MONTHLY PROGRESS REPORT ★ SECTION 7

Director
General Medicine
Trop. Dis. Treatment
Tuberculosis
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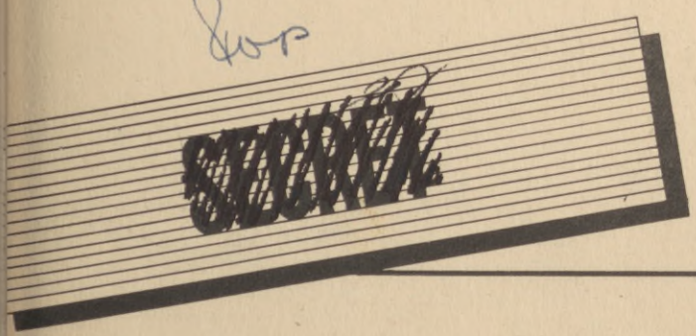
HEALTH



31 MAY 1945

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ARMY SERVICE FORCES ★ WAR DEPARTMENT

REPORTS CONTROL SYMBOL
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HEALTH

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CONTENTS

SUMMARY

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR Body armor has caused substantial saving of lives among bomber crews. The Navy has issued armored life jackets and other clothing and both Army and Marines are experimenting with body armor for ground troops. It is estimated that 12 percent of the deaths and eight percent of the nonfatal wounds among ground force combat units could be prevented by the adoption and use of body armor. The Southwest Pacific has been requested to cooperate in combat trials of an armored vest which can be placed in quantity production if found practical. (See pages 2 to 7).

NONEFFECTIVE RATES, U.S. AND OVERSEAS During April, the overseas noneffective rate for all causes declined for the third successive month. Continuing reduction in the rate for the European theater more than offset increases in the Pacific. The U.S. rate (including evacuees) rose to 97 per thousand strength, almost three times the comparable rate for May 1944, and three times the U.S. rate based on Z/I patients only. (See pages 8 to 10.)

DISEASE, INJURY, AND BATTLE CASUALTY ADMISSIONS Overseas total admission rates rose in April as a result of offensive action in the Pacific and the final push in the Mediterranean. Separation of total admission rates for the major theaters into their major components shows great variation among theaters reflecting tactical and environmental differences. (See pages 11 to 13.)

CAMPAIGN CASUALTIES The various campaigns and lesser operations of the war are reviewed from the standpoint of number of casualties and ratios to strength determined from preliminary data in operation reports. Enemy and U.S. casualties are compared. (See pages 14 to 20.)

NEUROPSYCHIATRIC ADMISSIONS AND NONEFFECTIVES OVERSEAS A comparison of theater admission and noneffectives rates indicates that the noneffective population apparently does not increase proportionately with admissions during periods of tactical activity. Recent experience in the Pacific suggests that, as in the European war zone, the neuropsychiatric admission rates may be expected to rise and fall with the intensity of future tactical activity. During February the Southwest Pacific Area reported the highest rate in its recorded history. (See pages 21 and 22.)

BATTLE CASUALTIES BY ARM OR SERVICE Battle casualties of all types and for all overseas theaters total 113 per 1,000 strength per year through the end of March. The variations among the arms and services as well as among the active theaters is very large, the highest theater rates obtaining in the European Theater and the highest rates for any arm being those for the Infantry. (See pages 25 to 27.)

HOSPITALIZATION OVERSEAS The decline in bed occupancy in the European Theater continues to be the outstanding fact in the bed situation overseas. On 25 May, fixed bed occupancy was only 3.2 percent of strength, the lowest point since June 1944. Mobile bed occupancy continued to rise in the Southwest Pacific as a result of combat in the Philippines. Redeployment of medical units from the European and Mediterranean Theaters has already begun. (See pages 30 to 34.)

EVACUATION FROM OVERSEAS During May 56,400 Army patients were debarked in the Z/I, the peak experience of the war. Nineteen percent of these patients arrived by air. The volume of evacuation is expected to decline in coming months with the diminution of evacuation from Europe. Evacuation from the Southwest Pacific also was the heaviest in the history of the theater, 11,100 patients in all. The tremendous volume of evacuation during the past six months has been possible only through the extensive use of troop transports, although both hospital ships and air have played an essential role. Air evacuation has more than doubled since the first of the year. (See pages 35 to 38.)

HOSPITALIZATION IN THE ZONE OF THE INTERIOR The expansion program of the general hospitals proposed in January was substantially completed on schedule during May. Patients remaining in general hospitals proper numbered 171,000 at the end of May, and occupied beds totaled 123,000 in comparison with 163,000 capacity. The capacity of convalescent hospitals advanced slightly to 48,500 at the end of May, while the number of patients increased to 49,800, of whom 35,800 were occupying beds. Plans are being made to reduce station hospital loads through a superior utilization of dispensary and outpatient facilities. Personnel shortages in the general hospital system still remain but action has been taken to expedite the return of 1,000 Medical Corps officers from the European Theater ahead of their units. (See pages 40 to 45.)

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR

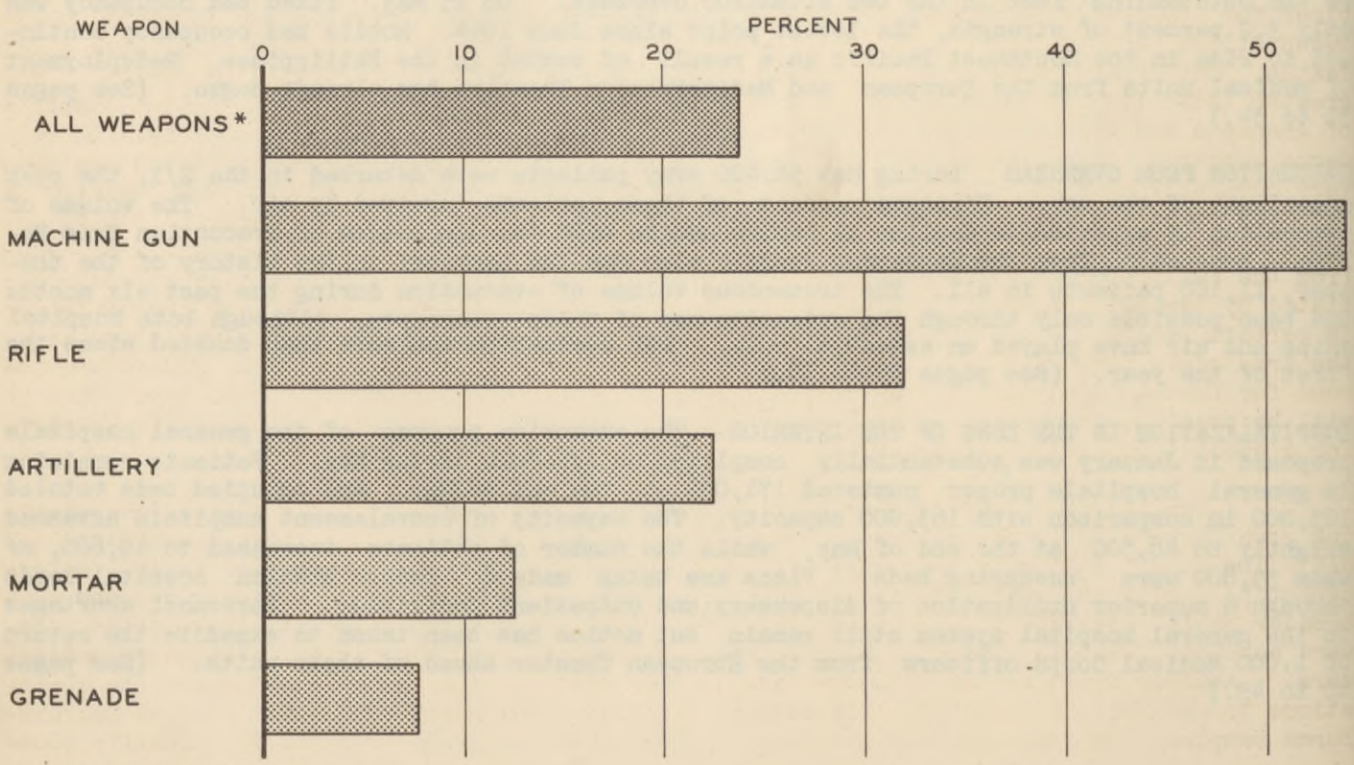
Reports from Iwo Jima and Okinawa that the Japanese have made unprecedented use of mortar and artillery fire underscore the significance of wound ballistic data in relation to the effectiveness of weapons and lend added point to the growing War Department interest in body armor for ground troops. The determination of causative agent is difficult and unreliable at best, and is seldom attempted systematically for the killed. If weapons are to be evaluated, however, it is important to know not only the frequency with which their missiles strike human targets but also with what effect. Observations upon the killed have not yet become available, making it impossible to specify the European experience with any precision, but it is believed that as high as 70 to 80 percent of all hits in the European campaigns were caused by bomb, shell, and mine fragments and only 20 to 30 percent by bullets. With certain exceptions, the Pacific war has thus far exposed U. S. troops to rifle and machine-gun fire even more than to high-explosive fragments. For example, XXIV Corps analyses of its part in the Leyte operation provide the following data on the relative importance of broad groups of weapons:

PERCENTAGE OF CASUALTIES CAUSED BY BROAD CLASSES OF WEAPONS
XXIV CORPS ON LEYTE

Class of Weapon	Total	Killed	Wounded
TOTAL	100.0	100.0	100.0
Rifle, Machine Gun	58.0	78.2	53.2
High Explosive Fragments	38.6	20.2	43.1
Other	3.4	1.6	3.7

Such observations are admittedly approximate unless special Medical and Ordnance ballistic teams are utilized on the field of battle, but they serve to illustrate the relative importance of rifle and machine-gun fire. Two special studies of entirely different operations, one of the defensive phase of Bougainville and the other of observations made on New Georgia and in Burma jungle operations behind Japanese lines, provide more accurate and quite con-

PERCENT DYING AMONG MEN HIT BY VARIOUS WEAPONS
BOUGAINVILLE, NEW GEORGIA, AND BURMA CAMPAIGNS



* Includes a few hit by other weapons.

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR (Continued)

trasting results, as may be seen from the table below. These studies exclude lightly wounded returned to duty from aid posts.

PERCENTAGE DISTRIBUTION OF HITS BY CAUSATIVE AGENT, MEDICALLY STUDIED SERIES

Causative Agent	Bougainville (Defensive)			New Georgia and Burma (Offensive)		
	Total	Killed	Wounded	Total	Killed	Wounded
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Mortar	38.8	18.5	43.2	13.9	9.1	15.2
Rifle	24.9	38.1	22.0	26.0	24.2	26.5
Grenade	12.5	3.4	14.5	12.2	4.6	14.4
Artillery	10.8	9.7	11.0	8.4	3.0	10.0
Machine Gun	8.5	22.8	5.4	36.8	56.1	31.3
Other	4.5	7.5	3.9	2.7	3.0	2.6
Number of Men	1,788	320	1,468	296	66	230

An interesting feature reported in these two small but intensively studied series is the information they provide on the frequency with which U. S. troops may be hit by their own weapons. The two samples are almost identical with respect to the proportions of casualties caused by U. S. weapons, and jointly reveal that 15 percent of those killed, 12 percent of those wounded, and 13 percent of all casualties were hit by U. S. weapons.

As is readily suggested by the tables above, the lethality of the various weapons differs greatly. For example, in the Leyte data approximately 26 percent of those hit by bullets were killed, 10 percent of those hit by fragments, and nine percent of those hit by other weapons. The suggested lethality of fragments may well be understated, however, for there is evidence that the Leyte count of killed may be incomplete. More reliable, although based on smaller samples, are the figures from the two special studies, which have been combined for presentation in graphic form on the preceding page. Because the distinction between killed and died of wounds is often artificial the lethality percentages give total deaths, not merely those killed outright, among all men hit by the particular weapon. The greater lethality of the machine-gun and the rifle is noteworthy, as is the lower lethality of grenades and both artillery and mortar shells in this sample. Not all the available evidence supports this finding, but it comes out of the only series of the war which has been very carefully studied. It would be highly desirable to have additional competent studies of this important subject. It would seem that much of the controversy with respect to body armor and the present lack of trenchant knowledge of the larger field of wound ballistics stem from the failure to appreciate the military need for systematic studies. A few studies initiated by theater surgeons at the request of The Surgeon General, fragmentary and deficient in certain respects, are the most valuable and indeed the only data of this kind compiled by the Army since the Civil War. Increased military interest in this subject emphasizes the need for further analysis, but by specially trained investigative units. It is hoped that it will be possible to obtain approval of a T/O and E recently submitted to the Pacific theaters for a special Casualty Detachment.

The tactical effectiveness of weapons is seen not only in their killing and wounding power but also in the degree to which they expose their users, their likelihood of achieving hits, and their emotional effects upon troops. Although the latter three factors cannot be evaluated statistically at this juncture, it is possible to evaluate weapons on a broader basis than their sheer lethality. One such index is the immediate loss to the forward echelon, that is, the killed and those evacuated from the forward echelon of medical care. Another index is the ultimate loss to the theater, that is, the deaths and the evacuations to the Zone of Interior. The weapons studied in the Bougainville and the New Georgia-Burma samples are evaluated with respect to these two indices as well as on lethality alone

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR (Continued)

in the table below. For the Bougainville data the term "rear" applies to all supporting areas to the rear of the island of Bougainville. The wounded who returned to duty from hospital without evacuation to the rear were, for the most part, patients treated in augmented clearing stations employed as hospitals. The other data were classified so as to be as comparable as possible.

RELATIVE EFFECTIVENESS OF WEAPONS
BOUGAINVILLE, NEW GEORGIA, AND BURMA DATA

Weapon	Percentage of Those Hit		
	Who Died	Who Died or Were Evacuated to Rear	Who Died or Were Evacuated to Z/I
ALL a/	23.8	63.5	41.1
Machine Gun	54.0	88.1	73.2
Rifle	32.0	75.9	51.5
Artillery	22.5	57.8	36.7
Mortar	12.5	54.0	29.4
Grenade	7.7	42.7	23.5

a/ Includes small number of casualties produced by other weapons.

The lethality of hits generally depends very directly upon the body region struck. The head and trunk appear to be highly vulnerable, and in somewhat similar degree, according to the samples tabulated below. Although men struck in the abdomen are not so often killed outright as men struck in the head or chest, so many of them later die of wounds that the total fatality is commensurate with that for head and chest. These vital areas must be protected if significant reduction in fatality is to be achieved. However, the differences among weapons with respect to lethality are apparently only very little associated with any tendency for particular weapons to strike vital areas with greater than average frequency.

FATALITY OF HITS BY BODY REGION

Region	Percentage Hit Who Were Killed in Action			Percentage Hit Who Were Killed or Who Died of Wounds	
	Leyte	Anzio	Pacific	Anzio	Pacific
TOTAL	20	22	19	27	24
Head and Neck	43	45	34	50	38
Chest	42	42	40	48	49
Abdomen	27	34	20	51	47
Lower Extremities	2	3	2	4	4
Upper Extremities	3		0		1
Number Hit	4,100	3,800	2,100	3,800	2,100

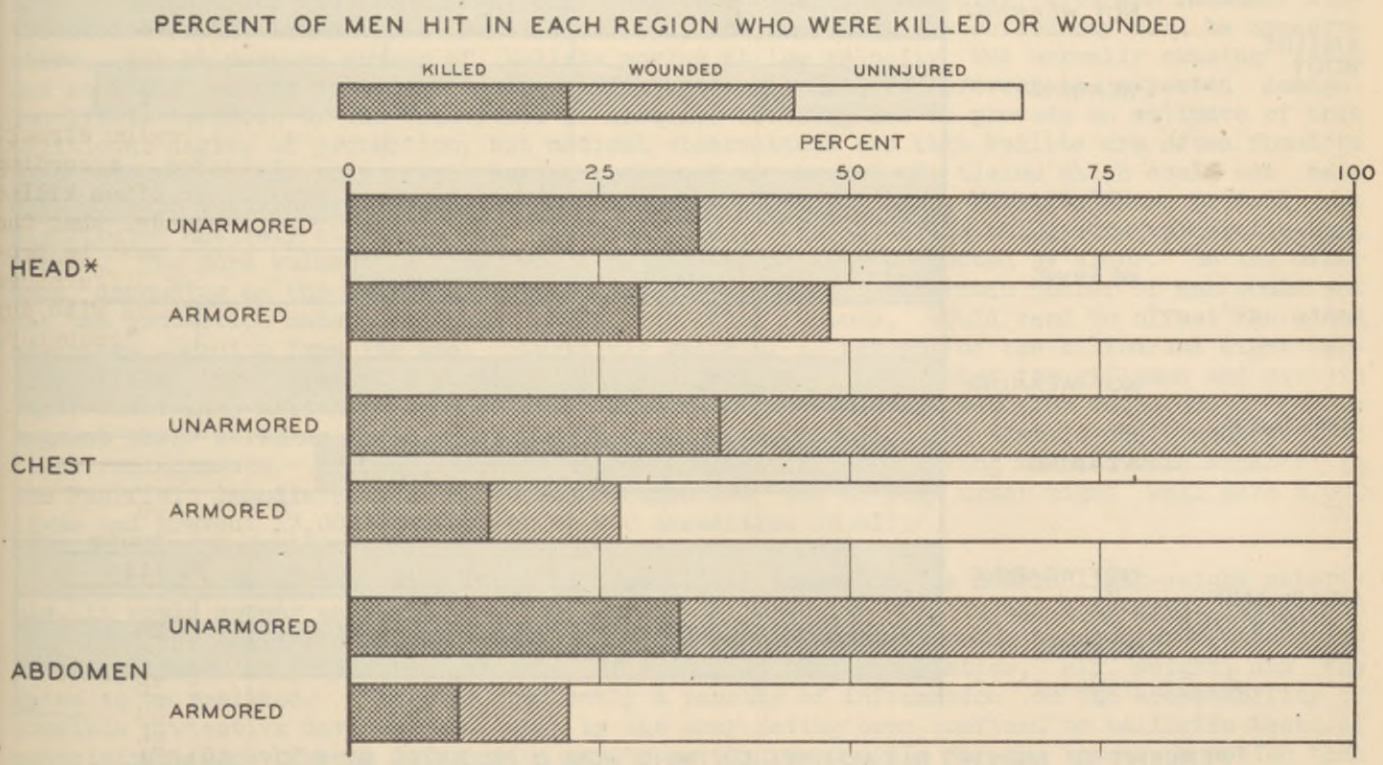
For example, if the comparison be restricted to head hits in Bougainville, the lethality percentages are 77 for the machine gun, 54 for the rifle, 35 for artillery, 17 for the mortar, and 7 for the grenade. The differences may be attributed primarily to the characteristics of the missiles involved, and to the fact that machine gun hits are often multiple hits. In this series machine gun hits occurred at close range. The initial velocity of high-explosive fragments may often exceed the initial velocity of bullets, but fragments lose their velocity so quickly that by the time they strike they are usually considered as "low velocity" fragments in contrast to bullets. Both machine-gun and rifle bullets also cause a high incidence of bone-fracture when striking extremities. It would be desirable to know more about the characteristics of the bullets and fragments at the time of wounding.

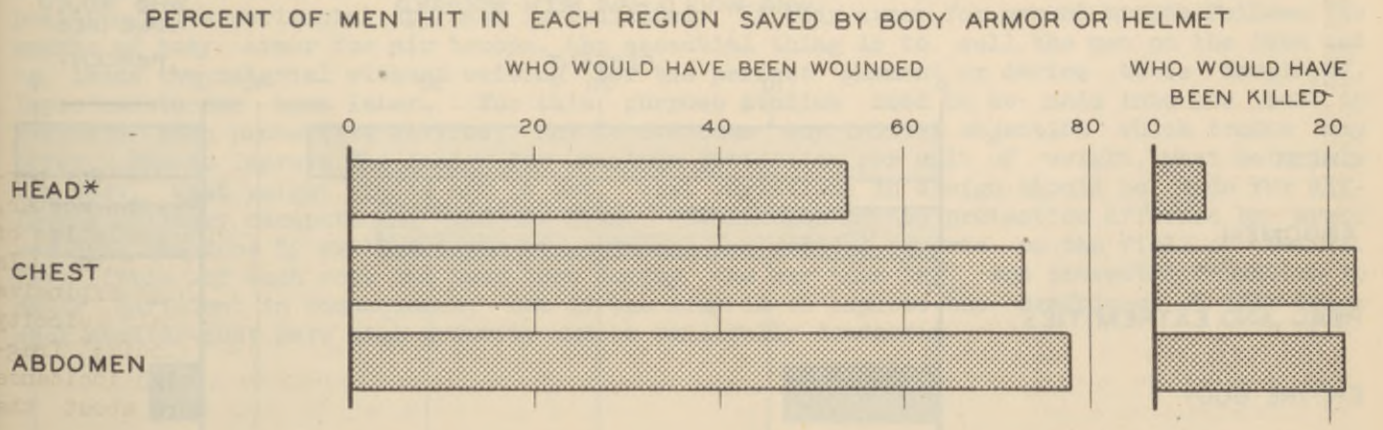
It is because fragments are often small, generally strike with low velocity, and

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR (Continued)

are numerically so important a cause of hits that protection by means of modern armored helmets, vests, and the like offers considerable promise. The number of deaths from hits in the head would be even larger were it not for the helmet. Despite the helmet, however, the number is so large as to underscore the desirability of even small improvements in the design and ballistic properties of the helmet. Bomber crews have made good use of the armored vest for flyers, and recently the War Department has developed an armored vest for infantrymen which has been offered to the Pacific Ocean Areas for trial in combat. The Navy has made extensive use of a plastic substance procured through the Army Quartermaster and incorporated in the life jacket, and the Marine Corps is now experimenting with this material for possible use in the Marine combat jacket. Statistical proof of the effectiveness of the flak suit is not massive in extent, but the low proportion of wounds in the armored regions is suggestive of a high degree of protection, and observations on both armored and unarmored men hit by missiles in the sub-regions covered by armor and helmet furnish rather convincing evidence, as may be seen from the chart below. Like those for the trunk, the observations on the head include a set for men hit while not wearing protective gear, in this case the helmet. In order to assess the importance of these savings for all air casualties certain assumptions must be made as to the expected ratio of killed to wounded among bomber crews generally. Air

EFFECT OF HITS ON ARMORED AND UNARMORED BOMBER CREW MEMBERS
EUROPEAN THEATER





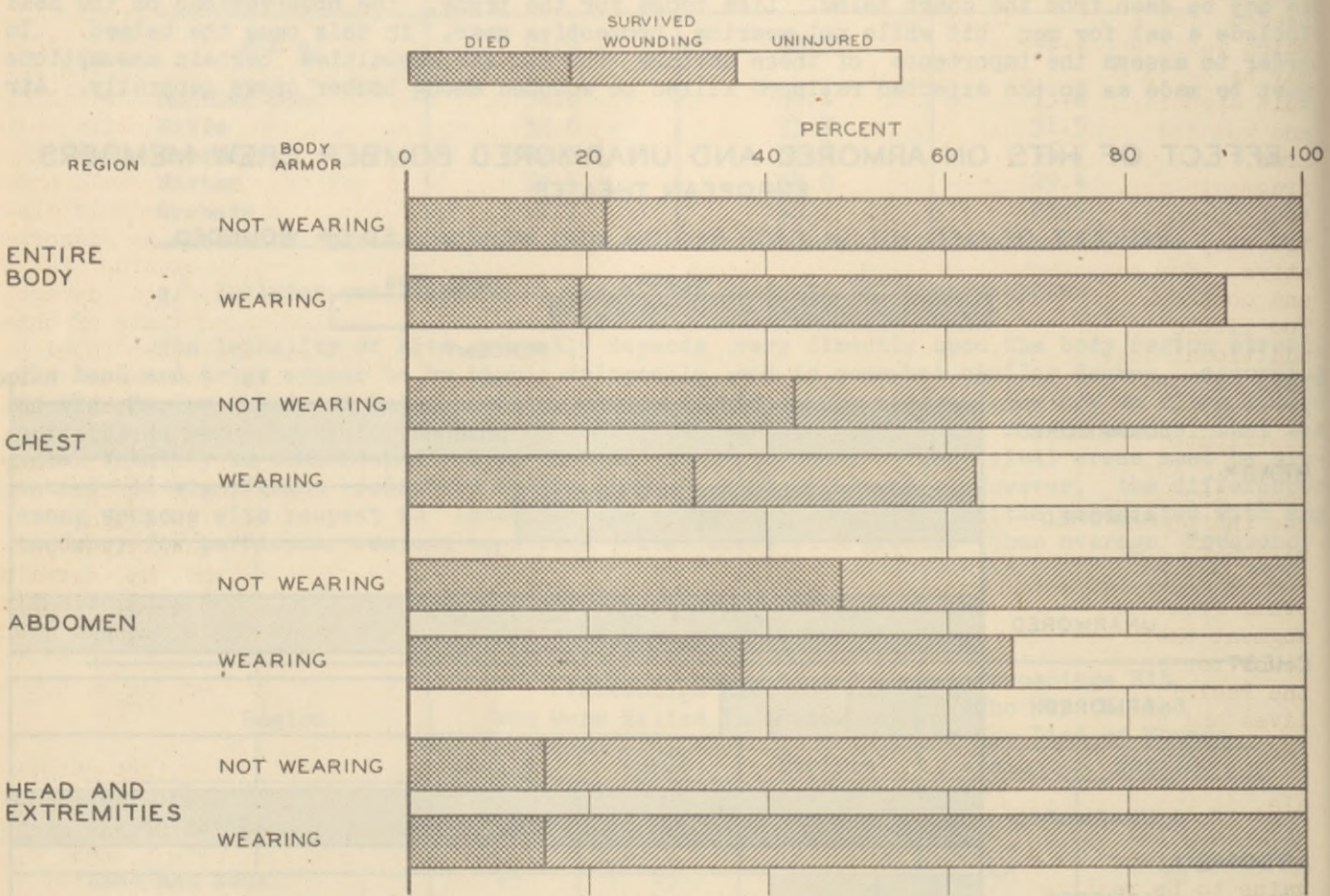
* That part usually covered by helmet.

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR (Continued)

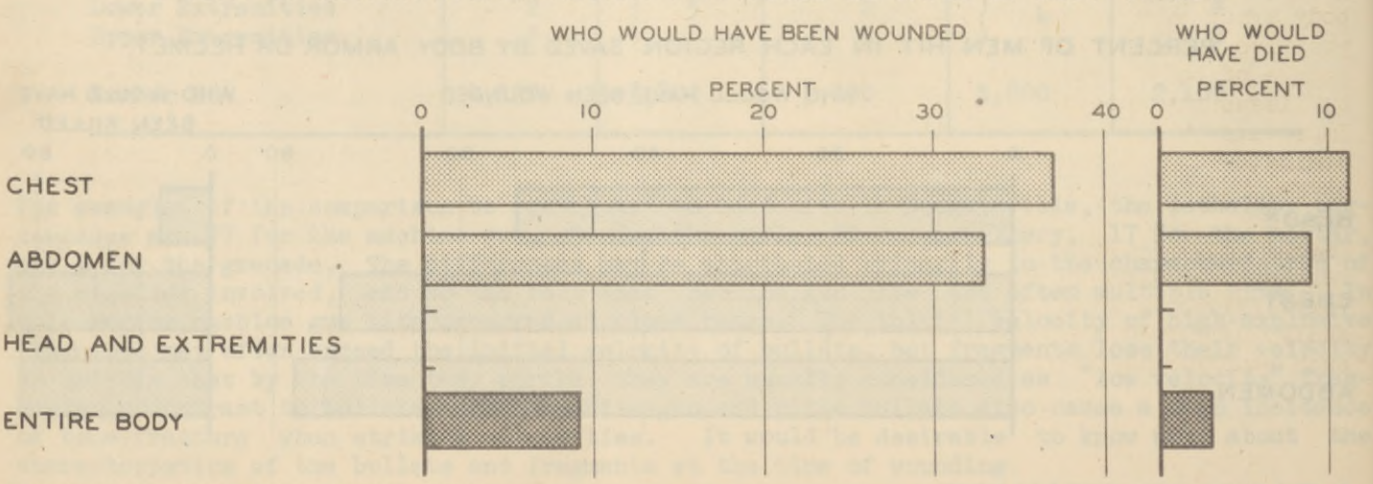
Corps casualties are quite incomplete in that they typically exclude the large number of missing in action, many of whom are later declared dead. On the other hand, the official statistics published by The Adjutant General, giving a one to 1.4 ratio of killed to wounded, are undoubtedly heavily weighted by deaths from crashes, drowning, and the like. It is most reasonable to use the ratio for ground force casualties for this purpose. When the Bougainville experience is used as the basis of expectation, the net saving of hits on the chest and abdominal areas amounts to 19 percent of the expected hits in all areas, 28 percent of the killed in action, and 16 percent of all the wounded. These estimates are subject to some

EFFECT OF HITS ON TROOPS WEARING AND NOT WEARING BODY ARMOR*

PERCENT OF MEN HIT IN EACH REGION WHO WOULD HAVE DIED, SURVIVED WOUNDING, OR REMAINED UNINJURED



PERCENT OF MEN HIT IN EACH REGION WHO WOULD BE SAVED BY BODY ARMOR



* Based on experience of Bougainville Campaign

EFFECTIVENESS OF WEAPONS AND THE POSSIBILITY OF BODY ARMOR (Continued)

variation since the precise basis of expectation is unknown, but that the gain is large is incontrovertible.

It may not be possible to afford this degree of protection to infantry troops within the weight limitations imposed by their task and with the materials presently available. However, a considerable degree of protection does appear attainable at this stage, and it is hoped that practical application can be made of present knowledge. The lighter model of the T62 vest developed by Ordnance, for example, has 167 percent of the ballistic resistance of the M1 helmet, and the heavier model 427 percent, according to the Ordnance ballistic test. It is understood that 8,000 of these vests have been offered to the Southwest Pacific for trial in combat, that 100,000 are on order, and that stocks of materials have been set aside for another 400,000. Should these models prove too heavy, substantial protection could still be assured at weights which seem within reason for the infantry. There are, moreover, ground assignments where men are exposed but forced to move around so little that the added weight needed for an even higher degree of protection would not seem excessive. The protection which would be expected in the Pacific from the use of body armor of the type now available may be calculated very roughly on the basis of the Bougainville casualty experience. The result appears in graphic form on the preceding page showing the anticipated savings in killed and wounded among those expected to be hit in the chest, the abdomen, and the entire body area. It was assumed that a device could be issued capable of stopping 95 percent of all fragments normally causing wounds, fatal or nonfatal, in the trunk region, that it would protect 65 percent of the trunk area, and that both fatal and nonfatal hits are randomly distributed over the trunk area. Thus calculated, the resulting protection may well be conservative, for an unknown number of bullets moving at low velocity but normally causing fatal and nonfatal wounds would encounter sufficient resistance to prevent the expected damage. Too little is known of the velocities of missiles striking men to provide an estimate of this additional degree of protection, but medical observations are that bullets are often found to have stopped in the body after having traversed an amount of tissue which could not have offered much resistance, indicating low striking velocity. Also, fatal hits are probably not distributed entirely at random over the trunk area, some sub-areas being more vulnerable than others. The more vulnerable areas would be more completely protected by armor. On the other hand, depending on the degree of support given by command, a certain number of men would not use the protection made available, which with other factors, would tend to offset the added advantage accruing from its use. Certainly gains of 12 percent of the killed and eight percent of the living present a worthy military objective. Loss rates for riflemen and certain other front-line military specialists are quite high, and any reduction would automatically augment their striking force, improve their fighting morale, and sustain their numbers with fewer replacements. If, say, perhaps 65,000 dead and 225,000 living wounded were expected in the Pacific, immediate issue and command-supported use of body armor might well save 8,000 lives and prevent 17,000 wounded, or 25,000 casualties in all.

In view of the wide range of possibility presented by modern light-weight materials, it would appear essential for the Army to do intensive work in the body armor field, not only from the ballistic point of view, but more particularly from the standpoint of the costs of using armor or protective garments of specified characteristics, e.g. weight, and the gains to be realized. There is apparently a paucity of information on the acceptability of possible protective devices, most work by the Army having been confined to ballistic tests of materials. Lack of such information may be partly responsible for the previous notion that body armor was an interesting but impractical idea, whereas it now seems clear that a more positive and experimental approach is indicated. If body armor for ground troops follows the course of body armor for air troops, the essential thing is to sell the men on the idea and to issue the material without waiting for the perfect garment or device to be developed. Improvements can come later. For this purpose studies need to be made into how best to evaluate such protective devices, how to overcome any initial objection which troops may offer, how to improve the design for maximum protection per unit of weight, what materials are best, what weight limits can be set, what variations in design should be made for different military occupations, and the like. Evaluation of the protection afforded by armor can best be done by skilled teams of ordnance and medical experts on the field of battle. Very little of such work has been done during the war thus far, and present information is sadly deficient in consequence, but if the Army is to explore the usefulness of body armor such studies must have high priority and be skillfully conducted.

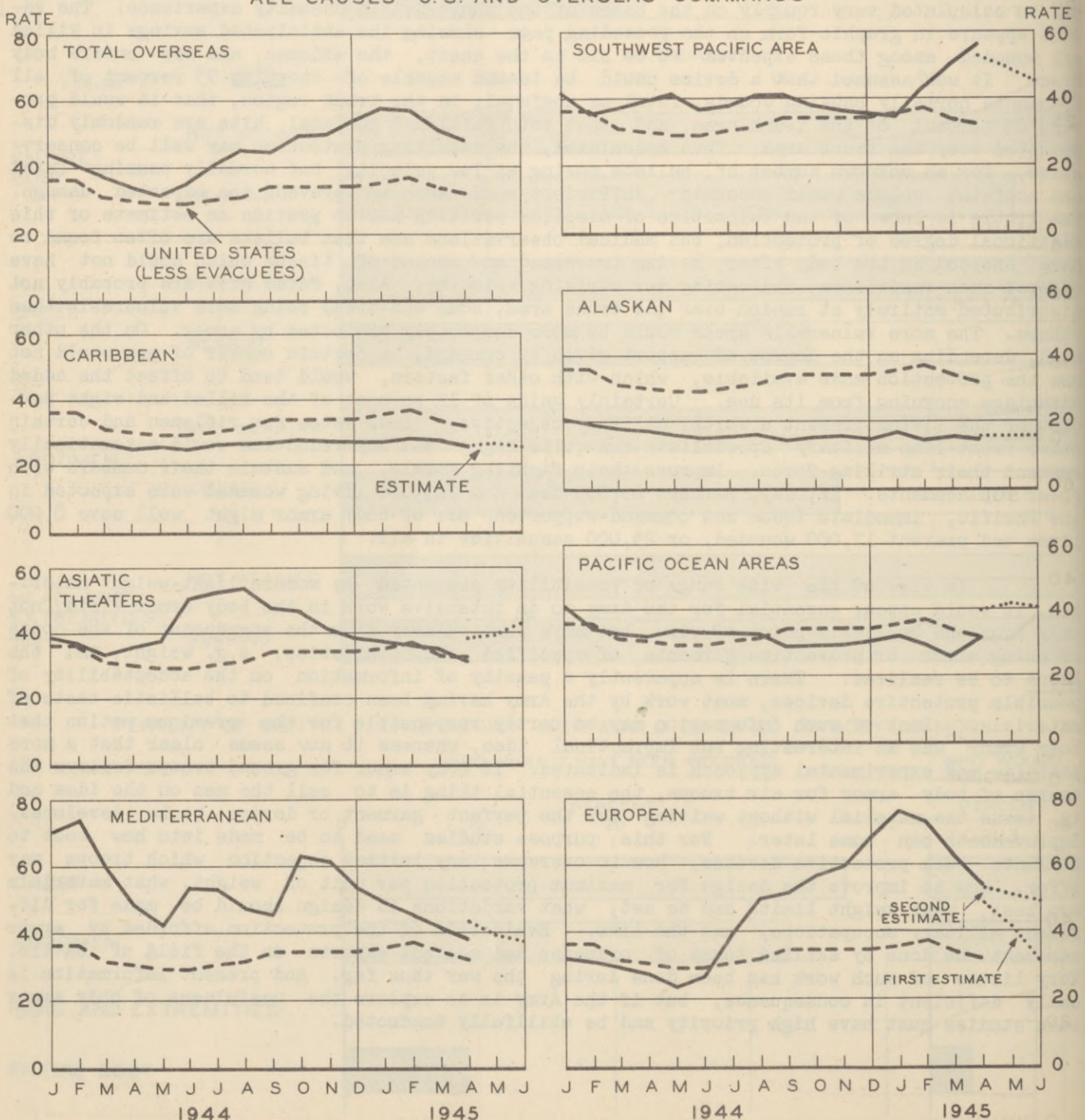
DISEASE AND INJURY

NONEFFECTIVE RATES

During April there was a further decline in the total noneffective rate for the Army overseas. This resulted from a decrease in the European Theater rate for the third successive month which more than counterbalanced increases in the rates for the Pacific theaters. The drop in the European rate results, obviously, not only from lessened battle casualties but also from the accelerated evacuation of sick and wounded to the U. S. (compare page 10)

The April rates for the Pacific Ocean Areas have been estimated because the theater reports exclude about 40 percent of its strength. It was assumed that the troops on Okinawa had an experience similar to that of the forces in the Philippines during November and December 1944 and January 1945, and that the remainder of the unreported 40 percent had the same rates as the reported 60 percent.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH
ALL CAUSES - U. S. AND OVERSEAS COMMANDS



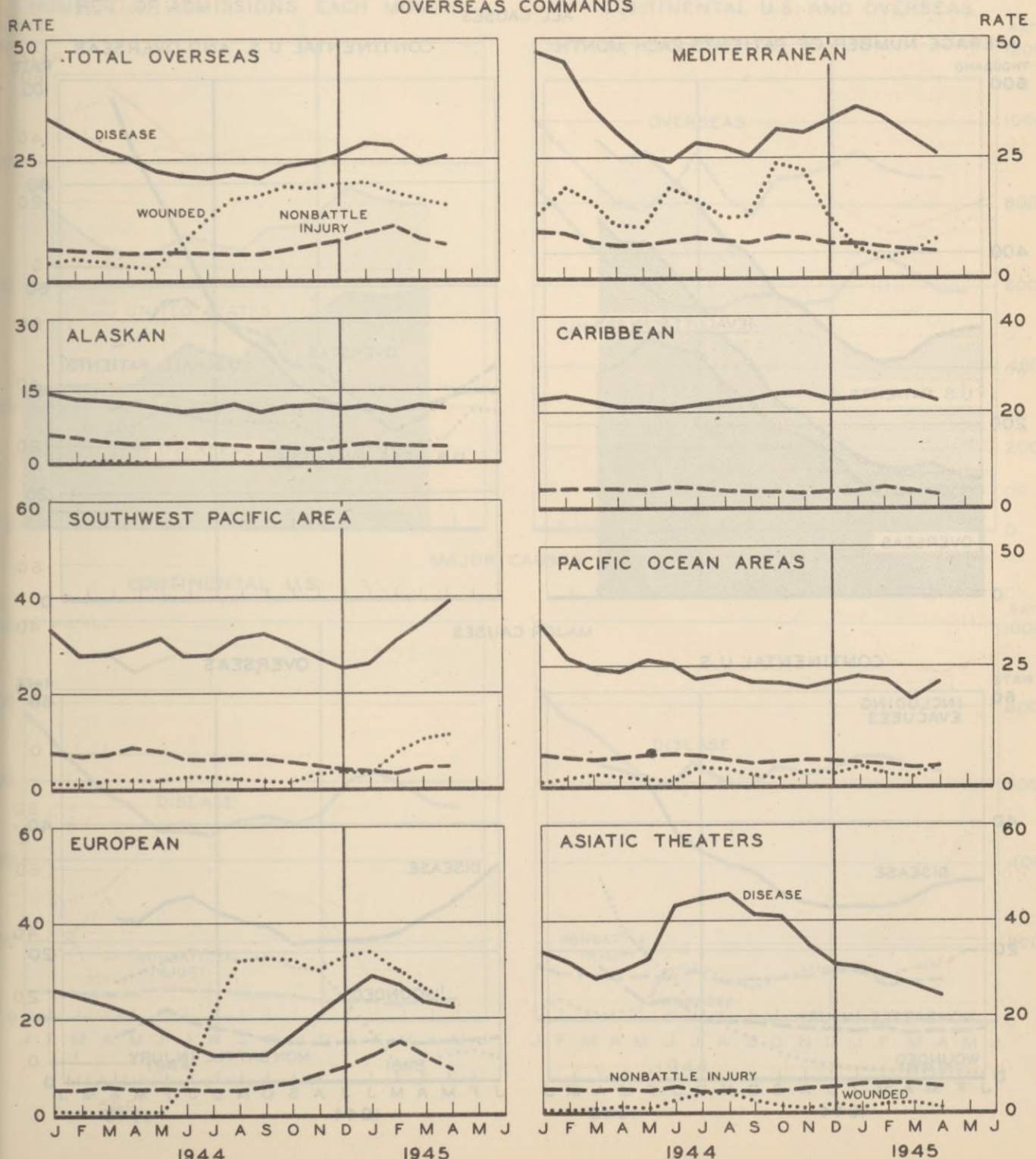
DISEASE AND INJURY

NONEFFECTIVE RATES (Continued)

The charts below subdivide the total noneffective rates shown on the previous page into their disease, nonbattle injury, and wounded components. The rates for all three elements continued to increase in both the Pacific Ocean Areas and the Southwest Pacific during April and in the latter theater the wounded rate is rapidly approaching the highest rate in the history of the theater, that of 11.9 per thousand strength which obtained at the height of the Papuan Campaign in January 1943. Also, at 40 per thousand strength, the Southwest Pacific rate for disease is the highest for any month since August 1943. These high theater rates are entirely attributable to operations in the Philippines. Casualties sustained during the final battle of the European war resulted in another increase in the Mediterranean noneffective rate for wounded, the March rate of five being followed by eight per thousand strength for April.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH

OVERSEAS COMMANDS



DISEASE AND INJURY

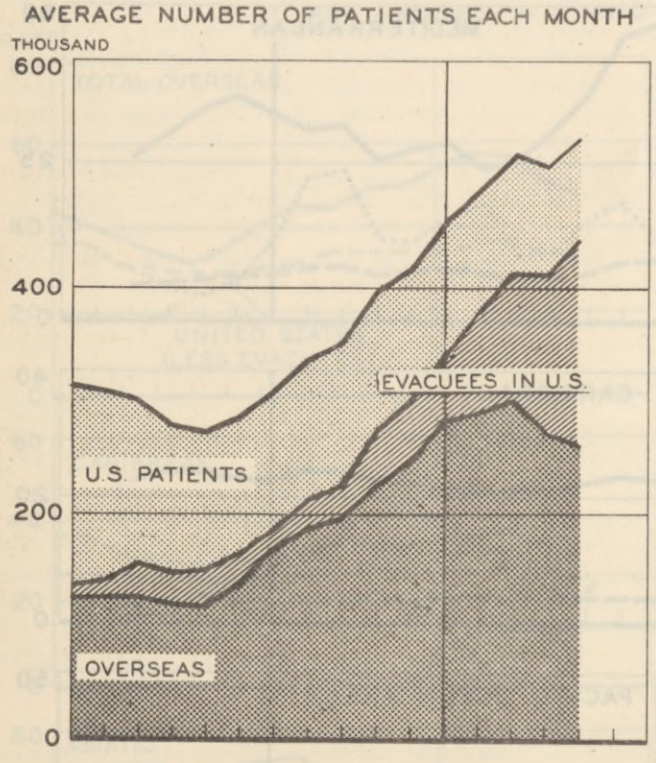
NONEFFECTIVE RATES, U. S. AND OVERSEAS

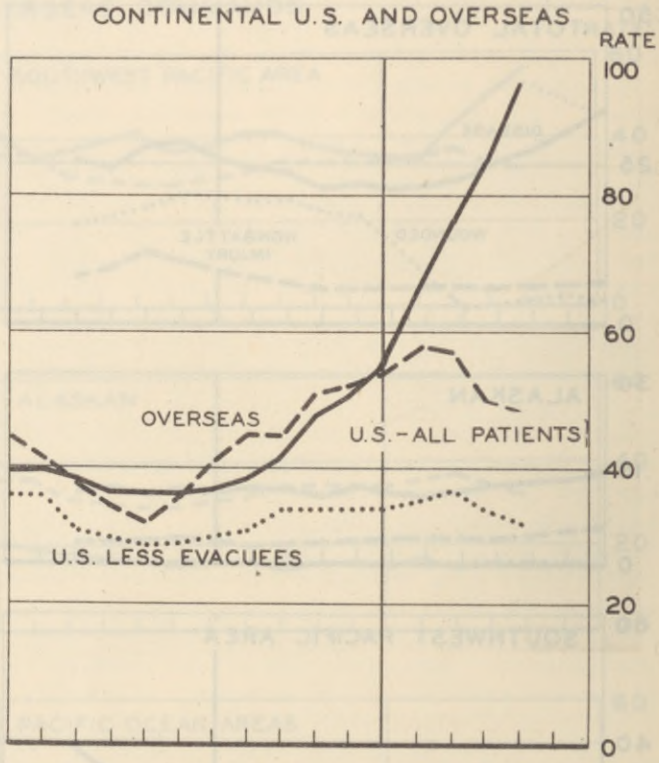
During May, the total U. S. noneffective rate, including evacuees, continued to increase and reached 97 per thousand strength, almost three times the comparable rate for May 1944. Correction of the Z/I rate to exclude evacuees reduces it to 31.5 per thousand, slightly below that for April.

The charts below state noneffectives in both absolute and rate form, showing that the high rate in the Z/I is partly an artifact of declining strength upon which has been imposed a growing population of overseas patients. On the average the Army contained 530,000 noneffectives each day during April, of whom 261,000 were overseas, 182,000 were evacuees in the Z/I, and 87,000 were patients of Z/I origin.

AVERAGE NUMBER OF NONEFFECTIVES PER THOUSAND STRENGTH

ALL CAUSES





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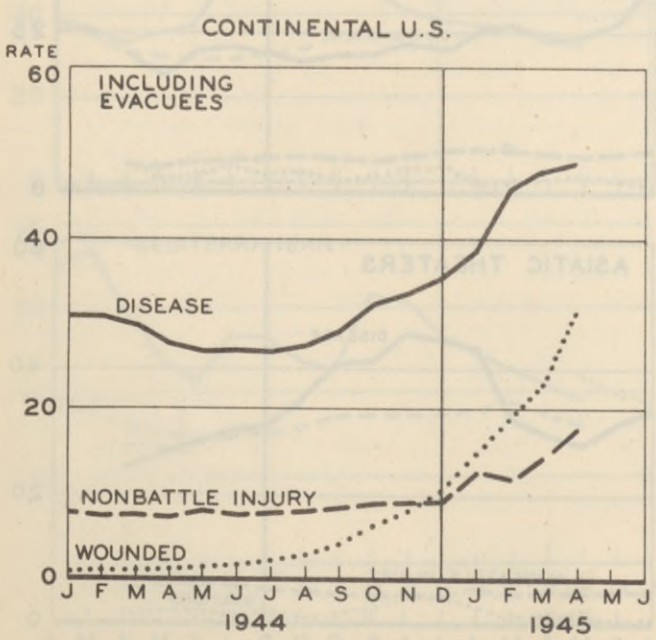
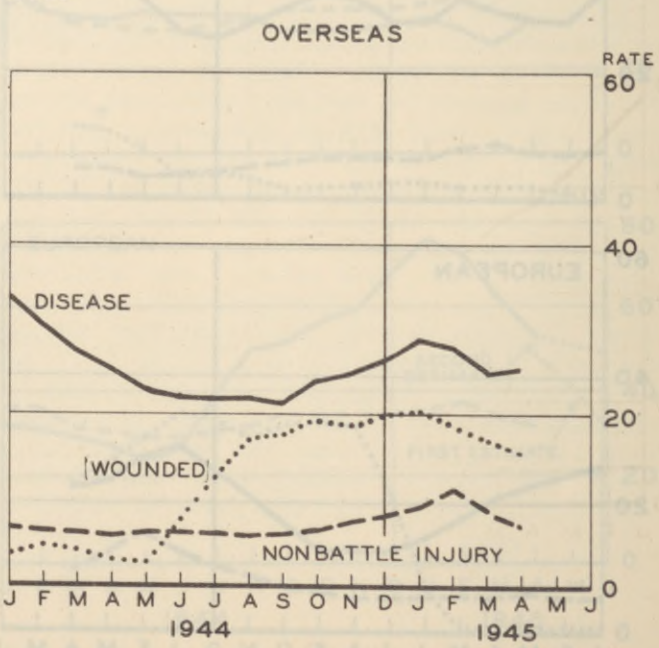




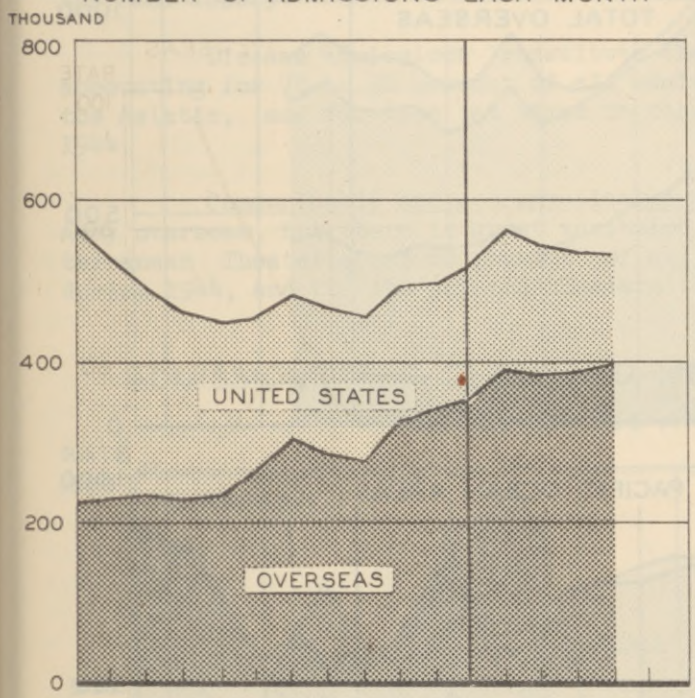
DISEASE, INJURY, AND BATTLE CASUALTY ADMISSIONS

The downward trend in admissions for all causes overseas during February and March was halted during April as a result of increasing rates in the Southwest Pacific, new offensive action in the Pacific Ocean Areas, and the final push in the Mediterranean. In the Army as a whole admissions continued to decline slightly and in April fell to 534,000. The decrease was wholly attributable to the decline in the rate for troops in the United States. Apart from seasonal factors generally productive of low admission rates in the United States during the summer, the redeployment of troops through the Z/I to the Pacific will probably tend to increase the rates here in the months to come.

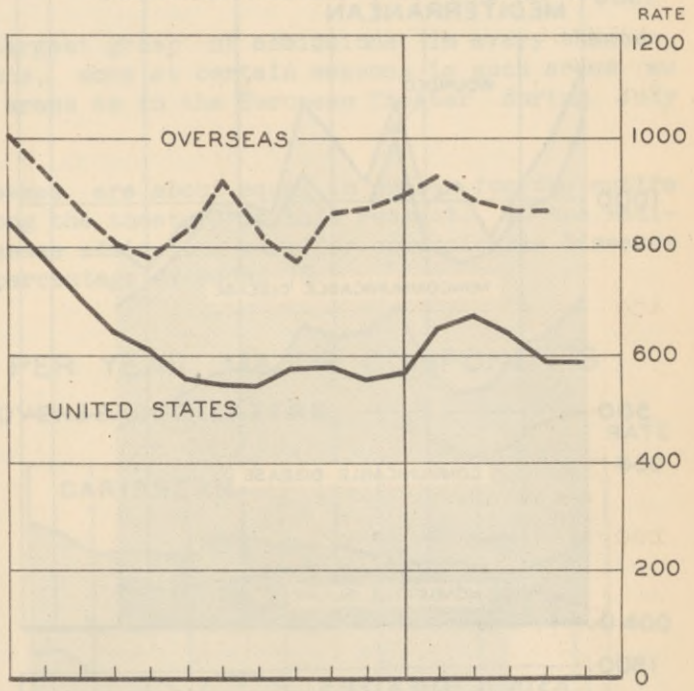
DISEASE, INJURY, AND BATTLE CASUALTY, ADMISSIONS PER THOUSAND MEN PER YEAR

ALL CAUSES

NUMBER OF ADMISSIONS EACH MONTH

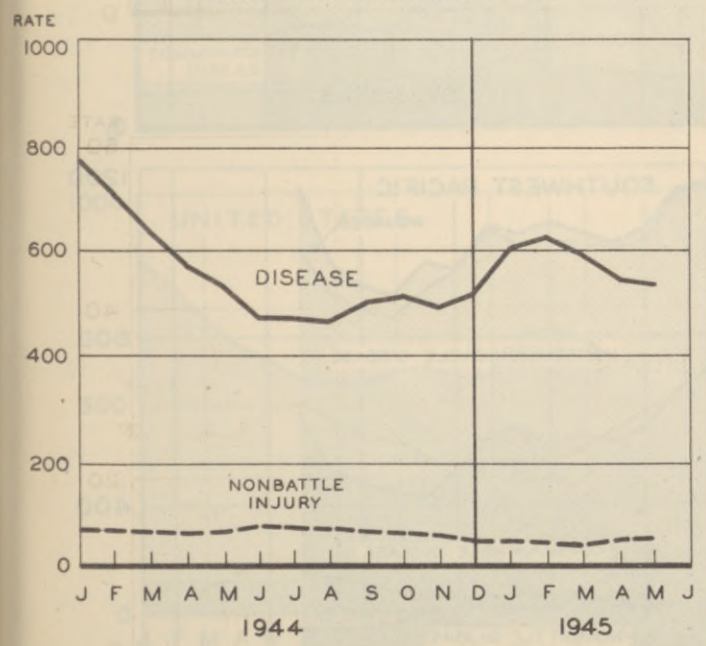


CONTINENTAL U.S. AND OVERSEAS

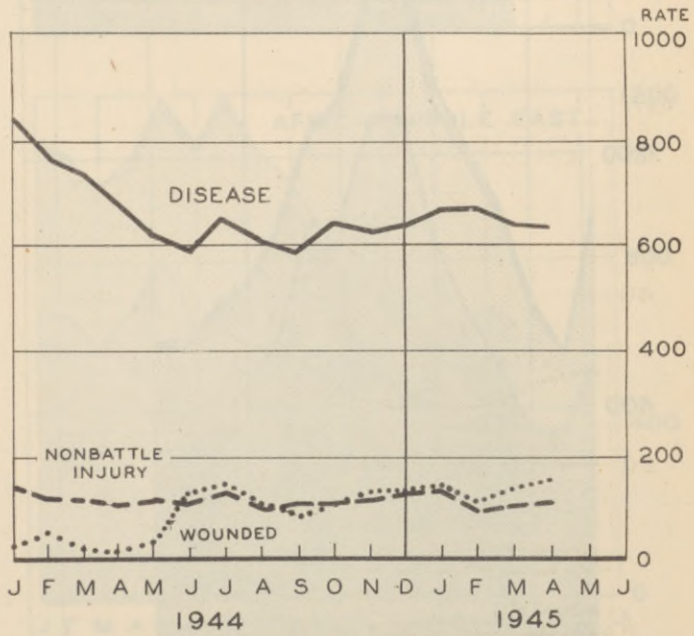


MAJOR CAUSES

CONTINENTAL U.S.



OVERSEAS



DISEASE AND INJURY

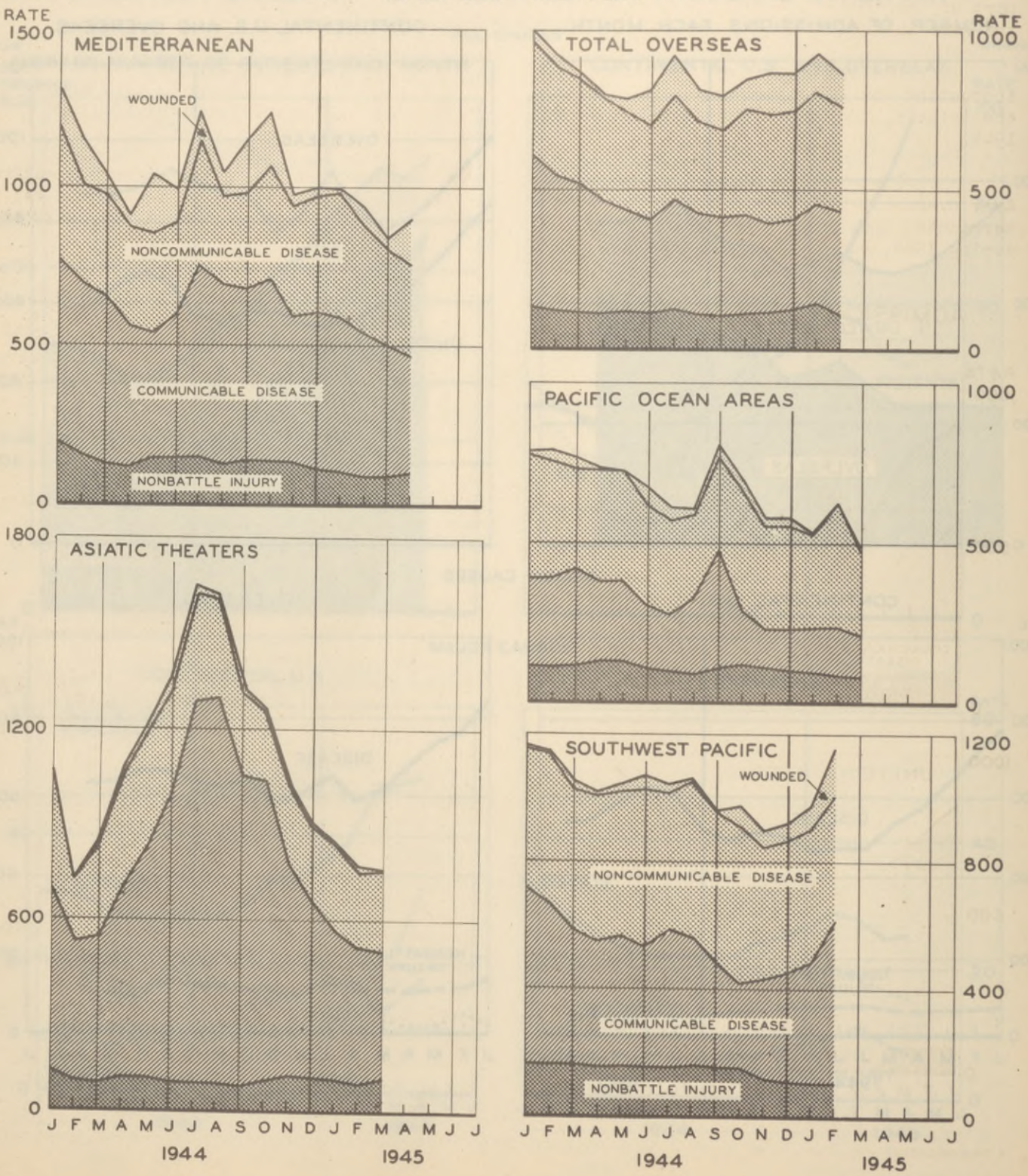
ADMISSION RATES, OVERSEAS THEATERS, MAJOR CAUSES

The charts below and on the next page subdivide the total admission rates into their major components for each of the larger overseas theaters. During 1944 disease averaged 78 percent of admissions in all the theaters, wounded nine percent, and nonbattle injury about 13 percent. Communicable disease accounted for 40 percent of the total and noncommunicable disease for 38 percent.

Considerable variation exists from theater to theater, not only because of intensity of combat activity, but also because of important environmental differences. For the

ADMISSIONS PER THOUSAND MEN PER YEAR, MAJOR COMPONENTS

OVERSEAS THEATERS



ADMISSION RATES, OVERSEAS THEATERS, MAJOR CAUSES (Continued)

average month, wounded represented 16 percent of the admissions in the European Theater, nine in the Mediterranean, four in the Pacific Ocean Areas, three in the Southwest Pacific and one in the Asiatic theaters. For the period June through February, however, wounded represented 25 percent of all admissions in the European Theater, and for particular months considerably higher percentages obtained. The greatest variations attributable to environmental factors occur in the Asiatic theaters.

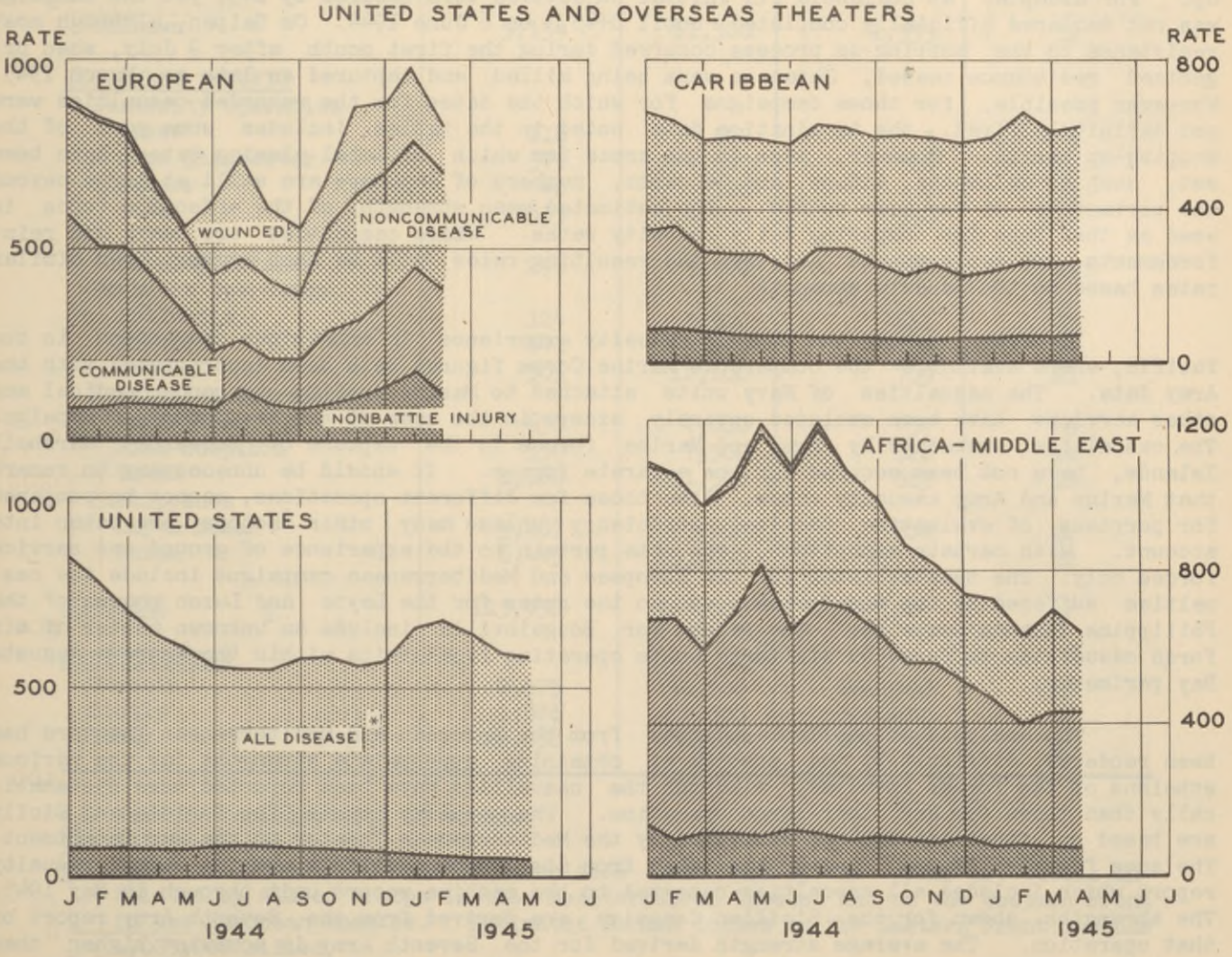
Although a generally downward trend in admission rates is evident for nonbattle injuries in overseas theaters, in the short run these rates are fairly stable and average about 10 to 15 percent of all admissions on an annual basis. An important exception is the European Theater where cold injury caused the rate to double in four months. The downward trend is most marked in the Mediterranean and the Southwest Pacific. It is probable that part of the downtrend reflects changed methods of reporting patients previously admitted for the same injury.

Disease admissions constitute the largest group of admissions in every theater, accounting for 70 to 90 percent of all admissions, more at certain seasons in such areas as the Asiatic, and far less at times in other areas as in the European Theater during July 1944.

Communicable and noncommunicable diseases are about equal in number for the entire Army overseas, but there is great variation among the theaters in this respect. In the Mediterranean Theater about 60 percent of all disease admissions were for communicable diseases during 1944, and for the Asiatic theaters the percentage exceeded 70.

ADMISSIONS PER THOUSAND MEN PER YEAR, MAJOR COMPONENTS

UNITED STATES AND OVERSEAS THEATERS



* Noncommunicable and Communicable not available separately.

DISEASE AND INJURY

CAMPAIGN CASUALTIES

The tables on the following pages summarize in rate form the casualty experience of U. S. ground forces, both Army and Marine, in the campaigns and lesser operations undertaken by the various theaters. The data represent extensions and revisions of similar tabulations which last appeared in the December 1944 issue of HEALTH. Although the present data provide the best information available to The Surgeon General at this time, they are nonetheless preliminary in nature and will probably differ somewhat from the official counts yet to be published. They have been taken from unit and special reports received by The Surgeon General, from tactical summaries submitted by the various theaters by radio to the War Department, from operational reports transmitted at the conclusion of or during operations by the Army or Navy units involved, and from special casualty summaries prepared by the theaters. Although these sources have been combed with care, they are not entirely adequate for the purpose of reconstructing the casualty experience of the various campaigns. The information contained in such reports is at times fragmentary and inconsistent, and often these reports fail to give both strengths and casualties on a basis suitable for matching. An effort has been made however, to include the most reasonable data available for each of the major campaigns or amphibious operations undertaken since the fall of the Philippines. It would appear desirable to have more systematic information of this kind at the conclusion of each operation if maximum planning value is to be derived from past experience.

One of the most difficult tasks in assembling the material was that of establishing the time-period over which the casualties for each operation were sustained and of ascertaining whether one count, larger than another, was so by virtue of its being based on a longer period of combat, or because it was based upon revised casualty reports. Some uncertainty still exists, mainly for the more recent Pacific operations. For most of the operations in the Pacific there are two terminal dates, the end of organized resistance and the official date on which the campaign is considered terminated. Subsequent to the cessation of organized resistance casualties may still be met during the process of consolidating and mopping-up. For example, at Hollandia all initial objectives were secured by D+5, yet the campaign was not declared officially completed until D+45, on 6 June 1944. On Saipan, although most resistance to the mopping-up process occurred during the first month after 9 July, when organized resistance ceased, Japanese were being killed and captured as late as March 1945. Wherever possible, for those campaigns for which the dates for the recorded casualties were not definitely fixed, the termination date noted in the tables includes some part of the mopping-up period. However, even in the areas for which official closing dates have been set, such as Hollandia, Aitape, and Sansapor, numbers of Japanese are still at large beyond the perimeters of the base points. The estimated mean strength of the effective force is used as the base for computing daily casualty rates. Where casualties are heavy and reinforcements and replacements are few the resulting rates will be much higher than similar rates based on the assault strength.

In order to show the overall casualty experience in amphibious operations in the Pacific, where available the comparable Marine Corps figures have been incorporated with the Army data. The casualties of Navy units attached to Marine outfits to render medical and other services have been excluded entirely except in the case of the New Georgia Campaign. The casualties sustained by Army and Marine forces in the capture of Eniwetok, Marshall Islands, have not been secured for the separate forces. It should be unnecessary to remark that Marine and Army casualty rates, like those for different operations, cannot be compared for purposes of evaluating tactical efficiency unless many other factors are taken into account. With certain exceptions, the data pertain to the experience of ground and service forces only. The theater rates for the European and Mediterranean campaigns include the casualties suffered by the air forces, as do the rates for the Leyte and Luzon phases of the Philippine Islands Campaign. The rates for Bougainville include an unknown number of air force casualties suffered by air force units operating from strips within the Empress Augusta Bay perimeter.

The analysis of battle casualties from the European and Mediterranean Theaters has been rendered difficult by the problem of obtaining appropriate strengths for the various echelons of the forces involved, although the casualties have been reported more systematically than those for any other large operation. The casualty counts for Tunisia and Sicily are based on final tabulations submitted by the Mediterranean Theater to the War Department. The sums for the European Theater are taken from its latest available machine record casualty report which includes all casualties reported to the machine record unit through 14 May 1945. The strengths shown for the Sicilian Campaign are derived from the Seventh Army report of that operation. The average strength derived for the Seventh Army is somewhat higher than that based upon medical reports and shown in the summary of nonbattle casualties by campaign which appeared in HEALTH for January 1945.

CAMPAIGN CASUALTIES (Continued)

COMPARISON OF BATTLE DEATHS AMONG U. S. AND ENEMY PERSONNEL

Campaign	U. S. Troops Reported Killed a/	Enemy Reported		Ratio of Enemy Dead to U. S. Dead
		Dead	Captured	
NORTH AMERICAN				
Attu	561	2,400	30	4
PACIFIC OCEAN AREAS				
Guadalcanal	1,743	39,000	500	22
Gilbert Islands	1,051	5,200	400	5
Marshall Islands				
Kwajalein, South	177	4,900	174	28
Kwajalein, North	195	3,500	91	18
Eniwetok	299	3,000	48	10
Total	671	11,400	313	17
Marianas Islands				
Saipan	3,126	26,500	2,068	8
Guam	1,919	17,300	485	9
Tinian	295	6,900	316	23
Total	5,340	50,700	2,869	9
Caroline Islands	1,082	11,500	468	11
Iwo Jima	5,435	21,000	b/	4
Okinawa	5,134	61,500	1,353	12
SOUTHWEST PACIFIC				
Dexterity Operation				
Arawe	118	300	3	3
Cape Gloucester	375	4,300	326	11
Saidor	40	120	9	3
Total	533	4,720	338	9
Admiralty Islands	290	3,300	189	11
Reckless Operation				
Hollandia	124	3,300	611	27
Aitape	441	8,800	98	20
Total	565	12,100	709	21
Straitline Operation				
Wakde-Toem	630	4,000	57	6
Biak-Soepiori	530	7,500	628	14
Total	1,160	11,500	685	10
Philippines				
Leyte-Samar	3,487	77,400	802	22
Luzon	6,443	139,000	1,717	22
EUROPEAN	113,952	263,000	2,963,000	c/
MEDITERRANEAN				
Tunisia	2,375	30,000	266,000	c/
Sicily	1,886	7,000	132,400	c/
Italy	28,588	86,000	220,780	c/

a/ Usually includes died of wounds.
b/ Not available.
c/ Ratio not valid. Counts of casualties sustained by the enemy are totals inflicted by Allied troops in the Mediterranean Theater and on the Western Front in the European Theater. Estimated German losses on the Eastern Front include 1,003,000 killed

CAMPAIGN CASUALTIES (Continued)

CAMPAIGN CASUALTIES

Campaign	Period	Days	Estimated Average Strength	Remarks
NORTH AMERICAN				
Attu	11 May 1943-1 Jun 1943	22	15,200	
PACIFIC OCEAN AREAS				
Guadalcanal				
Marines	7 Aug 1942-17 Nov 1942	103	32,650	
Army	12 Nov 1942- 9 Feb 1943	90	21,000	
Total		187	28,100	
New Georgia				
Navy and Marines	30 Jun 1943-22 Sep 1943	85	6,000	
Army	30 Jun 1943-22 Sep 1943	85	20,100	
Total		85	26,100	
Bougainville				
Marines	1 Nov 1943-30 Apr 1944	182	18,000	
Army	19 Nov 1943-30 Apr 1944	164	38,200	Includes air units
Total		182	52,400	
Gilbert Islands				
Makin	21 Nov 1943-23 Nov 1943	3	7,900	Army operation
Tarawa	20 Nov 1943-23 Nov 1943	4	17,000	Marine Operation
Total		4	22,900	
Marshall Islands				
Kwajalein, South	31 Jan 1944- 5 Feb 1944	6	21,300	Army operation
Kwajalein, North	31 Jan 1944- 2 Feb 1944	3	20,100	Marine Operation
Eniwetok	31 Jan 1944- 5 Feb 1944	6	10,000	Joint operation
Total		6	41,400	
Marianas Islands				
Saipan				
Marine	15 Jun 1944-23 Jul 1944	39	40,000	Includes 14 days
Army	16 Jun 1944-23 Jul 1944	38	21,500	of mopping-up
Total		39	60,900	
Guam				
Marine	21 Jul 1944-10 Aug 1944	21	27,300	
Army	21 Jul 1944-10 Aug 1944	21	18.000	
Total		21	45,300	
Tinian	24 Jul 1944- 9 Aug 1944	17	40,200	Marine operation c/
Total Marianas				
Marine	15 Jun 1944-10 Aug 1944	57	49,400	
Army	16 Jun 1944-10 Aug 1944	56	21,400	
Total		57	70,400	
Caroline Islands				
Marine	15 Sep 1944-11 Oct 1944	27	23,000	Peleliu
Army	17 Sep 1944-11 Oct 1944	25	17,500	Peleliu and Angaur
Total		27	39,200	
Iwo Jima	19 Feb 1945-26 Mar 1945	36	40,000	Marine operation
Okinawa	1 Apr 1945-28 May 1945			
Marine		58	60,000	
Army		58	94,000	
Total		58	154,000	
SOUTHWEST PACIFIC				
Papuan	26 Sep 1942-23 Jan 1943	120	10,200	
Dexterity Operation				
Arawe	15 Dec 1943-10 Feb 1944	58	4,400	Army operation
Cape Gloucester	26 Dec 1943-28 Apr 1944	125	15,000	Marine operation
Saidor	2 Jan 1944-10 Feb 1944	40	11,500	Army operation
Total		125	20,600	

a/ Usually includes died of wounds.
b/ Not available.

CAMPAIGN CASUALTIES (Continued)

CAMPAIGN CASUALTIES

Number of Men Reported			Rates Per Thousand Men Per Day			Campaign
Killed a/	Wounded	Missing, Captured	Killed a/	Wounded	Missing, Captured	
						NORTH AMERICAN
561	1,136	b/	1.68	3.40	b/	Attu
						PACIFIC OCEAN AREAS
						Guadalcanal
1,190	2,753	28	0.35	0.82	0.01	Marines
553	2,200	b/	0.29	1.16	b/	Army
1,743	4,953	b/	0.33	0.94	b/	Total
						New Georgia
189	494	b/	0.37	0.97	b/	Navy and Marines
947	3,646	23	0.55	2.13	0.01	Army
1,136	4,140	b/	0.51	1.87	b/	Total
						Bougainville
440	1,376	18	0.13	0.42	0.01	Marines
587	2,852	112	0.09	0.46	0.02	Army
1,027	4,228	130	0.11	0.44	0.01	Total
						Gilbert Islands
66	187	-	2.78	7.89	-	Makin
985	2,193	3	14.49	32.25	0.04	Tarawa
1,051	2,380	3	11.47	25.98	0.03	Total
						Marshall Islands
177	1,037	-	1.38	8.11	-	Kwajalein, South
195	545	65	3.23	9.04	1.08	Kwajalein, North
299	786	-	4.98	13.10	-	Eniwetok
671	2,368	65	2.70	9.53	0.26	Total
						Marianas Islands
						Saipan
2,116	10,419	247	1.36	6.68	0.16	Marine
1,010	2,741	79	1.24	3.35	0.10	Army
3,126	13,160	326	1.32	5.54	0.14	Total
						Guam
1,514	5,378	19	2.64	9.38	0.03	Marine
405	1,744	51	1.07	4.61	0.13	Army
1,919	7,122	70	2.02	7.49	0.07	Total
295	1,554	-	0.43	2.27	-	Tinian
						Total Marianas
3,925	17,351	266	1.39	6.16	0.09	Marine
1,415	4,485	130	1.18	3.74	0.11	Army
5,340	21,836	396	1.33	5.44	0.10	Total
						Caroline Islands
858	4,933	228	1.38	7.94	0.37	Marine
224	1,630	14	0.51	3.73	0.03	Army
1,082	6,563	242	1.02	6.20	0.23	Total
5,435	14,893	53	3.77	10.34	0.04	Iwo Jima
						Okinawa
1,654	8,403	39	0.48	2.41	0.01	Marine
3,480	14,571	215	0.64	2.67	0.04	Army
5,134	22,974	254	0.57	2.57	0.03	Total
						SOUTHWEST PACIFIC
800	1,931	62	0.65	1.58	0.05	Papuan
						Dexterity Operation
118	352	4	0.46	1.38	0.02	Arawe
375	1,050	77	0.20	0.56	0.04	Cape Gloucester
40	111	10	0.09	0.24	0.02	Saidor
533	1,513	91	0.21	0.59	0.04	Total

c/ Includes 8 days of mopping-up.

DISEASE AND INJURY

CAMPAIGN CASUALTIES (Continued)

CAMPAIGN CASUALTIES

Campaign	Period	Days	Estimated Average Strength	Remarks
SOUTHWEST PACIFIC				
Admiralty Islands	1 Mar 1944-30 Apr 1944	61	19,000	
Reckless Operation				
Hollandia	22 Apr 1944- 6 Jun 1944	46	28,700	
Aitape	22 Apr 1944-25 Aug 1944	126	24,700	
Total		126	35,200	
Straitline Operation				
Wakde-Toem	17 May 1944-31 Aug 1944	107	18,800	
Biak-Soepiori	27 May 1944-31 Aug 1944	97	31,200	
Total		107	47,100	
Noemfoor	2 Jul 1944-31 Aug 1944	61	18,000	
Sansapor-Mar	30 Jul 1944-31 Aug 1944	33	20,500	
Morotai	15 Sep 1944- 2 Oct 1944	18	31,200	
Philippines				
Leyte-Samar				
Assault Phase	19 Oct 1944-31 Dec 1944	74	205,500	All troops, including air
Mopping-up	1 Jan 1945-31 Mar 1945	90	218,100	
Total	19 Oct 1944-31 Mar 1945	164	212,400	
XXIV Corps				
Divisions	20 Oct 1944-10 Feb 1945	114	52,900	Includes assault and mopping-up periods
Corps Total	20 Oct 1944-10 Feb 1945	114	65,100	
Luzon	9 Jan 1945-21 May 1945	133	257,500	Including air troops
MEDITERRANEAN				
Tunisia	8 Nov 1942-13 May 1943	187	277,300	Theater rate only
Sicily	10 Jul 1943-17 Aug 1943	39		
Division			100,300	
Corps			124,700	
Army			183,500	
Theater			525,800	
Italy	9 Sep 1943-31 Mar 1945	570	626,000	Theater rate only
EUROPEAN	6 Jun 1944- 8 May 1945	337		
Divisions				
All Divisions			468,000	
Infantry			346,000	
Armored			96,500	
Airborne			25,200	
Corps			686,100	Estimated, see text
Army			904,300	
Theater			2,413,800	
WORLD WAR I				
Divisions	26 Sep 1918-11 Nov 1918	47	b/	
Corps			b/	Meuse-Argonne
Army			b/	Campaign only
Theater (A.E.F.)			b/	A.E.F. Total

a/ Usually includes died of wounds.
b/ Not available.
d/ Excluding gas.

CAMPAIGN CASUALTIES (Continued)

CAMPAIGN CASUALTIES

Number of Men Reported			Rates Per Thousand Men Per Day			Campaign
Killed a/	Wounded	Missing, Captured	Killed a/	Wounded	Missing, Captured	
						SOUTHWEST PACIFIC
290	1,976	b/	0.25	1.70	b/	Admiralty Islands
						Reckless Operation
124	1,057	28	0.09	0.80	0.02	Hollandia
441	2,551	16	0.14	0.82	0.01	Aitape
565	3,608	44	0.13	0.81	0.01	Total
						Straitline Operation
630	1,742	41	0.31	0.87	0.02	Wakde-Toem
530	2,570	54	0.18	0.85	0.02	Biak-Soepiori
1,160	4,312	95	0.23	0.86	0.02	Total
65	343	3	0.06	0.31	0.00	Noemfoor
34	85	-	0.05	0.13	-	Sansapor-Mar
30	80	1	0.05	0.14	0.00	Morotai
						Philippines
						Leyte-Samar
2,877	9,723	768	0.19	0.64	0.05	Assault Phase
610	1,062	177	0.03	0.05	0.01	Mopping-up
3,487	10,785	945	0.10	0.31	0.03	Total
						XXIV Corps
1,545	5,091	7	0.26	0.84	0.00	Divisions
1,625	5,454	7	0.22	0.73	0.00	Corps Total
6,443	25,143	361	0.19	0.73	0.01	Luzon
						MEDITERRANEAN
2,654	8,600	6,874	0.05	0.17	0.13	Tunisia
						Sicily
1,304	4,793	1,063	0.33	1.23	0.27	Division
1,397	5,084	1,081	0.29	1.05	0.22	Corps
1,439	5,236	1,116	0.20	0.73	0.16	Army
1,886	5,546	2,334	0.09	0.27	0.11	Theater
28,588	85,072	29,927	0.08	0.24	0.08	Italy
						EUROPEAN
						Divisions
88,051	321,714	29,854	0.56	2.04	0.19	All Divisions
72,099	265,256	25,093	0.62	2.27	0.22	Infantry
11,758	41,857	3,377	0.36	1.29	0.10	Armored
4,194	14,601	1,384	0.49	1.72	0.16	Airborne
94,487	341,903	31,688	0.41	1.48	0.14	Corps
100,923	362,092	33,523	0.33	1.19	0.11	Army
113,952	373,018	67,061	0.14	0.46	0.08	Theater
						WORLD WAR I
b/	b/	b/	1.31	4.98d/	b/	Divisions
b/	b/	b/	0.74	2.83d/	b/	Corps
b/	b/	b/	0.56	2.13d/	b/	Army
b/	b/	b/	0.25	0.94d/	b/	Theater (A.E.F.)

CAMPAIGN CASUALTIES (Continued)

Casualty reports from the European Theater show the killed, wounded, and missing on the basis of the assignment rather than attachment, and the theater strength reports are constructed in a similar manner. Since casualty rates at the corps level are most useful when based upon the strength of attached as well as assigned troops, the rates for this echelon have been adjusted in accordance with information on attached strength available from reports of effective strength given in the G-1 periodic reports of some of the armies in the European Theater. It has been assumed that half of the strength assigned to both corps and army, exclusive of divisional strength, was attached to corps. A similar assumption has been made concerning casualties sustained by the troops assigned to corps and armies. The only independent check upon the completeness of the data noted in the casualty tables for the Pacific areas is the theater casualty summary published monthly by The Adjutant General in "Battle Casualties of the Army". The tabulations appearing there list about six percent more deaths and nine percent fewer wounded than are included in the attached tables for the periods covered by the campaign summary. The difference in the wounded may derive from the fact that The Adjutant General collects data on hospital admissions only, while medical reports often include the more lightly wounded who are treated at forward echelons and returned to duty without hospitalization. On the other hand, The Adjutant General's counts of deaths are more complete because his system of tabulation provides for the correction of totals long after the event. The counts of men reported as dead in the various operations usually include both those who were killed in action and those reported as dying of wounds insofar as these separate categories were known. An exception is the Sicilian Campaign, for which it has been impossible to classify by echelon the 279 men who were reported as having died of wounds.

The force involved in each of the actions in the Pacific, until the invasion of the Philippines, has been relatively small, usually a small corps or a reinforced division. The rates are relatively high because combat troops have constituted a comparatively high proportion of the total force 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 groups of armies. The casualties sustained by the combat elements of these large forces tend to be offset by the presence of large numbers of personnel in noncombat 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 and Germany, but even this correspondence is not close. In many ways the small amphibious task force seizing an island has no echelon counterpart in the land army. For particular phases of the operations in Europe 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, Kwajalein, Guam, and Iwo Jima.

On the basis of the entire World War II experience through 30 April 1945 the average chance of death is about one in four for all men hit. For every man killed or dead after wounding there have been 3.2 living wounded, but this ratio has varied widely in different campaigns. For Leyte it was one to 3.1 while for the first five months of combat on Luzon it is one to 3.9.

One interesting casualty statistic is the ratio of U. S. to enemy troops killed. The table on page 15 gives this ratio for some of the larger operations for which counts of enemy dead are available. The campaigns with the lowest ratios are, for the most part, those during which the Japanese offered the strongest resistance. The ratios of about 3.7 and 3.9 Japanese killed for each U. S. fatality on Tarawa and Iwo Jima are outstanding examples.

For purposes of medical planning the above tabulations are of greatest value where they provide models which are reasonably similar to the projected operation. The models, of course, can be selected only on the basis of tactical information not included in the above tables. The classification of operations from the standpoint of their tactically significant characteristics would seem highly desirable and useful, but the best that can be done at present is to list the separate actions reported. Better data in this respect, and more complete reporting of both strength and casualties, would greatly enhance the usefulness of campaign casualty data.

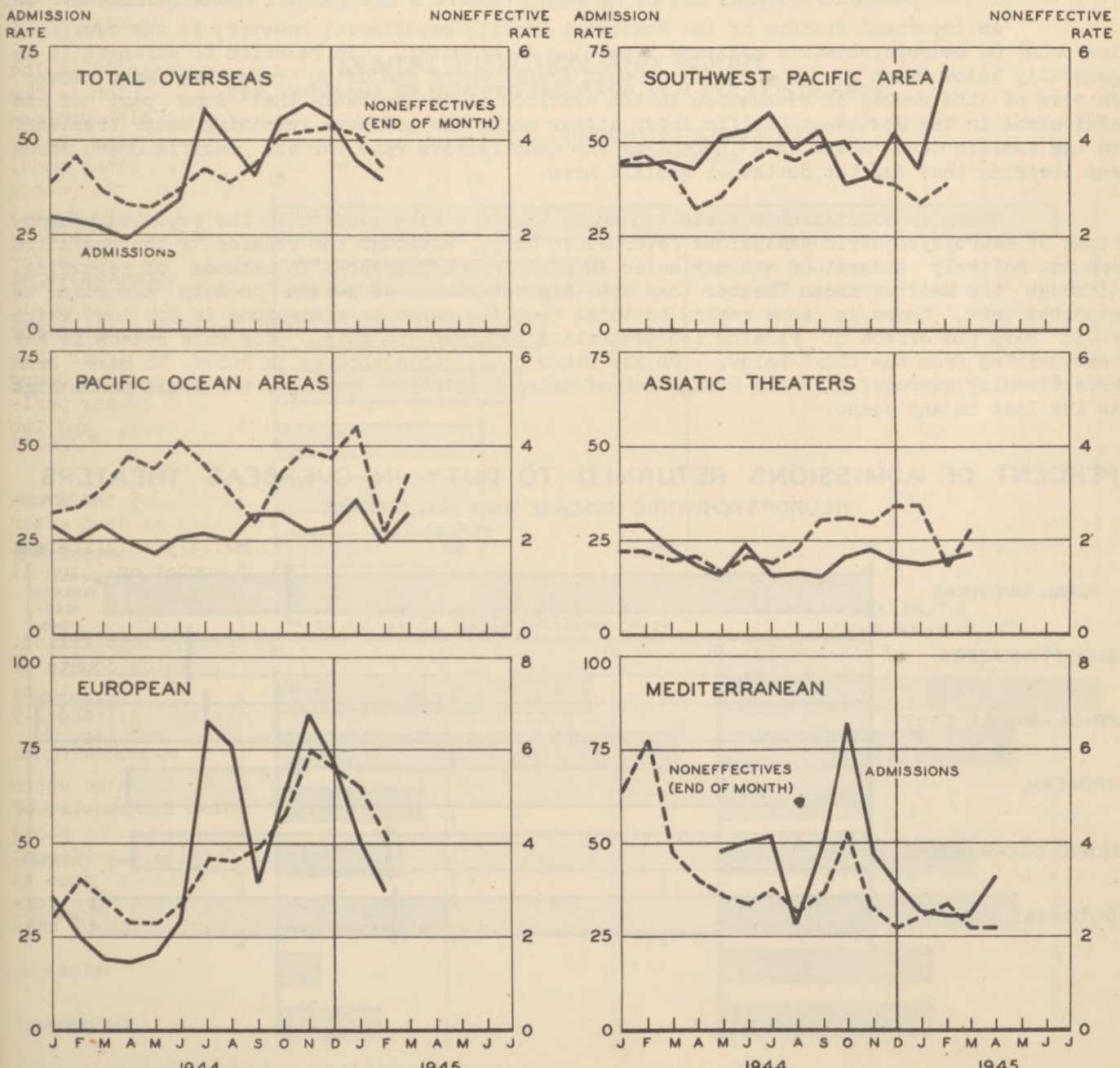
DISEASE AND INJURY

NEUROPSYCHIATRIC ADMISSIONS AND NONEFFECTIVES OVERSEAS

The reporting of neuropsychiatric admissions and patients remaining under treatment has improved greatly since 1943 but may still be incomplete. For the purpose of describing broad trends, however, they should be reasonably accurate. For the major theaters, the panels below give neuropsychiatric admissions per 1,000 men per year and neuropsychiatric patients under treatment per 1,000 strength at the end of each month. The scale for admission rates appears at the left, while that for patients under treatment is shown at the right.

In the European and Mediterranean Theaters the trend of admissions has been determined by tactical activity. The worst months of the European experience were July and November, while October saw the highest rate in the Mediterranean Theater. Although the noneffective rate in the European Theater rose to entirely new heights during 1944, it did not parallel the course of admissions. This would tend to occur, of course, if the increased incidence represented patients who remained noneffective for only one or two days. Although the reported observations may not be entirely accurate, they do suggest that the periods of tremendous increase in admissions saw great changes in average length of stay. Moreover, they correspond with the well known clinical fact that a large portion of the patients whose symp-

NEUROPSYCHIATRIC ADMISSIONS PER THOUSAND MEN PER YEAR AND NONEFFECTIVES PER THOUSAND STRENGTH, OVERSEAS THEATERS



NEUROPSYCHIATRIC ADMISSIONS AND NONEFFECTIVES OVERSEAS (Continued)

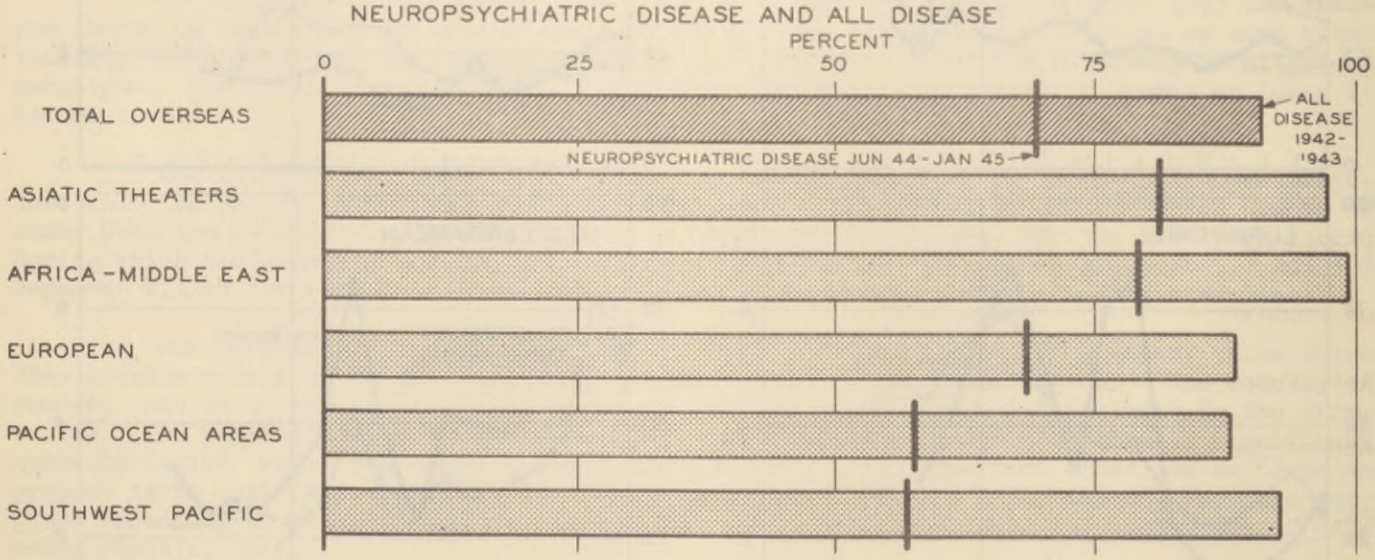
toms appear under battle conditions return to duty very quickly, and thus fail to swell the noneffective population in the usual way.

Reported admissions and noneffectives have been at a minimum in both the Asiatic theaters and Pacific Ocean Areas. The Asiatic rate is almost unbelievably low. In the Southwest Pacific, on the other hand, the reported rates have been rather high, and especially so when the factor of tactical activity is taken into account (see HEALTH for February 1945). During the Leyte phase of the Philippine Campaign the reported rate for the Southwest Pacific increased somewhat, but not to the extent which might have been expected. During February, however, the rate advanced to the highest point in the recorded history of the theater, probably because of the action on Luzon. For the forces in New Guinea the rate advanced from 61 to 78, but for the troops in the Philippines it moved from 29 to 67 per thousand men per year. An April rate for the Pacific Ocean Areas is not yet available, but informal reports are that neuropsychiatric casualties on Okinawa are higher than they have been in any previous Pacific campaign. Mention is made of the intensive use of artillery by the Japanese as an apparent factor of importance. If verified, this observation would suggest that, contrary to previous experience in the Pacific, theater neuropsychiatric admission rates may follow tactical activity more closely. If this should prove true for the forces in what has been the Southwest Pacific Area, this area may yet experience rates equal to or exceeding the peak rates of the European Theater.

An important feature of the Southwest Pacific experience, however, is the continued low count of neuropsychiatric patients remaining in hospital. In relation to strength it is generally below that for the Pacific Ocean Areas where admission rates are much lower. In view of the routes of evacuation in the Pacific it is probable that some part of the admissions in the Southwest Pacific later appear among the patients remaining under treatment in the Pacific Ocean Areas thus increasing the noneffective rate for the Pacific Ocean Areas and lowering that for the Southwest Pacific Area.

There is considerable variation among theaters with respect to the reported proportions of neuropsychiatric admissions returned to duty, although the reasons for the variation are not entirely understood and may arise in part from differences in methods of reporting. Although the Mediterranean Theater has the highest ratio of return to duty according to reported data, there is some reason to think that its count of admissions is too low, which would have the effect of raising the proportion returned to duty. For this reason it has been omitted from the chart below. On the other hand, this theater is known to have been exceptionally successful in the management of neuropsychiatric patients and would stand high in the list in any event.

PERCENT OF ADMISSIONS RETURNED TO DUTY IN OVERSEAS THEATERS

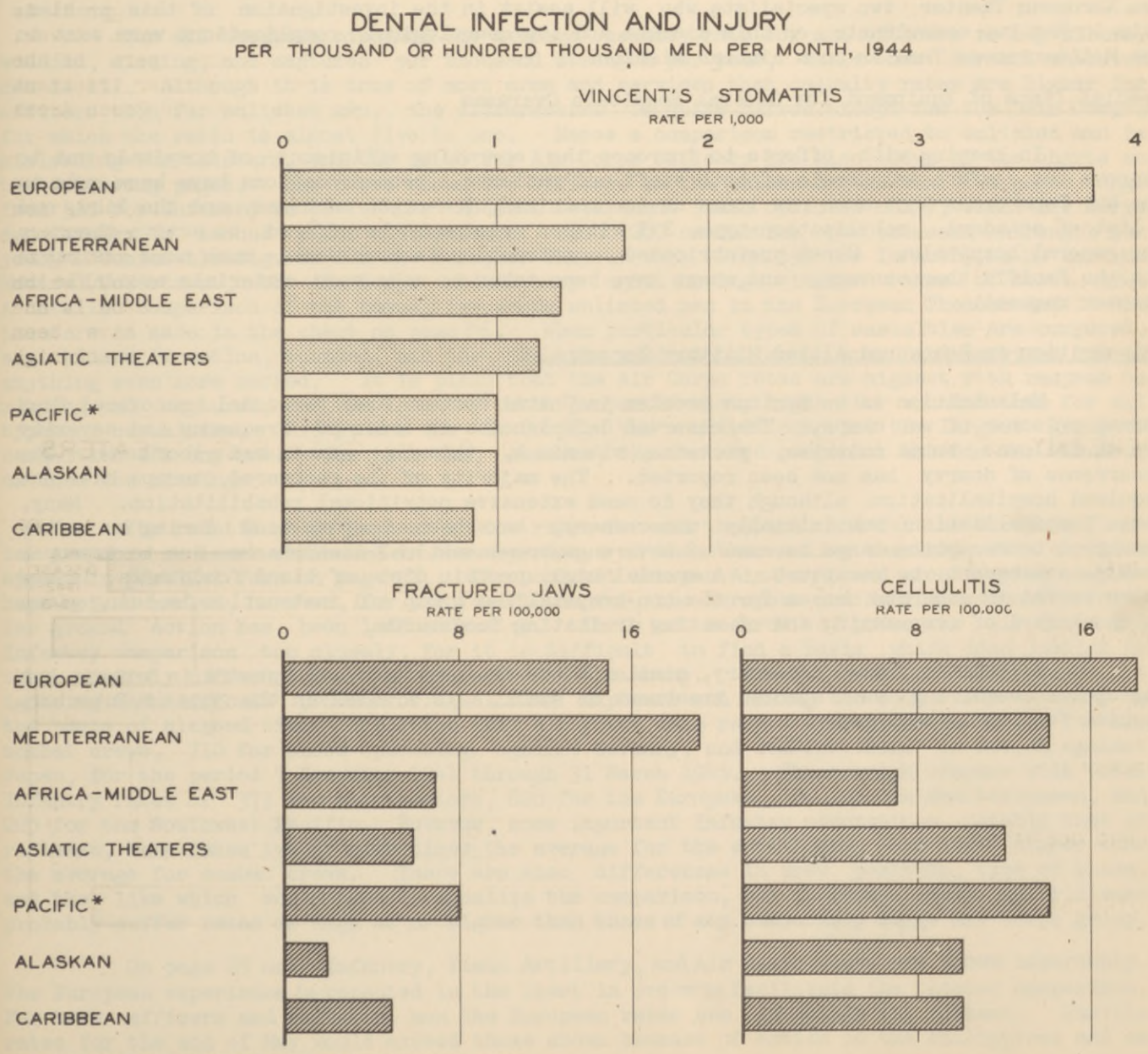


DENTAL INFECTION AND FRACTURED JAWS OVERSEAS

Stomatitis Vincent's infection continues lower in overseas theaters than in the continental United States, and the rates throughout the war have been lower than anticipated. Following the sharp rise in March and April 1943, the overseas rate has remained fairly constant at less than three per thousand per month. There is no evident relationship between combat and the frequency of Vincent's stomatitis. The incidence generally has been higher in areas where troops are in relatively close contact with the civilian population. The 1944 average for the European Theater at 3.8 per thousand per month is appreciably higher than for any of the other theaters, no one of which is even as high as 2.5.

Cellulitis, a result of dental infection, has been slightly more frequent among overseas troops during 1943 and 1944 than among troops in the continental United States. After a peak of 24 per hundred thousand per month in April 1944, the overseas rate has declined again to approximately that for the continental United States. Here also the European Theater tops all other overseas theaters. Increased military activity, as well as type of combat, and percentage of troops in combat all play an important role in the incidence of cellulitis in overseas theaters.

The rate for fractured jaws reflects combat activity to a marked degree, and after a sharp spurt during the invasion of France to almost 25 per hundred thousand, the rate for the European Theater eased off somewhat to bring the 1944 average to 15. However, the rate for the Mediterranean Theater was a little higher at 19 per hundred thousand.



* Includes Southwest Pacific Area and Pacific Ocean Areas.

DISEASE AND INJURY

HEALTH BRIEFS

Diphtheria in Europe

Although the incidence of diphtheria among U. S. troops on the European Continent has been sporadic, the fact that the disease has been rampant among the civilian population indicates that the Army may have to cope with this problem as long as large numbers of personnel are deployed there. In fact, many countries of Europe are suffering from the worst diphtheria wave in 50 years, outweighing all other epidemic diseases combined. In Germany, Bohemia, France, Norway, and the Netherlands diphtheria infection is approaching epidemic proportions. The multiplicity of carriers, greater adult incidence, and the relatively high case fatality rate accentuate the importance of control measures.

The seasonal maximum for diphtheria usually occurs during the autumn, but among U. S. Army forces in the European Theater the April level was the culmination, to date, of an almost steady uptrend in process for about a year. In that month, the latest for which data are available, the 219 admissions were but slightly below the total of 247 for the entire year 1944. The April rate of 1.0 per 1,000 per year was some five times as great as that for the year 1944. Experience in the Mediterranean Theater also is somewhat worse than a year ago but after reaching 2.7 per thousand in December 1944, the rate has receded seasonally to 1.0 in April, which contrasts with 0.7 in April 1944 and 0.9 for the entire year 1944. For comparative purposes incidence among troops in the Z/I during 1944 was 0.1 per thousand.

With the concurrence of the Chief Surgeon, The Surgeon General is now sending to the European Theater two specialists who will assist in the investigation of this problem. Late in May two consultants on this disease and its neurological complications were sent to the Mediterranean Theater on a similar mission.

Special Items of Equipment for General Hospitals Overseas

In keeping with efforts to increase the operating efficiency of hospitals and to improve the comfort and morale of both staff and patients, recommendations have been made to the War Department that such new items as ice machines, ice-cream machines, and the like, and a list of standard, mobilization-type, Z/I kitchen equipment be offered to active theaters for general hospitals. Steel prefabricated construction is considered much more desirable for the Pacific than tentage, and steps have been taken to make such materials available on theater request.

Malnutrition in Recovered Allied Military Personnel

Malnutrition is a serious problem in United States Army personnel recovered from German prisoner of war camps. The observed deficiencies in order of frequency and severity are as follows: total calories, proteins, vitamin A, thiamin, niacin and riboflavin. The occurrence of scurvy has not been reported. The majority of the recovered troops have not required hospitalization although they do need extensive nutritional rehabilitation. Many, whose hospitalization was initially unnecessary, have been hospitalized during or after transport to reception camps because of severe gastro-intestinal disturbance due to improper feeding subsequent to recapture. A special high protein diet of bland foodstuffs is now being served in separate messes for the non-hospitalized group and instruction is being given on the hazard of over-eating and of eating irritating foodstuffs.

In addition, when necessary, similar diets are provided on shipboard in transit but the number requiring such special treatment is small. On arrival in the Zone of Interior, special feeding is employed.

BATTLE CASUALTIES BY ARM OR SERVICE

The wide variations among the arms and services and the various theaters with respect to the average casualty rates experienced by both officers and enlisted men since the beginning of the war are sharply brought out by the tables and charts on the following pages. The presentation is the same as that described in HEALTH for June 1944, where similar data were shown for the entire experience of the war through 30 April 1944. Counts of all casualties processed by The Adjutant General prior to 1 May 1945 have been adjusted to comprise only casualties occurring through 31 March 1945 and form the basis of the present analysis. Parallel strengths have been cumulated through that date in order to compute relative incidence.

Since April 1944 the cumulative casualty rate for both officers and enlisted men in all arms and services overseas has increased from 52 per thousand strength per year to 113, of which killed account for 19, wounded for 70, captured for 11, and missing for 13. The last two components have not changed substantially, during that time but the rate for killed has increased by about 125 percent and that for wounded by about 225 percent. The larger change in wounded reflects the greater influence of the Infantry (including Armored) experience upon the total casualty rate, previously determined in larger measure by the Air Corps casualties with their higher ratio of killed to wounded. It is interesting to note that the more recent rates for all arms and services are almost identical with those presented for Infantry alone a year ago. During the interval the average rates for the Infantry have more than trebled, while those for the Air Corps have declined by a slight amount. Increasingly, then, the casualty picture is one of ground action, but air casualties continue to bulk large in the total.

For all theaters combined the average casualty rate for all officers is 143 killed, wounded, missing, and captured per thousand strength per year, while that for all enlisted men is 111. Although it is true of most arms and services that casualty rates are higher for officers than for enlisted men, the differential is quite narrow except for the Air Corps, for which the ratio is almost five to one. Hence a comparison restricted to enlisted men is misleading for this arm, and the rates for Air Corps officers are also shown on the charts on the following pages. The rates shown for officers in the tables on the next two pages range from 361 for Infantry to 18 for the Medical Department (male officers only), with Air Corps and Cavalry in second place with rates of about 250 casualties per thousand strength per year. Comparable figures for the European Theater vary from 593 for Infantry to 22 for the Medical Department, the Air Corps and Cavalry again having similar rates of about 350. A detailed comparison of the casualties among enlisted men in the European Theater and in all theaters is made in the chart on page 26. When particular types of casualties are compared, e.g. killed in action, wounded, and the like, the variations among arms and services are if anything even more marked. It is plain that the Air Corps rates are highest with respect to missing and captured, and the Infantry rates proportionately higher for wounded than for all types of casualties. Except for the Air Corps, the wounded comprise the largest group of casualties for any arm. For this arm, however, the captured component exceeds the wounded, as does the missing.

The relationships evident in the rates for all theaters and for the European Theater are more or less reflected in the experience of the other active theaters, data on which appear in parallel form on page 27. The contrast between Air Corps and ground rates is perhaps not so marked, however, for the Pacific as for the European and Mediterranean Theaters, for ground action has been less extensive. It is not desired to press the Air Corps and Infantry comparison too closely, for it is difficult to find a basis which does justice to their entirely different modes of contact with the enemy. There is some point, however, in ignoring the difficult problem of equalizing exposure and making the comparison entirely on the basis of elapsed time. Published Army Air Force data record average rates of 574 for all combat crews, 710 for those operating against Germany, and 261 for those in action against Japan, for the period 7 December 1941 through 31 March 1945. These rates compare with total Infantry rates of 373 for all theaters, 628 for the European, 399 for the Mediterranean, and 225 for the Southwest Pacific. However, some important Infantry occupations, notably that of rifleman, have rates two or more times the average for the entire arm, and thus higher than the average for combat crews. There are also differences in crew position, type of plane, and the like which would tend to equalize the comparison, but it seems likely that riflemen probably suffer rates as high as or higher than those of any comparably large Air Corps group.

On page 27 only Infantry, Field Artillery, and Air Corps rates are shown separately. The European experience is repeated in the chart in order to facilitate the theater comparison. For both officers and enlisted men the European rates are generally the highest. Pacific rates for the end of May would exceed those shown because of action in the Philippines and on Okinawa.

DISEASE AND INJURY

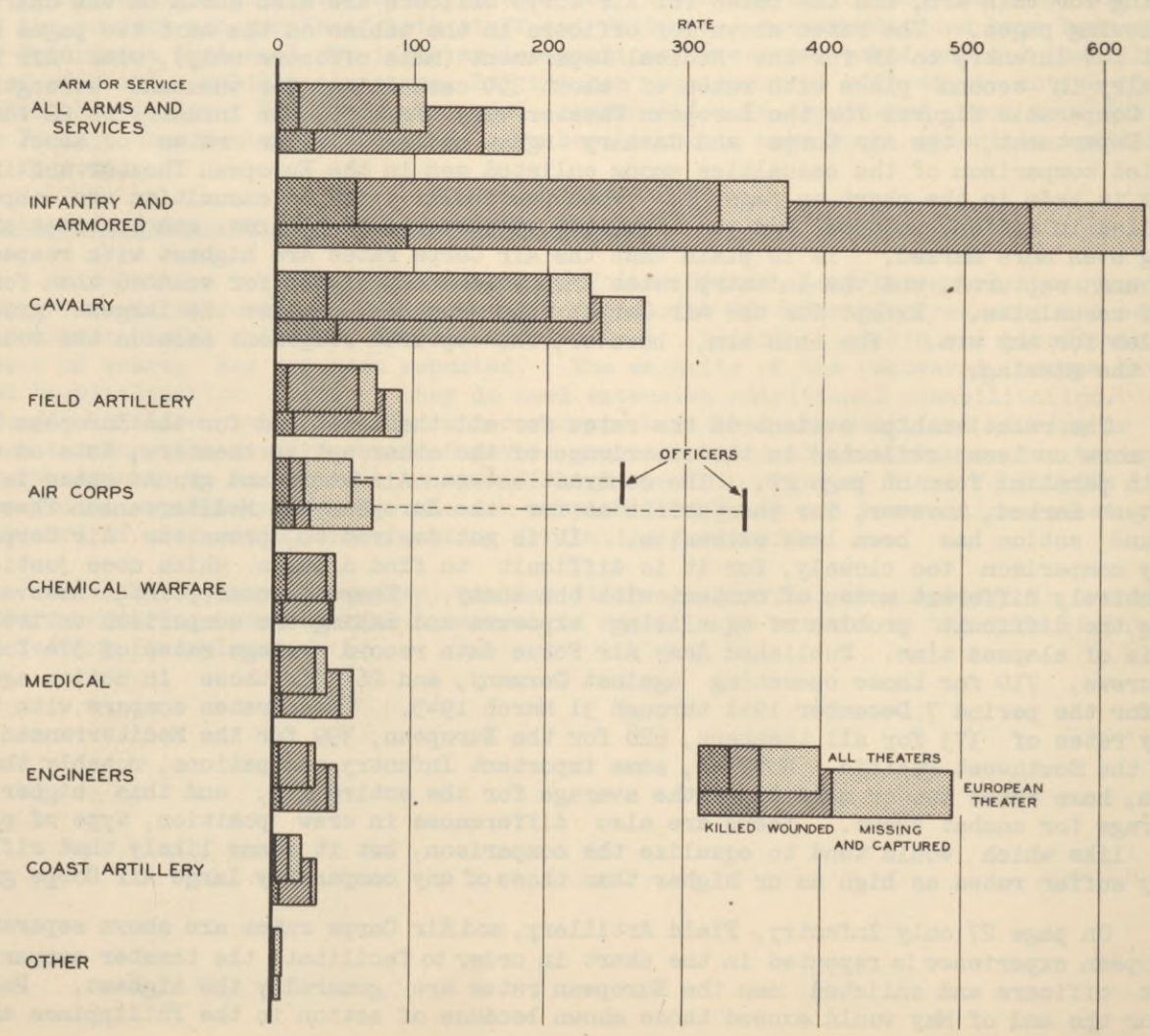
BATTLE CASUALTIES BY ARM OR SERVICE (Continued)

OFFICER BATTLE CASUALTIES PER THOUSAND STRENGTH PER YEAR BY ARM OR SERVICE
European Theater and All Theaters, December 1941 through March 1945

ARM OR SERVICE	Total Casualties		Killed		Wounded		Missing and Captured	
	All Theaters	European	All Theaters	European	All Theaters	European	All Theaters	European
ALL ARMS AND SERVICES a/	142.9	205.7	29.1	41.6	56.4	87.3	57.4	76.8
Infantry	360.7	592.9	69.7	113.5	251.0	422.2	40.0	57.2
Cavalry	246.8	347.8	54.0	79.2	165.1	235.7	27.7	32.9
Field Artillery	134.7	181.4	26.4	36.8	88.1	124.3	20.2	20.3
Air Corps b/	254.1	341.6	54.8	71.4	35.9	44.3	163.4	225.9
Chemical Warfare	47.8	51.4	11.9	11.6	31.0	35.5	4.9	4.3
Medical Dep't c/	17.7	21.7	2.3	3.2	9.2	13.2	6.2	5.3
Engineers	44.2	65.5	8.4	13.5	28.0	43.6	7.8	8.4
Coast Artillery	27.4	36.6	3.6	8.4	10.6	24.1	13.2	4.1
Other	11.0	10.7	1.9	2.5	4.8	6.4	4.3	1.8

a/ Includes Warrant and Flight Officers, Army Nurse Corps, and Women's Army Corps.
b/ Includes Flight Officers.
c/ Excludes Army Nurse Corps, Hospital Dieticians, and Physical Therapy Aides.

BATTLE CASUALTIES BY ARM OR SERVICE AMONG ENLISTED MEN OVERSEAS
RATES PER THOUSAND MEN PER YEAR, DECEMBER 1941 - MARCH 1945



DISEASE AND INJURY

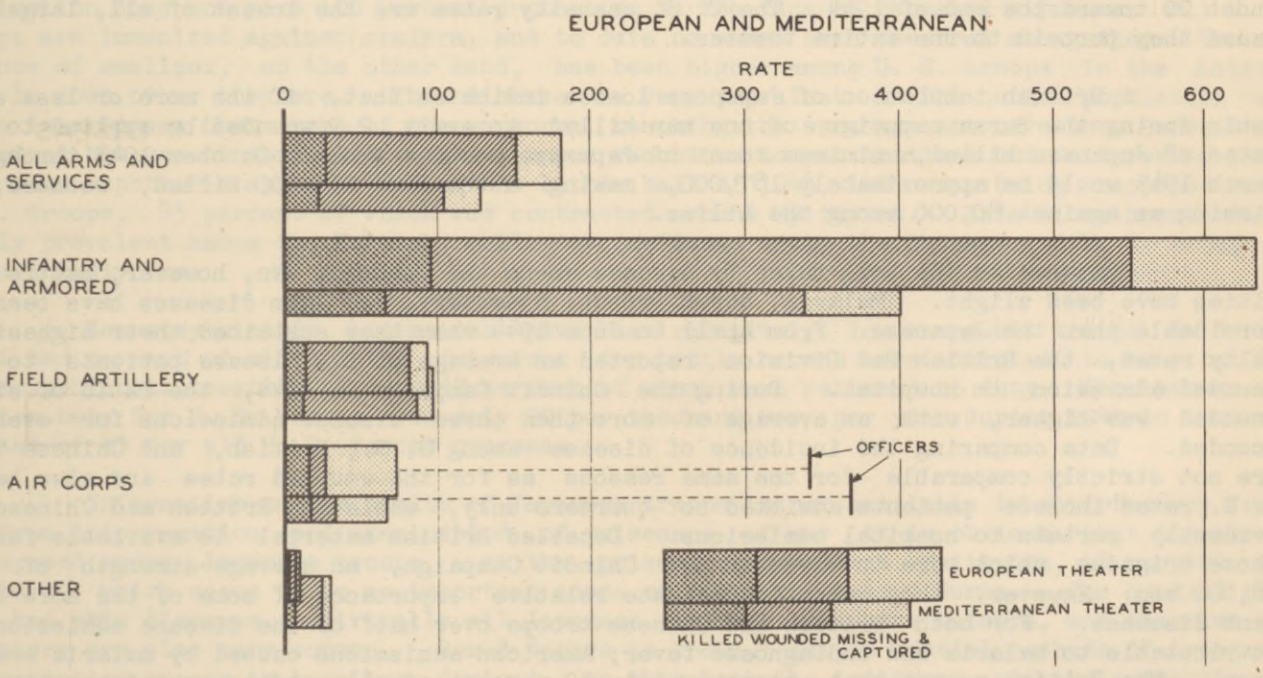
BATTLE CASUALTIES BY ARM OR SERVICE (Continued)

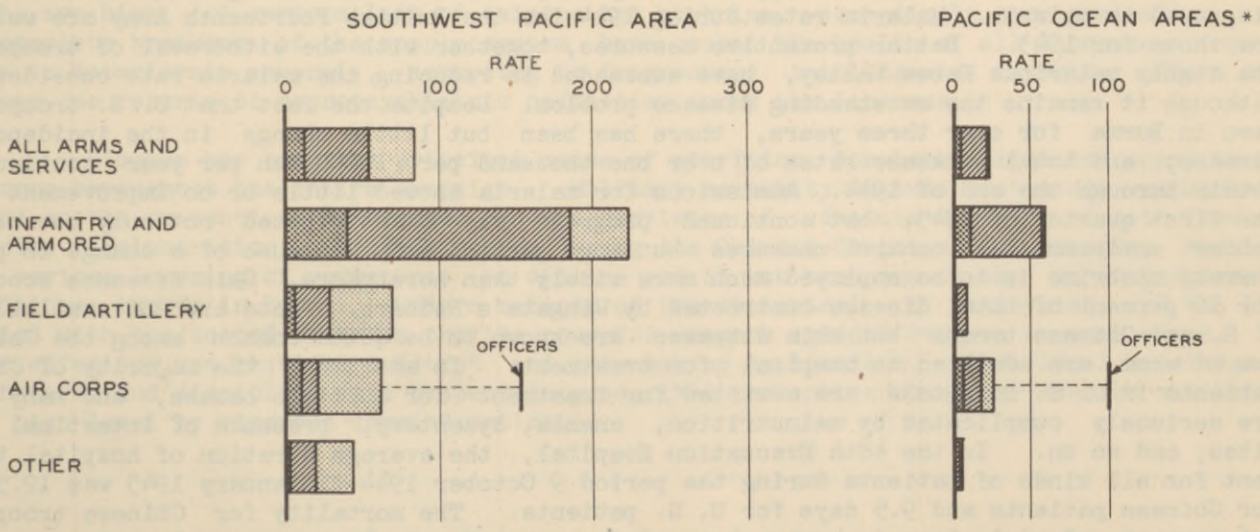
OFFICER BATTLE CASUALTIES PER THOUSAND STRENGTH PER YEAR BY ARM OR SERVICE
Overseas Theaters, December 1941 through March 1945

Arm or Service	MEDITERRANEAN				SOUTHWEST PACIFIC				PACIFIC OCEAN AREAS*			
	Total	K.I.A.	W.I.A.	M.I.A. c/	Total	K.I.A.	W.I.A.	M.I.A. c/	Total	K.I.A.	W.I.A.	M.I.A. c/
ALL ARMS AND SERVICES a/	185.9	34.8	70.5	80.6	100.8	20.7	33.8	46.3	38.4	9.0	20.5	8.9
Infantry	371.5	70.7	262.8	38.0	230.1	44.7	125.6	59.8	79.0	16.4	61.9	0.7
Field Artillery	150.5	30.3	106.0	14.2	110.1	14.6	42.5	53.0	19.7	5.1	13.9	0.7
Air Corps b/	369.4	66.7	54.0	248.7	154.3	46.1	30.0	78.2	100.3	27.5	24.4	48.4
Other	23.4	5.2	16.2	2.0	42.1	3.5	10.7	27.9	5.3	0.8	4.3	0.2

a/ Includes Warrant and Flight Officers, Army Nurse Corps, and Women's Army Corps.
b/ Includes Flight Officers.
c/ Includes Captured.

BATTLE CASUALTIES BY ARM OR SERVICE. ENLISTED MEN IN OVERSEAS THEATERS
RATES PER THOUSAND MEN PER YEAR, DECEMBER 1941 - MARCH 1945





* Excluding 21st Bomber Command.

DISEASE AND INJURY

HEALTH CONDITIONS IN BURMA

The combined efforts of British, U. S., and Chinese forces have cleared the Japanese from all but a small portion of southeast Burma. An average of 500,000 British, 165,000 U. S., and over 80,000 Chinese troops were involved in these operations during 1944 and the first part of 1945. Fighting along the Burma front has consisted mainly of intermittent clashes between small parties of Allied and Japanese troops, and of raids behind enemy lines. Troops actually in combat have been isolated from each other for the most part, living under tropical jungle conditions for long periods of time and often relying mainly on airplane drops for supplies. The very nature of the action, involving wide dispersion of troops, has prevented the systematic accumulation of information, and methods of reporting differ among the several Allied forces. However, from this experience it is possible to outline some of the major health hazards connected with operations in southeast Asia.

From the time of the Japanese attack in eastern Burma to the Allied occupation of Mandalay, the casualty experience of the several Allied forces in the area has been subject to wide fluctuation, partly because of the nature of the operations. The available casualty figures do not permit close comparisons of incidence among Chinese, British, and U. S. troops, primarily because of the echelons to which they pertain. The Chinese rates are for combat divisions under U. S. tactical command and are naturally the highest. For June 1944, the first point of record, the rate was 430 per 1,000 men per year, but during the first quarter of 1945 it averaged about 75 on an annual basis. The British rates, next in order of magnitude, refer to a strength of about 500,000 at the army echelon including some line of communication troops. They reached a peak of 174 in April 1944 and thereafter declined to about 20 toward the end of 1944. The U. S. casualty rates are the lowest of all, largely because they pertain to the entire theater.

A British tabulation of Japanese losses indicates that, if the more or less stable ratio during the Burma campaign of one man killed to every 2.9 wounded be applied to estimates of Japanese killed,a minimum count of Japanese wounded from 15 October 1943 through 24 March 1945 would be approximately 187,000, making a total of 253,000 killed, wounded, and missing as against 80,000 among the Allies.

Compared to the toll taken by disease among the fighting men, however, battle casualties have been slight. Malaria, scrub typhus, dysentery, and skin diseases have been more formidable than the Japanese. From April to June 1944 when they sustained their highest casualty rates, the British 2nd Division reported an average of 2.4 disease patients to every wounded admission to hospital. During the Chindit Campaign in 1944, the ratio of sick to wounded was higher, with an average of more than three disease admissions for every one wounded. Data comparing the incidence of disease among U. S., British, and Chinese troops are not strictly comparable for the same reasons as for the wounded rates and also because U. S. rates include patients admitted to quarters only, while the British and Chinese data evidently pertain to hospital admissions. Detailed British material is available for only those brigades which were involved in the Chindit Campaign, an average strength of about 18,000 men. However, they serve to indicate relative importance of some of the more important diseases. For both British and Chinese troops over half of the disease admissions are attributable to malaria and undiagnosed fever; American admissions caused by malaria are much less. The British report that approximately 30 percent of all undiagnosed fever is later diagnosed as malaria. Malaria rates during 1944 for the British Fourteenth Army are well below those for 1943. Better preventive measures, together with the withdrawal of troops from the highly malarious Kabaw Valley, have succeeded in reducing the malaria rate considerably, although it remains the outstanding disease problem. Despite the fact that U. S. troops have been in Burma for over three years, there has been but little change in the incidence of disease, and total disease rates of over one thousand per 1,000 men per year continued to obtain through the end of 1944. Admissions for malaria showed little or no improvement until the first quarter of 1945, but continued progress may be anticipated not only because of better environmental control measures but more particularly because of a change in policy whereby atabrine is to be employed much more widely than heretofore. Skin diseases accounted for 10 percent of total disease contracted by Wingate's Raiders. Data are not available for U. S. and Chinese troops but skin diseases are known to be quite common among the Chinese, few of whom are admitted to hospital for treatment. In addition, the majority of Chinese patients in U. S. hospitals are admitted for treatment for multiple causes, and many cases are seriously complicated by malnutrition, anemia, dysentery, presence of intestinal parasites, and so on. In the 48th Evacuation Hospital, the average duration of hospital treatment for all kinds of patients during the period 9 October 1944-31 January 1945 was 12.5 days for Chinese patients and 9.5 days for U. S. patients. The mortality for Chinese troops was 1.6 percent of admissions in contrast to 0.9 percent for U. S. troops. But this may be explained by the fact that only the most seriously sick and wounded among the Chinese are admitted to hospital.

HEALTH CONDITIONS IN BURMA (Continued)

Among U. S. troops, seventeen percent of all disease is attributable to diarrhea and dysentery, only slightly higher than that reported for the Chinese but almost double the British percentage. However, this is probably not caused by poorer sanitation, but rather by the fact that U. S. reports include even slight cases of diarrhea. Approximately 16 percent of all disease among U. S. troops consists of respiratory diseases, light cases of which also are neither admitted to hospital nor included in British and Chinese reports.

While the incidence of scrub typhus is low in comparison to malaria and the intestinal diseases, its importance lies in its high fatality rate and prolonged hospitalization. Scrub typhus caused about two percent of the disease admissions during the Chindit Campaign but incidence rose sharply during the summer of 1944 in the British Fourteenth Army. Two hundred cases were reported in July 1944 and over 600 in August. The majority of the infections occurred among forces working down the Ukrhal, Tamu, and Tiddem roads. Over 600 admissions for scrub typhus were reported among U. S. troops during 1944, mainly among the 5307th Composite Unit (Prov) during the fighting along the Irrawaddy, Mogaung, and Tinai Rivers.

Outbreaks of other less common but equally serious diseases occur from time to time. A considerable amount of typhoid exists among the Chinese troops in Burma, a rate of 5.3 per thousand men per year being reported for December 1944, as against 0.1 for U. S. troops. During a slight epidemic of cholera in the Fourteenth Army, 97 cases were reported in seven months, primarily among Indian and African troops. All these troops were supposed to have been vaccinated against cholera, but some individuals may have escaped, and again vaccination does not give 100 percent protection in the face of repeated exposure. All U. S. troops are immunized against cholera, and to date no cases have occurred among them. The incidence of smallpox, on the other hand, has been higher among U. S. troops in the Asiatic than in most other theaters. This disease is very prevalent in the native population and there is evidence that some of the personnel reaching the area may not have been adequately immunized because of confusion between immune reactions to vaccinations and failures to take. Cutaneous diphtheria appeared during the latter half of 1944, 140 cases being reported among U. S. troops, 83 percent of which was contracted around Myitkyina. Infectious hepatitis is fairly prevalent among the British, while its incidence among the Chinese and U. S. troops is comparatively low.

Neuropsychiatric admissions have been relatively low among all troops in Burma. About ten percent of all British admissions for battle causes were admitted to hospital for neuropsychiatric treatment, over 50 percent of whom were returned to duty. The theater admission rate for U. S. forces was only 20 per thousand men per year during 1944 in contrast to that of 43 for all U. S. forces overseas.

Information on the health of Japanese troops is not available in satisfactory form, but from interrogation and examination of prisoners of war it is obvious that disease is widespread among Japanese troops. At the prisoner stockade at Myitkyina, 15 percent had beriberi, which seems to be an important cause of death throughout Burma. One hundred percent had skin diseases. Virtually all Japanese in this area have malaria, and diarrhea and dysentery are also very common. Scrub typhus is known, but no special methods of treatment or prevention appear to have been devised, so that both the incidence and the proportion of deaths are high. A serious lack of quinine and atabrine, exceedingly poor sanitation, and the complete breakdown of the supply system have caused the health of all Japanese troops in Burma to deteriorate severely, according to fragmentary intelligence reports. There are, however, no reports of neuropsychiatric casualties among the Japanese.

Disease has been the principal cause of attrition for both Allied and enemy troops in Burma throughout the entire campaign. Military necessity demands that great emphasis be placed on the prevention of disease and the provision of adequate supplies of both food and medicine. Malnutrition in British troops during the Chindit Campaign, for example, resulted in a serious lowering of resistance to disease and it has been one of the major problems of the Chinese troops in Burma. Modern methods of insect control, of sanitation, and the like coupled with the use of atabrine provide powerful weapons against disease in such areas, but their effective use requires constant and painstaking application. Individual knowledge of the hazards and discipline with respect to prescribed preventive measures must be maintained at a high level by vigorous command action.

HOSPITALIZATION

HOSPITALIZATION OVERSEAS

Fixed bed occupancy in the European Theater moved from 5.3 percent of strength at the end of March to 4.9 percent at the end of April and, with the cessation of hostilities, dropped abruptly to about 3.2 on 25 May, the lowest point since the end of June 1944. On this date only 99,900 beds were occupied, 65 percent of them on the Continent. On 15 April, the latest date for which such information is available, 48 percent of all the occupied fixed beds were filled by disease and nonbattle injury patients, 39 percent by Army wounded, 10 percent by prisoners of war, and the remaining three percent by Allied and civilian patients.

The tables on the following page summarize the fixed bed situation in the overseas theaters on 30 April 1945, the latest date for which reasonably complete information is available. The counts of beds present and under orders are based upon the 1 May 1945 Troop List for Operations and Supply, and the number of beds occupied is taken from theater radio reports. The number of beds reported in the Troop List as present in the overseas theaters may differ from similar theater data for the same date because of lags in reporting the arrival of units in the theaters. The Troop List gives a total of 338,525 fixed bed units present overseas on 1 May, or about two percent more than was reported by the theaters on 27 April. The bed occupancy data for the Asiatic theaters include Chinese patients, and the strength shown for India-Burma includes 75,300 Chinese. On 27 April only 17 percent of all fixed bed patients in the Asiatic theaters were Chinese in comparison with 23 percent one month earlier. However, at the end of April 86 percent of all nonfixed bed patients were Chinese as against 76 percent on 31 March.

The number of fixed beds reported by the Pacific Ocean Areas as occupied on 27 April is too low. Reports for that date are known to exclude the Tenth Army on Okinawa, where there is at least one general hospital. During April between 8,000 and 9,000 Army troops were wounded in this operation. In addition, some of the approximately 1,500 Marines wounded in April may be hospitalized in Army units. A patient census considerably in excess of the reported 11,358 patients would seem indicated.

On 11 May, only about 89 percent of the T/O fixed beds present in the European Theater were operating, and of these operating beds only 53 percent were on the Continent, or four percent more than were there at the end of March. By 25 May, 58 percent of all operating beds were on the Continent, but the number of beds set up in the theater had declined 17 percent from the figure of 178,350 for 11 May, more units having become nonoperative in the United Kingdom than on the Continent. On 1 June plans for the provision of hospitalization for the U. S. Army of Occupation called for 18,650 fixed beds in the U. S. zone of responsibility in Germany.

The need for hospitalizing prisoners, members of other U. S. armed forces, civilians, partisans, and Allied military personnel constitutes a drain on the available hospital beds in many overseas theaters. The table below details the latest available percentage distribution of bed occupancy by type of patient in the various overseas theaters.

FIXED AND MOBILE BEDS OCCUPIED, OVERSEAS THEATERS BY TYPE OF PATIENT

Theater	Date	Total Beds Occupied	Percent of Total Beds Occupied				
			U.S.		Allies & Neutrals	PW	Civilians
			Army	Other			
ALL THEATERS		272,761	88.5	1.1	2.5	6.8	1.1
North American	27 Apr 45	1,190	81.0	1.1	1.8	-	16.1
Latin American	27 Apr 45	1,731	96.4	0.6	0.2	-	2.8
European	2 Mar 45	188,784	90.7	0.6	0.9	7.6	0.2
Mediterranean	19 May 45	17,011	72.7	0.1	4.3	22.2	0.7
Africa-Middle East	27 Apr 45	1,115	88.4	1.6	1.8	3.1	5.1
Pacific Ocean Areas	30 Mar 45	10,416	83.2	13.0	0.1	1.3	2.4
Southwest	23 Feb 45	41,926	93.1	1.2	0.9	0.7	4.1
Asiatic Theaters	a/	10,588	61.2	0.2	37.4	0.2	1.0

a/ As of 30 March for China Theater and 27 April for India-Burma Theater.

HOSPITALIZATION OVERSEAS (Continued)

FIXED BEDS AVAILABLE AND OCCUPIED

Number of Beds, 30 April 1945

Theater	W. D. Authorization	T/O Present		T/O c/ Under Orders	Occupied d/
		Number c/	Percent of Authorization		
ALL THEATERS	361,800	338,525	93.6	12,450	226,464
American a/	4,351	5,025	115.5	-	2,751
European					
Total	214,196	200,350	93.5	-	149,492
Continent	-	113,750	-	-	83,699
United Kingdom	-	86,600	-	-	65,793
Mediterranean	33,043	29,000	87.8	-	19,464
Pacific Ocean Areas h/	31,028	30,200	97.3	9,450	11,358
Southwest Pacific					
Total	56,722	54,300	95.7	3,000	33,961
Australia	-	1,800	-	-	259
New Guinea and Islands	-	28,400	-	-	10,628
Philippines	-	24,100 e/	-	3,000	23,074
Asiatic Theaters					
Total	19,381	16,800	86.7	-	8,323
China	2,791	2,100	75.2	-	1,237
India-Burma	16,590	14,700	88.6	-	7,086
Africa-Middle East b/	3,079	2,850	92.6	-	1,115

Beds as Percent of Strength

Theater	Strength (Thousands) f/	W. D. Author-ization	T/O Present		Beds Occupied c/	
			Total c/	Usable g/	Percent of Strength	Percent of T/O Present
ALL THEATERS	5,407	6.7	6.3	5.0	4.2	66.9
American a/	145	3.0	3.5	2.8	1.9	54.7
European						
Total	3,060	7.0	6.5	5.2	4.9	74.6
Continent	2,628	-	-	-	-	73.6
United Kingdom	432	-	-	-	-	76.0
Mediterranean	501	6.6	5.8	4.6	3.9	67.1
Pacific Ocean Areas h/	517	6.0	5.8	4.6	2.2	37.6
Southwest Pacific						
Total	810	7.0	6.7	5.4	4.2	62.5
Australia		-	-	-	-	14.4
New Guinea and Islands		-	-	-	-	37.4
Philippines	571	-	-	-	-	95.7
Asiatic Theaters						
Total	323	6.0	5.2	4.2	2.6	49.5
China	47	6.0	4.5	3.6	2.7	58.9
India-Burma	276	6.0	5.3	4.2	2.6	48.2
Africa-Middle East b/	51	6.0	5.6	4.5	2.2	39.1

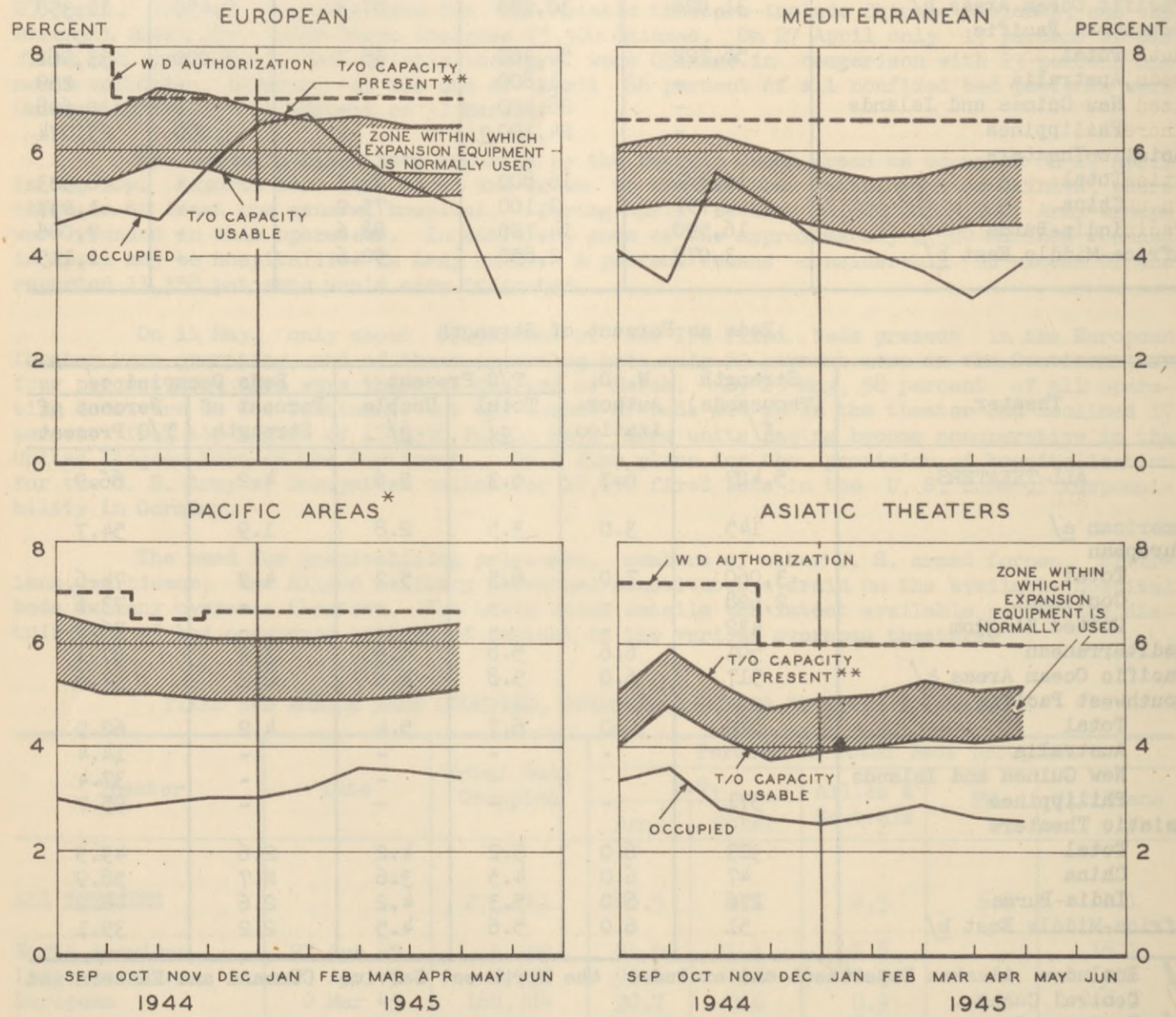
a/ Includes Alaskan Department and excludes the Northwest Service Command and Eastern and Central Canada.
b/ Includes Persian Gulf Command.
c/ T.L.O.S. dated 1 May 1945.
d/ Reported by theaters telegraphically for 27 April 1945.
e/ Includes 1,200 beds in 3 field hospitals assigned to Pacific Ocean Areas, but on Leyte 1 May 1945.
f/ Geographic strength by theater. India-Burma, Asiatic Theaters, and All Theaters strengths include 75,300 Chinese.
g/ Eighty percent of total T/O Present.
h/ Beds occupied excludes experience of 10th Army on Okinawa. See text.

HOSPITALIZATION OVERSEAS (Continued)

The panels below show the changes in the availability and occupancy of fixed beds in the more active theaters since the beginning of September 1944 in relation to the WD authorization. In none of the theaters is the fixed bed situation characterized by crowding, although the picture as shown for the Pacific areas may be deceptive. There is reason to believe that the count of beds occupied is too low for the Pacific Ocean Areas, and the Southwest Pacific Area usually has only about 70 percent of its fixed T/O units in operation at one time. On 23 February, for example, 26 percent of the fixed beds in the Southwest Pacific were staging, under orders, or in construction, and 43 percent of the theater supply of non-fixed beds was in these categories. The decline in bed occupancy in the European Theater continues to be the outstanding trend in the bed situation overseas.

FIXED HOSPITALIZATION OVERSEAS THEATERS

BEDS AS PERCENT OF STRENGTH



* Southwest Pacific and Pacific Ocean Areas. Pacific Ocean Areas count for 27 April is incomplete.
** Exceeds T/O capacity of units set up by capacity of units staging, etc.

HOSPITALIZATION

HOSPITALIZATION OVERSEAS (Continued)

The prisoner-of-war hospital program planned for the European Theater was predicated upon the ultimate provision of 18 installations providing the equivalent of 16,250 T/O beds to be staffed by enemy personnel. These installations were to include 12 units comparable with the 1,000-bed general hospital, five units equivalent to the 750-bed station hospital, and one unit of the 500-bed station hospital type. At the end of April, there were in operation 10 installations with a capacity equivalent to 9,000 T/O fixed beds and a population of about 12,000 PW patients. However, on this same date there were about 13,000 PW patients in Army T/O fixed hospitals.

The demands on U.S. medical personnel for professional and administrative supervision in the care of prisoners of war, recovered allied military personnel, and displaced persons hospitalized within occupied Germany under the "stay put" policy resulted in the withdrawal of more than 200 Medical Department officers, and 850 enlisted men from nonoperating and less actively operating units by 30 April. It was estimated by the Chief Surgeon, ETOUSA that 500 officers and 5,000 enlisted men might be detached from fixed hospital units for this purpose by the end of June.

As a result of the increase in troop strength overseas during April, the computed authorization for fixed T/O beds overseas increased by about one percent to reach 361,800 beds, but the number actually present also increased from 93 percent to 94 percent of authorized capacity during the month. Also during April the number of mobile units overseas increased by 1,625 beds, 1,600 in the European Theater and 25 in the Asiatic theaters, the total being 86,725 beds on 30 April. In addition, there was a redistribution of mobile facilities between the China and India-Burma Theaters which resulted in the transfer of 1,000 beds in units to the former area. Mobile bed occupancy continued to increase in the Southwest Pacific, moving from 0.9 percent of strength on 30 March to 1.2 on 30 April.

NONFIXED BEDS AVAILABLE AND OCCUPIED
30 April 1945

Theater	Number of Beds			Percent of Strength		Occupied as Percent of T/O Present
	T/O Present b/	Under Orders b/	Total Occupied c/	T/O Present	Occupied	
ALL THEATERS a/	86,725	400	32,688	1.6	0.6	37.7
European						
Total	58,200	-	14,000 d/	1.9	0.5	24.1
Continent	56,600	-	14,000 d/	-	-	24.7
United Kingdom	1,600	-	-	-	-	-
Mediterranean	8,800	-	3,047	1.8	0.6	34.6
Pacific Ocean Areas	3,900	400	1,019	0.8	0.2	26.1
Southwest Pacific						
Total	10,100	-	12,399	1.2	1.5	122.8
Australia	425	-	-	-	-	-
New Guinea and Islands	650	-	64	-	-	98.5
Philippines	9,025 e/	-	12,335	-	-	136.7
Asiatic Theaters						
Total	5,725	-	2,223	1.8	0.7	38.8
China	1,300	-	358	2.8	0.8	27.5
India-Burma	4,425	-	1,865	1.6	0.7	42.1

a/ Includes American and Africa-Middle East theaters, which have no mobile beds.
b/ T.L.O.S. dated 1 May 1945.
c/ Reported by theaters telegraphically for 27 April 1945.
d/ Estimated.
e/ Includes 150 beds in six portable surgical hospitals assigned to POA, but on Leyte 1 May 1945.

HOSPITALIZATION OVERSEAS (Continued)

Redeployment of medical units from the European and Mediterranean Theaters has already begun. As of 1 June movement directives had been issued by The Adjutant General governing the transfer of 13,925 T/O fixed and mobile bed units from the European and Mediterranean Theaters, and from Newfoundland, to the Pacific and to the Z/I. According to these directives, which obligate the various areas to place the named units under movement orders at the earliest practicable moment, the following numbers of beds are affected:

OVERSEAS HOSPITAL UNITS UNDER MOVEMENT DIRECTIVES
1 June 1945

Theater and Type of Unit	Total Number of T/O Beds	Disposition
TOTAL	13,925	
EUROPEAN		
General Hospital (1,000 beds)	10,000	ETO to Z/I
Station Hospital (500 beds)	500	ETO to Z/I
Station Hospital (500 beds)	500	ETO to POA
Station Hospital (250 beds)	250	ETO to SWPA
Evacuation Hospital (400 beds)	1,600	ETO to Z/I
MEDITERRANEAN		
Station Hospital (500 beds)	1,000	MTO to POA
NEWFOUNDLAND		
Station Hospital (75 beds)	75	Newfoundland to Z/I

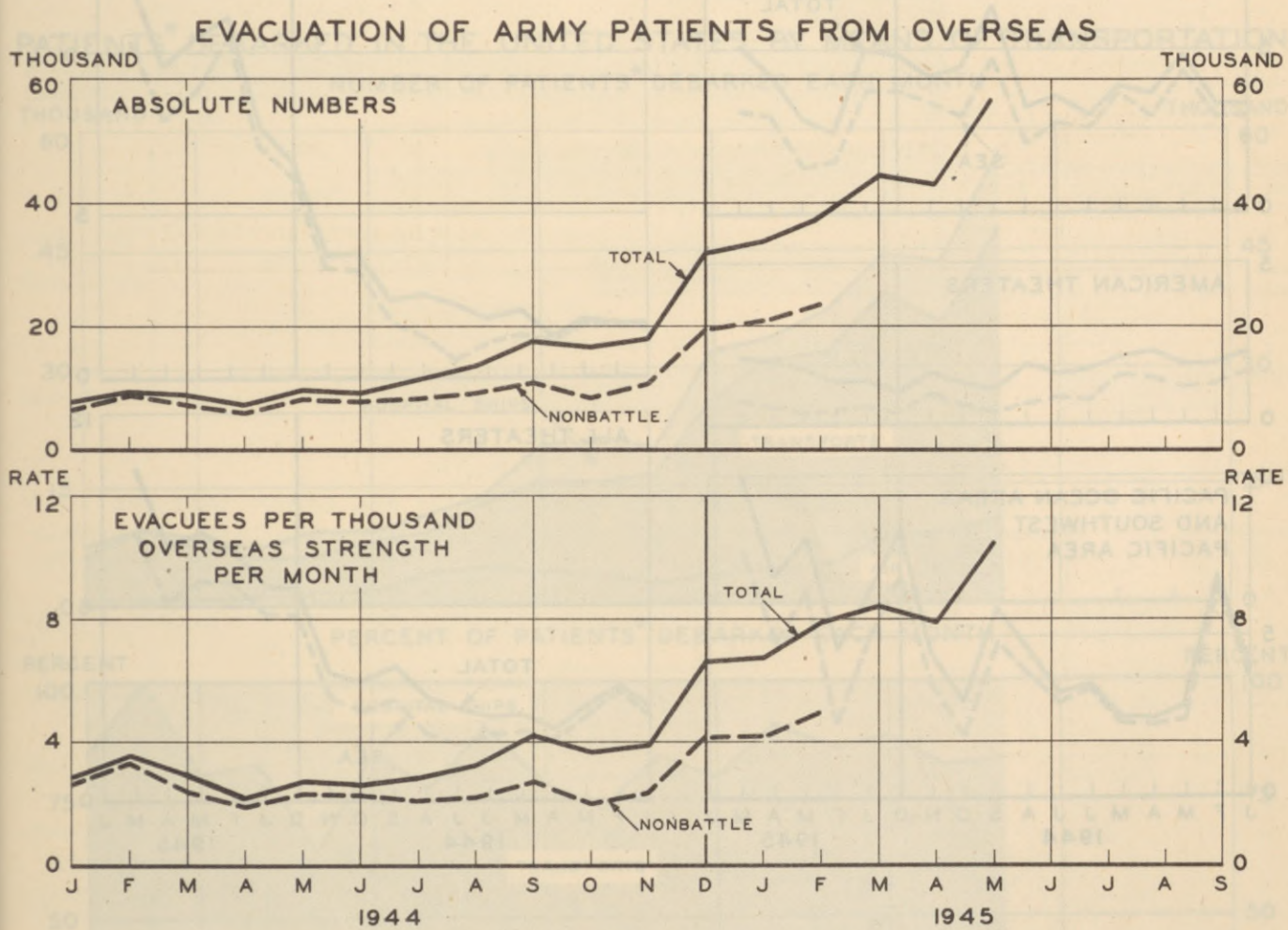
HOSPITALIZATION

TREND OF EVACUATION FROM OVERSEAS

During May 56,000 Army patients were brought back from overseas, the largest monthly total since the war began. Both the air lift of 10,900 and the water lift of 45,500 are the maximum yet achieved in any month. The combined total, if not the separate air and water totals, may well stand as the record peak of the war. The June volume is expected to be lower than May, with a further reduction in July as the effect of the European operations diminishes. Once the full influence of projected Pacific operations is reflected in the evacuation rate this downward trend will, of course, be reversed.

The future volume of evacuation from the Pacific will probably not match that from Europe, but in terms of patient-miles of travel in the U. S. receipt of proportionately more evacuees via Pacific instead of Atlantic ports will necessitate a longer average haul per patient. This may be seen in the fact that the average turn-around time in the west is now about twice that in the east. Consequently, transportation personnel required to handle evacuees in the Z/I will be greater than the reduced total load might suggest.

The charts below record the trend of evacuation in both absolute and rate form, with a separation of evacuees suffering from nonbattle injury and disease for the period thus far reported.

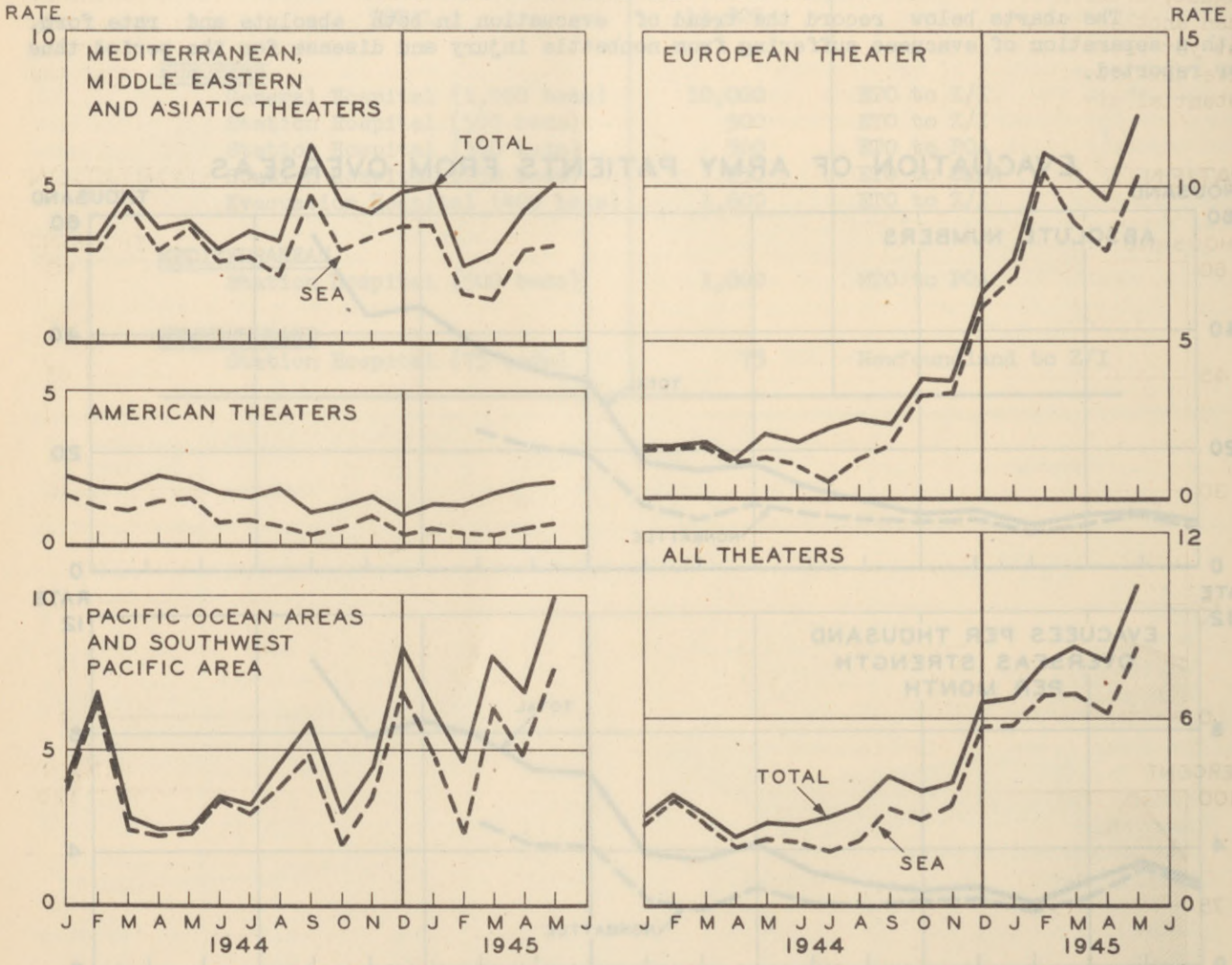


EVACUATION FROM OVERSEAS (Continued)

For the first time it is possible to present a complete if preliminary theater breakdown for the month of publication of HEALTH. The April total of 43,000 was made up of 30,000 from the European Theater, 9,000 from both Pacific theaters, and 4,000 from other commands. The May total of 56,000 is made up of 38,000 from the European Theater, 14,000 from the two Pacific theaters, and 4,000 from all other theaters. The great increase in the Pacific total reflects the contribution of the Southwest Pacific Area, for evacuees from this command jumped from 7,200 in April to 11,100 in May. Patients from the Mediterranean Theater also increased somewhat during April and May, the provisional May total of 3,300 being the highest reported since January.

ARMY PATIENTS DEBARKED IN THE U. S. FROM OVERSEAS THEATERS

EVACUEES PER 1000 MEN PER MONTH

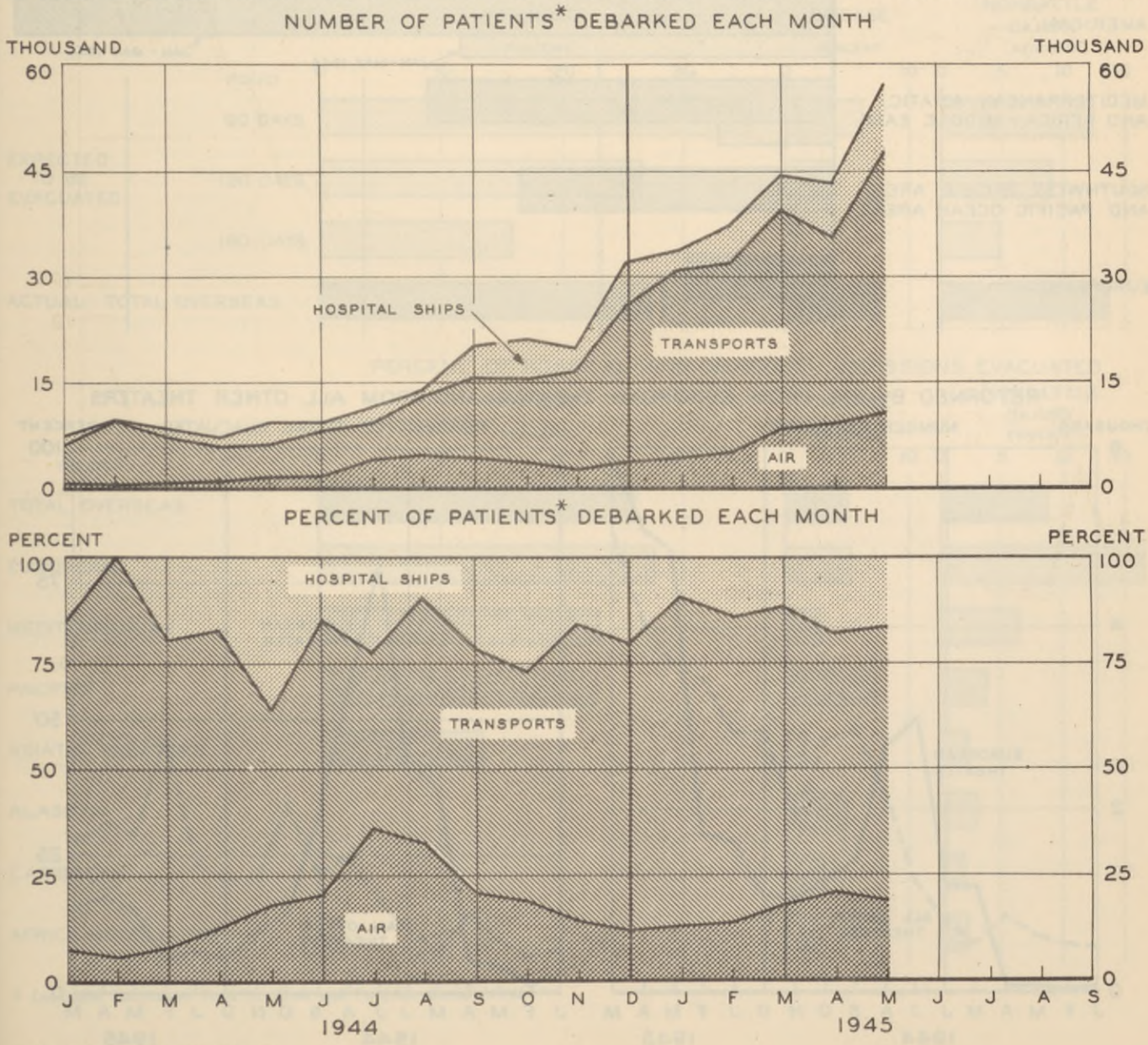


MEANS OF EVACUATION TO THE ZONE OF INTERIOR

The tremendous volume of evacuation to the Z/I since November 1944 has been possible primarily through the more extensive use of troop transports, although the hospital ship, of course, is essential for evacuating the helpless fraction of the sick and wounded, and has played a vital role in evacuation to the United States as well as within theaters. Air evacuation has also played an important part, but the great bulk of the patients have been carried on troop transports. During May 9,300 patients were returned to the Z/I in hospital ships in contrast to 10,900 by air and 36,800 by troop transport. These figures, unlike those shown on the preceding and following pages, refer not to Army patients only but to Army and any other personnel returned as patients. During the fall of 1944 considerable numbers of prisoner-of-war patients were brought to the Z/I.

Air evacuation of patients to the Z/I has had four distinct phases. For the first four months of 1944 it was numerically unimportant as a means of transportation, but in May there set in a sharply upward trend which culminated in the return of 4,800 patients in August, a third of the total evacuees for that month. Thereafter it waned until December, when another upward trend began. Although the preliminary May total of 10,900 is the greatest yet recorded, evacuation by water has also increased and to such an extent that the relative contribution of air during May was only 19 percent. There are expectations that the potential air lift may increase further.

PATIENTS* DEBARKED IN THE UNITED STATES, BY MEANS OF TRANSPORTATION



* Including non-Army patients

HOSPITALIZATION

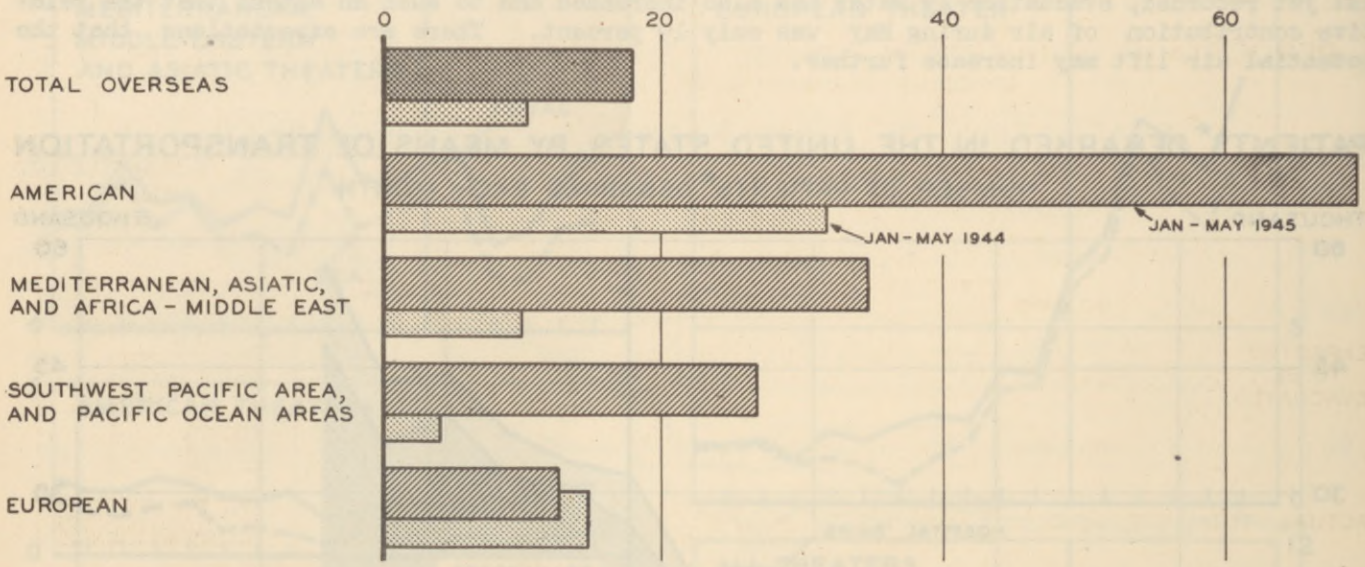
MEANS OF EVACUATION FROM OVERSEAS (Continued)

The use of air evacuation varies among theaters, depending on the availability of other means of transportation and many other factors. It has been especially important in the transportation of patients from the American, Asiatic, and Mediterranean areas, although the European and Pacific commands currently provide the greatest volume. The first chart below measures the extent to which the major theater-groups have utilized air evacuation in relation to their total volume of evacuation, and provides a comparison of the first five months of 1944 and 1945.

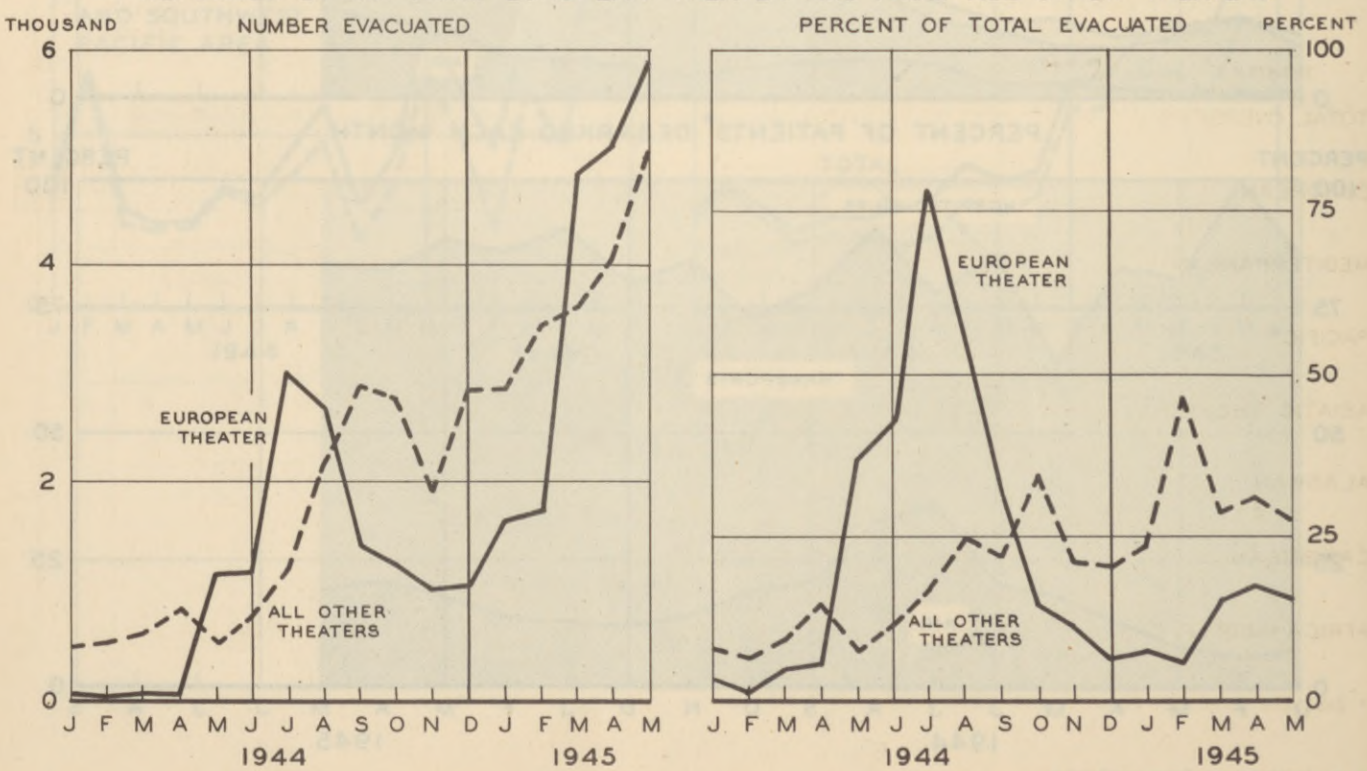
The growth of air evacuation is shown in detail below for the European Theater and for all other theaters combined. These data are for Army patients only. They demonstrate that air evacuation has been better sustained for the other theaters than for the European although spectacular increases have occurred in air evacuation from the European Theater which has maintained an air lift exceeding 4,000 per month for the past three months.

AIR EVACUATION OF ARMY PATIENTS TO THE UNITED STATES

PERCENT RETURNED BY AIR, JAN-MAY 1944 AND JAN-MAY 1945



RETURNED BY AIR FROM EUROPEAN THEATER AND FROM ALL OTHER THEATERS

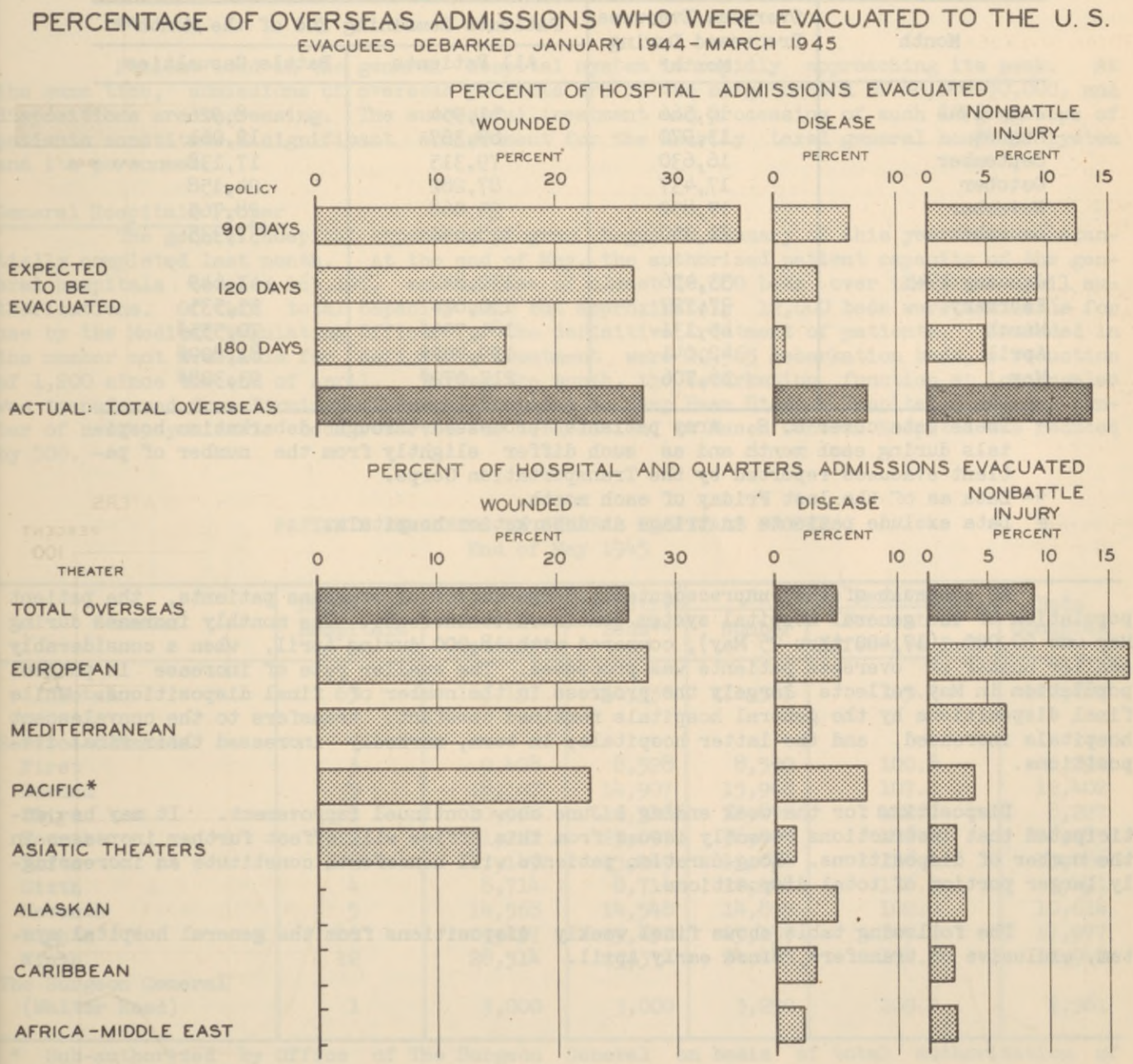


HOSPITALIZATION

PERCENTAGE OF OVERSEAS ADMISSIONS EVACUATED TO THE UNITED STATES

The panels of the charts below detail the percentages of disease, nonbattle injury and wounded admissions to hospital and quarters who were evacuated from the various overseas theaters to the Z/I. In addition, for the total Army overseas, the percent of hospital admissions who were evacuated is shown against the background of the percentages of hospital admissions who would be evacuated under the ideal operation of 90,120, and 180-day evacuation policies. The data on actual evacuations pertain to evacuees debarked in the Z/I during the fifteen-month period ending with March 1945.

To obtain the percentages of hospital and quarters admissions evacuated, a variable lag of one to four months between admission overseas and debarkation in the Z/I has been used in determining the number of admissions to be related to the evacuees. The lags were determined on the basis of actual experience for the different theaters during the last half of 1944. In order to obtain the percentages of hospital admissions who were evacuated, the percentages of hospital and quarters admissions for the total Army strength overseas were multiplied by 150 percent for disease, 155 for nonbattle injury and 105 for wounded, the proportions by which all admissions are in excess of hospital admissions.



* Includes Southwest Pacific Area and Pacific Ocean Areas.

HOSPITALIZATION IN THE ZONE OF INTERIOR

Patient Trend

During May, almost 57,000 overseas patients were processed through the debarkation hospitals in this country, the largest number ever processed in the Zone of Interior in a single month. This heavy evacuee load reflected the emptying of the hospital system in the ETO and MTO as a result of the cessation of hostilities and the initiation of redeployment.

June evacuations, according to current theater estimates, will probably amount to 45,000 patients. For July, however, a more substantial reduction in evacuations from the ETO is expected, since the transfer of battle casualties from the inactive theaters will have been practically completed.

U. S. ARMY PATIENT EVACUEES PROCESSED THROUGH DEBARKATION HOSPITALS
TOTAL PATIENTS REMAINING AND BATTLE CASUALTIES REMAINING IN
THE GENERAL AND CONVALESCENT HOSPITALS
July 1944-May 1945

Month	Overseas Evacuees Processed During Month*	Patients Remaining End of the Month**	
		All Patients	Battle Casualties
July 1944	10,566	61,954	8,926
August	13,970	69,367	12,061
September	16,630	79,315	17,138
October	17,437	87,282	24,158
November	17,852	95,068	28,765
December	31,350	108,640	37,335
January 1945	33,456	132,842	47,649
February	37,727	150,624	55,535
March	45,131	181,700#	70,555#
April	42,041	199,702#	81,809#
May	56,706	217,072#	93,308#

* These data cover U. S. Army patients processed through debarkation hospitals during each month and as such differ slightly from the number of patient evacuees reported by the Transportation Corps.
** Data as of the last Friday of each month.
# Data exclude patients in triage at debarkation hospitals.

As a result of the unprecedentedly large inflow of overseas patients, the patient population of the general hospital system continued to increase. The monthly increase during May was 22,000 (17,400 thru 25 May), compared with 18,000 during April, when a considerably smaller number of overseas patients was processed. The smaller rate of increase in patient population in May reflects largely the progress in the number of final dispositions. While final dispositions by the general hospitals remained constant, transfers to the convalescent hospitals increased, and the latter hospitals, in turn, markedly increased their final dispositions.

Dispositions for the week ending 1 June show continued improvement. It may be anticipated that instructions recently issued from this office will effect further increases in the number of dispositions. Long-duration patients will henceforth constitute an increasingly larger portion of total dispositions.

The following table shows final weekly dispositions from the general hospital system, exclusive of transfers, since early April.

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

FINAL DISPOSITIONS, GENERAL AND CONVALESCENT HOSPITALS

Week Ending	Total	Duty	CDD	Other
6 April	7,700	4,046	3,031	623
13 April	8,000	4,344	2,950	706
20 April	8,002	4,212	3,140	650
27 April	8,685	4,754	3,245	686
4 May	9,357	4,961	3,568	828
11 May	9,303	4,820	3,680	803
18 May	10,220	5,285	4,229	706
25 May	10,759	5,369	4,416	974
1 June	11,287	5,687	4,795	805

Patient load in the general hospital system is rapidly approaching its peak. At the same time, admissions of overseas patients are in the neighborhood of 40,000-50,000, and dispositions are increasing. The successful treatment and processing of such large groups of patients constitute a significant achievement for the heavily taxed general hospital system and its personnel.

General Hospitals Proper

The general hospital expansion program begun in January of this year was substantially completed last month. At the end of May, the authorized patient capacity of the general hospitals totaled 163,197, an increase of almost 10,000 beds over the final April authorizations. Of this total capacity all but approximately 12,000 beds were available for use by the Medical Regulating Officer for the definitive treatment of patients. Included in the number not available for definitive treatment were 10,365 debarkation beds, a reduction of 1,200 since the end of April. During the month, the debarkation function at Los Angeles was transferred from Birmingham General Hospital to Camp Haan Station Hospital, and the number of neuropsychiatric beds reserved for debarkation at Mason General Hospital was reduced by 500.

PATIENTS REMAINING IN GENERAL HOSPITALS PROPER
End of May 1945

Command	Number of Hospitals	Authorized Patient Capacity*	Effective Beds**	Patients Remaining		Beds Occupied
				Number	Percent of Effective Beds	
Total	65	163,197	151,330	171,365	113.2	122,882
Service Commands						
First	3	9,428	8,528	8,599	100.8	6,291
Second	5	18,107	14,907	15,968	107.1	12,402
Third	5	10,998	10,516	12,892	122.6	8,227
Fourth	12	31,222	29,097	36,935	126.9	26,285
Fifth	8	15,149	15,149	19,096	126.1	13,086
Sixth	4	8,714	8,714	10,168	116.7	7,491
Seventh	5	14,568	14,548	14,835	102.0	10,614
Eighth	10	23,497	23,497	25,137	107.0	17,977
Ninth	12	28,514	23,374	24,445	104.6	17,948
The Surgeon General (Walter Reed)	1	3,000	3,000	3,290	109.7	2,561

* Sub-authorized by Office of The Surgeon General on basis of total authorization of 169,500 from G-4.

** Authorized beds less 10,365 debarkation beds; 1,000 beds held for debarkation back-up purposes; and 502 beds temporarily not available for use by Medical Regulating Officer.

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

Patients remaining in the general hospitals exceeded available bed capacity in all service commands. The percentages of excess were highest in the Third, Fourth, Fifth and Sixth Service Commands. These excesses of patients over beds are explained by the considerable number of patients, 48,500, who were absent from the general hospitals on leave or furlough. Patients now on leave constitute a potential treatment and disposition load on the hospitals. In addition, they represent current charges against processing personnel and facilities.

Convalescent Hospitals

With the exception of the newly activated hospital at Madigan (Fort Lewis, Washington) and of Mitchell (Camp Lockett, California), which has suffered from a labor shortage because of its isolated location, the full operating capacities of the convalescent hospitals are now available. Total capacity of the system at the end of May was 48,451, an increase of 1,600 beds over the end of April and just 1,549 beds short of the ultimate planned capacity.

Patients remaining in convalescent hospitals at the end of May totaled 49,800, of whom 35,800 were present in the hospitals. The 14,000 patients on leave or furlough from the convalescent hospitals represent a decrease of 2,000 from April. This reflects the improvement in the operating capacities of the convalescent hospitals achieved during the month.

OPERATING CAPACITIES AND PATIENTS REMAINING IN CONVALESCENT HOSPITALS
April and May 1945

Hospital	Operating Capacity		Patients Remaining		Beds Occupied End of May	Percent of Operating Capacity End of May	
	End of May	End of April	End of May	End of April		Patients Remaining	Beds Occupied
Total	48,451	46,851	49,756	46,221	35,763	102.7	73.8
Edwards	6,000	6,000	5,644	5,944	3,787	94.1	63.1
Upton	3,500	3,500	3,387	2,610	2,654	96.8	75.8
Pickett	5,000	5,000	5,154	5,122	2,623	103.1	52.5
Story	1,800	1,800	2,225	1,692	1,537	123.6	85.4
Butner	5,500	5,500	6,396	6,373	4,613	116.3	83.9
Welch	3,500	3,500	2,735	2,786	1,817	78.1	51.9
Wakeman	6,000	6,000	4,681	4,578	3,181	78.0	53.0
Percy Jones	6,000	6,000	5,697	5,373	4,495	95.0	74.9
Carson	4,500	4,500	7,282	7,058	6,175	161.8	137.2
Brooke	5,000	4,000	4,601	3,231	3,567	92.0	71.3
Mitchell#	851	851	1,463	1,349	998	171.9	117.3
Madigan	600	-	386	-	211	64.3	35.2
Old Farms	200	200	105	105	105	52.5	52.5

Because of construction difficulties, 308 convalescent patients are temporarily at Camp Haan.

The number of completely converted barracks reported is small. This number fails, however, to reflect actual progress in construction. In the case of convalescent wards, the only work yet to be done in many of the hospitals is the installation of fire protection equipment such as sprinkler systems, fire escapes, etc. Similarly, construction of facilities for educational reconditioning is almost complete in all but three hospitals. There is some lag, however, in the construction of physical reconditioning facilities.

Considerable progress is likewise reported in the receipt of physical therapy, physical reconditioning and educational reconditioning equipment. Receipt of occupational therapy equipment, on the other hand, has been lagging.

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

Station and Regional Hospitals

Little change occurred in regional and station hospital authorizations and occupancies during May. Current troop strength projections indicate an early increase in Zone of Interior strength during Period I, which will mean rising regional and station hospital bed authorizations and personnel requirements. Plans are now being made to reduce the station type hospital load through increased use of dispensary and outpatient facilities.

BEDS AUTHORIZED AND PATIENTS REMAINING IN STATION AND REGIONAL HOSPITALS
End of May 1945

Command	Authorized Beds*	Effective Beds**	Patients Remaining		Beds Occupied
			Number	Percent of Effective Beds	
Army Service Forces - Total	69,073	48,939	47,714	97.5	46,619
Service Commands - Total	55,668	43,895	44,646	101.7	43,587
Station Hospitals	25,550	19,800	19,983	100.9	19,811
First	107	86	43	50.0	43
Second	1,554	1,243	1,054	84.8	1,045
Third	2,589	2,071	1,750	84.5	1,710
Fourth	5,805	4,644	4,587	98.8	4,553
Fifth	550	440	331	75.2	327
Sixth	735	588	597	101.5	568
Seventh	1,528	1,223	1,029	84.1	1,026
Eighth	7,324	5,859	6,852	116.9	6,828
Ninth	5,078	3,422	3,615	105.6	3,586
MDW	280	224	125	55.8	125
Regional Hospitals	30,118	24,095	24,663	102.4	23,776
First	629	503	508	101.0	441
Second	1,250	1,000	1,013	101.3	935
Third	2,850	2,280	2,665	116.9	2,572
Fourth	10,450	8,360	7,745	92.6	7,559
Fifth	1,782	1,426	1,450	101.7	1,427
Sixth	600	480	531	110.6	470
Seventh	2,872	2,298	2,521	109.7	2,458
Eighth	5,100	4,080	4,915	120.5	4,713
Ninth	3,450	2,760	2,897	105.0	2,784
MDW	1,135	908	418	46.0	417
Chief of Transportation - Total	13,405	5,044	3,068	60.8	3,032

* Authorized by Commanding Generals of Service Commands or by Chief of Transportation.
** Authorized beds less an allowance of 20 percent for dispersion and 7,900 debarkation beds in Transportation Corps hospitals and Camp Haan Station Hospital.

This proposed plan will increase the responsibility of the dispensary surgeon in disposing of personnel reporting at sick call. In a literal sense he will be a family doctor for the troops he serves. He will provide his patients with complete outpatient medical service and will supervise their care except when hospitalized. When special examinations or diagnostic tests are necessary to determine proper treatment or disposition, he will refer his patient to the appropriate clinical facility at the station hospital for consultation, but will retain control over the treatment and disposition of the patient. The dispensary surgeon will thus be able to keep personnel on a duty status while they are undergoing diagnostic examinations or various types of treatment. Once the diagnosis has been made and disposition determined, necessary hospitalization can be accomplished or administrative discharge outside hospital channels recommended.

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

Personnel

The increase in the authorized capacities of the general hospitals is reflected in an increase in personnel requirements. During May, additional Medical Corps officers and nurses were assigned to the general and convalescent hospitals. However, existing shortages in Medical Corps officers as well as in total personnel remain sizable. The most urgent need exists for Medical Corps officers at the general and convalescent hospitals and for trainer and administrative personnel at the convalescent hospitals.

The large patient load and the volume of processing have imposed a great strain on duty personnel. No diminution in the work load may be expected for at least another month. In view of the number of patients currently on leave or furlough who will return to the hospitals for treatment or disposition, substantial decline in the work load may not be expected for some months to come. To alleviate the personnel situation at the hospitals and also to meet the staffing requirements of the increasingly active personnel centers, action has been taken to secure the early return of 1,000 Medical Corps officers from the ETO ahead of their units. The present overage of personnel in the station and regional hospitals is not an available source for the staffing of the general hospital system, since increasing troop strength in this country during Period I will raise personnel requirements for the station and regional hospitals.

Type of Hospital	Personnel Shortages		
	Total Personnel (Exc.POW)	Medical Corps Officers	Army & Civilian Nurses
Total	4,902	377	-1,130
General Hospitals	5,816	294	- 492
Convalescent Hospitals	897	164	- 4
Station and Regional Hospitals	-1,811	- 81	- 634

Summary of Hospital Reports

Bed authorizations and patients remaining by type of patient care and type of hospital, as summarized from reports WD AGO Forms 8-189 and 8-190 for the month of May, are as follows:

BEDS AUTHORIZED AND PATIENTS REMAINING IN A3F HOSPITALS
BY TYPE OF CARE AND TYPE OF HOSPITAL
End of May 1945*

Type of Patient	Beds Authorized	Patients Remaining				
		Total	General	Convalescent	Regional	Station**
Total	264,005	268,835	171,365	49,756	24,663	23,051
General-Convalescent Care	179,629	195,174	145,789	49,385	-	-
Evacuees		183,301	135,898	47,403	-	-
ZI		11,873	9,891	1,982	-	-
Regional-Station Care	67,756	56,092	14,834	344	22,699	18,215
Regional	10,907	10,881	3,996	-	6,885	-
Station	56,849	45,211	10,838	344	15,814	18,215
Non-Army	16,620	17,569	10,742	27	1,964	4,836
POW	12,237	13,335	8,507	9	1,067	3,752
Civilians	2,864	3,025	1,353	17	680	975
Veterans Administration	975	611	475	-	135	1
Other	544	598	407	1	82	108

* Excludes debarkation beds and patients.
** Includes hospitals under the Chief of Transportation.

HOSPITALIZATION IN THE ZONE OF INTERIOR (Continued)

C4, AR 40-1080 provides that beds for station hospital care will be authorized at 3 percent of strength served, with due allowance for local conditions. At the end of May, station hospital type beds in ASF hospitals, ZI, were authorized at 3.3 percent of strength served, exclusive of beds in station hospitals under the jurisdiction of the Chief of Transportation.

Regulations provide for regional hospital type care at .5 percent of troop strength served. Most service commands are overauthorized in relation to this formula. However, in almost every service command a heavy patient load substantiated the apparent overauthorization. Beds authorized and patients remaining for regional type care both averaged .6 percent of troop strength served.

Total non-Army patients remaining in ASF hospitals, ZI, amounted to 17,600. Included in this number were approximately 13,300 prisoner of war patients.

There were altogether 27,100 Army patients in the general and convalescent hospital system who had been admitted from the Zone of Interior. Of this number, 9,900 were receiving general hospital type care, 2,000 convalescent hospital type care, 4,000 regional hospital type care and 11,200 station hospital type care.

Summary

The following trends in Zone of Interior hospitalization may be noted during May:

a. Emptying of ETO and MTO hospitals brought 57,000 overseas patients to the Zone of Interior.

b. The trend of disposition of patients from the general-convalescent hospital system showed improvement.

c. The expansion of the general hospitals proposed in January of this year was substantially completed by the end of May, as planned.

d. Convalescent hospitals neared full operating capacity at the end of the month. Progress was noted in the conversion of barracks and adjunct facilities and in receipt of equipment.

e. No change is noted in regional and station hospitalization. Plans are in preparation for screening of troops in dispensaries prior to admission into station hospitals.

f. Mounting treatment and processing loads in the Zone of Interior emphasize personnel shortages, which will be partially alleviated by the early return of 1,000 Medical Corps officers from the ETO.

MISCELLANEOUS

RECONDITIONING PROGRAM IN THE EUROPEAN THEATER

An interesting development in reconditioning has been the organization and growth of the reconditioning program in the European Theater. Under the supervision of a staff of seven officers assigned to the Rehabilitation Division, Office of the Chief Surgeon, five Rehabilitation Centers were established and convalescent reconditioning programs were instituted in all station and general hospitals. Fifteen to 20 percent of the total bed capacity of the theater was devoted to advanced reconditioning sections in hospitals and advanced reconditioning centers.

The program was developed largely in order to recondition patients physically for return to combat duty and therefore the emphasis was placed on physical and military training activities. In the centers, trainees were classified in five groups, as follows:

Class E Ambulatory, able to walk one mile.

Class D Able to participate in organized calisthenics and to take a road walk of two to three miles.

Class C In condition to walk five to six miles and to take vigorous calisthenics.

Class B Able to take cross-country runs and march eight to 10 miles.

Class A Physically fit to perform field duty and to take 12-mile hikes.

Each patient was graded periodically by his medical officer. A report on each patient was submitted to the examining surgeon by the physical training instructor in charge of activities. Facts reported include physical aptitudes, extent of completion of marches and hikes, results of physical fitness tests, extent of participation in athletic activities, and other observations. Physical reconditioning activities ranged from 11 hours per week for Class E patients to 25 hours per week for Class A patients, and consisted of calisthenics, games and sports, obstacle course and steeple chase runs, self-defense, and physical fitness tests.

Military training averaged from four hours per week for Class E patients to 11 hours per week for Class A patients and was conducted in a very practical and realistic fashion with abundant facilities and equipment.

The educational program ranged from 20 hours per week for Class E patients to six hours for Class A patients. It consisted largely of USAFI courses and orientation periods.

A program of arts and skills was conducted under the auspices of the American Red Cross. Hobby kits for painting, sketching, printing, and beading were available. Other available equipment and materials included paints, woodworking tools, plexi-glass, clay, leather, and wool.

A school was established for training rehabilitation and reconditioning personnel. Candidates were required to pass rigid qualification tests and a comprehensive course of instruction was given, comprising anatomy, kinesiology, physiology, calisthenics, remedial exercises, sports and games, medical lectures, military training, and orientation. Three sound motion pictures for indoctrination and training purposes were produced in 1943 and 1944.

Research studies were initiated on the subjects of effectiveness of remedial and other exercises on recovery and on the benefits of reconditioning to neurosurgical, orthopedic, and post-concussion cases. The results of these projects are being compiled and evaluated at the present time.

Of the 25,030 patients discharged from the rehabilitation and reconditioning centers between 1 April 1943, when the program was inaugurated, and the middle of November 1944, 90 percent were returned to duty for assignments in the European Theater and of the 7,736 battle casualties, 84 percent were returned to duty.

STATISTICAL TABLES

STATISTICAL TABLES

The tables below and on the following pages present admission rates for selected causes in the overseas theaters. The rates include cases admitted to hospital or confined to quarters for a day or more, and have been derived from MD Forms 86ab (now AGO Form 8-122), both regular and telegraphic, submitted to The Surgeon General from each overseas theater or lesser command. Only the major overseas areas are shown separately, but the total overseas rates are based upon a complete consolidation. Except for wounded, the rates for each month are based upon the experience of four or five weeks depending upon the number of Fridays in a month. For wounded in action the rates pertain to calendar-month periods and are derived from The Adjutant General's report, Battle Casualties of the Army, which tabulates hospital admissions only. The rates are based upon all casualties incurred, including those of the Air Force. In addition, all casualties are tabulated according to the theater of assignment of the men involved. However, there has been a problem associated with the tabulation of casualties of the XXIV Corps, a Pacific Ocean Areas unit attached to the Southwest Pacific for the Leyte campaign. Some of the casualties sustained by this unit are tabulated with those of the Pacific Ocean Areas, the remainder with those of the Southwest Pacific. Therefore these two theaters have been combined, for the period from October 1944 through February 1945, for purposes of computing rates for wounded. Rates computed from incomplete reports are so noted, and those derived from the weekly telegraphic 86ab reports are distinguished from the regular monthly report.

The malaria rates are for diagnosed malaria only, and include both primary attacks and recurrences insofar as these are reported as malaria, a variable amount, differing from theater to theater, being reported as fever of undetermined origin. The rates for the Army in the continental United States reflect only infections acquired in the United States. The venereal disease rates represent the data of the 86ab report rather than the Monthly Venereal Disease Statistical Report, which generally yields somewhat lower rates, and for the United States, exclude cases contracted prior to service. The transfer of strength from the Mediterranean to the European Theater is believed to have caused some error in the reports from the former area for October and November, one which takes the form of too little strength for the admissions reported. Tentative neuropsychiatric admission rates are presented for 1944. Not systematically reported on the 86ab until late in 1943, these rates may not be as firm as those for communicable diseases. With respect to the table on fever of undetermined origin, many of the admissions initially reported as such are later given specific diagnoses, often malaria. Since the system of reporting does not make it possible to subtract such cases from the undiagnosed category, a certain amount of dual reporting exists.

WOUNDED IN ACTION, AS REPORTED TO THE ADJUTANT GENERAL
Hospital Admissions per Thousand Men per Year

Month and Year	Overseas Commands								
	Total a/ Overseas	North American	Latin American	ETO b/	MTO	POA	SWPA	CBI	ME and PGC
1943 Average	23	6	0	7	62	18	9	4	4
1944 Jan	30	-	0	4	115	8	10	0	4
Feb	39	0	0	6	145	35	6	1	0
Mar	24	-	-	4	65	37	29	12	1
Apr	13	-	-	6	38	5	12	11	17
May	42	-	-	5	183	1	25	8	23
Jun	115	-	0	191	102	55	45	43	12
Jul	143	-	-	269	95	41	24	24	12
Aug	101	-	-	189	73	20	10	9	-
Sep	112	-	-	174	167	38	4	3	1
Oct	96	0	-	118	170	52		3	-
Nov	133	0	-	234	36	43		5	0
Dec	118	-	-	190	30	47		8	0
1944 Average	87	0	0	139	104	30		11	6
1945 Jan	126	-	-	202	14	52		12	-
Feb	105	-	-	134	60	101		14	-
Mar	104	-	-	155	34	5	85	3	0
Apr									

a/ Including casualties among men en route.
b/ Excluding Iceland.
Dash is used to denote no admissions, zero to denote a rate of less than 0.5.

STATISTICAL TABLES (Continued)

ADMISSIONS TO HOSPITAL AND QUARTERS
Rates Per Thousand Men Per Year

Month and Year	United States	Overseas Commands								
		Total	Alaska	Caribbean	ETO a/	MTO	POA	SWPA	Asiatic	ME and PGC
ALL DISEASE										
1942 Average	664	676	667	823	693	452	519	821	1,048	1,330
1943 Average	739	889	624	670	837	943	971	1,046	991	1,107
1944 Jan-Jun	619	695	566	528	578	812	600	902	967	949
Jul-Dec	495	623	351	536	440	880	513 b/	804	1,152	842
Average	563	654	478	531	492	846	561 b/	840	1,077	896
1945 Jan	603	660	337	529	609	878	429 b/	799	728	658
Feb	626	655	363	587	583	790	539 b/	905	652	554
Mar	592		384	546	(561) b/	714	399 b/	(1,017)	647	631 b/
Apr	543		411	553	(518) b/	657	(382) b/	(1,102)	(637)	573
May	538			(494)						(571)
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
NONBATTLE INJURY										
1942 Average	91	123	152	107	109	96	104	176	80	158
1943 Average	80	136	182	105	100	149	131	171	84	140
1944 Jan-Jun	69	114	145	75	85	145	118	151	95	107
Jul-Dec	66	112	100	61	105	131	102 b/	132	97	92
Average	67	113	127	68	97	138	111 b/	139	96	99
1945 Jan	55	142	102	60	176	103	95 b/	104	105	69
Feb	50	106	94	67	115	88	86 b/	103	99	73
Mar	49		109	61	(101) b/	89	80 b/	(118)	105	69 b/
Apr	48		100	65	(116) b/	98	(70) b/	(125)	(98)	64
May	49			(49)						(58)
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										

a/ Excluding Iceland.
b/ Based on Incomplete Reports.
( ) Telegraphic Reports.

STATISTICAL TABLES (Continued)

ADMISSIONS TO HOSPITAL AND QUARTERS
Rates Per Thousand Men Per Year

Month and Year	United States	Overseas Commands								
		Total	Alaska	Caribbean	ETO a/	MTO	POA	SWPA	Asiatic	ME and PGC
ALL VENERAL DISEASE										
1942 Average	39	32	7	74	38	36	12	32	64	80
1943 Average	26	34	3	56	43	56	5	15	52	68
1944 Jan-Jun	30	37	3	33	26	96	6	9	53	60
Jul-Dec	37	45	7	33	40	125	4 b/	6	50	62
Average	33	42	5	33	35	111	5 b/	7	51	60
1945 Jan	47	46	6	29	49	124	5 b/	5	54	80
Feb	43	42	8	43	46	105	4 b/	8	57	75
Mar	43		10	40		94	5 b/		51	74 b/
Apr	43		8	39		85				84
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
DIAGNOSED MALARIA										
1942 Average	0.6	33	0	99	0	11	12	52	165	127
1943 Average	0.2	96	0	37	3	54	208	245	181	123
1944 Jan-Jun	0.1	43	-	16	10	61	67	75	113	66
Jul-Dec	0.2	34	-	12	8	63	13 b/	41	216	52
Average	0.2	38	-	14	9	62	43 b/	53	174	59
1945 Jan	0.1	14	0	7	5	19	8 b/	27	74	11
Feb	0.2	15	-	7	5	16	6 b/	43	49	9
Mar	0.1		-	7		21	5 b/		28	10 b/
Apr	0.2		-	9		28				11
May	0.2									
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										

a/ Excluding Iceland.
b/ Based on incomplete reports.
Dash is used to denote no admissions, zero to denote a rate of less than 0.5.

STATISTICAL TABLES (Continued)

ADMISSIONS TO HOSPITAL AND QUARTERS
Rates Per Thousand Men Per Year

Month and Year	United States	Overseas Commands								
		Total	Alaska	Caribbean	ETO a/	MTO	POA	SWPA	Asiatic	ME and PGC
COMMON RESPIRATORY AND INFLUENZA										
1942 Average	243	159	244	113	287	151	89	146	150	197
1943 Average	247	181	222	99	409	142	86	108	159	201
1944 Jan-Jun	198	174	245	84	225	185	97	90	177	254
Jul-Dec	85	100	105	77	92	138	70 b/	78	176	182
Average	147	132	188	81	142	162	85 b/	83	176	219
1945 Jan	167	147	106	67	168	190	72 b/	95	135	180
Feb	192	145	135	71	159	182	60 b/	128	135	149
Mar	167		115	65		152	65 b/		130	164 b/
Apr	122		143	70		106				127
May	124									
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
DIARRHEA AND DYSENTERY										
1942 Average	8	28	5	19	17	33	34	57	120	185
1943 Average	12	66	8	16	12	132	43	70	146	170
1944 Jan-Jun	9	35	3	13	11	41	28	58	182	101
Jul-Dec	10	40	3	12	14	67	28 b/	54	180	129
Average	9	38	3	13	13	54	28 b/	55	181	115
1945 Jan	8	30	1	11	17	20	18 b/	76	69	56
Feb	8	36	2	14	21	21	27 b/	99	68	31
Mar	6		2	21		19	16 b/		83	45 b/
Apr	6		3	14		18				81
May	6									
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										

a/ Excluding Iceland.
b/ Based on Incomplete Reports.

STATISTICAL TABLES (Continued)

ADMISSIONS TO HOSPITAL AND QUARTERS
Rates Per Thousand Men Per Year

Month and Year	United States	Overseas Commands								
		Total	Alaska	Caribbean	ETO a/	MTO	POA	SWPA	Asiatic	ME and PGC
FEVER OF UNDETERMINED ORIGIN										
1943 Average	c/	52	0	64	1	75	19	166	71	21
1944 Jan-Jun	c/	35	1	37	1	57	26	102	69	16
Jul-Dec	c/	40	0	31	3	85	13b/	80	174	37
Average	c/	38	1	34	2	71	20b/	88	131	27
1945 Jan	c/	24	0	20	4	39	5b/	70	87	12
Feb	c/	27	-	10	4	43	9b/	95	60	24
Mar	c/		0	10		41	4b/		56	31b/
Apr	c/		-	9		43				33
May										
Jun										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
NEUROLOGICAL AND PSYCHIATRIC DISORDERS										
1944 Jan-Jun	29	29	11	21	24	37	26	48	23	27
Jul	32	59	10	16	84	52	27b/	58	16	31
Aug	36	50	12	18	76	28	25b/	48	17	21
Sep	46	41	13	25	40	50	32b/	53	16	15
Oct	48	56	13	23	65	82	32b/	39	21	21
Nov	47	60	13	27	85	47	28b/	41	23	16
Dec	47	56	12	22	72	39	29b/	53	20	26
Jul-Dec	45	53	12	22	69	50	29b/	49	19	22
Average	36	43	12	21	52	43	27b/	48	20	25
1945 Jan	50	44	14	25	51	32	36b/	43	19	20
Feb	49	39	9	27	37	31	25b/	70	20	15
Mar	50		13	29		31	32b/		22	20b/
Apr	45		13	26		41				11
May										
June										
Jan-Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										

a/ Excluding Iceland. b/ Based on incomplete reports. c/ Not available.
Dash is used to denote no admissions, zero to denote a rate of less than 0.5.

STATISTICAL TABLES (Continued)

ADMISSION TO HOSPITAL AND QUARTERS
Rates per Thousand Men per Year

INFECTIOUS HEPATITIS

Month and Year	Overseas Commands			
	Total Overseas	Mediter-ranean	Southwest Pacific	Asiatic Theaters
1942 Average	23	2	22	19
1943 Average	13	37	3	10
1944 Jan-Jun	6	17	2	8
Jul-Dec	9	29	13	15
Average	8	23	9	12
1945 Jan	16	51	37	5
Feb	19	32	56	6
Mar		25		5
Apr		20		
May				
Jun				
Jan-Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

DENGUE

Month and Year	Overseas Commands			
	Total Overseas	Pacific Ocean Areas	Southwest Pacific	Asiatic Theaters
1942 Average	8	0	58	24
1943 Average	12	40	30	25
1944 Jan-Jun	12	11	76	12
Jul-Dec	12	55 b/	32	35
Average	12	30 b/	48	25
1945 Jan	5	5 b/	28	4
Feb	5	7 b/	25	5
Mar		3 b/		7
Apr				
May				
Jun				
Jan-Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				

b/ Based on incomplete reports.