. and Americal Divisions
Army	19 Nov 1943-30 Apr 1944	164	26,500	
Average		182	30,600	
<u>SOUTHWEST PACIFIC</u>				
Papuan	26 Sep 1942-23 Jan 1943	120	10,200	Includes Buna-Gona
Dexterity Operation				
Arawe	15 Dec 1943-10 Feb 1944	58	4,400	Army Operation
Cape Gloucester	26 Dec 1943-10 Feb 1944	47	19,000	Marine Operation
Saidor	2 Jan 1944-10 Feb 1944	40	11,300	Army Operation
Average		58	27,600	
Admiralty Islands	2 Mar 1944- 5 Apr 1944	35	19,000	
Aitape	22 Apr 1944-31 Aug 1944	132	24,700	Operation Not Over
Hollandia	27 Apr 1944-17 May 1944	21	33,300	D-day, 22 April
Wakde	17 May 1944-31 Aug 1944	107	17,600	Operation Not Over
Biak-Soepiori	27 May 1944-31 Aug 1944	97	25,400	
Noemfoor	2 July 1944-31 Aug 1944	61	13,600	
Sansapor	30 July 1944-30 Sep 1944	63	20,500	Operation Not Over
Morotai	15 Sep 1944-30 Sep 1944	16	27,750	Operation Not Over
Philippines				
Leyte	20 Oct 1944-29 Nov 1944	41	113,100	
<u>NORTH AMERICAN</u>				
Attu	11 May 1943- 1 Jun 1943	22	15,200	

* Not Available.

** Seriously wounded only. Number of slightly wounded, returned to duty after treatment at battalion aid stations undeterminable, records never compiled.

DISEASE AND INJURY

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CAMPAIGN CASUALTY RATES (Continued)

CAMPAIGN CASUALTIES

Number of Casualties Reported			Rates Per Thousand Men Per Day			Theater and Campaign
K.I.A.	W.I.A.	M.I.A.	K.I.A.	W.I.A.	M.I.A.	
<u>SOUTH PACIFIC</u>						
258	957**	*	.21	.77	*	Guadalcanal
529	1,847	*	.36	1.27	*	Marines
787	2,804	*	.29	1.04	*	Army
						Average
835	3,494	*	.52	2.16	*	New Georgia
180	506	*	.35	.99	*	Army
1,015	4,000	*	.48	1.88	*	Navy & Marines
						Average
183	968	23	.15	.79	.02	Bougainville
446	2,368	12	.10	.54	.003	Marines
629	3,336	35	.11	.60	.01	Army
						Average
<u>SOUTHWEST PACIFIC</u>						
687	2,186	*	.56	1.79	*	Papuan
118	352	4	.46	1.38	.02	Dexterity Operation
326	844	2	.37	.95	.002	Arawe
40	111	10	.09	.25	.02	Cape Gloucester
484	1,307	16	.30	.82	.01	Saidor
						Average
237	1,032	11	.36	1.55	.02	Admiralty Islands
597	1,989	85	.18	.61	.03	Aitape
88	459	17	.13	.66	.02	Hollandia
630	1,742	41	.33	.93	.02	Wakde
530	2,570	54	.22	1.04	.02	Biak-Soepiori
76	521	19	.09	.63	.02	Noemfoor
13	29	2	.01	.02	.002	Sansapor
26	116	12	.06	.26	.03	Morotai
1,960	5,771	192	.42	1.24	.04	Philippines
						Leyte
<u>NORTH AMERICAN</u>						
549	1,160	*	1.64	3.47	*	Attu

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DISEASE AND INJURY

SECRET

CAMPAIGN CASUALTY RATES

CAMPAIGN CASUALTIES

Theater and Campaign	Period	Average Days	Average Size of Force	Remarks
<u>CENTRAL PACIFIC</u>				
Gilbert Islands				
Makin	21 Nov 1943-23 Nov 1943	3	6,600	Army Operation
Tarawa	20 Nov 1943-23 Nov 1943	4	19,600	Marine Operation
Average		4	24,550	
Marshall Islands				
Kwajalein-South	31 Jan 1944- 5 Feb 1944	6	21,300	Army Operation
Kwajalein-North	31 Jan 1944- 2 Feb 1944	3	18,000	Marine Operation
Eniwetok	31 Jan 1944- 5 Feb 1944	6	10,000	Joint Operation
Average		6	40,300	
Marianas Islands				
Saipan				
Marine	15 Jun 1944- 9 Jul 1944	25	40,000	
Army	15 Jun 1944- 9 Jul 1944	25	23,900	
Average		25	63,900	
Guam				
Marine	21 Jul 1944-10 Aug 1944	21	27,300	
Army	21 Jul 1944-10 Aug 1944	21	18,500	
Average		21	45,800	
Tinian	24 Jul 1944- 1 Aug 1944	9	36,300	Marine Operation
Average		46	62,700	
Caroline Islands				
Pelelieu	15 Sep 1944- 5 Oct 1944	21	20,000	Marine Operation
Angaur	17 Sep 1944- 5 Oct 1944	19	14,000	Army Operation
Average		21	32,700	
<u>NORTH AFRICAN</u>				
Tunisia				
Theater	8 Nov 1942-13 May 1943	187	277,300	Final Casualty Count
Sicily				
Division	10 Jul 1943-17 Aug 1943	39	100,300	
Corps			124,700	
Army			183,500	
Theater			525,800	Final Casualty Count
Italy				
Division	9 Sep 1943-31 Oct 1944	419		
Corps				
Army				
Theater			669,900	
<u>EUROPEAN</u>				
Division	6 Jun 1944-30 Nov 1944	178	299,000	Based upon experience of all armies and estimates of attached strength.
Corps			456,500	
Army			606,000	
Theater			2,006,000	

* Not Available

** For operations in Tunisia and Sicily, M.I.A. includes prisoners of war and interned.

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DISEASE AND INJURY

SECRET

CAMPAIGN CASUALTY RATES (Continued)

CAMPAIGN CASUALTIES

Number of Casualties Reported			Rates Per Thousand Men Per Day			Theater and Campaign
K.I.A.	W.I.A.	M.I.A.	K.I.A.	W.I.A.	M.I.A.	
<u>CENTRAL PACIFIC</u>						
Gilbert Islands						
66	187	0	3.33	9.44	0	Makin
864	2,245	29	11.02	28.63	.37	Tarawa
930	2,432	29	9.47	24.77	.30	Average
Marshall Islands						
177	1,037	*	1.38	8.11	*	Kwajalein-South
77	116	*	1.43	2.15	*	Kwajalein-North
299	786	*	4.98	13.10	*	Eniwetok
553	1,939	*	2.29	8.02	*	Average
Marianas Islands						
Saipan						
2,108	10,373	247	2.11	10.37	.25	Marine
941	2,696	118	1.57	4.51	.20	Army
3,049	13,069	365	1.91	8.18	.23	Average
Guam						
933	2,934	30	1.63	5.12	.05	Marine
294	2,818	297	.76	7.25	.76	Army
1,227	5,752	327	1.28	5.98	.34	Average
291	1,520	24	.89	4.65	.07	Tinian
4,567	20,341	716	1.58	7.05	.25	Average
Caroline Islands						
Pelelieu						
771	4,650	267	1.84	11.07	.64	Angaur
251	1,465	13	.94	5.51	.05	Average
1,022	6,115	280	1.49	8.90	.41	
<u>NORTH AFRICAN</u>						
Tunisia						
2,341	8,913	6,874**	.05	.17	.13**	Theater
Sicily						
1,304	4,793	1,063**	.33	1.23	.27**	Division
1,397	5,084	1,081**	.29	1.05	.22**	Corps
1,439	5,236	1,116**	.20	.73	.16**	Army
1,886	5,546	2,334**	.09	.27	.11**	Theater
Italy						
Division						
Corps						
Army						
18,522	69,590	13,843**	.07	.25	.05**	Theater
<u>EUROPEAN</u>						
Division						
34,700	171,300	*	.65	3.22	*	Corps
36,600	177,500	*	.45	2.18	*	Army
38,700	188,000	*	.36	1.74	*	Theater
41,100	191,200	*	.12	.54	*	

SECRET**DISEASE AND INJURY**PRELIMINARY TABULATION OF CAMPAIGN CASUALTIES (Continued)

The rates shown for the battle in France, the Low Countries, and Germany are the same as those in HEALTH for November, except for a recalculation to estimate the corps rate on the basis of attached rather than assigned strength. For this purpose it was assumed that roughly half of all strength assigned to corps and army (excluding divisional strengths) was attached at the corps level in comparison with an average of about seven percent reported as assigned to various corps in the semi-monthly strength report of the European Theater. This estimate of one-half was derived from reports of effective strength by echelon included in G-1 daily casualty reports prepared in the headquarters of the various army groups in France.

The force involved in each of the actions in the Pacific has been relatively small, usually a small corps or a reinforced division. The rates are relatively high because service troops have constituted a comparatively small proportion of all the troops and also because the action has been so concentrated in time that a high proportion of the days have been combat days. In the European areas, on the other hand, rates for the entire forces involved are much lower than the Pacific rates for the reason that they are for entire armies or army groups. The casualties sustained by the combat elements of these large forces tend to be offset by the presence of large numbers of personnel in non-combat organizations. Greater comparability exists between divisional rates for the campaigns in Europe and in the Pacific than at any other echelon of experience in Italy or France. For particular phases of the operations in Europe, however, casualties have been as high as or higher than most rates for the smaller Pacific operations. The three divisions which captured Cherbourg suffered an average rate of 8.6 men wounded per thousand strength per day for a 12 day period. This has been exceeded only by Marine experience on Tarawa, Saipan, and Pelelieu.

There are several types of estimations for which casualty data similar to those shown here may be used and for which they should be gathered:

1. Casualties by type of operation, and by echelon;
2. Casualties according to size of enemy force and its tactical capabilities;
3. Replacement needs for general and limited service personnel;
4. Transportation requirements, especially for evacuation and replacement, for theaters and for combat areas; and
5. Needs for fixed and mobile hospitalization and medical support generally.

If a military operation is to consist of an amphibious landing on a small island, rates such as those which obtained in the Central Pacific operations should be of the greatest value, supplemented by information concerning the disposition of enemy forces and reinforcements. If the projected operation entails the landing of a large, self-sustaining force of combat troops well supported by service troops, in anticipation of a protracted campaign over varying terrain, then the longer experience of the 5th Army in Italy might provide a better guide. For purposes of medical planning and replacement, a casualty rate should be selected which most directly applies to the size of the force which is to be dispatched and the probable duration of the action. Finally, the estimate should be governed by the size of the attacking force in relation to that defending the objectives. The casualties during a short action by a sizeable attacking force containing a large number of service troops will be overestimated if rates like those for the Gilbert Islands operations are used, and perhaps underestimated if the 5th Army rate were to be employed. Only by collecting casualty data with an eye to the significant variables can a body of experience be provided adequate to serve the manifold needs for estimation.

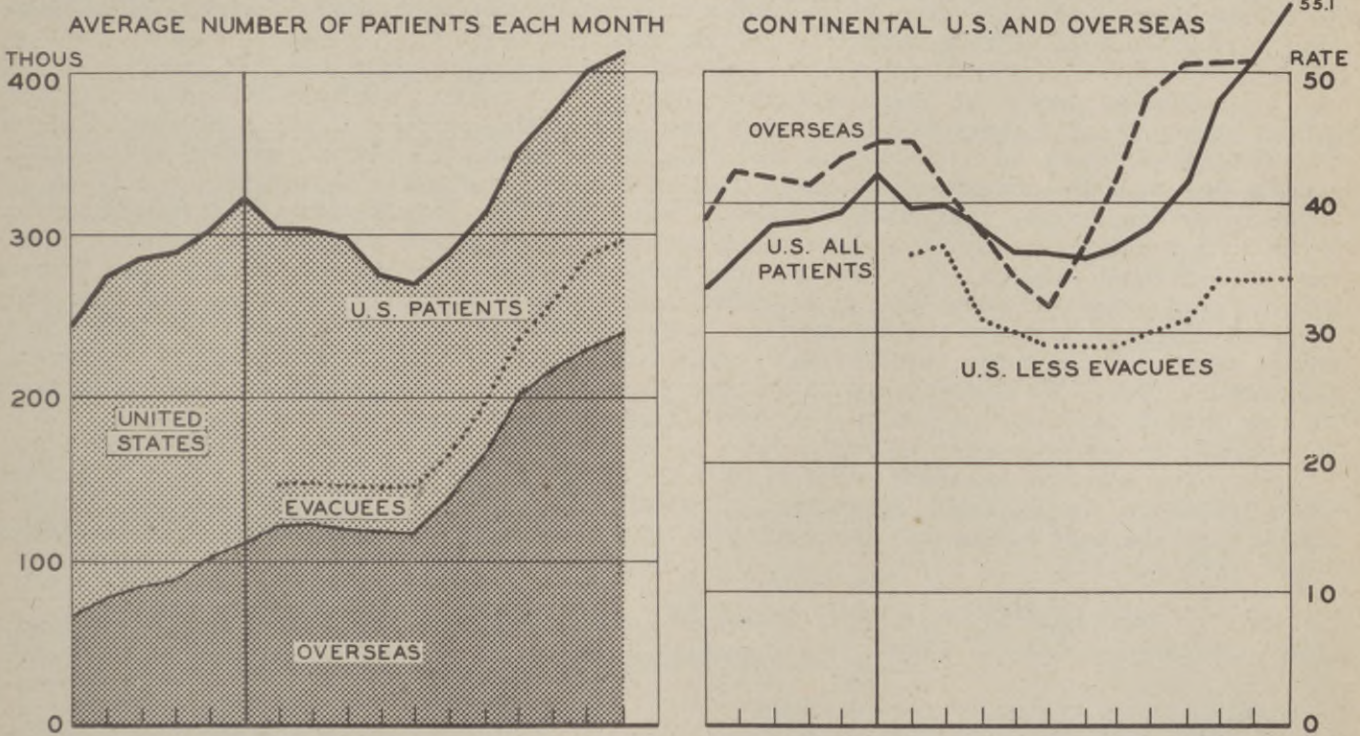
DISEASE AND INJURY

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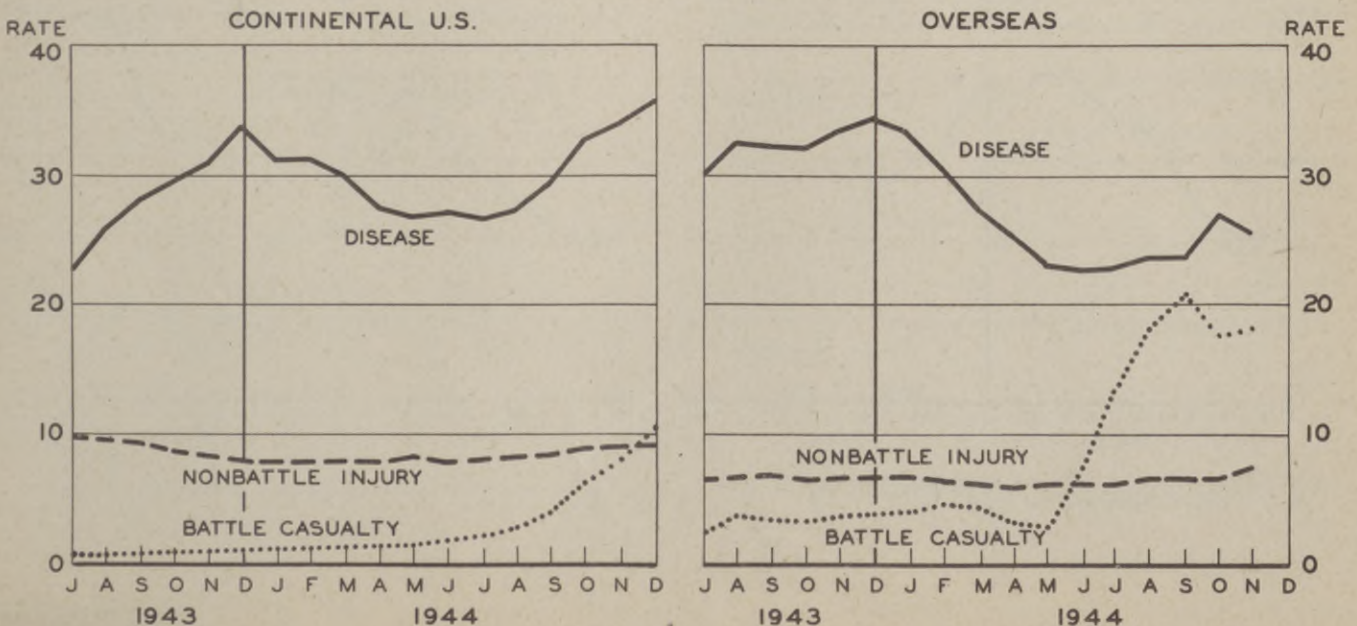
NONEFFECTIVE RATES, U. S. AND OVERSEAS

The preliminary noneffective rate for all causes overseas remained relatively constant during November. Noneffectiveness attributable to nonbattle injury rose significantly under the influence of the outbreak of trench foot in the European Theater, and there was a slight rise in the battle casualty component of the noneffective rate. Reports from overseas theaters continue to be too incomplete to provide entirely reliable estimates of noneffectiveness, and it is necessary not only to omit estimates for all overseas forces for December but also to omit any breakdown of the November experience by theater. The increasing evacuee load continues to cause a rapid rise in the uncorrected noneffective rate for the United States, that for December attaining a new high point of 55 noneffectives per thousand strength. The magnitude of the component attributable to overseas patients has become so great that it is imperative to provide a series of estimates pertaining to the U. S. without the influence of overseas patients. This has been done in the panel for total rates and in the panel showing the absolute number of noneffectives. It is apparent that the corrected noneffective rate is quite favorable, as would be expected from the level of the admission rates over the past year.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH ALL CAUSES



BY MAJOR CAUSE



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DISEASE AND INJURY

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INCIDENCE OF NEUROPSYCHIATRIC DISORDERS

The many-sided neuropsychiatric problem continues to be one of the most difficult and complex health problems which the Army must face. The several indices, namely rejections by induction boards, admissions, discharges, noneffectives, evacuees, and proportions returned to duty, all contribute to an understanding of the depth and breadth of the problem.

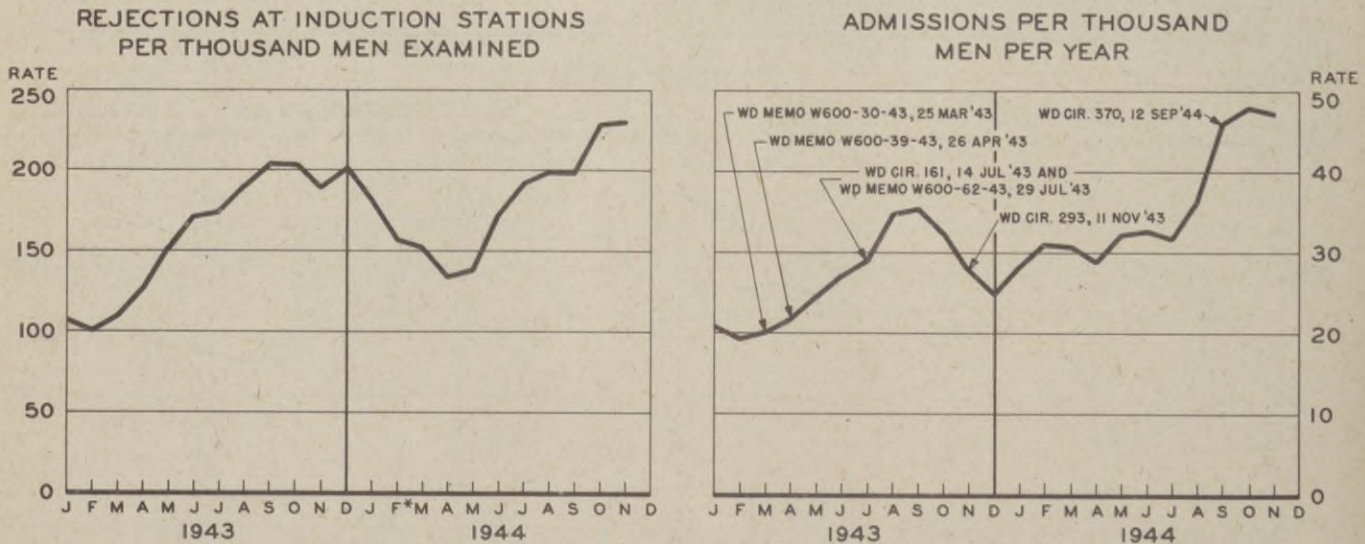
During the past two years the neuropsychiatric rejection rate has varied from 10 to 23 percent of examinees, depending largely upon the composition of the group presenting itself for examination and upon changing administrative directives. The left panel below shows the rejection rate by months for the past two years. The rise of the rate during the last half of 1944 does not reflect an increase in the number of re-examinations of individuals previously rejected, since no such increase occurred in this period. It seems likely that the rise is attributable in part to emphasis which was placed on the need for combat replacements rather than limited service personnel.

The fluctuation in the hospital admission rate for troops in the continental United States is principally the result of changes in administrative policy determined by manpower needs. There is no reason to assume that the incidence of psychiatric cases among U. S. personnel has been other than fairly constant or along a slightly upward trend reflecting increased length of service and selection of troops for overseas duty. The accompanying chart of incidence includes the approximate dates of some of the major directives and administrative rulings thought to be responsible for the fluctuations.

The incidence of neuropsychiatric disorders overseas has been systematically reported on the monthly Statistical Health Report to The Surgeon General since the beginning of 1944. However, there is no assurance that the rates from one theater to another are entirely comparable, and the accompanying charts are of value chiefly for delineating the trend and pointing out the large, obvious differences which lie far outside the range of reporting error. Two possible exceptions are the low rates for the North American and Asiatic theaters. Individual medical records from the North American Theater tabulated by The Surgeon General give a rate of about 30 for the first nine months of 1943, three times the currently reported rates. However, the theater was more active at that time. During the first nine months of 1943 the Asiatic theaters had a rate of about 30, roughly twice the rates for July and August 1944. It is difficult to believe that conditions in the theater have changed to such an extent, so that the accuracy of these figures may be open to question.

The inactive theaters show relatively little monthly variation in their rates and their incidence is uniformly below that of the U. S. at present. The European and Mediterranean Theaters have higher and more variable rates, primarily because of the ebb and flow of

NEUROPSYCHIATRIC DISEASE, ADMISSIONS AND REJECTIONS CONTINENTAL U.S.



* Rates for February 1944 and subsequent months based on pre-induction examinations only.

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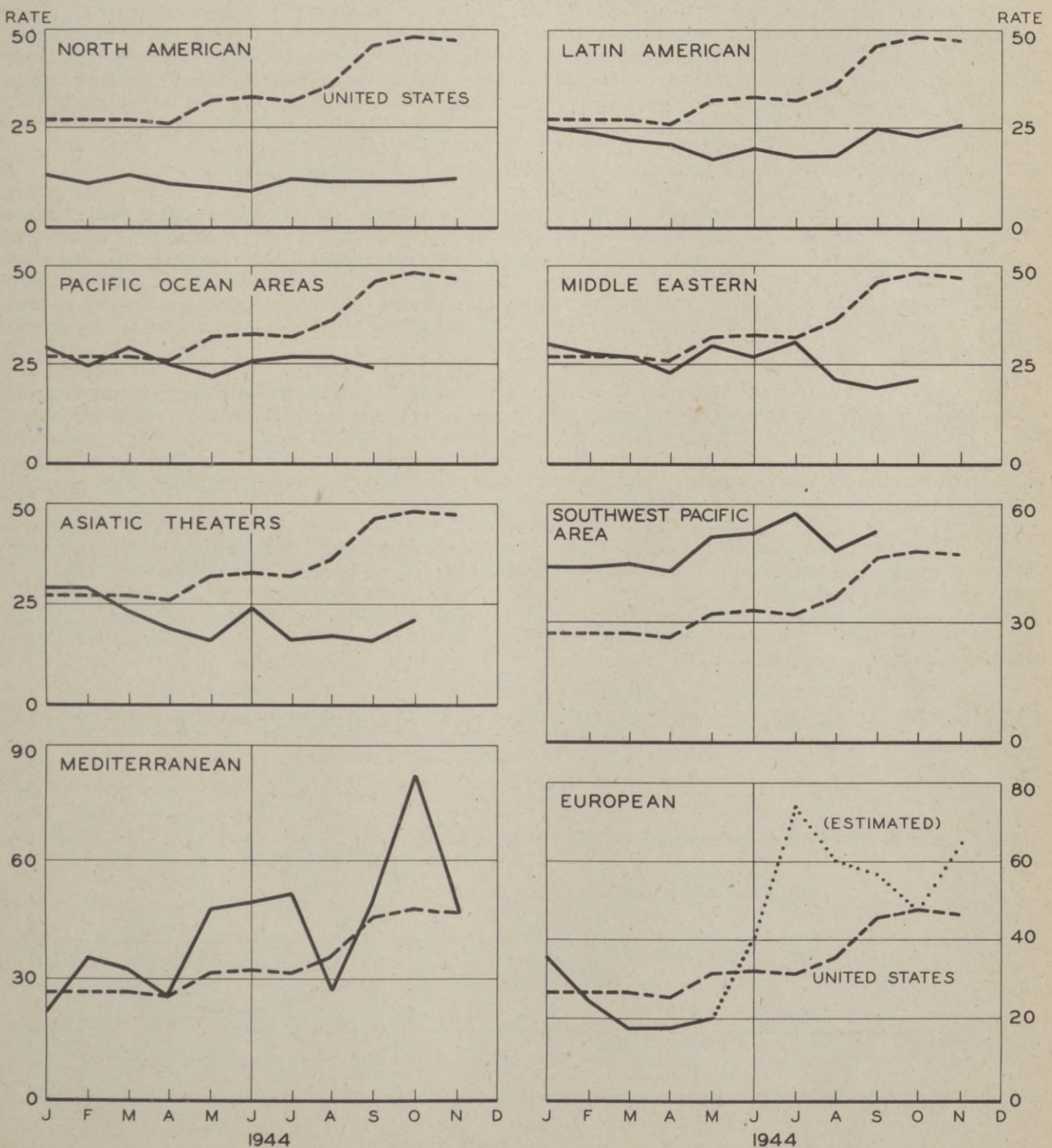
DISEASE AND INJURY

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INCIDENCE OF NEUROPSYCHIATRIC DISORDERS (Continued)

tactical activity, and this is also true of the Southwest Pacific in lesser degree. The dotted extension shown for the European Theater is a rough estimate prepared in advance of reports from that theater. In any theater one normally expects neuropsychiatric admissions to the extent of a rate of perhaps 20 to 30 per 1,000 men per year, precipitated by boredom, adverse climate, lack of motivation, misassignment, inadequacies of personality, and a host of lesser factors all of which become increasingly important with the passage of time. Superimposed upon this normally expected incidence is a component which varies directly with the intensity of combat as measured by the number of casualties.

NEUROPSYCHIATRIC ADMISSIONS PER THOUSAND MEN PER YEAR
U.S. AND OVERSEAS THEATERS



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DISEASE AND INJURY

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INCIDENCE OF NEUROPSYCHIATRIC DISORDERS (Continued)

The highest theater rate thus far recorded is that of 82 admissions per 1,000 men per year for the Mediterranean Theater (including the Seventh Army and troops in Southern France) during October, but the provisional estimates for the European Theater are also quite high for the months of heaviest fighting. In the absence of statistical reports for the theater as a whole, the provisional estimates for July through November in the European Theater were built up from the ratio of one neuropsychiatric admission for each 4.6 wounded plus an annual rate of 20 among troops in the United Kingdom and non-divisional troops in France and the Low Countries. For June a ratio of one neuropsychiatric patient to each 8.5 wounded was employed, based on divisional reports for that month.

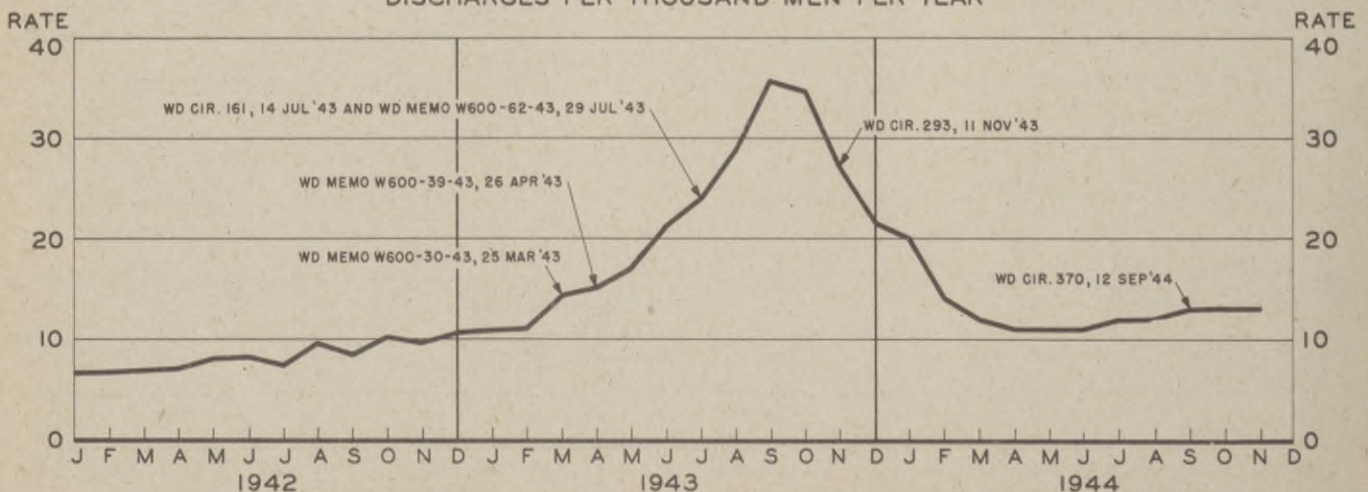
Neuropsychiatric disorders (exclusive of administrative discharges for mental deficiency, psychopathic personality, etc.) cause the greatest number of discharges for disability. Since the start of the war there have been approximately 255,000 discharges for neuropsychiatric disorders, about one-fifth of all enlisted personnel returned from the Army to civilian life for all causes, both medical and non-medical. Throughout 1942 there was a very gradual rise in the rate, but between February and June of 1943 the rate increased 50 percent under the influence of various administrative directives. The issuance of WD Circular 161 added further impetus to the sharply upward trend which was halted by the promulgation of WD Circular 293. The current increase in discharges following the issuance of War Department Circular 370 for the year 1944 is not as pronounced, although it is probable that many men are being separated under Section X who would have been neuropsychiatric Section II discharges on the basis of the criteria used a year ago. Not only do changes in administrative policy result in marked fluctuation in neuropsychiatric admission and discharge rates, but in addition they constitute an actual cause for noneffectiveness and neuropsychiatric disability. This occurs because a large percentage of military personnel unfortunately believe they could do more for the war effort as civilians than as soldiers. The sight of large numbers of only potential noneffectives being discharged undermines their willingness to serve effectively themselves. In other words, the removal of marginal noneffectives tends to lower the effectiveness of the men who remain.

It has been shown that it is possible to return to duty the greater proportion of the combat cases, and that a retraining program can salvage a considerable fraction of the type of neuropsychiatric patients found in base areas and the U. S. It is not, however, realistic to expect the Army to salvage severe, chronic cases of psychoneurosis, insanity, or psychopathic personality, for the cure of such patients requires expenditure of more psychiatric time than the military situation will permit.

Prevention of manpower loss from psychiatric disorders, as mentioned in previous reports, can be accomplished only by improving motivation, providing incentives for effective service, competent unit leadership, proper classification and assignment, training according to capacity to learn, more frequent rotation of troops, improved replacement methods, a limit to the tour of combat duty, and measures to prevent abuse of medical channels for eliminating noneffectives who are not sick.

DISABILITY DISCHARGES FOR NEUROPSYCHIATRIC DISORDERS, ENLISTED MEN

DISCHARGES PER THOUSAND MEN PER YEAR



DISEASE AND INJURY

SECRET

SCRUB TYPHUS

Following the sharp outbreak of scrub typhus in the Southwest Pacific subsequent to operations on Biak and the Vogelkop peninsula (see HEALTH for August), the average theater rate has declined to its former level of about five or less admissions per 1,000 men per year. Four cases had been reported from the Philippines by 9 December, but it is not known if the disease was contracted there. In the Asiatic theaters there was a significant increase in scrub typhus during October, although its incidence remained low in comparison with that of many other diseases. The accompanying chart summarizes the recent trends in those theaters where scrub typhus constitutes a potential military hazard. For troops in forward areas where exposure is greatest, the rates are considerably higher, for scrub typhus is a disease characteristic of undeveloped, uncleared areas.

Burma has been the focus of scrub typhus for troops in the Asiatic theaters and cases have been reported among Chinese and British as well as U. S. troops in that area. The following table gives the reported incidence by month, which is thought by some to suggest that the risk is minimal in the spring and early summer. Some part of the increase in the number of British cases may possibly represent changes in strength. British intelligence reports indicate that British, Indian, and African troops are affected in proportion to strength.

SCRUB TYPHUS ADMISSIONS, ALLIED TROOPS IN BURMA

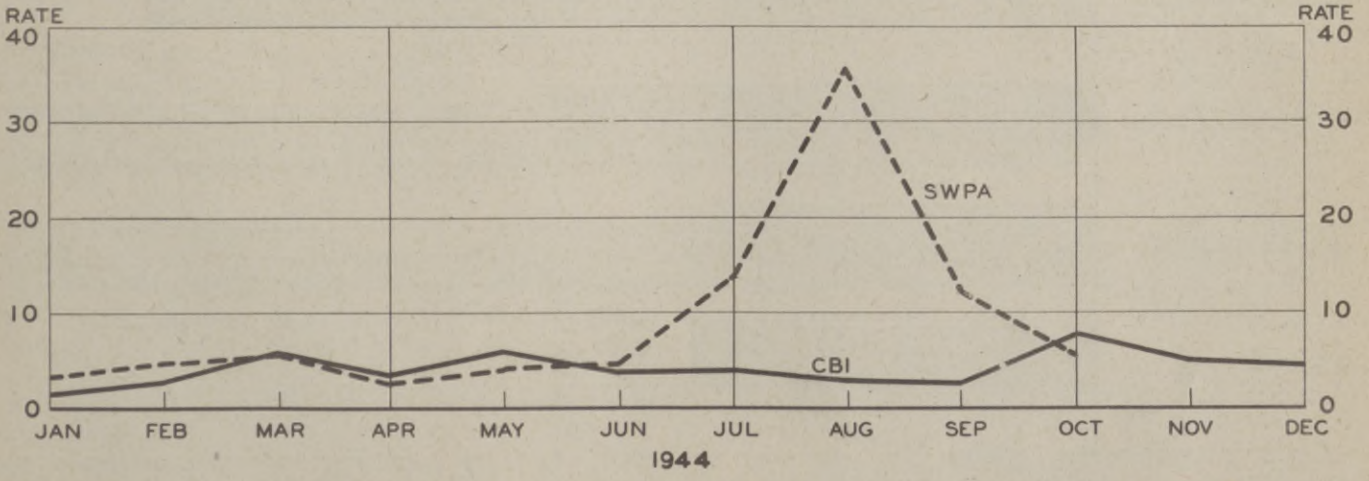
Month and Year	U. S.	British	Chinese
Dec. 1943	34	165	244
Jan. 1944	3	66	85
Feb.	21	27	2
Mar.	65	3	15
Apr.	31	0	3
May	65	39	11
June	52	88	21

Month and Year	U. S.	British	Chinese
July 1944	45	199	28*
Aug.	38	728	45*
Sept.	45	672	29*
Oct.	103		12*
Nov.	71*		91*
Dec.	83*		58*

* Preliminary telegraphic reports.

The epidemiological picture of scrub typhus has not changed. In endemic areas it continues to be essential that combat uniforms be impregnated with soap emulsion of dimethyl phthalate against the mite causing scrub typhus, as described in WD Technical Bulletin, TB Med 121, subject: Impregnation of Clothing with Insect Repellent (Dimethyl Phthalate). It is equally important that living areas be immediately cleared in forward areas where grass or other cover may be suspected of harboring the carrier mite. Experiments are being carried out to determine the value of spraying DDT solutions directly on the ground as an adjunct to the control program.

SCRUB TYPHUS, ADMISSIONS PER THOUSAND MEN PER YEAR
SOUTHWEST PACIFIC AREA AND ASIATIC THEATERS



SECRET

DISEASE AND INJURY

DIPHTHERIA

Diphtheria has been a minor military problem throughout the war except in a few areas. Recent outbreaks have been reported from Burma, the New Guinea area, and Saipan. The diphtheria in Burma and on Saipan was chiefly of the cutaneous variety with only occasional cases of the pharyngeal type. In New Guinea there has been a moderate incidence of both forms of the disease during the past four months, prior to which there was virtually none. An increasing number of individuals returned to the U. S. through the San Francisco Port of Embarkation have developed diphtheria either en route or shortly after debarkation. Diphtheric skin lesions have not always been recognized as such, and exposure to diphtheria has unwittingly resulted at times. Steps are being taken to assist medical officers in the recognition of this heretofore rarely encountered disease.

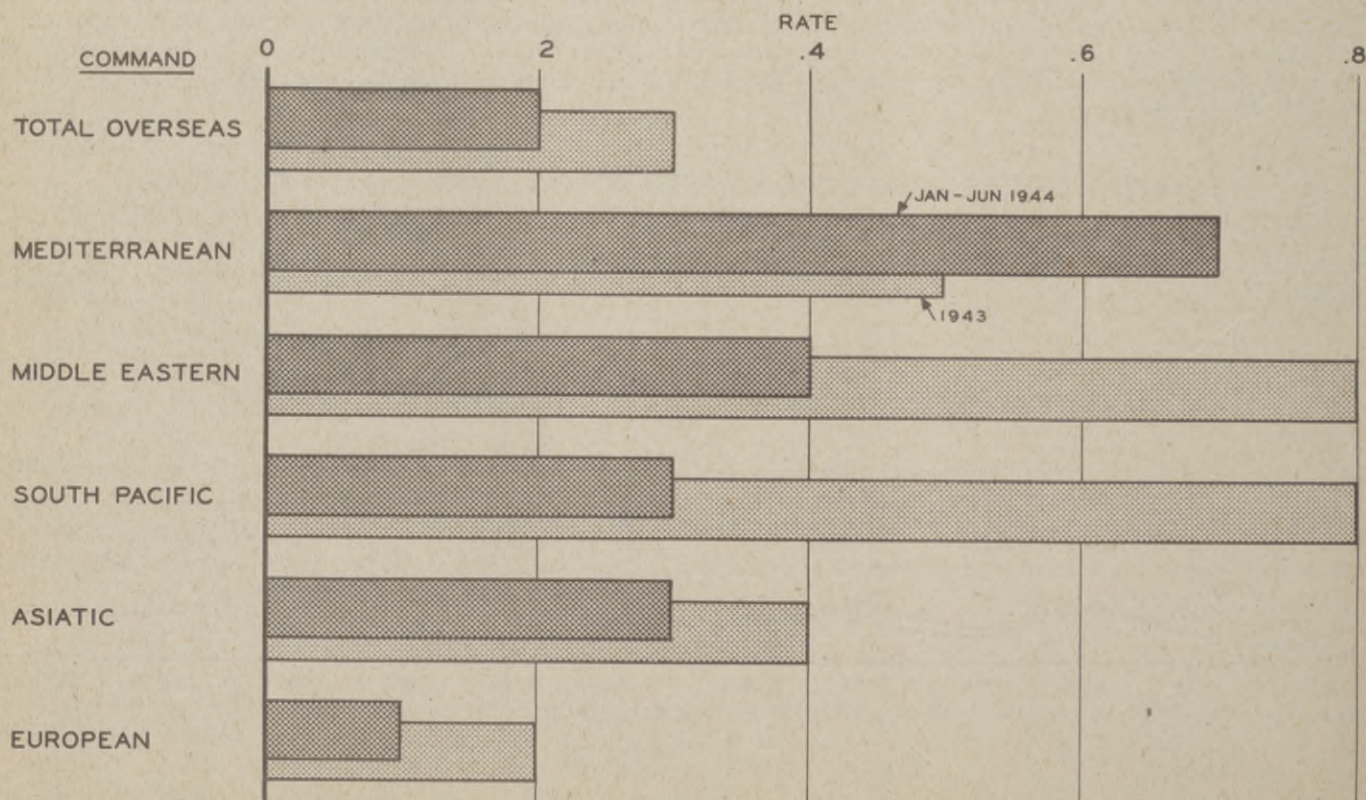
From 1938 through 1943 the diphtheria rate has varied between three and seven per 100,000 per year in the entire Army, with no apparent trend. In 1942 and 1943 the overseas rate was three to four times as high as that for troops in the United States. The Mediterranean, Middle East, South Pacific and Asiatic commands have consistently had rates above average. The accompanying chart compares theater rates for 1943 with those for the first half of 1944.

There had been concern over the amount of diphtheria expected to be encountered in the European Theater, since its incidence among the civilian populations of the Continent has increased very sharply during the war. However, no increase has occurred among U. S. military personnel in this area since the invasion.

The importance of diphtheria as measured by the number of admissions and contribution to the noneffective rate is very small, but it has a relatively high case fatality rate and in a fair proportion of cases leads to incapacitating complications, particularly neuritis and myocarditis. The prevention and treatment of cutaneous diphtheria present problems quite different from the pharyngeal variety; our knowledge of the cutaneous form is limited.

Because of special difficulties encountered in the immunization of adults against diphtheria, the decision was made not to adopt a policy of routine immunization. Despite minor outbreaks such as those recently reported from the Pacific, it is felt that this decision is still correct.

**DIPHTHERIA ADMISSIONS PER THOUSAND MEN PER YEAR
OVERSEAS COMMANDS, 1943 - 1944**



DISEASE AND INJURY

RESTRICTED

THE CONVALESCENT RECONDITIONING PROGRAM

The steady increase of battle casualties, the reduction of the evacuation policy in the European Theater, and the accelerated return of casualties from overseas are effecting a marked change in the convalescent reconditioning program in the continental United States. As this trend progresses, it is anticipated that the preponderant number of patients in general hospitals will be found in convalescent Class 4 (bed patients) or Class 3b (early ambulant). Convalescent hospitals may soon be expected to house the majority of Class 3a, 2 and 1 patients. The 29,500 convalescent beds recently authorized are rapidly being filled and further expansion is now under consideration.

The convalescent reconditioning program in regional and station hospitals is now and will continue to be directed chiefly at returning patients to duty physically and mentally fit. The majority of the patients remaining in hospitals are participating in the program.

Under present discharge policies, it is expected that an increasing proportion of general and convalescent hospital patients will be discharged from the service. The reconditioning program in general and convalescent hospitals, is therefore shifting its emphasis from return to duty to return to civilian life. As the majority of ambulatory patients soon find themselves in convalescent hospitals most of the reconditioning will be done there, but an active program for Class 4 and 3b patients is also most essential and is being developed in the general hospitals.

The first group of convalescent hospitals in the Zone of the Interior was designated in WD Circular 228, 7 June 1944 and began to receive patients shortly thereafter. Authorization for personnel was effected on 8 December 1944. ASF Circular 419, dated 22 December 1944, authorizes the reconditioning program for ASF convalescent hospitals and states the responsibility toward the patient not able to return to duty as follows: "Patients who fail to meet minimum standards (MR 1-9) will be conditioned to the optimum degree of physical and mental fitness possible and will be instructed in and oriented to their responsibilities as citizens before discharge from the service. Such instruction will include the following: social readjustment and orientation, pre-technical and exploratory training, vocational guidance and general education."

Various technical services, such as Ordnance, Signal, Quartermaster, Engineers and ASF staff divisions have assisted The Surgeon General in the preparation of pre-technical courses which, together with counseling and guidance, are designed to restore self-confidence and vocational usefulness. These courses will provide exploratory shop experience in military and business administration, automotive mechanics, radio and electricity, wood and metal work, graphic arts, agriculture, and music.

It is not intended that pre-technical training should be vocational training, but rather vocational guidance by study and appraisal of latent skills and aptitudes. It is not training for a job which is being done, for the responsibility for this type of training lies in the hands of agencies other than the War Department. The primary purpose of this program is to insure that men returning to civilian life are mentally and physically fit and reoriented socially and economically to take their place in civilian society.

The doctrine of convalescent reconditioning for duty is set forth in the new film, TF 8-2070, which will be shown to all medical personnel. A pamphlet entitled "New Horizons", is now available which is designed to orient the convalescent patient with respect to his responsibilities in reconditioning. Training in schools for reconditioning and advance copies of training manuals, as well as published equipment lists, have been instrumental in improving the standards of convalescent reconditioning.

Detailed programs of instruction, tables of allowances for equipment, and suggested manning tables for specialist personnel have been distributed to the service commands. Assistance has been offered to the service commands in filling key training positions. TB Med 80 will continue to form the basis of the program for the open ward type neuropsychiatric cases. It has been working satisfactorily up to this date.

The chief obstacles operating to reduce the maximum efficiency of the reconditioning program lie in the areas of personnel and equipment. The shift to Class 4 and 3 in general hospitals has rendered inadequate the number of qualified trainer personnel authorized in physical and educational reconditioning. Physical and educational reconditioning personnel, particularly the former, are scarce, losses to other duty are high, and qualified replacements are not available. Shortages are such that hospital commanders have been reluctant to release their reconditioning officers and instructors for special training in established schools.

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MISCELLANEOUS

SECRET

CIVILIAN PUBLIC HEALTH IN NORTHWESTERN EUROPE

During December the communicable disease picture in France, the Low Countries, and occupied portions of Germany appeared more favorable than might have been expected six months ago. In general, any increase in the incidence of communicable disease in France has been no more than seasonal in proportion. However, the outlook for continued satisfactory conditions is reported to be unfavorable in some areas because of colder weather and lack of fuel for heating, notably in schools and certain civilian hospitals. Sharp increases in diphtheria have been reported in the Doubs and Moselle Departments and in the Belfort, Tours, and Paris areas.

In Holland the present experience compares favorably in most respects with that of immediately previous years. The fact that venereal infection increased during the German occupation has been verified by the Netherlands public health officials and is further evidenced by the more frequent detection of venereal disease among prostitutes recently examined. Malnutrition for a period of several years has resulted in a large number of cases of tuberculosis. In that part of Germany occupied by the U. S. Ninth Army, damaged water supply and sewage disposal facilities, together with depleted food resources, are threatening to cause serious health problems in the near future. The premature return of refugees would aggravate this situation. No unusual increase in communicable disease rates has been reported in Belgium and the situation in Luxembourg continues to be relatively satisfactory. Scabies is uniformly the predominant disease among refugees and displaced persons, although its prevalence is declining with the increasing availability of soap.

The most serious problem in the war-ravaged areas is the critical shortage of beds for the hospitalization of civilian casualties. In the Belgian area, the continuing enemy air action has resulted in the rapid filling of hospitals. The bed shortage has been somewhat alleviated by the opening in Verviers of an emergency 100-bed hospital for the care of the injured only. Arrangements have also been necessary for the accommodation of several thousand insane and tuberculous patients transferred because of the requisitioning of civilian hospitals for military use. A total of 400 civil affairs hospital beds have been released to the Netherlands and transported to Maastricht to meet emergency needs arising in that area. An additional 400 beds are expected shortly.

Medical facilities are reasonably adequate in France. Civilian doctors have in some instances been organized into teams and moved into areas where shortages of medical personnel prevented the adequate care of civilian sick. Difficulties have been experienced in connection with the provision of hospitalization for displaced persons requiring such care. Reports from Stolberg, Kornelimunster, and Aachen indicate that most communities in the occupied portion of Germany are favored with functioning civilian hospitals, but that vacant beds have become progressively scarce as civilian casualties have been increased by combat. Sufficient doctors remain to handle civilian medical problems and it is reported that excellent medical attention is being rendered to German civilians by their medical personnel.

The medical supply situation steadily becomes more encouraging in France. It is now easier to move supplies and the French themselves have succeeded in improving their own channels of distribution. In areas recovered by the First French Army, departmental prefects have been given the Civil Affairs Basic Medical Kits until regular medical supplies become available. Improvement in the distribution of medical supplies is also reported in Belgium but the situation is not yet entirely satisfactory. Captured medical supplies worth approximately four million francs were released by the U. S. Army at Liege and made available to the Belgian government. In occupied German territory, reasonable quantities of medical supplies still exist in the pharmacies of larger communities, but transportation has prevented effective distribution to outlying areas.

Holland appears to present the most serious nutritional problem and surveys of the public health aspects of the food shortage have been initiated by SHAEF, Public Health Branch. In France the food supply has gradually improved over the 1940-1941 level to such an extent that reports reveal no evidence of serious malnutrition directly caused by the war. The health of infants is good, and children of school age are in fairly satisfactory condition but somewhat underweight. There are, however, some grounds for concern over the development of adolescents. In Belgium the nutritional situation is much the same as in France except that the margin of security against malnutrition appears narrower. Moreover, there is evidence of further shrinkage of this margin since liberation was effected.

1 Jan 45 31 Dec 44

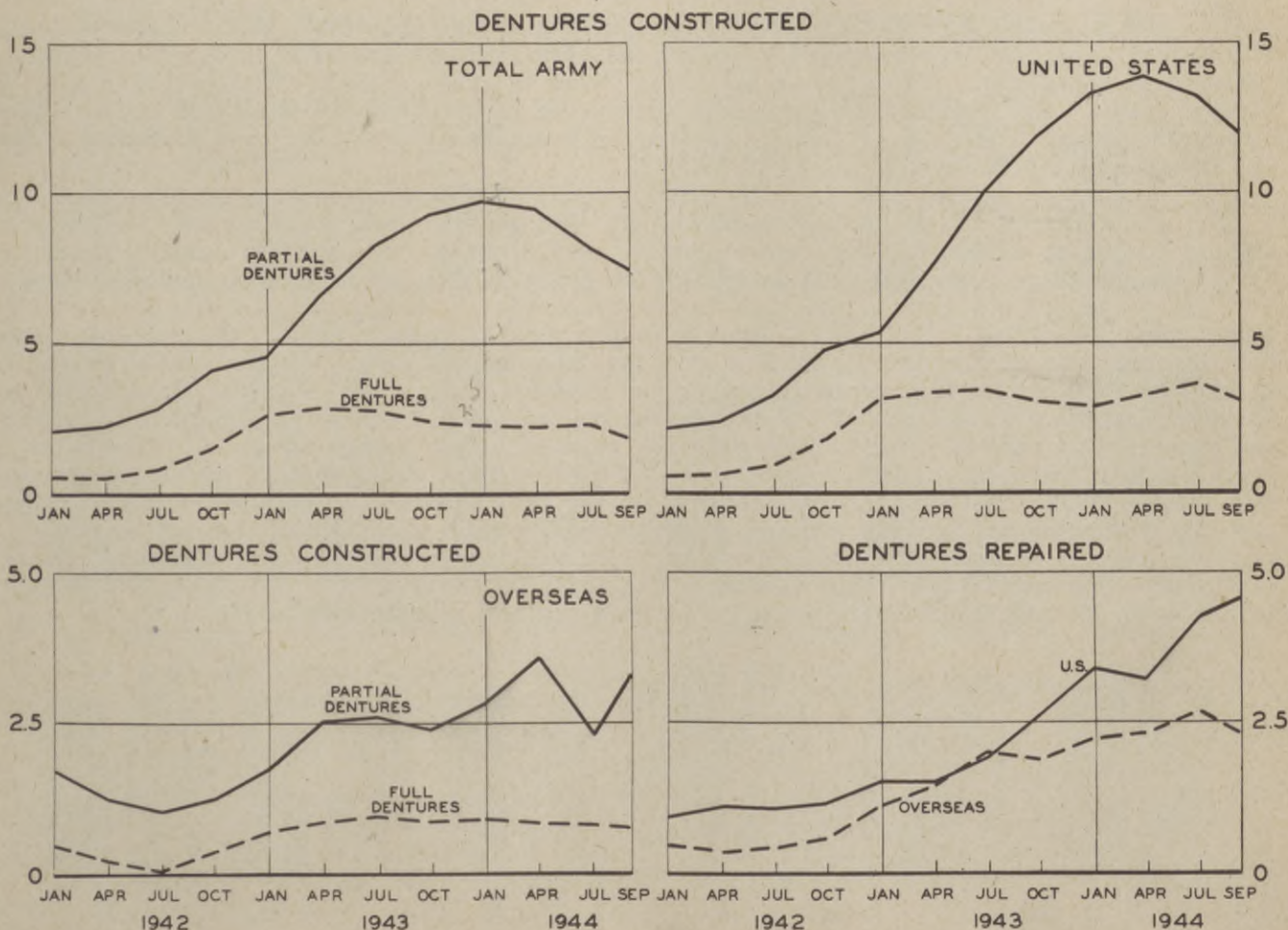
DISEASE AND INJURY

DENTURE CONSTRUCTION AND REPAIR

The need of the Army for full dentures reflects the prosthetic problems resulting from the lowering of dental requirements for induction in March 1942 and again in October 1942, when dental standards were almost completely relaxed. After more supplies and equipment were made available, and Dental Corps personnel was better organized to meet the prosthetic needs of inductees requiring full dentures, the backlog built up in 1942 was in large part consumed by the construction of 215,000 dentures during 1943. However, despite the decline in the ratio of new inductees to U. S. strength, the construction of full dentures in the U. S. has not declined materially below the level of January 1943. For partial dentures, however, there is every evidence of a sharp downward trend in 1944. The top two charts give the rates at which dentures have been constructed in the entire Army and in the continental United States. The problem among troops in the U. S. was further influenced by POM, 1 August 1943 and POR, 1 October 1943, which required that the defects of Class I dental patients be corrected before departure from their home stations. These two regulations, which did so much to remedy the practice of shipping dental noneffectives overseas, sustained the U. S. rate of denture construction, preventing its earlier fall. The overseas rate for full dentures, which usually take precedence over partial dentures, has declined gradually since the middle of 1943, the rate of .73 for September 1944 being almost 25 percent below that of .95 for July 1943. Partial dentures are more often elective and their lack less often places men in the Class I category. Hence the partial denture rates vary much more in relation to the availability of dental service overseas. Initially the overseas rate represented largely the influence of what is now the Mediterranean Theater, but since October 1943 the great strength of the European Theater has forced the overseas rate to follow its trend, which reflects chiefly the changing tactical situation.

The total Army trend is naturally an average of U. S. and overseas rates weighted by the respective strengths. The recent declines are caused more by the increasing influence of the overseas strength with its lower rate than by the lesser changes in either component.

DENTURE CONSTRUCTION AND REPAIR PER 1000 MEN PER MONTH



DISEASE AND INJURY

RESTRICTED

HEALTH BRIEFS

WHOLE BLOOD SHIPMENTS TO THE PACIFIC

On 16 October the first shipment of whole blood was flown to the Pacific theaters inaugurating a daily service. The Pacific whole blood program is a joint Army-Navy project with the Army operating the center at Los Angeles and the Navy directing the centers at San Francisco and Oakland. The blood which is packed in expendable refrigerated chests is flown by the Naval Air Transport Service. Approximately 600 pints of blood are now being shipped daily, about one-third of which is supplied by the Army center at Los Angeles. It is reported that blood is being received in good condition and that its use has been attended with few untoward reactions.

Shipments to the European Theater, which were initiated last August, now total more than 1,000 pints of whole blood per day.

INFECTIOUS HEPATITIS

As forecast in HEALTH for November, the incidence of hepatitis in the Mediterranean Theater increased markedly during November and early December. The final rate of 25 for October advanced to 39 in November, and to about 75 during the first three weeks of December. For the Fifth Army the rates for October, November, and three weeks of December are 30, 89, and 174 admissions per 1,000 men per year. Among troops of the Second Corps the incidence of hepatitis was just above 100 during the last two weeks of November, and in the next three weeks increased to 107, 179, and 190 admissions per 1,000 men per year. The reported rates for four infantry divisions of the Second Corps are 147, 253, 269, and 419 for the week ending 16 December. The comparative magnitude of these rates reveals that troops in the field are facing a much greater risk of contracting infectious hepatitis than are base area troops.

SCHISTOSOMIASIS

A potential hazard to health of troops in present and future Pacific operations is schistosomiasis, an inflammatory disease of the liver and intestines caused by the parasite, *Schistosoma japonicum*. The disease has been found in the southern Philippine Islands of Leyte, Samar, and Mindanao and small foci have been reported on the island of Luzon. It is common in certain districts of China, particularly the Yangtze Valley, and five small foci are known to exist in Japan.

A survey made on Leyte indicates that rice paddies and other surface waters probably harbor great numbers of the carrier snail. The form of the parasite which is infective for humans has been recovered from water in rice paddies. In the Dulag-Palo-Tacloban sector, 34 percent of 100 civilian stool specimens collected at random were found positive for *Schistosoma japonicum*. Surveys of endemic or potentially endemic areas are needed to ascertain the presence of the carrier snails and the frequency of their infestation with flukes, as well as the extent of infestation among the natives. In areas of proven or doubtful endemicity control measures amount to preventing contaminated fresh water from ponds, ditches and streams from coming into contact with the skin and from being ingested. Troops should avoid wading, bathing, or washing clothes in such water. Water supply should be obtained from newly driven casings reaching a depth of ten feet or more. Where water must be drawn directly from streams, rapidly running water is preferred. When Lyster bags or larger storages are used, a chlorine residual of one part per million at the end of 30 minutes, insures water safe from cercariae of schistosomes. Two Halazone tablets for clear water and four for turbid water per canteen of water with 30 minutes contact provide safe water.

RESTRICTED

HOSPITALIZATION

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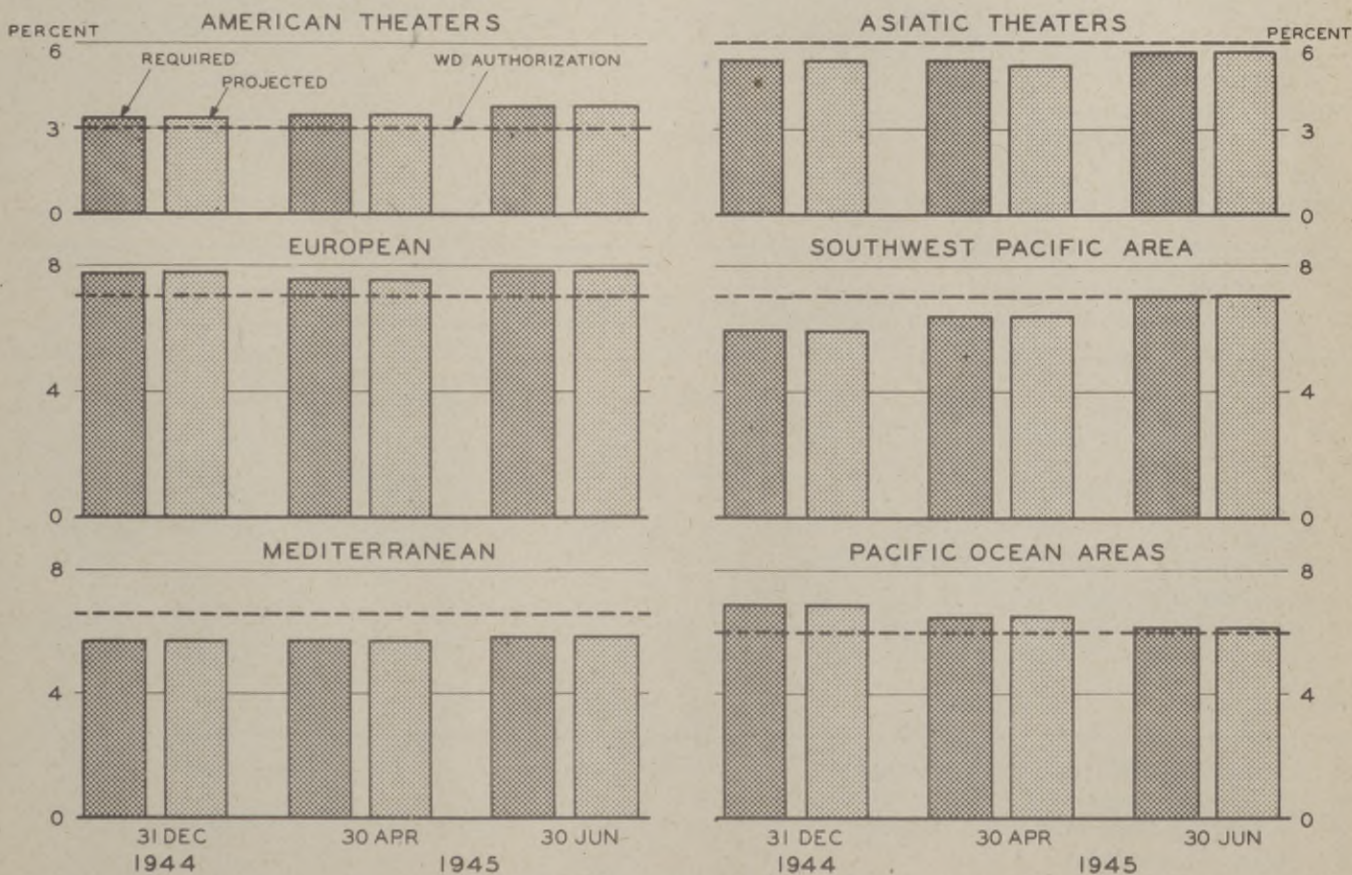
PROJECTED AVAILABILITY OF FIXED HOSPITALIZATION OVERSEAS

For the most active theaters the accompanying charts give the salient facts on projected fixed bed capacity for 31 December, 30 April, and 30 June according to the 22nd revision of the WD Six Months Troop Forecast. The panel for each theater gives the WD authorization for fixed units as a dashed horizontal line which may be compared with the two vertical bars for any date, the darker one showing the theater requirements and the lighter one showing beds provided and projected on the particular date. Only fully trained units are projected. All figures are shown as percentages of theater strength projections given by the Troop List for Operations and Supply dated 1 December 1944, except that June figures are based on the WD Troop Deployment List dated 1 December 1944. The transfer of strength and 15,050 fixed beds from the Mediterranean to the European Theater is appropriately reflected in the data for these two theaters. Finally, the strength used for the Asiatic theaters includes 102,000 Chinese.

The projected fixed bed percentages include all the field hospitals in the count of fixed beds, although on 29 December 1944 the Deputy Chief of Staff directed that field hospitals used in mobile capacity be excluded from the fixed bed counts. It is as yet too early to know what changes the theaters will request on the basis of this realistic directive, which takes cognizance of the fact that many field hospitals are being used as mobile units.

In all but one instance the charts show that the projected capacity will meet the theater requirements for the particular date, but in the Southwest Pacific, the Mediterranean Theater, and the Asiatic theaters the requirements and projected totals are below the WD authorized levels. Later requisitions may increase the required totals for June. The required and projected capacities for the European Theater are consistently above the seven percent authorization. Allowance for the transfer of field hospitals from the fixed to the mobile category will reduce the projected ratios until such time as the theaters can augment the T/O capacities of present station and general hospitals. The projected excess for the American Theaters represents a very small number of beds, and the strength of these commands is more scattered than elsewhere.

PROJECTED AVAILABILITY OF FIXED HOSPITAL UNITS OVERSEAS BEDS AS PERCENT OF STRENGTH



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HOSPITALIZATION

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HOSPITALIZATION OVERSEAS

The following tables summarize the bed status situation overseas on 1 December, the latest date for which reasonably complete information is available. The counts of beds present are based upon units reported present in the 1 December Troop List for Operations and Supply. The reports of occupancy are more preliminary, being based upon theater radio reports.

In the European Theater the situation has moved so fast that 1 December figures are badly out of date. It is of interest to note, therefore, that on 20 December there were 163,000 patients in station and general hospitals as against 151,000 T/O bed units set up.

FIXED BED UNITS AVAILABLE AND OCCUPIED
Number of Beds, 1 December 1944

Theater	Strength (In Thousands)	W.D. Authorization		T/O Present		T/O Under Orders	Total Occupied
		Percent of Strength	Number of Beds	Number	Percent of Authorization		
American *	168	3.0	5,040	5,950	118.1	-	2,861
European	2,595	7.0	181,650	185,150	101.9	25,200	148,984##
Mediterranean	509	6.6	33,594	30,325	90.3	-	25,586
Pacific Ocean Areas	432	6.0	25,920	25,800	99.5	5,750	10,894
Southwest Pacific Area	731	7.0	51,170	46,500	90.9	1,200	24,902+
Asiatic Theaters **	307	6.0	18,420	14,550	79.0	2,250	8,114
Middle Eastern #	39	6.0	2,340	3,400	145.3	-	1,502
All Theaters *	4,781	6.7	318,134	311,675	98.0	34,400	222,861

Beds as Percent of Strength

Theater	W.D. Authorization	T/O Present		Beds Occupied	
		Total	Usable	Percent of Strength	Percent of Number Present
American *	3.0	3.5	2.8	1.7	48.1
European	7.0	7.1	5.7	5.7 ##	80.5 ##
Mediterranean	6.6	6.0	4.8	5.0	84.4
Pacific Ocean Areas	6.0	6.0	4.8	2.5	42.2
Southwest Pacific Area	7.0	6.4	5.1	3.4 +	53.6 +
Asiatic Theaters **	6.0	4.7	3.8	2.6	55.8
Middle Eastern #	6.0	8.7	7.0	3.9	44.7
All Theaters *	6.7	6.5	5.2	4.7	71.5

MOBILE AND CONVALESCENT BEDS
1 December 1944

Theater	Number of Beds			Percent of Strength		Occupied as Percent of T/O Present
	T/O Present	Under Orders	Total Occupied	T/O Present	Total Occupied	
American	-	-	-	-	-	-
European	31,850	9,550	26,000	1.2	1.0	81.6
Mediterranean	7,200	-	3,790	1.4	0.7	52.6
Pacific Ocean Areas	4,050	-	1,014	0.9	0.2	25.0
Southwest Pacific Area	9,950	-	2,391 +	1.4	0.3+	24.0 +
Asiatic Theaters **	5,700	-	3,699	1.9	1.2	64.9
Middle Eastern #	-	-	-	-	-	-
All Theaters	58,750	9,550	36,894	1.2	0.8	62.8

- * Excluding NWSC and Eastern Canada.
- ** Including Chinese (102,000 authorized).
- # Including Persian Gulf Command.
- ## As of 2 December.
- + Excluding hospitalized personnel of Far Eastern Air Force.

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HOSPITALIZATION

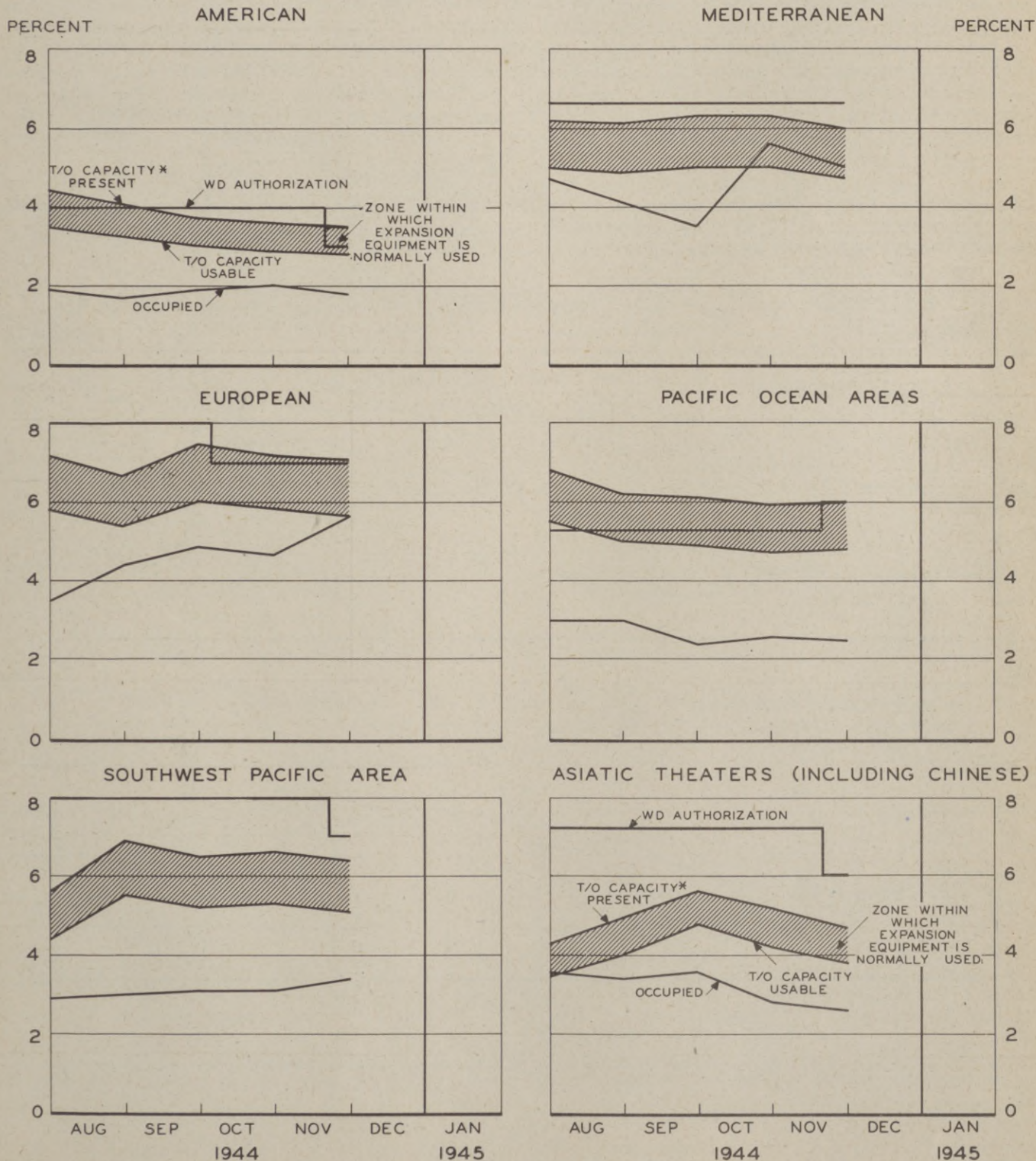
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HOSPITALIZATION OVERSEAS (Continued)

The theater panels below give the recent changes in the availability and occupancy of fixed beds since the end of July 1944. The shaded band on each panel gives the range within which expansion equipment becomes necessary, so that an occupancy line in this area is evidence of pressure upon the theater supply of fixed beds. The pressure may be even greater than indicated, for in some instances, e.g. in the European Theater, a considerable number of hospitals may be staging, in construction, and the like, so that expansion facilities must be used earlier than the charts show. On the other hand, expansion equipment is provided for emergency use, and it should be expected that occasions will require its use.

FIXED HOSPITALIZATION OVERSEAS THEATERS

BEDS AS PERCENT OF STRENGTH



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

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HOSPITALIZATION

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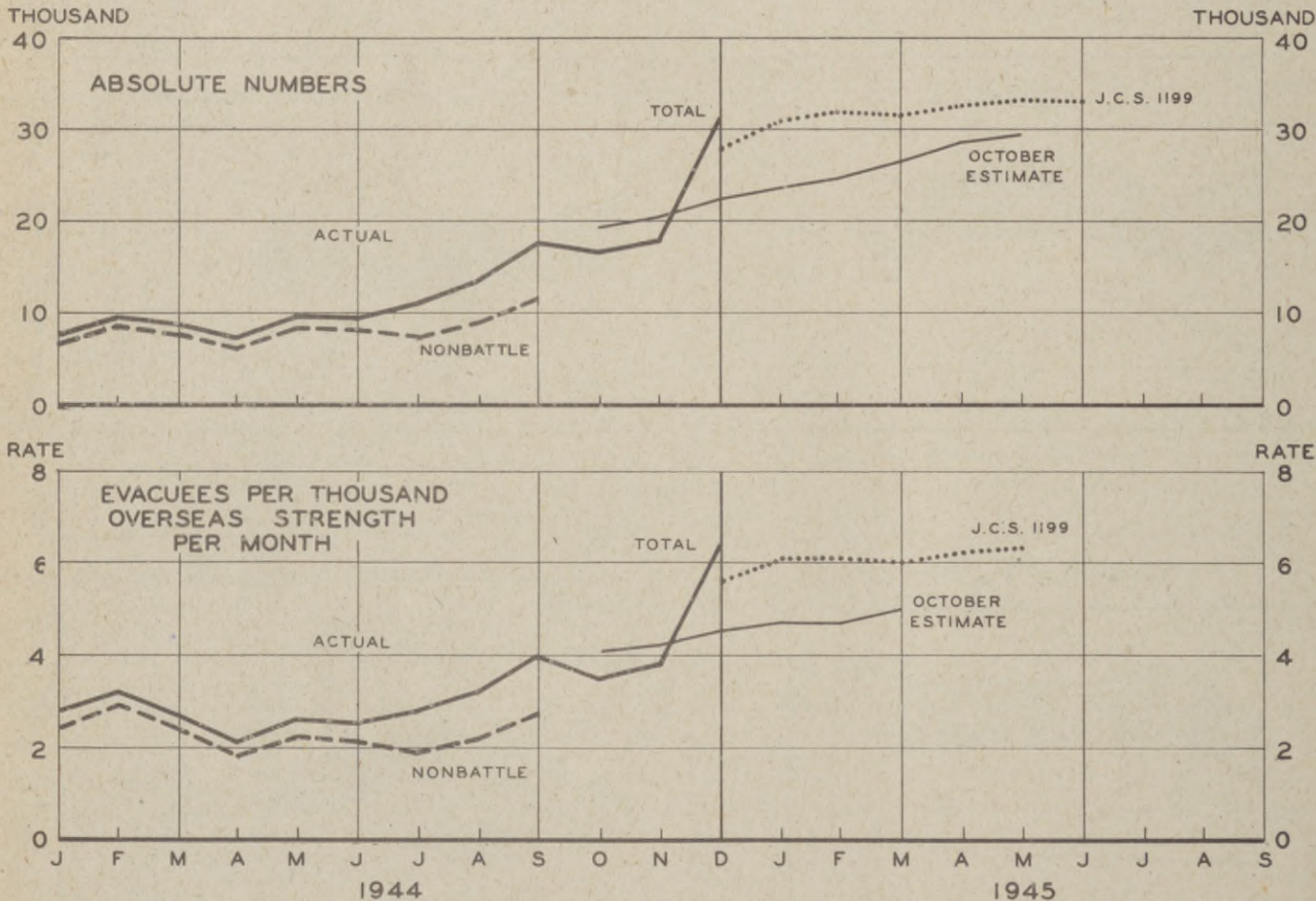
TREND OF EVACUATION FROM OVERSEAS

As a result of War Department action to utilize more fully all returning ship capacity from the European Theater, the number of Army patients rose steeply during December to reach about 31,000, according to provisional counts. The final November count was 18,000 Army patients. The volume of patients from Europe rose from about 9,000 in November to about 17,000 in December. At the same time, evacuees from the Southwest Pacific Area increased from 3,000 to 8,000, according to transportation records. The unprecedented volume of evacuees is well above the forecast first published in HEALTH for October, and it is expected that it will remain above that forecast for the next two months. Transportation capacity is understood to be available for sustaining an even greater lift than was accomplished in December.

Despite the large number of evacuees debarked during December, the number of Army patients awaiting evacuation increased from 13,000 on 1 December to 17,000 on 1 January, the figures for the European Theater being 7,000 and 14,000. This increase in the number of patients awaiting evacuation from the European Theater does not reflect a backlog caused by lack of transportation but rather a purposeful building up of a working balance of boarded patients in order to insure full utilization of available evacuation capacity. The census of patients awaiting in the Southwest Pacific, on the other hand, declined from 4,000 on 1 December to 2,000 on 1 January.

The forecasts made in October were too high for October and November and too low for December. Since its first appearance in HEALTH for October, a new estimate has been made and approved by J.C.S. 1199. This estimate is appreciably higher and is shown in the charts below together with that previously published.

ACTUAL AND ANTICIPATED EVACUATION OF PATIENTS* FROM OVERSEAS



* Army patients only

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HOSPITALIZATION

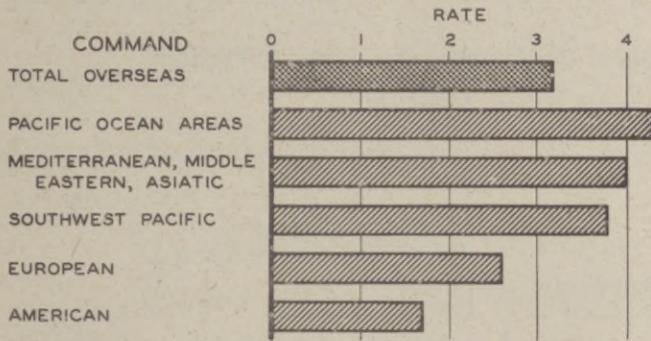
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TREND OF EVACUATION FROM OVERSEAS (Continued)

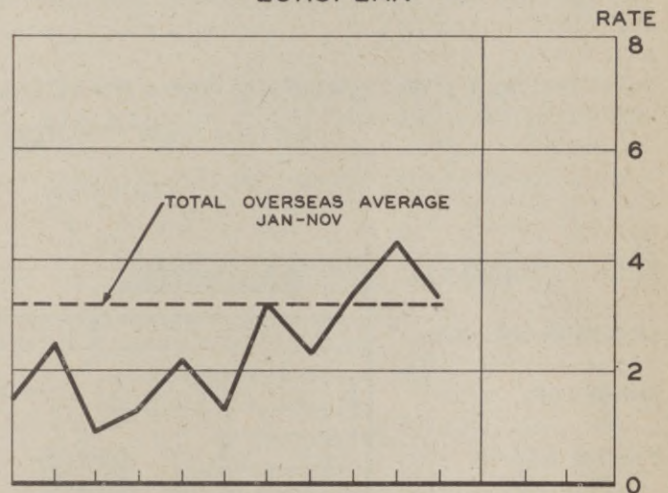
The charts below summarize theater embarkations to the Z/I through November 1944. For the Southwest Pacific Area the rate of evacuation increased sharply, and a moderate rise occurred in the rate for the Mediterranean Theater, taken in combination with the Middle East and the Asiatic theaters. In all other theaters it declined. The increase in the Southwest Pacific represents a real rise in evacuation. In the Mediterranean group of theaters, however, it represents a decline in strength, the Seventh Army having been transferred to the European Theater during November. Many evacuees originating in the Seventh Army continued to be credited to the Mediterranean Theater. Moreover, the actual number of evacuees from the Mediterranean, the Middle East, and the Asiatic theaters decreased slightly.

EVACUEES PER THOUSAND MEN PER MONTH, OVERSEAS THEATERS

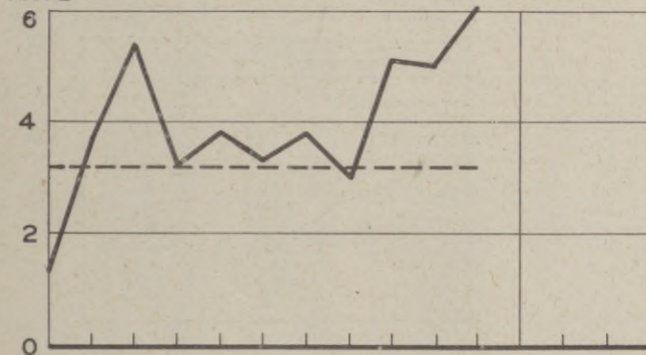
AVERAGE RATES - ALL THEATERS
JAN-NOV 1944



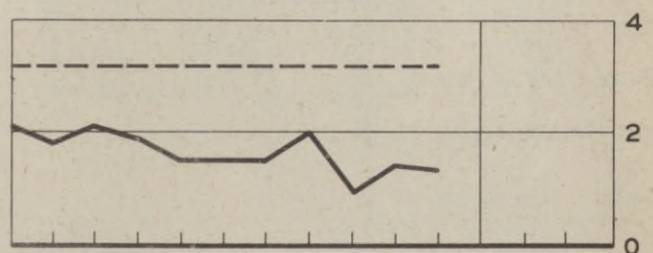
EUROPEAN



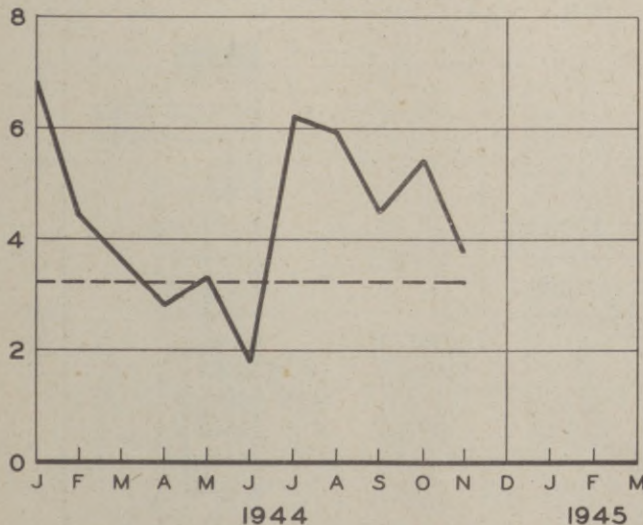
MEDITERRANEAN, MIDDLE EASTERN, ASIATIC



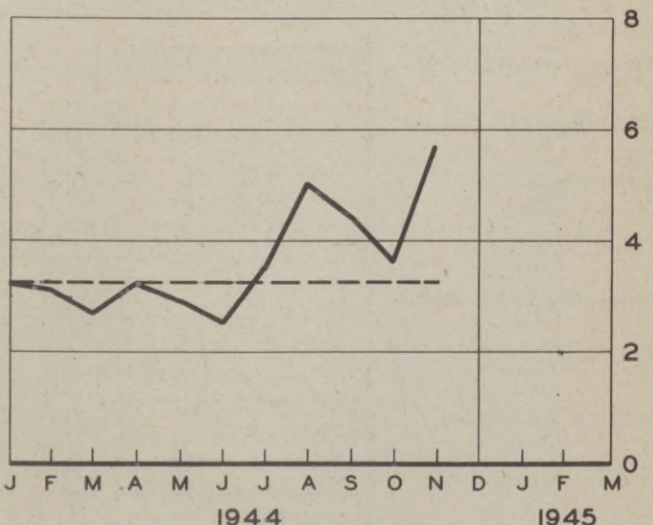
AMERICAN



PACIFIC OCEAN AREAS



SOUTHWEST PACIFIC



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HOSPITALIZATION

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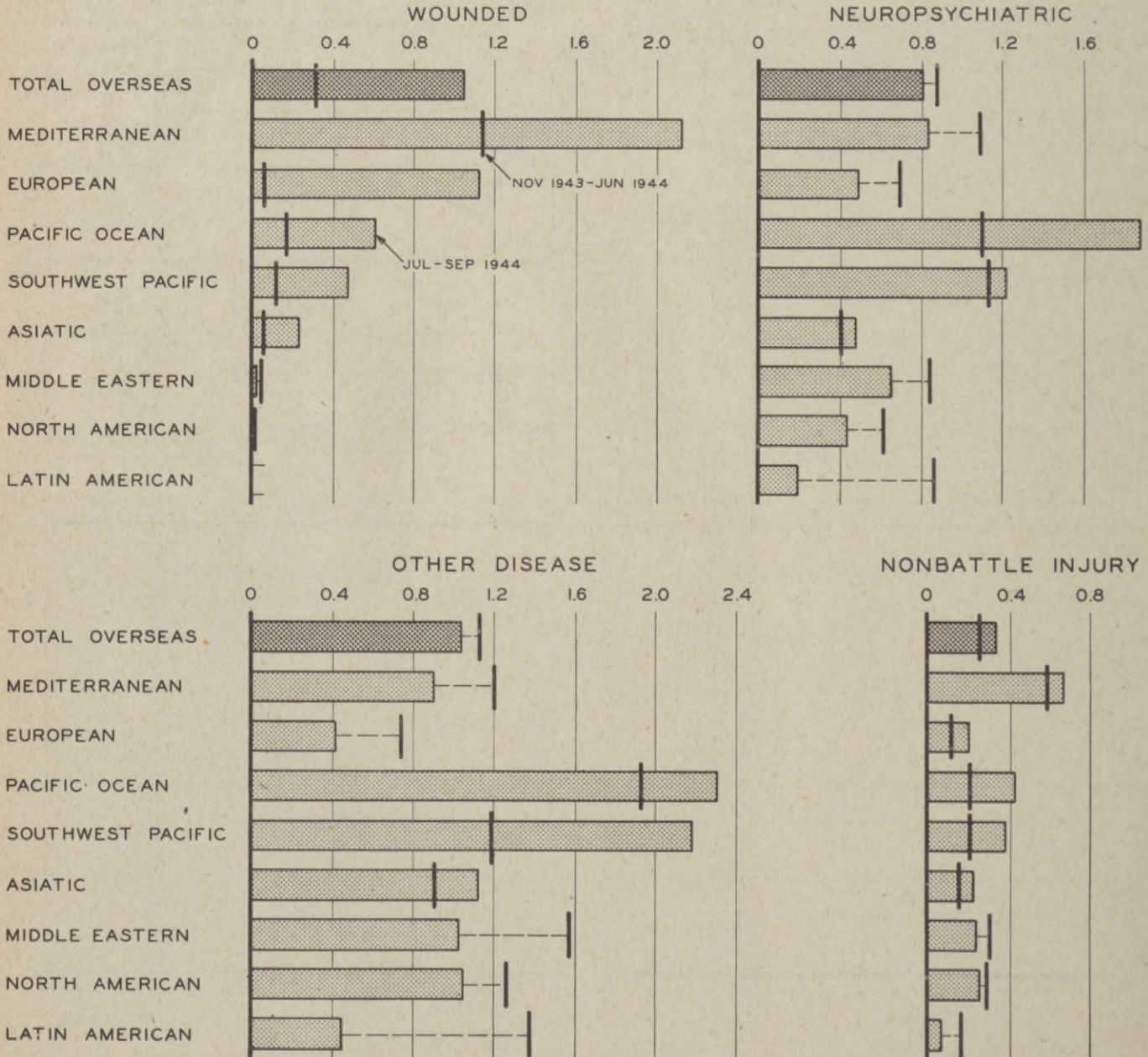
CAUSES OF EVACUATION FROM OVERSEAS

Data recently made available on patients debarked in the U. S. during July, August, and September 1944 reflect great changes in the causes of evacuation during that period. The charts below compare theater evacuation rates for four leading cause-groups for two periods, November 1943 through June 1944, and July through September 1944. The evacuation of battle casualties has increased markedly, as anticipated. The European Theater, the Southwest Pacific Area, and the Pacific Ocean Areas increased their previous average evacuee rates for wounded by 300 percent or more during the three-month period.

For neuropsychiatric disease, the evacuation rates rose in all the Pacific theaters, contrary to the trend for all overseas commands combined. For all other diseases combined there was a reduction in the total overseas rate, but the rates for the Pacific commands increased substantially and there was a slight increase in the rate for the Asiatic theaters. The nonbattle injury rates advanced for the more active theaters, but declined for the less active theaters which are continually improving their admission rates for nonbattle injury.

MAJOR CAUSES OF EVACUATION, OVERSEAS THEATERS

RATES PER THOUSAND MEN PER MONTH



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CAUSES OF EVACUATION FROM OVERSEAS (Continued)

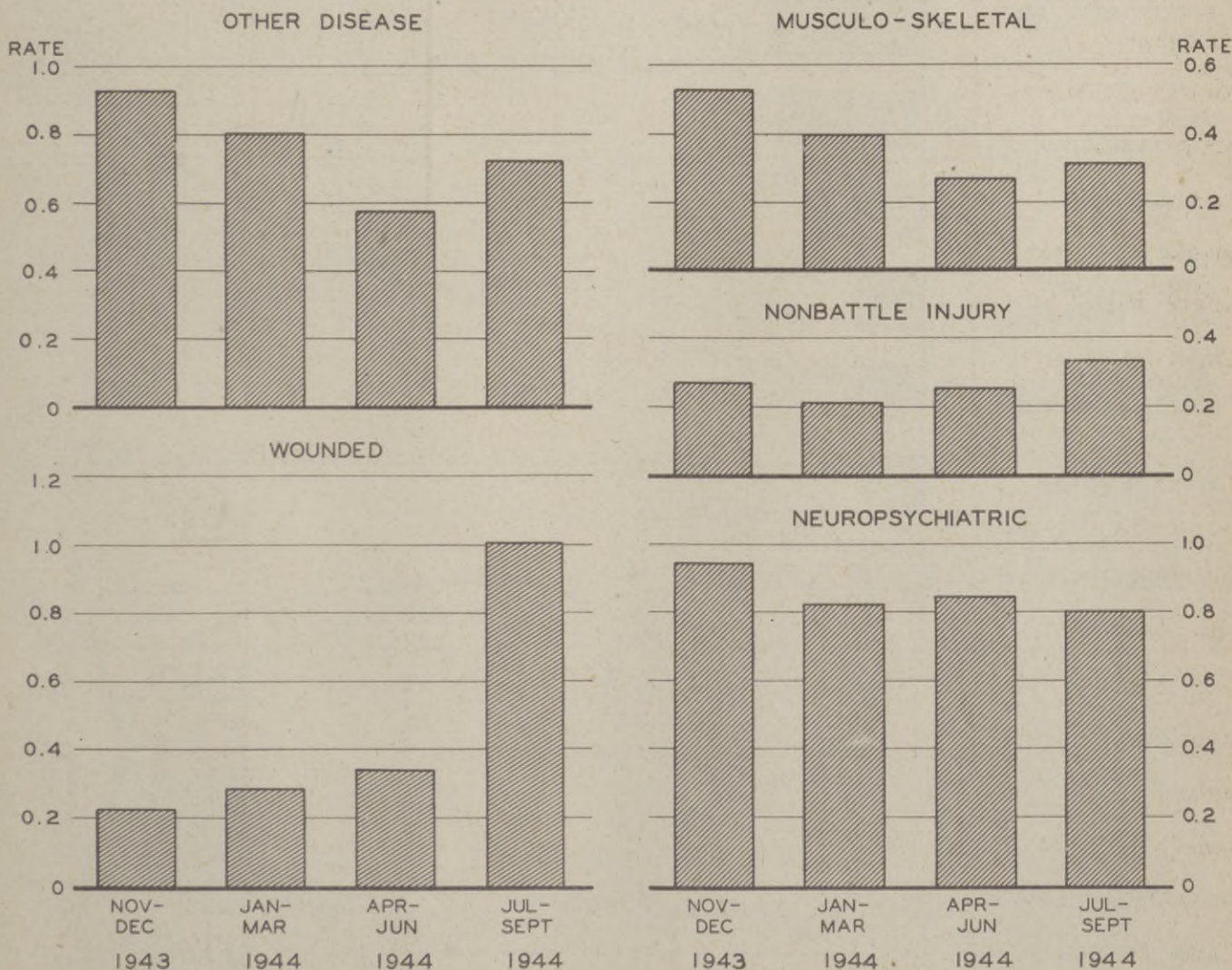
Further information on trends in evacuation by cause may be obtained from the charts below, giving quarterly data on leading causes of evacuation from all overseas theaters combined. The change in the rate for wounded is seen to be very sharp, while the increase for nonbattle injury is more gradual. A downward trend is evident for neuropsychiatric patients, but the high correlation of combat activity and the appearance of psychiatric symptoms is such that a continuation of this trend cannot be forecast. Diseases other than neuropsychiatric and musculo-skeletal declined gradually from November to June but rose slightly during the third quarter of 1944.

The chart on the following page gives the full detail on major causes of evacuation from all theaters during the third quarter of 1944. Battle casualties (including battle injury evacuees) were for the first time the largest single group of evacuees, constituting 33 percent of all cases. By December they have probably increased to 50 percent or more of all evacuees debarked in the U. S. Neuropsychiatric evacuees comprise 25 percent of the total. Almost half of these patients originated in the Pacific theaters, about 30 percent in the European Theater, and about 20 percent in the Mediterranean Theater.

Skin disease has increased in importance as a cause of evacuation. The Southwest Pacific contributed 1,500 skin patients, about three-fourths of all the skin patients received, and second only to its neuropsychiatric evacuees for the period. Musculo-skeletal disease was the fourth highest cause of evacuation with 3,800 patients, 1,400 of whom came

CAUSES OF EVACUATION, RATES PER THOUSAND MEN PER MONTH

TOTAL OVERSEAS, BY QUARTERS



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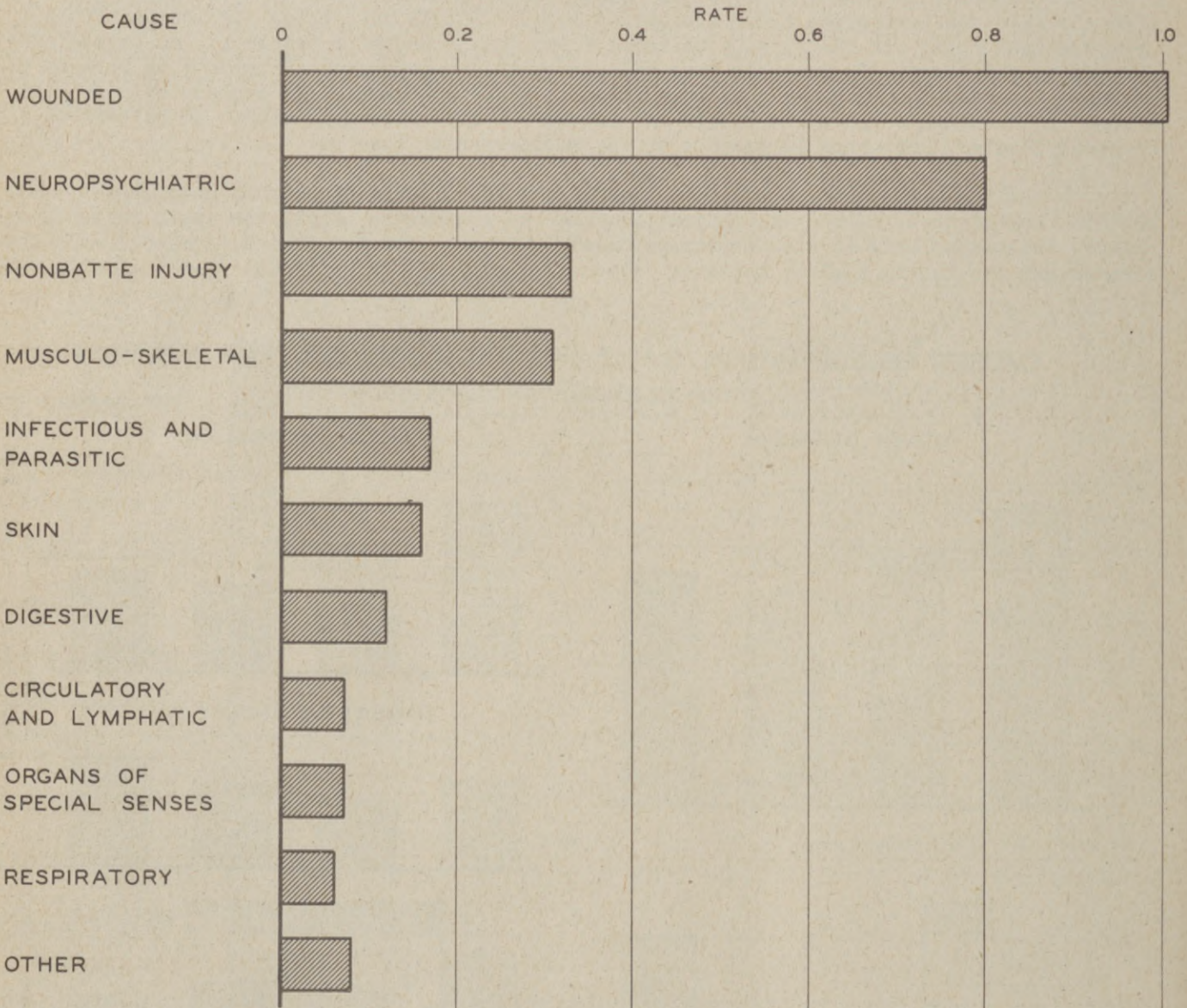
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CAUSES OF EVACUATION FROM OVERSEAS (Continued)

from the Southwest Pacific and 860 from the Pacific Ocean Areas. Among the evacuees with infectious and parasitic diseases there were 273 patients with filariasis, 93 percent of whom came from the Pacific Ocean Areas. More than half of the 439 malaria patients were evacuated from the European and Mediterranean Theaters. There were 119 evacuees with scrub typhus as the primary diagnosis.

EVACUEES PER THOUSAND MEN PER MONTH
TOTAL OVERSEAS BY CAUSE, JULY - SEPTEMBER 1944



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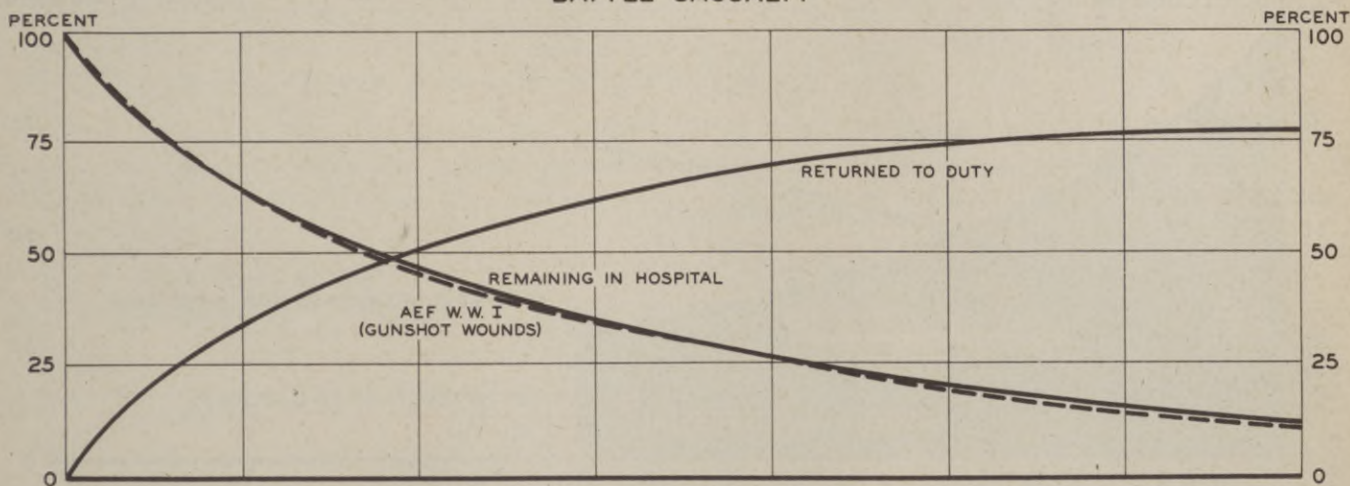
ELEMENTS OF AN EVACUATION POLICY

The fact that an evacuation policy is usually specified as the maximum length of hospitalization to be allowed in a theater, e.g. a 120-day policy, frequently allows one to forget that the evacuees are not to be held for the length of the policy but are to be evacuated as soon as they become transportable. It can be shown that early evacuation is generally of much greater importance than the length of the policy, which merely sets the proportion of admissions to be evacuated. Moreover, in terms of its effects on the needs of a theater for hospitalization, the nature of the policy, defined both as to length and as to speed of evacuation, is of paramount importance in the case of battle casualties and of considerably less importance in the case of nonbattle patients in an active theater.

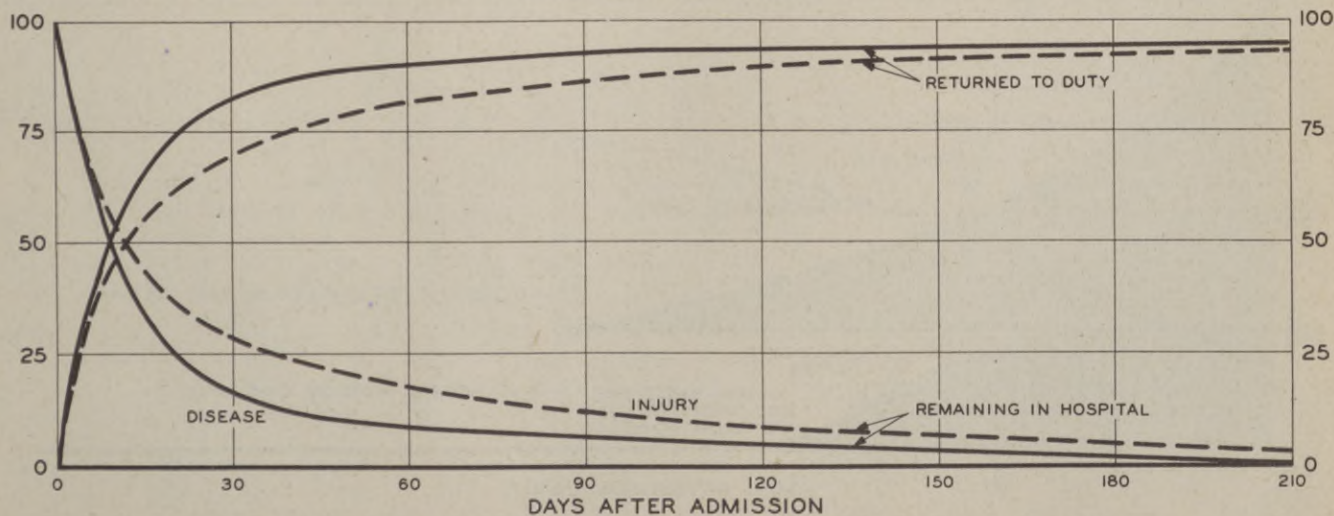
The ease with which computations may relate hospitalization requirements and evacuation policy must not, however, be allowed to obscure the fact that evacuation is a military operation which must mesh with other military operations. The arithmetic may show that, from the standpoint of average hospital days per patient returned to duty, the most efficient policy for battle casualties, for example, is a 120-day policy, but it may be militarily necessary or at least desirable over short periods to follow an entirely different policy. When the available hospital capacity is fixed it is more important to employ it fully and to return the greatest possible number to duty in the theater than it is to operate at a point where the average hospital days per patient returned to duty is minimal, assuming that appropriate care is available. Again, when transportation facilities are inadequate, an optimum evacuation policy may be impossible to accomplish. Moreover in the present state of information computations must treat all men returned to duty as if they were of equal military

HOSPITALIZATION, DISPOSITION* OF ADMISSIONS IN THEATER AND LATER IN THE Z/I NORTH AFRICAN ADMISSIONS JAN-JUN 1943

BATTLE CASUALTY



DISEASE AND INJURY



* Dispositions other than returned to duty are not shown.

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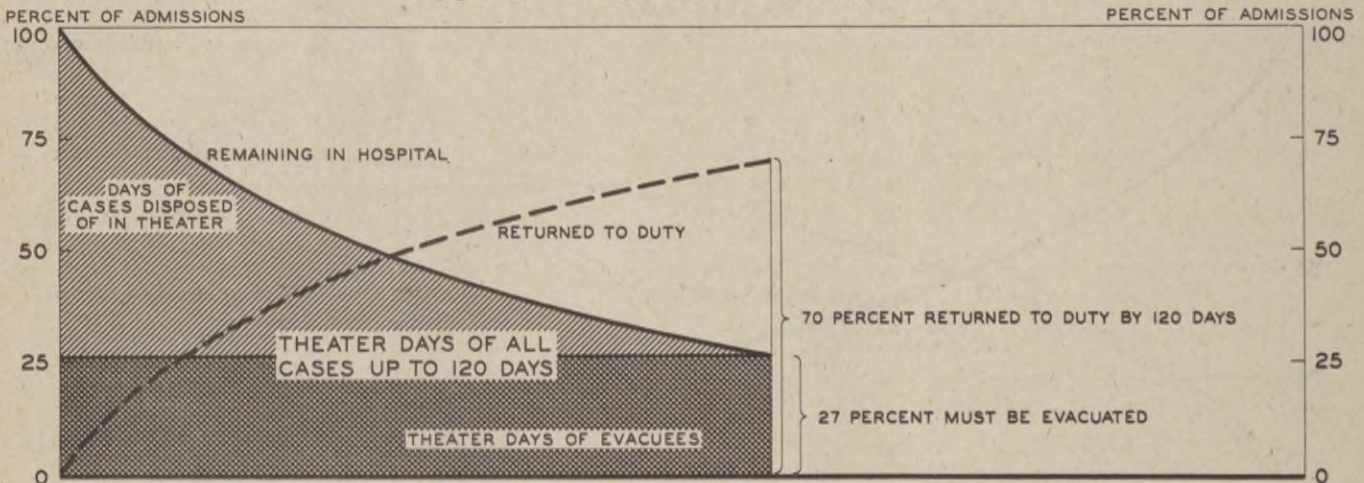
ELEMENTS OF AN EVACUATION POLICY (Continued)

value, although this is patently untrue. It is believed that patients requiring long hospitalization are less liable to return to full duty than are patients requiring short hospitalization. Where there is already a surplus of limited assignment personnel the gains which may accrue by pursuing a longer evacuation policy may seem insubstantial, and a shorter one be preferred. Finally, another factor which deserves more consideration than it has yet been given in the determination of overall evacuation policy is the location in time and space of expert and specialized surgical management. Essential to the realization of the full benefits of this type of surgical management in its reparative and rehabilitative phases, is a close integration of the forward and base hospitals in the theater and the hospitals providing specialized treatment in the Zone of Interior. In general the accomplishment of this integration operates in the direction of a shorter evacuation policy.

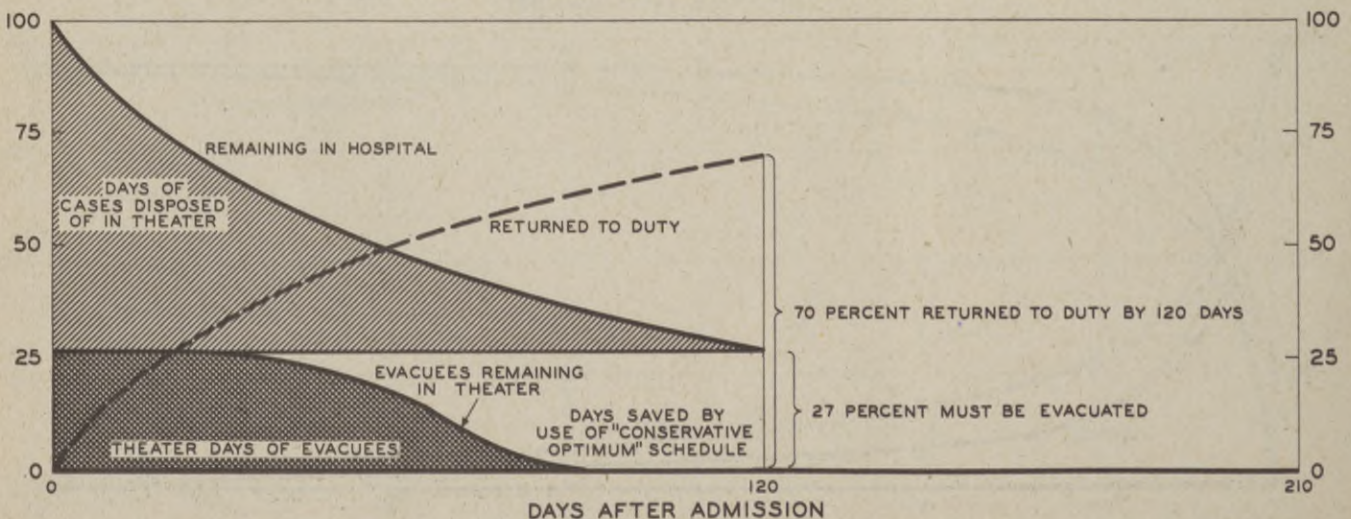
The foregoing qualifications make it clear that an evacuation policy of the moment cannot be predicated entirely on average hospital days per patient returned to duty or upon average days per admission. Nevertheless, the firm relationships which exist among the determining factors can be used to varying ends in accordance with the dictates of the military situation. Moreover, for planning purposes, especially when the means for hospitalizing patients are limited, it is desirable to review the supply of and demand for hospitalization from the standpoint of its most efficient utilization among all theaters and in the Zone of Interior. Many of the necessary facts flow from the basic characteristics of the curves plotted in the panels on the foregoing page, the top one pertaining to battle casualties and

METHOD OF CALCULATION OF HOSPITAL DAYS SPENT IN THEATER
BATTLE CASUALTIES. 120-DAY EVACUATION POLICY

POOREST SCHEDULE OF EVACUATION



"CONSERVATIVE OPTIMUM" SCHEDULE OF EVACUATION



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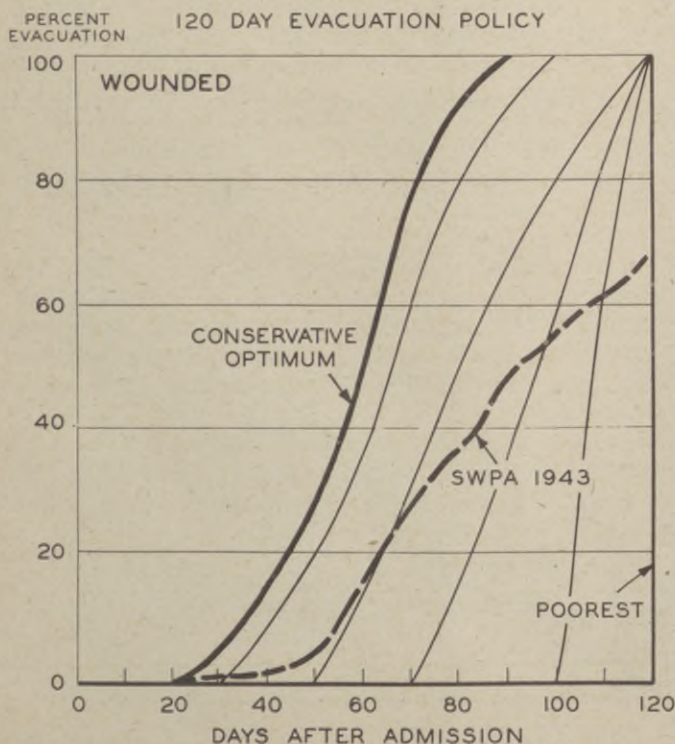
ELEMENTS OF AN EVACUATION POLICY (Continued)

the bottom one to both disease and injury. The basic data are based upon the experience of Mediterranean Theater admissions for the first half of 1943, followed up to 210 days after admission. The World War I battle casualty curve has been added to the top panel merely to indicate the stability which such distributions possess. Nonbattle injury should also have considerable stability, but the disease curves may well vary somewhat from theater to theater and from time to time, depending on the prevalence of various diseases.

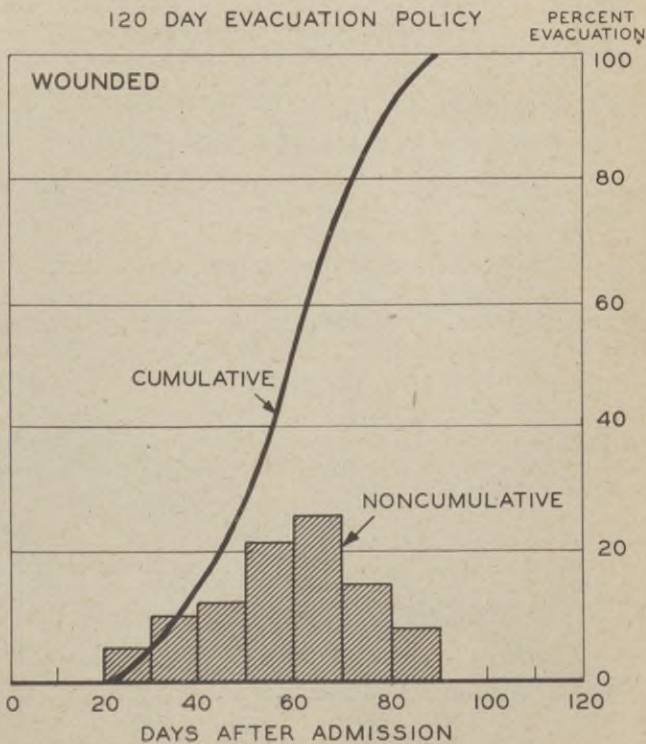
The reasons why an evacuation policy can be an important element in the amount of hospitalization required is readily appreciated from the charts on the previous page. An evacuation policy of, say, 120 days will cut both the remaining and returned to duty curves with a vertical line erected at 120 days after admission. Where it cuts the returned to duty curve it shows what percent of the admissions the policy will return to duty in the theater. Where it cuts the remaining line it shows what percent of the admissions would be evacuated from the theater under that policy. The total shaded area under the remaining curve up to the vertical line at 120 days will then represent the expenditure of hospital days required to insure the return to duty of the stated percentage of patients, if all the evacuees are held for 120 days. Moreover, that area of expended hospital days may be separated into two parts, the lower rectangle, which represents the hospitalization consumed by the evacuees before their evacuation, and the top triangular area which represents the hospitalization consumed by admissions who were disposed of in the theater by methods other than evacuation. If the patients to be evacuated are not held the full length of the period, some part of the rectangle of evacuee hospital days can be saved. The bottom chart suggests how much this can easily amount to. The new remaining line drawn within the evacuee-rectangle limits an area of hospital days to less than half the total area of the rectangle, the remainder being saved the theater by virtue of the early evacuation. It will be noted that there is no change in the percentage of patients returned to duty. Because the area of the entire rectangle exceeds the area under the evacuee-remaining curve by so wide a margin, an evacuation policy of stated number of days cannot be considered defined without some assumption as to speed of evacuation. It may be noted in passing that the area of the similar rectangles which may be drawn under the disease and injury curves are usually proportionately smaller than that for battle casualties, so that there is a smaller margin with which to work.

It serves also as an introduction to the simplest concept of an evacuation policy, namely one in which patients are evacuated immediately at the expiration of the policy. If all patients are held until the policy date, the average hospital days needed to return

POSSIBLE VARIATIONS IN EVACUATION SCHEDULES



CONSERVATIVE OPTIMUM EVACUATION SCHEDULE DEFINED



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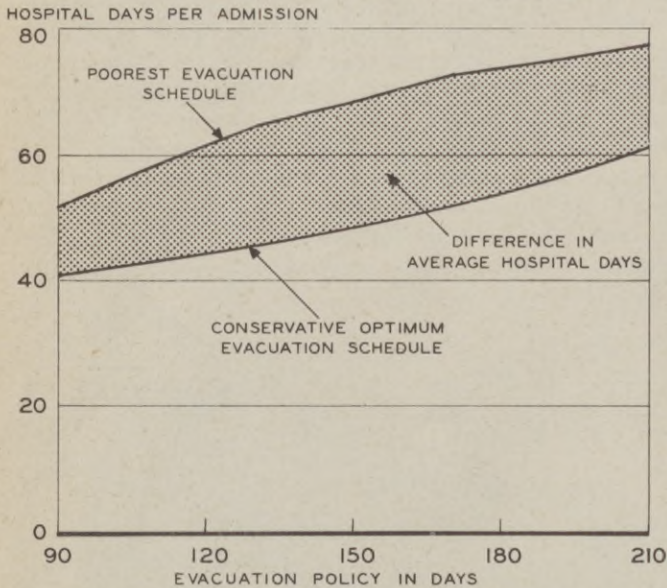
ELEMENTS OF AN EVACUATION POLICY (Continued)

a wounded patient to duty increases rapidly until it reaches about 80 days, and thereafter at a slower, almost constant rate.

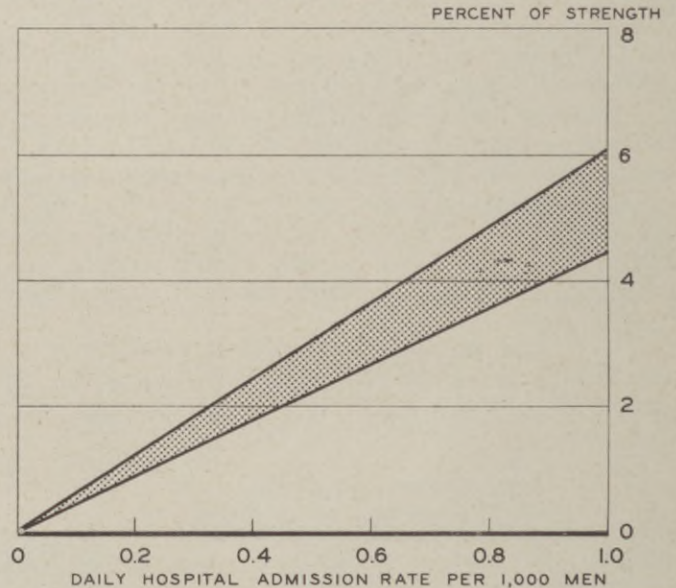
Although in theory all potential evacuees are to be evacuated as soon as transportable, this has seldom been achieved in practice because of lack of transportation or the absence of pressure upon the available bed supply. The various ways in which an evacuation schedule for battle casualties might be conceived is illustrated in the left-hand panel above for a 120-day evacuation policy. Each curve there gives, in cumulative form, the percent of the evacuees out of the theater by any day. A curve representing the Southwest Pacific Area experience up to September 1943 is included for comparison, although it hardly represents pursuit of a 120-day policy, 33 percent of the evacuees having been shipped after 120 days of treatment. It is evident that large savings can be made by the choice of appropriate schedules of evacuation. That labelled "conservative optimum", for example, involves an average

VARIATION IN LENGTH OF TREATMENT IN THEATER FOR BATTLE CASUALTIES, AND FIXED BEDS REQUIRED FOR VARIOUS HOSPITAL ADMISSION RATES

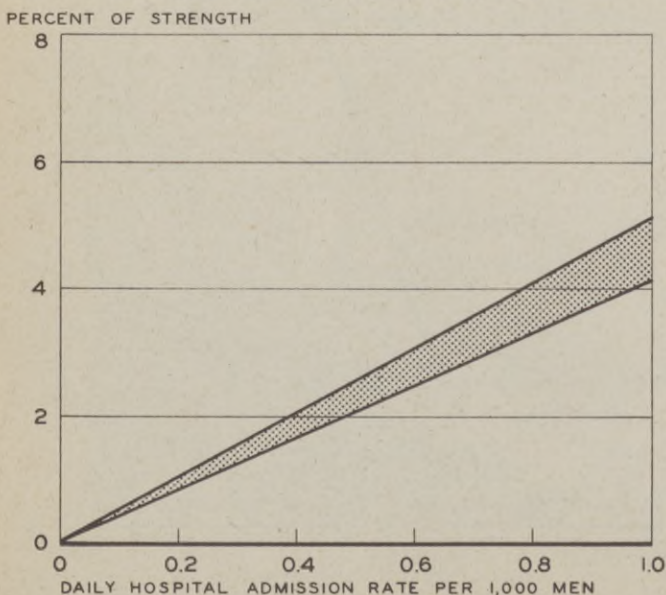
VARIATION IN LENGTH OF TREATMENT FOR DIFFERENT EVACUATION POLICIES



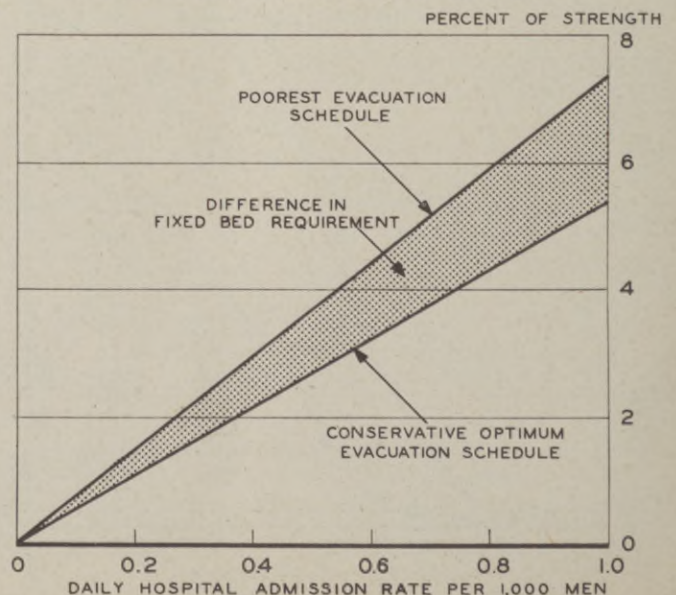
BEDS REQUIRED AS PERCENT OF STRENGTH 120-DAY EVACUATION POLICY



BEDS REQUIRED AS PERCENT OF STRENGTH 90-DAY EVACUATION POLICY



BEDS REQUIRED AS PERCENT OF STRENGTH 180-DAY EVACUATION POLICY



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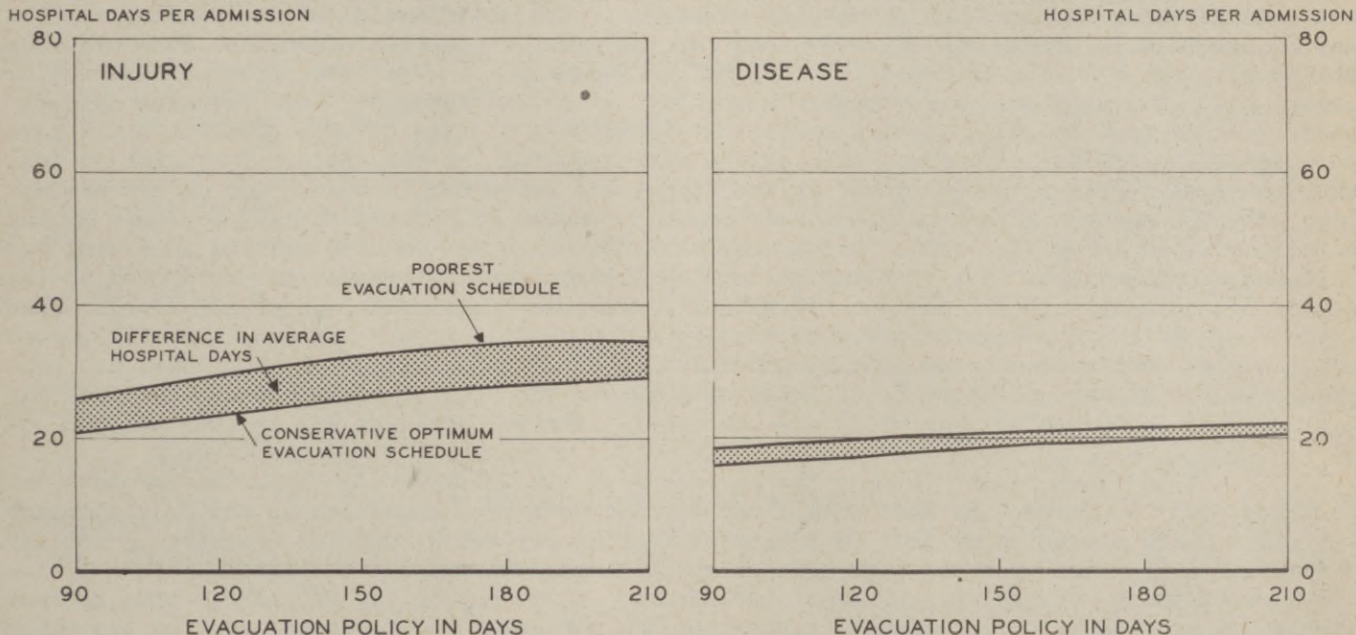
ELEMENTS OF AN EVACUATION POLICY (Continued)

stay of roughly 60 days, half that which obtains if all patients are held for 120 days prior to evacuation. Further definition is given to the "conservative optimum" in the panel on page 31 where it is shown in both cumulative and non-cumulative form. This curve represents a judgment of the point at which clinical determinations can be made as to probable length of hospital care required by the wounded and also a judgment of how quickly potential evacuees will be physically ready to travel. Somewhat more rapid evacuation to the Z/I can be visualized, but it is believed that the "conservative optimum" shown there will illustrate the point as to the importance of the choice of evacuation schedule. For disease and nonbattle injury a similar "conservative optimum" would definitely lie somewhat to the left of that for battle casualty. The poorest evacuation schedule is the vertical line at 120 days representing instantaneous evacuation at that point.

The charts on page 32 give the effects of evacuating wounded patients at the exi-

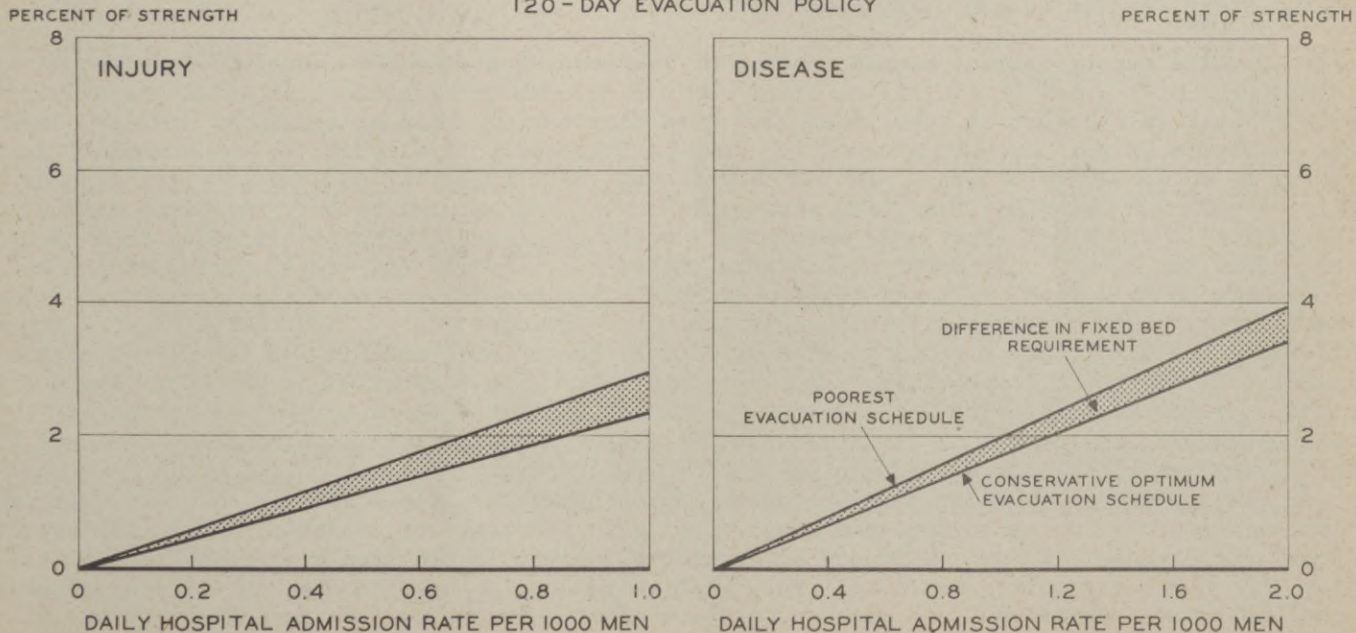
VARIATION IN LENGTH OF TREATMENT IN THEATER FOR NONBATTLE PATIENTS AND FIXED BEDS REQUIRED FOR VARIOUS HOSPITAL ADMISSION RATES

VARIATION IN LENGTH OF TREATMENT FOR DIFFERENT EVACUATION POLICIES



BEDS REQUIRED AS PERCENT OF STRENGTH

120-DAY EVACUATION POLICY



ELEMENTS OF AN EVACUATION POLICY (Continued)

ration of the length of the policy with the effects of early evacuation according to the approximate standard. The shaded band of the upper left-hand chart on page 32 represents, for all evacuation policies from 90 to 210 days, the variation in average days of hospitalization per admission which flows from the choices which may be made as to speed of evacuation. For battle casualties this band is of considerable height in comparison with the minimum obtainable under the "conservative optimum" or standard schedule of evacuation. It is of interest to note that if this chart were drawn as hospital days per patient returned to duty instead of per admission, it would be seen that the curve based upon the standard evacuation schedule has a minimum at 120 days. That is, a 120-day evacuation policy results in a smaller average length of treatment per wounded patient returned to duty than does any other evacuation policy using the standard evacuation schedule. This means that a 120-day policy returns to duty in the theater the largest number of battle casualties for a given expenditure of hospital days. Moreover, in terms of hospital days per patient returned to duty there is less variation among evacuation policies from 90 to 210 days pursued according to the standard schedule of evacuation than there is between the best and poorest evacuation schedules for any evacuation policy.

The full import of these facts may be better appreciated by the top right-hand panel showing, for a 120-day policy, the effects of slow and rapid evacuation upon the need for beds measured as a percent of theater strength. The top diagonal of the panel gives the bed requirement for any admission rate, and for the poorest possible evacuation schedule, one under which all evacuees are held 120 days before evacuation. The lower diagonal is similar except that the evacuees are removed according to the standard or "conservative optimum" schedule developed above. The two panels at the bottom of page 32 are comparable but pertain to 90 and 180-day policies. The curves were computed on the arbitrary assumption that 20 percent of hospital patients at any one time would be in mobile beds, and on the assumption that 20 percent of any needed fixed capacity should be allowed for dispersion. By way of illustration it may be noted that a hospital rate of .6 for wounded results in a need for 2.7 percent fixed beds if a 120-day policy is implemented by evacuation according to the standard schedule, and 3.7 percent if patients are held for an average of 120 days. When these computations are carried out for disease and nonbattle injury patients the differences between best and poorest evacuation schedules appear much smaller, although they are considerable for disease because of its high rate within the region of 1.0 to 2.0 hospital admissions per 1,000 men per day where most rates are likely to fall, as may be seen on page 33.

It is significant to note that, excluding the incompletely reported European experience, only 20 percent or less of all the wounded have been evacuated to the Z/I, although the first curve presented on page 29 indicates that 20 percent evacuation describes a 150-day evacuation policy and most theaters have ostensibly operated under a 120-day policy. If the curve shown there correctly represents the future, a 120-day policy should in time reflect itself in the evacuation of about 27 percent of the wounded. A 90-day policy, on the other hand, means that about 35 percent of the wounded are likely to require evacuation. For disease a 120-day policy means the evacuation of 4 percent, and for injury 9 percent, according to the North African Theater experience used here.

The purely formal considerations of the number of theater hospital days required to dispose of a group of admissions under various evacuation policies and schedules provide a guide only at the general level of policy determination, for the criterion of hospital days per admission or per patient returned to duty is frequently irrelevant at the moment of decision as to necessary action. In the larger sense of a logistic economy in which expenditures of men and materials and time represent "costs" and returns to duty represent "gains", it would be desirable to know more about the "cost" of sustaining hospitalization in a theater versus the "cost" of returning patients on the one hand and the "cost" of providing replacements on the other. It may be, for example, that the latter "cost" is far removed from the minimum "cost" of hospitalization per patient returned to duty, and that a broader consideration of the problem would yield a different "cost" determination in the light of the logistic effort spent in providing hospitalization versus that entailed in providing replacements. Unfortunately, the data are not presently available for a comparable discussion of this element of the problem. In any case, however, the basic relationships shown here apply and may be used in exploring the implication of various courses of action. For planning purposes the entire problem of using hospital capacity may be visualized as one of budgeting limited resources so as to derive maximum utility in the form of men returned to duty overseas. For example, if for one reason or another a theater is provided with more hospitalization than a 120-day policy would call for, but reduction in the capacity is not desired because of future operations, it may be wisest to adopt a longer policy for all except any patients who may need a special type of care available only in the Z/I. For inactive theaters it would appear desirable to provide hospitalization at a level permitting realization of the lowest average hospital days per patient returned to duty.

HOSPITALIZATION

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MEANS OF EVACUATION TO THE ZONE OF INTERIOR

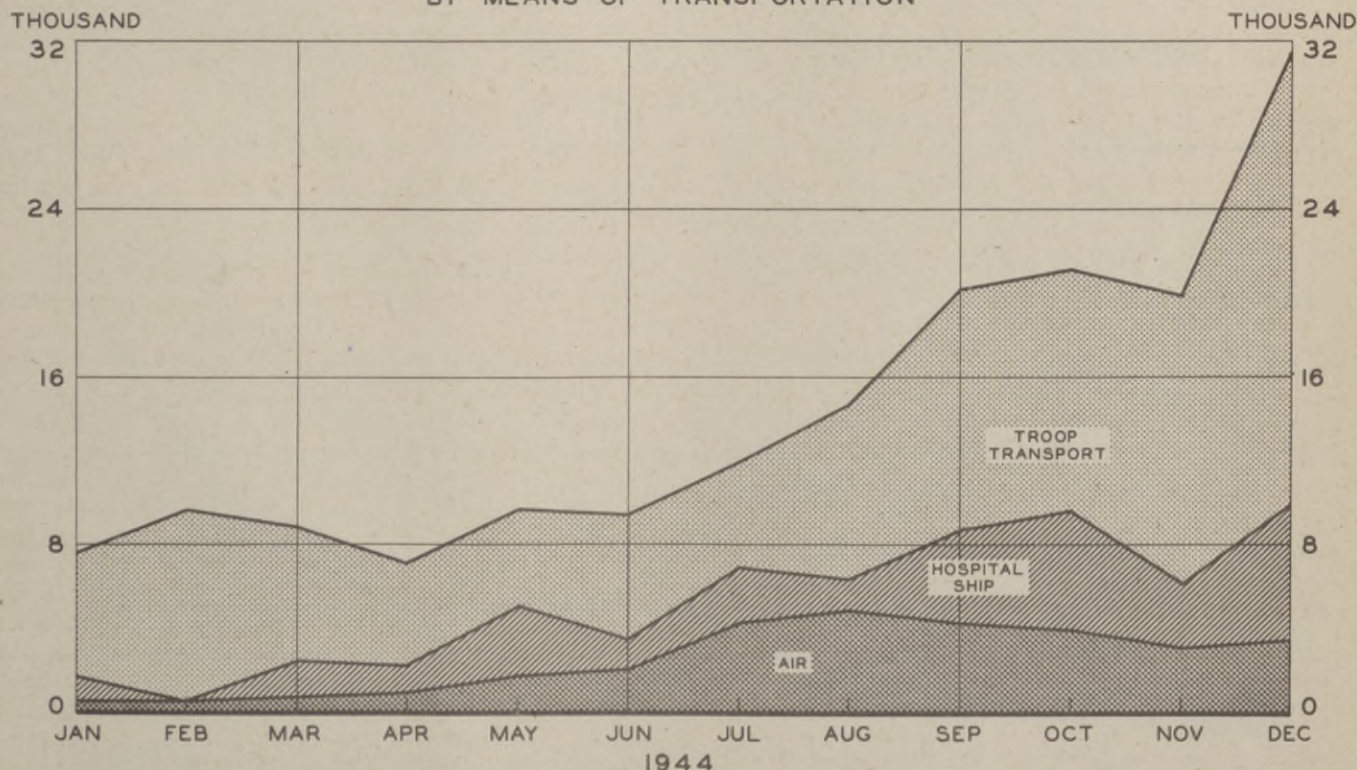
As the load of returning evacuees from overseas increases, the problem of providing sufficient means has grown serious. During December, when the entire problem was submitted to careful review by a joint Army-Navy committee, the prediction for the first half of 1945 was that as many as 28 notional hospital ships* might be short in one month and that the shortage would amount to 12 or more each month from March through June. The expected shortage should be materially alleviated by the subsequent approval of a recommendation for the immediate conversion of the equivalent of 11 notional ships.

It is established Army policy that the normal means for evacuating the helpless fraction of the sick and wounded shall be by convention-protected hospital ships. Except for security mental patients, air evacuation is probably equally good and tends increasingly to be used. Up to the present, however, the air lift has not exceeded 5,000 per month, and the 22 available hospital ships have a maximum carrying capacity of about 13,000 patients. Moreover, since the average turn-around time exceeds 30 days by a wide margin, and about ten ships are at present serving the needs for intra-theater evacuation, it is apparent that the greatest part of the total evacuee load must be borne by returning troop transports including the large, fast British liners loaned for the transportation of U. S. personnel.

The accompanying chart shows the extent to which each of the three means of evacuation contributed to the debarkation of patients during 1944. Although air emerged as a major factor after the invasion of France, it has failed to increase its lift and has even declined in recent months. In the case of the European Theater, from which the air lift has fallen off substantially from its summer peak, the change reflects no diminution in total air transport capacity to the U. S., for capacity has remained relatively constant no matter what index be used. It is also believed that the present supply of special medically trained personnel would support an increased air lift from the theater. The chart on the following page shows, in index form, the declining air lift from ETO in the face of continued air transport capacity and an increasing accumulation of evacuees. The decision as to the use of air transport capacity to the Z/I rests with theater priorities boards, which must arbitrate the competing claims for space (tonnage) in each theater.

Hospital ship lift has increased substantially as larger numbers of hospital ships became available (see HEALTH for July), but the great increase has occurred in troop trans-

NUMBER OF OVERSEAS PATIENTS DEBARKED AT U.S. PORTS
BY MEANS OF TRANSPORTATION



* A notional hospital ship is taken as one with a capacity of 500 patients and a speed of 12 knots.

SECRET

HOSPITALIZATION

SECRET

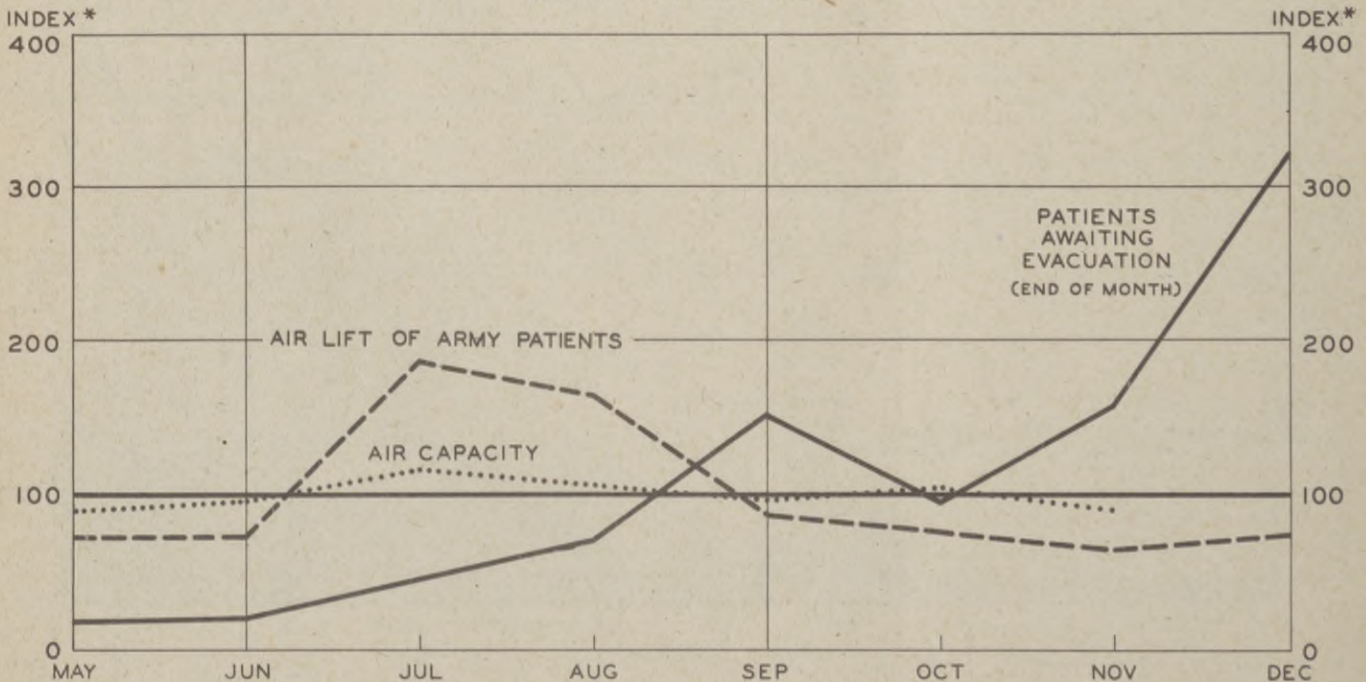
MEANS OF EVACUATION TO THE ZONE OF INTERIOR (Continued)

port lift. The patients needing evacuation are grouped according to their special needs. Ten thousand evacuees from the European Theater, for example, are likely to include roughly 400 strict or security mental patients, 4,200 hospital litter patients, 3,100 hospital ambulant patients, and 2,300 troop class or open ward mental patients. Although the total available capacity of returning transports may exceed the total patient lift required, because of special needs for various classes of patients, the total available capacity of returning transports can rarely be used on the one hand and certain patients cannot be accommodated on the other. Also, adequate returning space on troop transports presupposes a continuing build up or large-scale replacement of theater strength which is not true of all theaters at all times. After VE-Day in Europe, for example, redeployment might well require the allocation of virtually all transport space to high priority, combat personnel, leaving relatively little for patients, although returning patients are to have priority over duty personnel not required for military operations elsewhere overseas. For these reasons troop transports can by no means bear the entire brunt of evacuation to the U. S. from overseas theaters.

The spectacular increase in debarkation from troop transports during December resulted in large part from evacuation of greater numbers of patients by the European Theater and by the Southwest Pacific Area. For the European Theater the water-borne fraction jumped from 7,700 in November to 16,000 in December, and for the Southwest Pacific from 2,900 to 6,700. The European Theater was slow to make adequate use of troop transport capacity, but in December full advantage was taken of available capacity and the evacuation picture changed dramatically in consequence. In view of the present combat activity and the necessity for further offensive action in the theater, it would be expected that the need for replacements would guarantee a fairly large troop transport capacity for at least several months. During this period ETO can operate virtually with a 90-day evacuation policy if necessary to relieve the pressure upon its hospitalization capacity. It is anticipated, therefore, that the October estimates presented on page 24 will be exceeded by a substantial margin for at least a few months unless tactical activity is brought to a standstill by weather.

As was discussed in HEALTH for September, redeployment to the Pacific will necessarily entail the rapid liquidation of a sizeable hospital population. The larger this population is on VE-Day, the slower will be the redeployment of fixed hospitals. From this standpoint it will evidently hasten redeployment if the Z/I shoulders a greater burden of the interim load by accepting larger numbers of evacuees each month than would otherwise seem desirable. Only full use of troop transport capacity as long as it is available can materially implement such a policy.

COMPARISON OF PATIENT AIR LIFT AND TOTAL AIR CAPACITY EUROPEAN THEATER



* Average for period shown is taken as 100.

SECRET

HOSPITALIZATION

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HOSPITALIZATION IN THE ZONE OF INTERIOR

The most important influence in December on Zone of Interior hospitalization was the return to the United States of more than 30,000 patients evacuated from overseas theaters. This represents an all-time high in the number of monthly evacuees.

U. S. ARMY PATIENTS EVACUATED FROM OVERSEAS
July Through Dec. 1944

Month	Total U. S. Army Patients Evacuated *
July	10,566
August	13,970
September	16,630
October	17,437
November	17,852
December	31,350

*Excludes prisoner of war patients. Based on patients processed through debarkation hospitals.

This increasing evacuee flow explains the continued rise in the patients remaining in the general hospital system as shown by the following table:

PATIENTS REMAINING IN GENERAL HOSPITAL SYSTEM, 1944*

End of Month	Patients Remaining	Percent Change from Previous Month
January	61,094	
February	60,928	- 0.3
March	58,853	- 3.4
April	56,697	- 3.7
May	58,795	+ 3.7
June	59,579	+ 1.3
July	61,954	+ 4.0
August	69,367	+12.0
September	79,315	+14.3
October	87,282	+10.0
November	95,068	+ 8.9
December	108,640	+14.3

*Includes patients remaining under the jurisdiction of all general hospitals and all convalescent hospitals.

During December, a complete reestimate was undertaken of the present facilities and prospective patient loads in the general-convalescent hospital system for 1945. This reestimate was predicated upon the projected evacuee figures officially approved by the Joint Chiefs of Staff. Guided by these evacuee figures and an analysis of the duration of patient stay in the general hospital system, an estimate of the prospective maximum patient load was developed. This estimate indicates that an increase of approximately 80 percent in total patient load can be anticipated.

To provide for this markedly increased patient load, The Surgeon General reviewed the means available to him and such other means that might be made available by higher authority. At the present time there are approximately 100,000 vacant station and regional hospital beds. However, many of these beds are in station hospitals located on posts that have been put on a standby basis or have been declared surplus. Others are in hospitals where personnel have been withdrawn except for such numbers as are needed to care for the number of beds currently authorized. Thus, these beds could not be effectively used to meet the increased requirements for treating the seriously wounded evacuees.

SECRET

HOSPITALIZATION

SECRET

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

The scarcest factor confronting The Surgeon General in meeting his enlarged medical requirements is the limited number of Medical Corps specialists. Therefore, all plans for the effective treatment of an increased number of patients must be developed in terms of this salient fact. The vacant beds scattered throughout the station and regional hospitals are a non-effective asset because of the need to concentrate the patients where the limited number of specialists are currently concentrated, which is at the general hospitals.

The problem of expansion, therefore, is one of enlarged patient capacity at general hospitals and to a lesser degree at convalescent hospitals to which patients can be sent from general hospitals after they are no longer in need of specialists' care.

The expansion of facilities at general hospitals to cope with the anticipated requirements was, therefore, planned as follows:

a. The absorption of all adjacent convalescent facilities currently available at general hospitals into the general hospital patient capacity with the intent of sending true convalescent patients to the convalescent hospitals and using these adjunct facilities for ambulant patients who must remain at general hospitals but who are no longer bed patients and can, therefore, be housed in other than ward beds. This approach resulted in a net increase of approximately 10,000 patient capacity.

b. A considerable number of general hospitals had T/O housing which had been erected to facilitate the training of numbered general hospitals prior to transfer overseas. By removing the enlisted detachment from the hospital barracks and housing them in these T/O units, patient capacity in the hospital buildings proper could be increased proportionately. This resulted in a gain of approximately 9,500.

c. A considerable number of general hospitals are located on posts which facilitated the relocation of the enlisted detachment and the securing of additional barracks spaces for ambulant patients. The utilization of this post housing permitted the expansion of patient capacity by approximately 8,000.

d. Where T/O or post housing was not available, The Surgeon General recommended, and the Commanding General of the Army Service Forces approved, the immediate erection of housing to permit the transfer of the enlisted detachment from hospital buildings, thereby increasing patient capacity. This represented a gain of approximately 8,000.

e. A reconsideration of the facilities used for debarkation purposes was the basis for a further gain of 5,000 patient capacity for definitive treatment.

f. Finally, recommendations have gone forward to General Staff to designate four station hospitals as temporary general hospitals. When approved, this will represent a further gain in patient capacity of approximately 9,000.

In addition to the foregoing expansion program for general hospitals proper, it was estimated that an additional authorization of 20,500 convalescent beds was required, resulting in a total requirement of convalescent beds of 50,000. On the basis of the best experience to date, it is not feasible to increase the ratio of convalescent to ward beds by more than one to three. This is particularly true at this time and during the coming months when a large part of the increase in the patient population in general hospitals will represent the seriously wounded evacuated from overseas. The expansion program was guided by this fact.

This program can be summarized as follows:

<u>Source</u>	<u>Additional Patient Capacity</u>
Conversion of Convalescent Annexes, etc.	10,000
Utilization of T/O Housing	9,500
Conversion of Post Housing	8,000
Prefabricated Housing	8,000
Debarkation Aid	5,000
Conversion of Station Hospitals	<u>9,000</u>
Total Gain - General Hospitals	49,500
Total Gain - Convalescent Hospitals	20,500

RESTRICTED

SECRET

HOSPITALIZATION

SECRET

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

As shown by the summary table, there are substantial deficits in personnel required to staff the presently authorized general and convalescent hospital program. The expansion now under way will greatly increase the requirements of personnel. Approximately 9,000 nurses, 6,500 other officers, and 50,000 enlisted and civilian personnel will be required to cover existing deficits and to permit the staffing of the expanded facilities. Included in the figures are such additional personnel as will be needed to take care of patients on the new hospital ships and the expanded hospital train program.

Current Status - General Hospital System

The distribution of patients in the general hospitals by service commands at the end of December 1944 indicates that the previously existing large number of vacant beds in the southern and western parts of the United States is rapidly disappearing. Actually, in all but one of the service commands, patients remaining represent 80 percent or more of the total treatment beds available with no allowance made for dispersion. Because of the increasing shortage of general hospital beds, The Surgeon General is now operating with no dispersion whatever in general hospitals except that secured from temporary bed vacancies resulting from patients on sick leave or furlough.

PATIENTS REMAINING IN GENERAL HOSPITALS PROPER End of December 1944

	Number of Hospitals	Beds Available for Definitive Treatment*	Patients Remaining**	
			Number	Percent of Available Beds
All General Hospitals - Total	61	108,190	94,108	87.0
Service Commands				
First	2	4,140	4,432	107.1
Second	4	10,460	12,223	116.9
Third	3	5,592	5,648	101.0
Fourth	9	19,769	15,771	79.8
Fifth	8	12,741	13,044	102.4
Sixth	4	7,141	6,263	87.7
Seventh	4	8,928	7,229	81.0
Eighth	9	19,060	15,124	79.3
Ninth	10	18,302	12,441	68.0
The Surgeon General (Walter Reed)	1	2,057	1,933	94.0

* Excludes debarkation beds.

** Excludes 10,251 patients occupying convalescent spaces at general hospitals and 4,281 in convalescent hospitals. The total patient census in the general-convalescent hospital system is 108,640.

Current Status - Station and Regional Hospitalization

There was a decline in the number of patients remaining in station and regional hospitals during the month of December as compared to November which reflected, on the one hand, declining troop strength and, on the other, the noticeable effort every hospital makes to discharge patients prior to the Christmas holidays.

Until the new reporting mechanism is introduced, the problem of authorization of station and regional hospital beds cannot be adequately controlled. On the basis of data available to the Surgeon General's Office, authorizations totaled approximately 74,000 station and regional hospital beds. The effective beds are 57,000, which indicates almost 95 percent utilization based upon patients remaining. The details are presented in the following table:

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

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

Command	Authorized Beds	Effective Beds*	Patients Remaining		Beds Occupied**
			Number	Percent of Effective Beds	
Army Service Forces - Total	74,178	57,981	55,613	94.5#	54,372
Service Commands - Total	66,818	52,093	52,047	98.4#	50,836
Station Hospitals	34,310	26,087	25,741	95.6#	25,533
First	2,220##	416	931###	29.6#	931
Second	2,014	1,611	1,003	62.3	998
Third	2,336	1,869	1,721	92.1	1,695
Fourth	5,280	4,224	4,780	113.2	4,732
Fifth	958	766	914	119.3	904
Sixth	1,096	877	716	81.6	712
Seventh	2,139	1,711	1,008	58.9	996
Eighth	12,340	9,872	10,164	103.0	10,112
Ninth	5,134	4,107	3,953	96.3	3,902
MDW	793	634	551	86.9	551
Regional Hospitals	32,508	26,006	26,306	101.2	25,303
First	550	440	313	71.1	290
Second	1,034	827	622	75.2	587
Third	2,850	2,280	2,662	116.8	2,571
Fourth	12,650	10,120	9,583	94.7	9,289
Fifth	1,574	1,259	1,110	88.2	1,091
Seventh	3,100	2,480	2,848	114.8	2,725
Eighth	7,200	5,760	6,167	107.1	5,852
Ninth	3,550	2,840	3,001	105.7	2,898
Chief of Transportation - Total	7,360	5,888	3,566	55.2	3,536

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

** 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.

Ratios based on data excluding Camp Edwards Station Hospital.

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

Includes 808 patients remaining in Camp Edwards Station Hospital for which no distinction between patients receiving station hospital care and patients in triage is available.

As far as the personnel situation is concerned, a general balance now exists against authorized beds except for nurses which continue to show a deficit of approximately 1,200.

RESTRICTED

HOSPITALIZATION

RESTRICTED

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

The following table summarizes the bed, patient, and personnel picture in the entire Zone of Interior.

SUMMARY ASF HOSPITALIZATION IN THE ZONE OF INTERIOR* END OF DECEMBER

Type of Hospital	Beds or Spaces		Patients Remaining		Personnel Shortages***		
	Author- ized	Effec- tive**	Number	Percent of Effective Beds	MC	ANC	Total
Total	210,875	189,783	160,687	84.2#	405	4,711	22,841
Station and Regional	66,818	52,093	52,047	98.4#	-141	1,261	893
General	114,557	108,190	94,108	87.0	233	3,123	14,093
Convalescent	29,500	29,500	14,532	49.3	313	327	7,855

* Excludes station hospitals under the Chief of Transportation.

** Effective beds exclude debarkation beds and an allowance for dispersion of 20 percent for station and regional hospitals. No dispersion allowance is made for general or convalescent hospitals.

*** The shortages make no allowance for availability of 2,300 protected personnel of approximately 300 Medical Corps officers and 2,000 corpsmen since this personnel must be supervised by American medical officers and, therefore, is not equivalent to corresponding categories of American personnel. The minus sign indicates an overage. Action is being taken to reassign these officers elsewhere.

Ratio adjusted for patients in triage at Camp Edwards.

RESTRICTED

SECRET**MORTALITY****ACCIDENTAL DEATHS IN THE SOUTH PACIFIC**

The South Pacific Base Command has recently completed an excellent study of the causative agents involved in all nonbattle injury deaths occurring in the area between September 1942 and August 1944. Records of deaths were taken from The Adjutant General's casualty and evacuation statistics and information as to causes was supplemented by investigation at the various bases. This study represents further evidence of the increasing awareness on the part of overseas commands of the tremendous toll in manpower exacted by nonbattle injuries, exemplified by the recent institution of accident prevention programs in both the Southwest Pacific Area and the Mediterranean Theater (see HEALTH for July and September).

Nonbattle deaths have occurred in the South Pacific area at a rate of 2.7 per thousand strength per year, slightly lower than the average for all overseas theaters. The following table gives death rates since the opening of operations in the area in comparison with those for all overseas troops from December 1941 through August 1944.

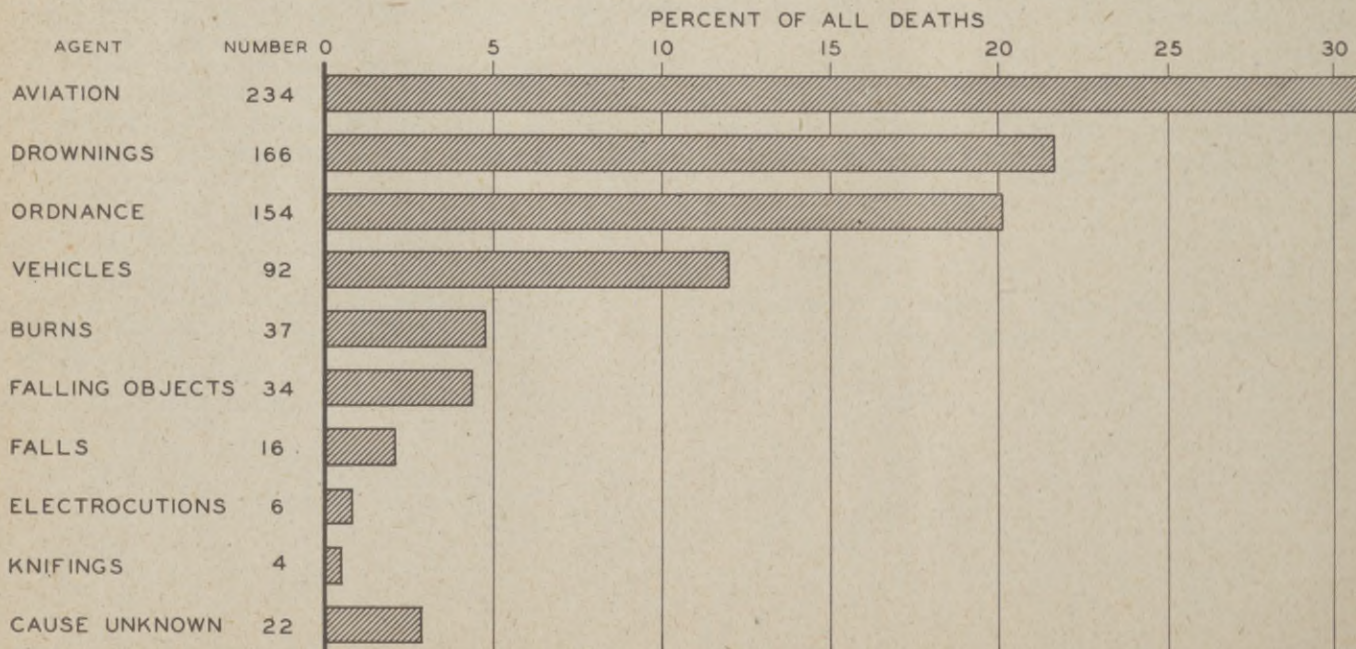
DEATHS PER 1,000 STRENGTH PER YEAR
SOUTH PACIFIC AND ALL OVERSEAS COMMANDS

Cause	South Pacific September 1942- August 1944	Total Overseas World War II through August 1944
All Causes	11.9	20.1
Disease	.6	.5
Nonbattle Injury	2.7	3.1
Battle Casualty	8.6	16.5

During the two year period studied, 23 percent of all deaths in the area were ascribed to nonbattle injury. When suicides, 6.2 percent of these, are excluded, the remaining 765 nonbattle injury deaths are directly attributable to accidents. These deaths are classi-

ACCIDENTAL DEATHS BY CAUSATIVE AGENT

SOUTH PACIFIC AREA, SEPTEMBER 1942 THROUGH AUGUST 1944

**SECRET**

MORTALITY

CONFIDENTIAL

ACCIDENTAL DEATHS IN THE SOUTH PACIFIC (Continued)

fied as to causative agent in the accompanying chart.

When these data are compared in broad groups with material reported in the South-west Pacific and North African studies, little similarity is observed between the three distributions other than that aviation accidents represent by far the largest proportion of each. However, some of the differences may be ascribed to varying methods of classification. Others, such as the greater frequency of drownings in the South Pacific, may be quite valid. A more detailed breakdown of the 234 deaths from aviation accidents provides the following classification:

	Percent
Planes missing from routine flights and never located	25.3
Planes crashing into sea	19.2
Planes hitting tree-tops and crashing	5.1
Collision of planes in air	4.7
Field (ground) accidents	3.4
Internal explosions and fires	3.4
Post-crash injuries and burns	3.0
Miscellaneous and unspecified crashes	<u>35.9</u>
Total	100.0

Of the 166 deaths from drowning, 55 percent occurred in the prosecution of recreational and work details, 28 percent involved capsizing crafts, and the remainder are attributed to miscellaneous and unknown causes.

The 154 ordnance accidents include those caused by shell explosions, booby traps, and mines as well as by firearms. Gunshot wounds (pistol, rifle and machine gun) accounted for 45 percent of these accidents. Shell explosions and shorts contributed 31 deaths, or 20 percent of the ordnance total, artillery being responsible in 15, mortar shells in 12, and hand grenades in four. Land mines and booby traps were responsible for four and one percent respectively. Nearly half of the vehicular accidents involved passenger cars and another 28 percent are ascribed to trucks. Five percent were connected with railways, and tractors and bulldozers each figured in two percent of the vehicular deaths. Thirty percent of the deaths from burns are attributed to gasoline stoves, but disposal fires and gasoline drum explosions account for eight percent each, most of the remainder being unknown as to cause.

The great majority of fatal injuries attributable to falling objects involved trees and tree limbs. Falls, reported as the causative agent in 16 deaths, were usually from vehicles or the result of dives into shallow water. A somewhat lesser number of deaths resulted from falls from ships, horses, trees, or telephone poles, and the like. In six accidental electrocutions the causative factors are given as contact with high voltage wire and defective wiring, or lightning. Twenty-two deaths are included in the total accident group under cause unknown because of the pathology or nature of death, but information concerning the causes is not available.

MISCELLANEOUS

CONFIDENTIAL

OFFICERS RETIREMENTS AND SEPARATIONS FOR DISABILITY

During 1942 about 1,350 officers were retired or separated for physical disability. In 1943 the number increased to nearly 4,300 and for 1944 it is estimated at about 9,000. Because on the average some nine months elapse between hospitalization of a battle casualty and the time he is retired or separated for disability, the battle casualties sustained in the invasion of France and the Lowlands have not appeared in sizeable numbers among the 1944 officer retirements or separations for disability. The more recent battle casualties will first begin to come up before retiring boards in the latter part of 1945. It is estimated that some 13,500 officers, or even more, will be retired or separated for disability during 1945.

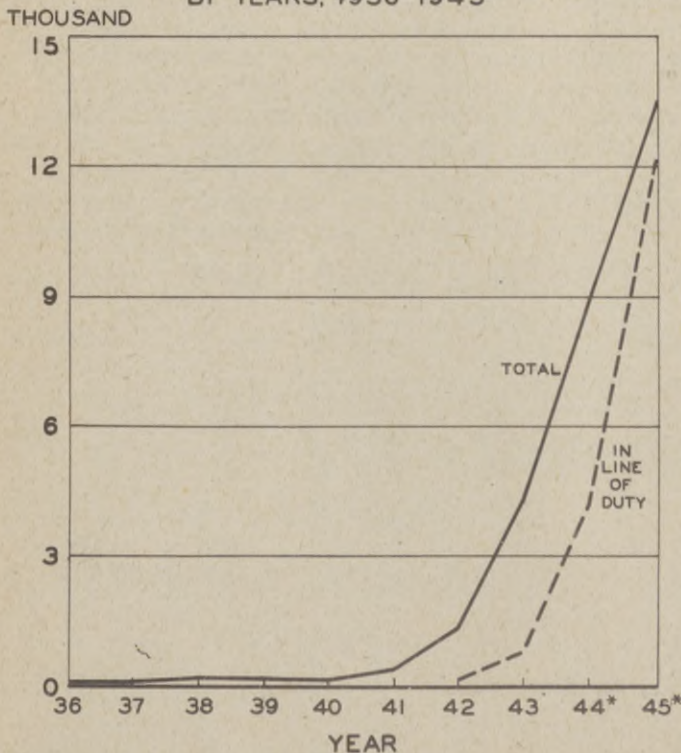
The present provisions for retirement pay and the large numbers of officers coming up for retirement or separation present a serious problem. At present an officer retired or separated for disability incident to service is entitled to 75 percent of the pay of the rank upon which he is retired, without regard to the degree of his disability for civilian pursuits; and in the case of officers of the Army of the United States, without provision for periodically reviewing the case to see whether recovery has ensued. While in the case of AUS officers the proportion of disabilities incident to service was at first quite small (eight percent in 1942 and 18 percent in 1943), liberalizations in the definition of line of duty (WD Circulars 205 and 458, 1944) have resulted in about two-thirds of all officer disabilities currently under consideration being found to be incident to service. It is likely that this proportion will be even higher in the future, partly because with increasing length of service, fewer disabilities can be traced to conditions existing prior to entry into service.

The Surgeon General has accordingly recommended that the amount of retirement pay be graded to conform to the extent of disability estimated for civilian life, and that provision be made for reviewing the degree of disability at stated intervals after retirement for purposes of adjustment of pay where indicated by a changed degree of disability.

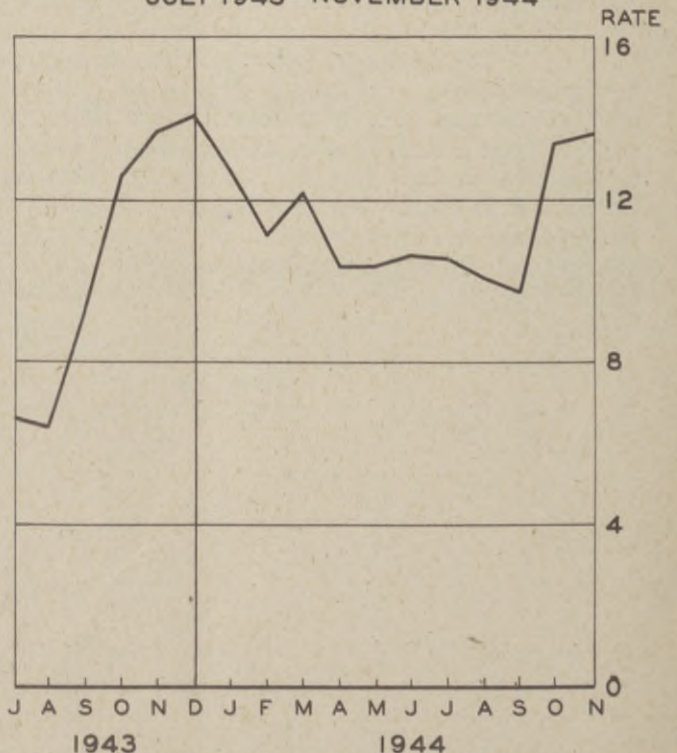
The distribution of officer disabilities by cause is in most respects similar to that of enlisted men, except that the older age composition of officers is reflected in a higher proportion of disabilities from cardiovascular diseases, arthritis, gastric and duodenal ulcers, and tuberculosis.

OFFICER SEPARATIONS FOR DISABILITY

NUMBER OF SEPARATIONS BY YEARS, 1936-1945



SEPARATIONS PER THOUSAND MEN PER YEAR JULY 1943-NOVEMBER 1944



* Estimated

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