

Variation In Psychological Tolerance To Ground Combat In World War II

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[VARIATION IN PSYCHOLOGICAL TOLERANCE
TO GROUND COMBAT IN WORLD WAR II]

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Duplicate punchcards covering unit data have been provided to the Army Historical Office (Mr. Israel Wice), and duplicate punchcards on individual men have been made available to the Johns Hopkins Operations Research Office in Washington, D. C.

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Chapter I

INTRODUCTION

During World War II infantrymen were breaking down psychologically at such high rates in certain combat areas as to suggest to many psychiatric observers that the resistance of the average man was being exceeded, that the stress of warfare in these areas was so great that most men exposed to it long enough would break down. Such studies as could be made in wartime^{2,12} seemed to confirm these impressions, but, being based on the admission rates of entire units rather than upon the experience of representative individuals, were necessarily inconclusive. The present study arose from our belief that the subject deserved more extensive exploration via the individual histories of representative combat infantrymen. Its significance extends in many directions - military, clinical, even theoretical.

The logistics of manpower utilization in wartime rest upon reasonably well established limits of physical strength and endurance, and upon much less well determined limits of emotional or psychological endurance. Also of military interest are means of increasing or restoring psychological strength.

More generally, the subject of stress and resistance is relevant to an understanding of mental illness, perhaps even to an understanding of human nature. What are the stresses which are more than a man can stand? What man? How does he differ from his fellows? Is stress largely an individual matter, or are there stresses that would overcome the resistance of virtually everyone exposed to them? Does the distribution of resistance in a population follow a curve akin to that for most biological characteristics, or is breakdown a random event unrelated to the previous experience of the individual? Or are there perhaps two kinds of men,

"weaklings" and "men"? Observers of the wartime scene developed intuitive answers of their own to these and similar questions raised by the broader problem of stress and resistance. It came to be generally believed, for example, that every man has his breaking point, in the sense that some predetermined intensity and duration of stress, or of particular stresses, would disorganize him psychologically. Too many men with long and valorous combat service, men who had received the highest awards for bravery, were brought to the hospitals with disabling mental illness for there to remain serious doubt on this score. The question which remained unanswered was not whether, but what, stress would break men down and in what proportions.

It has long been known that certain chemical substances, or lack thereof, will produce disabling symptoms of mental illness. The more recently observed effects of mescaline, LSD, and other hallucinogens have dramatized this knowledge. The work of Goldstein,¹⁰ Halstead,¹¹ and others has clarified the mental or emotional effects of direct gross physical damage to the brain. Animal experiments^{9,17,20} have shown that "mental illness" can be produced at will in any member of certain species (rat, sheep, etc.) by exposure to a variety of stimuli, chiefly conflict situations. The isolation experiments of Lilly¹⁸ and of Hebb¹³ have suggested that all or most men exposed to marked reduction of external stimuli (sound, light, touch) will develop symptoms of mental illness in a matter of hours. Spitz²⁷ and others have shown that any infant who is deprived of a certain minimum of maternal care will develop mental illness. It is still widely debated whether certain kinds of child-parent relationships result in mental illness in all or most children so exposed. Evidence such as Brody's⁶ descriptions of the nursing behavior of a group of

mothers, Levy's¹⁶ data on "maternal over-protection," and Thomas'²⁹ data on the child-parent relationships in instances of schizophrenia, is convincing to many in this regard.

There is little or no information on the existence or nature of psychological stresses capable of breaking down the majority of exposed normal human adults. Studies of disasters^{8,14} have suggested that the incidence of clinically significant emotional disturbance has at times been appreciable, but none has demonstrated that as much as half of the exposed population was so affected. There is an abundance of clinical data in the psychiatric literature which suggests that our culture may contain infrequent stresses capable of breaking down most normal adults exposed to them. However, the question remains entirely unanswered to many students, and answered to the complete satisfaction of none. The study reported here was undertaken in the hope of contributing specific information about combat stress in the light of these broad interests.

Chapter II

METHOD OF STUDY

A. Sampling Plan

The following factors were taken into account in an explicit fashion in choosing the sample:

1. Type of unit.
2. Theater of operation.
3. Military occupation (MOS).
4. Rank.
5. Color.
6. Distinction between men who first entered combat when their units did and those who first entered as replacements to units already committed to combat.
7. Interval from entry into combat to end of war.
8. Size of sample.
9. Randomization.

The unit was restricted to the rifle company within infantry regiments of infantry divisions, in the interests of homogeneity of stress as to both type and level. ETO and MTO were chosen as theaters of sufficient size and activity to be of general and enduring interest. MOS at entry into combat was restricted to so-called "high-risk" MOS; this was done in order that a measure of stress for one man would be as nearly equivalent for the next as possible. The choice is based on a published analysis of World War II data pertaining to infantry divisions³ and consists of the following where the average divisional rate is 100 on the scale of relative risk:

The interval from entry into combat to the end of the war was restricted so as to obtain as much information per man as possible. ETO infantry divisions were excluded only if they entered combat less than 100 days before V-E Day or had previously seen combat in MTO. All MTO infantry divisions which entered combat prior to 1944 were eligible if they remained in the theater at least until the landings in southern France (15 August 1944). Some of their experience, of course, was obtained in ETO as components of the U. S. Seventh Army.

On the basis of earlier studies^{2,3} it was estimated that a sample of 1,000 men in high-risk MOS in rifle companies might have about 400 WIA and that there would be approximately 100 NP admissions for each 400 WIA. It was also felt that 200 to 300 NP casualties would probably suffice to define the curve of NP attrition. Accordingly, the size of sample was fixed at 1,000 ETO originals, 1,000 MTO originals, and 1,000 ETO replacements. Later, for reasons of economy, the third component was reduced to 500 ETO replacements.

Finally, once the eligible divisions had been specified, random numbers were used to select 100 ETO companies from among the 675 rifle companies in the eligible divisions; then 10 men, eligible on other criteria, were chosen from each on the basis of the terminal digit of the ASN. The criteria of eligibility for MTO yielded 4 divisions from which 2 regiments were stricken (168th and 133rd). The 168th was dropped because it was very heavily cut up early in North Africa; the 133rd was dropped because one battalion was early diverted to special duty and another was a Japanese-American unit. From the 11 eligible regiments 17 rifle battalions were chosen at random, and one of the corresponding 51 rifle companies, designated by chance, was dropped to leave a total of 50 rifle companies in the MTO sample. From each such rifle company 20 men, eligible by the other criteria, were chosen by means of the terminal digit of the ASN.

<u>SSN</u>	<u>MOS</u>	<u>Relative risk</u>
504	Ammunition handler	132
603	Gunner)	134
604	Light machine gunner)	
605	Heavy machine gunner)	
607	Light mortar crewman)	
651	Platoon sergeant	155
652	Section leader	151
653	Squad leader	212
745	Rifleman	432
746	Automatic rifleman	280
812	Heavy weapons NCO)	134
1607	Heavy mortar crewman)	
1812	Light weapons NCO)	

The men in these MOS categories comprise about 75 percent of the World War II rifle company. Also in the interest of homogeneity was the decision to limit the sample to white enlisted men; an enlisted man who received a battlefield commission was not dropped for this reason, however.

Separate samples were drawn for men who first entered combat when their units did (original men) and those who first entered as replacements to units already committed (replacements). The interest here was in providing the basis for a comparison as to performance in the hope that any disparity might be attributed to the forces of group identification, presumably greater in original men than in replacements. The group loyalty which Sobel²⁶ and others have stressed as a defense against combat anxiety is, of course, largely a product of combat itself. Original men were further restricted to those who had served with the company for at least 90 days before it entered combat and who were with the company when it entered combat.

In the process of selection 1,988 ETO original men and 1,577 MTO original men were screened, the difference arising out of the fact that MTO payroll rosters prior to 1943 contain MOS, and thus facilitated the development of that roster. The disposition of all cases examined for eligibility is as follows:

Disposition	Original men		Replacements
	ETO	MTO	ETO
Not identified, records not in file, or records incomplete	15	19	9
Ineligible MOS, or not with unit at required time*	485	381	93
Excluded at random	488	177	42
Number used	1,000	1,000	500
Total screened	1,988	1,577	644

*For replacements, this includes some men who had previous combat.

The sample of ETO replacements was obtained from those of the 100 sample ETO rifle companies which were in combat during the period June-September 1944, 9 men being chosen at random from the replacements made to each of the 56 companies actually in combat during that period. Replacements differ from originals, then, in that (1) only half the companies are represented, and (2) on the average they entered combat earlier than the originals. By October, ETO hospitals were discharging into replacement channels at a rate which made it increasingly difficult and expensive to satisfy the criterion of this study, that the replacement be entering combat for the first time. Accordingly, the selection was limited to replacements entering combat in the months of June to September, inclusive; the difference thus introduced between originals and replacements is one which can be controlled by statistical means in the analysis.

Appendix I is a list of the units actually employed in the sampling. It also shows the divisional and regimental EC* dates used in the study. Determination of the latter is subject to a small error, different sources often containing different dates; we have been guided chiefly by the ETO Order of Battle²³ and by afteraction reports for divisions and regiments.

B. Recording Basic Observations From Individual and Unit Records

Most of the procedures used in this study are records procedures and were carried out by personnel of the Follow-up Agency in St. Louis and Washington. A coding and abstracting form (appendix II) was used to gather the following facts for each individual:

I. Identification

Name.

ASN.

Complete unit designation (division, regiment, battalion, and company).

II. Pertinent Dates Other Than for Temporary Departure From Unit

Birth.

EAD, World War II.

Joined study company.

Left high-risk MOS but remained in study company.

Left study company (LC* date).

Separation from service.

Death.

*We use the abbreviations EC for "entered combat" and LC for "left combat."

III. Precombat Military History (World War II Enlistment)

Component (Regular Army, National Guard, or inductee).

Service command of entry.

Educational level at EAD, World War II.

AGCT score.

Marital status at EAD, World War II.

Infantry training, World War II.

Reason for any demotion in this period.

Convictions by courts-martial in this period.

List of all MOS assignments in World War II enlistment, and dates of same.

IV. History During Combat Interval

Each departure from study company, or from high-risk MOS, for men who remained but were given different duties, listed as to date, unit involved, and reason for departure.

Each return to study company listed as to date and unit involved.

V. Admissions to Army Medical Installations (One or More Days Lost)

Each admission listed as to date of occurrence, date of disposition, and some detail as to cause.

VI. Grade Changes in Combat Interval

VII. Duty in Europe After Leaving Study Company

VIII. Other Facts Covering World War II Enlistment

Individual awards.

Unit citations.

Type of separation.

Cause of CDD.

Among the dates which were set down two involve definitions peculiar to this study. One is the date of leaving high-risk MOS for men who remained in the study companies; we did not wish to overlook the fact that a rifleman, proven inadequate, might be assigned to a kitchen area and remain there as a cook's helper. We wished to be prepared to confine our study of such a man to the period in which he served as a rifleman, and to categorize his change in assignment as a departure from high-risk MOS. The other date is that of leaving the study companies (LC date). Here we were willing to overlook transfer from one study company to another, since we had the complete combat history of each and every study company, but could not afford to follow men into units outside the sample.

Coding and abstracting criteria were specified for each item, but only a few points require discussion here. One of these is the classification of infantry training, admittedly a difficult and inexact process on the basis of information contained in the service record and 201 file. We included the level of training in the belief that good training, not merely in the handling of weapons but particularly in combat tactics, increases a man's confidence in his ability to survive combat and thereby augments his resistance to combat stress. Our categories of classification were defined as follows:

1. No infantry basic or infantry unit training.
2. Infantry basic only, no infantry unit training.
3. Infantry unit training of at least 2 months following any type of basic training, but not overseas.
4. In addition to infantry unit training of at least 2 months, one or more of the following types of "postgraduate" training:

- a. Two or more months of further unit training overseas.
- b. Participation in unit maneuvers in Z/I maneuver area.
- c. Attended infantry NCO school.
- d. Awarded expert infantryman's badge prior to EC (division).

Training in prior enlistments and in the National Guard was ignored for the purposes of this classification.

Although we might have preferred to tally all courts-martial, regardless of outcome, only convictions appear uniformly in the service record; acquittals are not shown. Also, company punishment does not appear. We have, therefore, only a partial index, albeit perhaps the best one, of overt conflict with authority.

After the complete MOS history was obtained, each man was classified as to the prior pattern of his MOS and as to MOS at EC (division). The classification of prior MOS provides for combinations of these categories:

Noncombat MOS.

Combat MOS, not high-risk.

Combat MOS, high-risk.

A list of ground combat MOS appears in appendix III. The handling of weapons and exposure to danger were both considered in making up this list. High-risk MOS are those already listed in connection with eligibility for inclusion in the study.

As evidence of MOS at entry we accepted the last recorded MOS designation prior to EC, whether it appeared in the service record or in the company morning report, provided these two sources were in agreement; although we required that a man be in a high-risk MOS at EC, we did not drop men whose

pattern of prior MOS included noncombat MOS. As used in MTO the Scout (SSN 761) experienced a high risk, but not so in ETO.³ Although this MOS was at first omitted from the list of high-risk MOS, for the MTO sample it was later added in such a way that a man who changed to this job would not be dropped as low-risk, although no men were initially selected for the sample on the basis of 761.

The combat interval was defined as the calendar time period from the divisional EC to the man's LC date. For a replacement the divisional EC is the date of joining the company, regardless of the combat status of the division at the time. A departure was judged to have occurred whenever the man was not present for duty with the company, information which was obtained from the morning report, service record, 201 file, and individual medical records. The fact of departure was not difficult to ascertain, Army records being entirely adequate on this score. The reason for departure did, however, present some difficulties which merit discussion in view of the focal importance of departures. The categories themselves appear in table 1, which also includes, merely by way of illustration, the frequencies obtained in the classification of the final departure from the study companies. Some of the men listed there as departures from the study companies were, of course, serving in other combat units on V-E Day.

Insofar as possible, definitions and records procedures have been geared to provide a bridge between the material developed in this study and that available from TAG and SGO sources, with preference given to TAG definitions in the handling of battle casualties. Otherwise, the only relevant criteria pertain to presence or absence from high-risk combat duty with the study company. In its numerical aspects the departure pattern exhibited in

Table 1

Classification of ETO and MTO Originals as to Reason for Final Departure
From High-Risk Combat in 150 Study Companies

Reason for departure	Number of men	
	ETO	MTO
Total	1,000	1,000
<u>AWOL and disciplinary</u>		
Absent without leave (AWOL)	2	6
Disciplinary	3	1
<u>Battle casualties</u>		
POW		
Prisoner of war (POW)	41	39
WIA, IIA, and POW	30	23
Killed in action (KIA)	134	138
Missing in action (MIA) - not finally POW or KIA, includes any declared officially dead	1	2
WIA, IIA		
Wounded or injured in action (WIA, IIA)	325	182
Cold injury, battle casualty	10	1
<u>Psychiatric or psychological inadequacy</u>		
Psychiatric, directly	68	138
Psychiatric, by interpretation	1	2
Return prevented by psychiatric con- dition but departure otherwise classified	18	18
Assigned to another unit: noncombat for psychiatric reason, not a psy- chiatric diagnosis; e. g., psycho- logical inadequacy	0	0

Table 1

Reason for departure	Number of Men	
	ETO	MTO
<u>Other medical</u>		
Medical other than psychiatric, includ- ing later care of wounds, physical exhaustion, and nonbattle injuries	78	110
Self-inflicted wound (SIW)	15	5
<u>Rotation, transfer, and rest devoid of any implication of inadequacy</u>		
Rotation as an individual	9	52
Transferred to Z/I training cadre	8	7
Temporary duty at rest camp, etc.	1	
Assigned to another unit: combat unit	10	124
<u>Transfer or change of duties with possible implication of inadequacy</u>		
MOS or duties changed to low-risk, even if unit also changed	20	62
Special, detached, or temporary duty - no specific details given, not at rest camp, etc.	2	1
Assigned to another unit: Noncombat, for nonpsychiatric reason		8
Assigned to another unit: Noncombat, reason unknown	19	58
Cessation of hostilities: V-E Day or unit withdrawn from combat in ETO or MTO	205	22
Other (under age, separated for minority)		1

table 1 is, of course, not the same as that for, say, the first departure; emphasis is given there to reasons for permanent withdrawal. Thus AWOL and departure on disciplinary grounds are of trivial significance as the basis of final departure, and battle deaths of very great importance. However, our purpose in presenting table 1 is not to discuss the numerical aspects of the departure pattern but the problems of definition and procedure associated with the classification itself. Since final TAG designations were used to the greatest possible extent, men initially carried as MIA are here almost always classified as POW or KIA. POW's who were also WIA or IIA are shown separately in the listing. Also, if TAG classified a man as DOW we placed him in the WIA category, so that the category KIA as used here may be thought of as essentially the TAG classification. Incidentally, the ratios of WIA to KIA are low (2.5 for ETO and 1.3 for MTO) because the table is confined to last departure; for all departures the ratios are 4.5 and 3.8, which are more in accord with the World War II average³ of 4.1 for the ground arms. The category WIA is combined with IIA, in conformance with TAG usage. It seemed attractive to classify self-inflicted wounds (SIW) as either accidental or purposeful, but examination of the individual records revealed that this could rarely be done with confidence; in coarser groupings the SIW are included among nonbattle admissions. Early in the war high altitude frostbite incurred on combat missions was made the basis for awarding the Purple Heart, and later, when ground action became heavy in the winter months in the European area, there was some extension of this principle to ground troops; men awarded the Purple Heart for cold injury appear in TAG counts of WIA + IIA, and are accordingly so recognized here.

Departures on psychiatric grounds are those in which a final psychiatric diagnosis (usually psychoneurosis) stands as the cause of admission. In cases with more than one cause of admission the psychiatric diagnosis must have been primary; a man whose final cause of admission was given as both WIA and psychoneurosis was carried as WIA, not psychoneurosis, on the ground that it was the wound which caused his departure at the particular time. Such inadequate designations as "fatigue," "exhaustion," etc., were, following TSG coding practice, regarded as psychiatric unless specifically characterized as physical. Diagnoses of "concussion," "blast injury," etc., were accepted as WIA unless specifically changed to psychiatric by the medical authority actually responsible for the final designation of the cause of admission. All cases in which both psychiatric and WIA components were present in the record were reviewed, as were all cases of concussion and blast injury, to be sure that such cases were properly classified as to the probable reason for departure. In general, our effort has been not to validate but to reflect faithfully the definitive diagnoses made by Army medical officers. It would have been unwise to have attempted any such validation in a record study, and we considered that Brill's findings⁵ provided sufficient indication that the service diagnoses were acceptable. We did, however, make an exception in classifying a few departures as "psychiatric by interpretation," having become impressed by the pattern of symptomatology in men with two or more admissions closely associated in time. After some study of such individuals the following criteria were evolved for the use of this classification:

1. The admission looks like another for the same man which is called frankly psychiatric, in the sense that the same symptomatology is involved, the admissions are close together in time, and that called medical does not provide an organic hypothesis for the symptomatology.
2. The admission is not explained, e. g., "no disease found," or only symptomatology is described, and there is additional information which makes psychiatric departure the most reasonable formulation.
3. No evident reason for departure is given, but man clearly stays out for psychiatric reasons.
4. Uncertainty about psychiatric diagnosis at a given departure is resolved by later formulation of situation as psychiatric departure, although precise parallelism in symptomatology is unproved.

Classification of departures as psychiatric might have been extended to cases in which any valid psychiatric diagnosis was attached to the admission associated with the departure, but we chose not to do so. It seemed of the utmost importance to preserve the operational significance of the reason for departure, and to avoid confusing the issue with cases in which psychiatric symptoms became pronounced, or were noticed, only after departure from combat on another basis. At the same time, it was also plain that some of the wounds and nonpsychiatric illnesses which withdrew men from combat were of short duration, and that return to combat was prevented only by psychiatric conditions developing after departure. Although we were unwilling to alter the classification of reason for departure we decided to count separately those cases in which return to combat was prevented by a psychiatric condition not itself the cause of departure.

No effort was made to distinguish various types of psychiatric diagnoses, e. g., psychoneurosis vs. other psychiatric conditions. The term psychiatric is used here in the sense of the SGO code for 1949, and includes the following disorders:¹⁵

Psychoses.

Transient personality reactions to acute or special stress.

Character and behavior disorders.

Immaturity reactions.

Addiction.

Disorders of intelligence.

Psychoneurotic disorders.

Somatization reactions.

In this experience, of course, the overwhelming majority of psychiatric admissions are properly classified as for psychoneurosis.

Since the classification of departures as psychiatric represents the most basic operation in the entire study, appendix IV is devoted to problem cases which were encountered in the process.

Departures on medical grounds, other than psychiatric or battle casualty in classification, were lumped together. Accidental injury not classified as IIA is included here together with infectious diseases, and the like.

Whenever low-risk duties were assumed a man was considered to have departed from high-risk MOS; in practice, personnel records show such changes only when the MOS designation was officially changed. We accepted this limitation only after a questionnaire investigation had satisfied us that the error was small. The investigation of this problem is reported in detail in

appendix V, which also contains copies of the questionnaire and letters used in approaching a sample of long-lasting men. It was argued that the discrepancy between fact and official record should be maximal in men who seemed to last longest, and therefore a sample of 534 long-lasting men was chosen for special study. If men were not easily located we dropped them in the belief that ease of location at this time is, at most, weakly correlated with unrecorded change in duties during combat. In 461 located men the response (with three mailings) was 79 percent; we consider this response to manifest an enduring interest in these problems. Using as our criterion the man's own statement of his duties at entry, we found to be ineligible, among those who returned the questionnaire, 5.0 percent of the 298 original men and 1.5 percent of the 68 replacements. A change in duties to low risk was evident in 10.7 percent of the original men and in 14.7 percent of the replacements. Preliminary remaining curves were then modified in the upper region of stress on the basis of these changes, and it was found that the net changes in the curves were small. The points on these curves were found to be as follows, without any allowance for nonresponse:

Point on remaining curve	Percentage of men remaining			
	Before correction by questionnaire		After correction by questionnaire	
	MTO	ETO	MTO	ETO
Origin	100.0	100.0	100.0	100.0
Approximately 20 percent remaining	19.0	20.2	17.4	18.4
Approximately 10 percent remaining	9.0	10.4	8.1	9.6

From this analysis it seemed plain that questionnaire information on the entire sample of 2,500 men would not substantially change the shape of the remaining curves. Since such information was costly to obtain, and in any case could not be obtained for more than 80 percent of the cases, it was decided to base the entire analysis upon official Army records. Other studies were made, as reported in appendix V, and showed that

1. NP rates of breakdown were little affected by the errors.
2. The frequency of error was maximal in cases of longest stress, so that less error could be expected in the balance of the sample excluded from the pilot questionnaire study.

Occasionally a man left his company for special detached or temporary duty with an unspecified organization. If his absence were no longer than a week it was ignored; otherwise, he was dropped on the date he left the study company.

Some units were withdrawn from combat prior to V-E Day, and in such instances individual departure from combat was disregarded on the view that the man remained in his unit available for combat duty if such were required.

Explicit administrative handling of men as psychologically inadequate was looked for but never seen. However, assignments to other units were classified with this possibility in mind; it never accounted for a final departure. More commonly, administrative records failed to reveal any reason for transfer to a noncombat unit, and it may be supposed that some of such men were transferred on the basis of psychological inadequacy. In no sense, however, could all such men be considered as having had psychiatric breakdown, for their inadequacy might well have antedated combat. If such transfer were

made after a psychiatric episode, this fact was, of course, known and is fully taken into account in the coding scheme. The transfers to other units, it may be remarked, are not reassignments through replacement depots fed by hospitals but transfers directly from combat status without the intervention of illness or injury. Departure for illness or injury is coded as such.

Medical admissions were grouped in a more summary fashion than departures, in view of the interests prompting the study. The handling of medical admissions according to commonly used codes, e. g., the International Statistical Classification of Diseases, Injuries, and Causes of Death, or the SGO modification thereof, is an expensive and time-consuming process which we deliberately avoided. The recording of admissions was almost entirely subordinated to the accounting of time away from combat. The only additional interests were:

1. To note psychiatric admissions prior to EC.
2. To provide the basis for admission rates for all causes, psychiatric illness, and WIA during the combat interval.
3. To note psychiatric admissions and WIA after men left the study companies.

Accordingly, dates of admission and disposition were carefully recorded, but no effort was made to record or to classify admissions other than as WIA, psychiatric, and other medical. To accomplish even this minimal breakdown accurately, however, required that any medical admission involving WIA or possibly psychiatric aspects be recorded in detail. Following SGO procedures, admissions were defined on the basis of medical attention and loss of time from duty (at least one day). Also, complete detail as to transfers and changes in diagnosis was recorded for all psychiatric or possibly psychiatric admissions, and all cases with both psychiatric and WIA diagnoses were reviewed in connection with the study of blast injury and concussion.

Duty in Europe prior to V-E Day, and after leaving study companies, was characterized on the basis of mission of unit, either combat or noncombat. Combat units were designated as letter companies, or units characterized as rifle, infantry, reconnaissance, assault, or tank, provided the word "headquarters" did not appear in their designation. In other words, we chose to employ a narrow definition in keeping with our interests in the men who did the fighting and took the risks.

It may be worth noting that the records procedures defined for the study do not provide any real information on the personality and character structure of the men studied, purposes related to such information having been excluded from the scope of the study at the time it was designed.

Unit data were obtained according to a simpler plan, although its conceptual difficulties, touching as they do on the definition of combat and of stress, are not to be minimized. The following observations were made:

Division - Each calendar day from EC to V-E Day was classified as a division-combat day or not so.

Regiment - Each calendar day from EC (division) to V-E Day was classified as a regimental combat day or not so.

Company - Each calendar day from EC (division) to V-E Day was classified as a company combat day or not so, and for each calendar day there was recorded the number of KIA + WIA + MIA reported in the morning report for that day.

Parallel information at the battalion level was obtained from company data in the MTO sample, since the sampling plan for MTO provided for the use of all three rifle companies in each rifle battalion, but otherwise battalion observations were not themselves recorded.

For the division and regiment, combat was defined as follows:

1. It (the unit) occupies a line position opposing enemy troops (casualties need not occur); and
2. although the unit is not in an established line position, as when in reserve, an enemy breakthrough or a rapid advance of friendly troops precipitates exchange of fire with enemy troops thus breaking through or bypassed.

Combat activities range from mere holding and patrolling without meeting resistance to fending off heavy enemy attacks. Casualties need not, but usually will, occur. A unit may be carried in noncombat status even while it sustains casualties, provided that neither criterion 1 nor criterion 2 is satisfied. For example, an enemy plane attack on a unit in reserve may produce casualties or an occasional enemy shell may cause casualties in a unit in reserve status.

It was occasionally found that a regiment (or battalion), normally an organic part of one division or regiment, had been detached and temporarily assigned to another. In that event, the men involved were credited with the experience of the division (or regiment) to which the regiment (or battalion) was attached.

In the morning report there is mention of any casualties or other personnel changes by name, and such events are dated both as to occurrence and reporting. For all 150 study companies, morning reports were systematically reviewed and each calendar day classified on the basis of the occurrence of battle casualties; that is, a company combat day is one on which the company sustained casualties. For this purpose, battle casualties were defined as KIA + WIA (and IIA) + MIA; the last were included because the morning report contains only a provisional classification, and many men later called KIA are shown in the morning report as MIA. In effect, by adding the three categories as they appear on the morning report, we have the equivalent of KIA + WIA (and IIA) + POW + MIA as these designations are used by TAG.1,22

By abstracting the number of casualties in each company we hoped to give weight to the intensity of combat as distinguished from its duration. We found it necessary, for reasons of economy, to adopt a shortcut procedure which, however, is virtually as good as that to which one is first led in attempting to count battle casualties. On the morning report for any day may appear the casualties occurring on that day and on certain earlier days, and the disparity is such that, in working from microfilm copies of morning reports, it becomes a slow and tedious task to build up a count of casualties by day of occurrence, while that for day of report is ready at hand. Accordingly, we chose a sample of six MTO companies for one month each, over the period July 1943-May 1944. There were in all 324 casualties occurring in this period, the reporting of which was as follows:

Day of report	Cumulative percentage
Same day as occurrence	63.0
1 day after	85.2
2 days after	89.8
3 days after	96.0
4 days after	97.8
5 days after	98.2
6 days after	99.4

It was concluded, therefore, that the day of reporting would provide an adequate basis for counting the intensity of the casualty experience. However, the classification of calendar days as combat days or not such, was kept on a date-of-occurrence basis.

At the suggestion of Lieutenant Colonel Stephen W. Ranson, MC, we initially endeavored to study changes in officers in the 150 study companies, in the thought that information about the inadequacy of officers, as evidenced by psychiatric breakdown, SIW, reassignment to regimental headquarters, etc.,

might be of value in studying the chance of breakdown. Officer changes proved exceedingly numerous, however, and after finding in the records of a small sample no real information about the reasons for such changes, we early ceased to study them.

Qualitative aspects of combat were entirely ignored in the plan for the study, both on the grounds of cost of obtaining adequate data on small units and on the view that in any case their significance lies very largely in their effect on the casualty rate. As already noted, there is ample statistical evidence that NP rates for combat divisions are very much a function of casualty rates. On the average, such rates correlate at the level of about +.75. Since they represent the experience of tactical units in which the process of attrition and replacement destroys calendar time as a measure of duration of stress, their correlation measures only that part of the effect of combat which derives from its intensity as distinguished from its duration. However, apart from the correlation between WIA and NP rates, we are aware of no numerical estimate of the importance of combat stress in producing psychiatric casualties, but do assert our belief that other forms of external stress are of comparatively minor importance. It is certainly true that psychological breakdown would be extremely infrequent among such men in a situation far removed from combat and from the prospect of participation in it.

C. Statistical Tools and Analytical Approach

The conceptual framework of the study is the simple one set forth in the discussion of stress, resistance, and breakdown which appears in the introduction, and needs no further elaboration here. It may, however, be useful to define those tools and methods which we have used that are not altogether routine. Of particular interest are the indices of stress and the adaptation of life-table and related techniques to the requirements of this particular study.

The indices of stress dictated the records procedures already described for abstracting the combat history of units of various size. In utilizing this material to measure the stress endured by the individual, it was, of course, necessary to bring to the unit-experience the dates on which he was actually present for duty in a study company. In counting time and casualties to provide these measures of stress for the individual, the point of origin was taken as EC (division) for the original man, and for the replacement it was the date of joining the company. By definition, the latter date is not earlier than EC (division). The terminal point for any count for an individual is his day of departure from the study company. The specific indices, then, which were used uniformly for each individual are:

1. Calendar days following EC (division) or date of joining the company.
2. Divisional combat days, similarly counted.
3. Regimental combat days, similarly counted.
4. Company combat days, similarly counted.
5. Company casualties $\overline{KIA} + WIA$ (including IIA) + \overline{MIA} reported in the morning report, accumulated as days are accumulated.
6. Battalion combat days, i. e., those days on which one or more of the component companies experienced a company casualty day, similarly counted.

Appendix VI shows precisely how two of these indices were arrived at in one particular case.

Life-table procedures ^{7,24} are especially well adapted to the estimation of the likelihood that an individual will survive or remain in a given status after any period of time, and have been extensively used here. However, our primary interest here is not in all departures from combat but in only those classified as psychiatric in nature. Following procedures developed

for creating special purpose life-tables, e. g., those in which only deaths from a certain cause are allowed to decrease the number of survivors, we have calculated tables on psychiatric attrition which ignore attrition for other reasons. That is, the life-table method allows us to calculate from actual observations a rate of loss for a particular cause, e. g., psychiatric attrition, and then to apply that rate of loss as if it measured the only form of attrition. In this way we calculate numbers of losses for the cause of interest which are in excess of those actually observed for this cause, and do so by applying our loss rate to men who in actual life have disappeared from other causes. Table 2 provides a simple numerical example of this process. Column 1 is merely the interval of observation, here assumed to be greater than a single day; it may have any fixed length, e. g., 10 days. Column 2 shows the actual number of men exposed to the risk of psychiatric attrition at the beginning of the interval, and columns 3, 4, and 5 detail the losses during the interval. Column 6 gives the amount of exposure throughout the interval and is here expressed as man-intervals. Since 1,000 men started the interval, and 90 were lost from other causes throughout the interval, $(1,000 + 910)/2$ provides an estimate of the man-intervals of exposure. Then a rate of psychiatric attrition may be calculated as shown in column 7, i. e., for the first interval the rate is $10/955$, or 10.47 per 1,000 exposed per interval. Proceeding in this way we derive the psychiatric loss rates of column 7. If, now, we allow a hypothetical cohort of 1,000 to be decreased by these psychiatric loss rates only, we have the calculated numbers of column 8 to represent the number entering each interval prior to breakdown, and the corresponding psychiatric losses of column 9. The latter add to 137, larger than before because in ignoring the other forms of attrition, we have

Table 2

Example of Calculation of Remaining Curve
Where Only Psychiatric Attrition is Recognized

Time-interval* (1)	Observed					Calculated		
	Number of men entering interval (2)	Number of losses in interval (3)		Number of men exposed to psych. losses per interval (6)** (6)**	Psych. losses per 1,000 exposed interval (7)	Number of men entering interval without prior psych. breakdown (8)		Number of psych. losses (9)
		Psych. (3)	Other (4)			Total (5)		
1	1,000	10	90	100	10.47	1,000.00	10.47	10.47
2	900	15	85	100	17.49	989.53	17.31	17.31
3	800	20	80	100	26.32	972.22	25.59	25.59
4	700	25	75	100	37.74	946.63	35.73	35.73
5	600	30	70	100	53.10	910.90	48.37	48.37
6	500					862.53		

*These are of equal size.

**Estimated as number of men observed to enter interval (column 2) less half of other losses (column 4), which assumes that other than psychiatric losses were exposed to psychiatric attrition, on the average, for half the interval only.

applied psychiatric loss rates to the aggregate exposure of men who actually were lost earlier for other reasons. The difference, 37 men, is our estimate of the additional breakdowns which would have occurred among the 400 men if other forms of attrition had not intervened first. An implication of our computation, for example, is that the 90 men lost in interval 1 for nonpsychiatric attrition would have faced in interval 2 the psychiatric loss rate of 17.49 per 1,000. It is true that the 90 did not break down in interval 1, and that they differ from the 10 who did, but they share this characteristic with the 900 who survived interval 1 entirely and from whom the 15 psychiatric losses were drawn. If there is any error at all in this procedure it lies in the possibility that some of the 90 losses on nonpsychiatric grounds are masked psychiatric losses, i. e., that such cases would be called psychiatric if the full facts were known, or that breakdown in interval 2 was actually more likely than we estimate from the experience of men who actually reached interval 2. Obviously such an error would tend to make our calculated results conservative, i. e., we should then underestimate psychiatric attrition, but there is no practical way even to investigate this possibility. It will seem real perhaps to those who believe that some of the KIA are suicides, or that some of the departures classified as medical are truly psychiatric in nature, but to others it will appear a strained concept. In any event, we have had no hesitation in making the assumption, especially since alternatives would increase the estimates of psychiatric attrition. Any alternative would require an estimate of the frequency with which nonpsychiatric casualties are erroneously classified as such, or of the differential risk of later psychiatric breakdown which such cases must endure, and such estimates are surely inaccessible in material of this kind.

In the example in table 2, it may be noted, we have followed the actuarial convention of regarding as a loss from observation any attrition attributable to causes other than those of our immediate interest. When the interval of exposure is appreciable, say one year, this procedure has much to recommend it; men who die of cardiovascular disease during a year may with real justification be considered to have been exposed to the risk of dying of cancer, say, for an average of only half the year. Here, also, when we are dealing with grouped intervals of any length we have considered this convention a reasonable one to follow. However, in some of our calculations we have used intervals of a single combat day, and in these computations have not made the adjustment for two reasons:

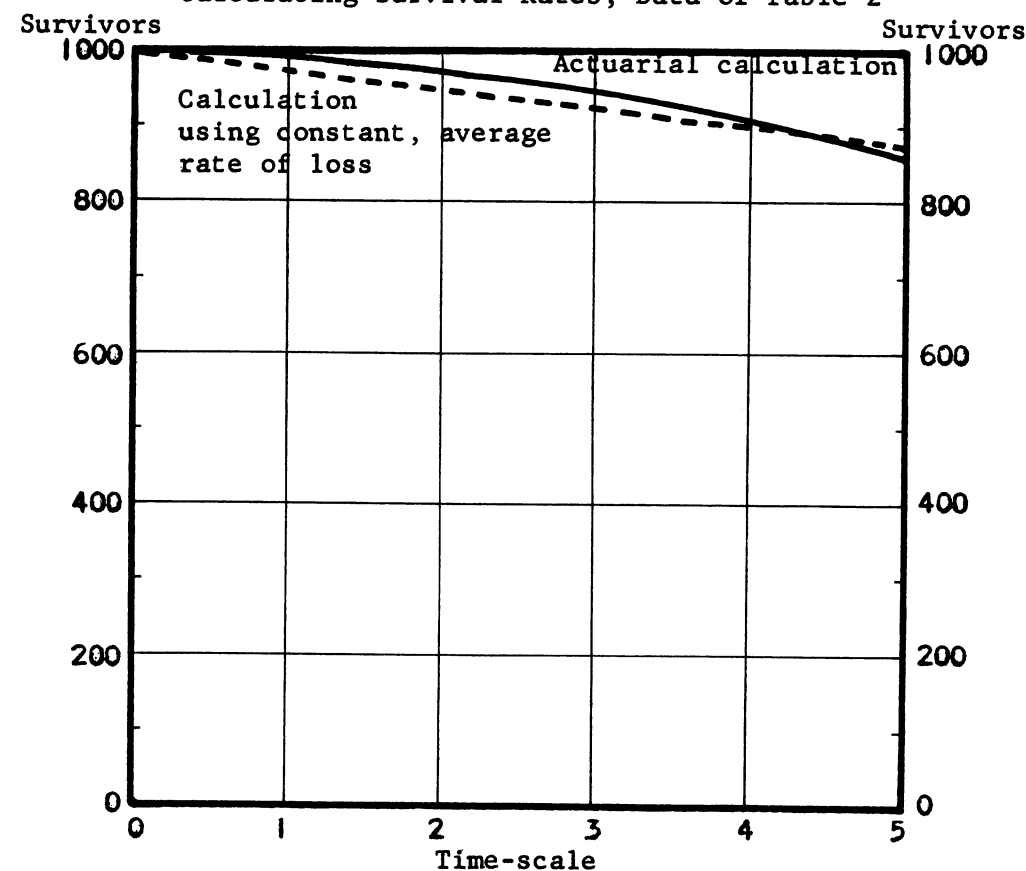
1. The notion that the KIA, say, are exposed to the chance of psychiatric breakdown for only half the day seems somewhat forced; and
2. the daily rates of attrition, on the order of 25 per 1,000 per day for all causes and 5 per 1,000 per day for psychiatric causes, are small enough so that the adjustment of daily data results in inconsequential (one to two percent) changes.

As may be suggested by table 2, the calculation of life-table values is often laborious and we have frequently found it convenient to employ one shortcut which, in our material, is often a valid one. Part of the value of the life-table method derives from its ready adaptation to changing loss rates; if rates are changing rapidly one obtains, from an actuarial calculation recognizing such detail, a curve which differs markedly from one which may be calculated from a constant, average rate. Such curves will, of course, cross, but otherwise will provide very different pictures of the loss process. Figure 1 shows the difference in results, based on data in table 2. By machine methods it is comparatively easy to calculate an average attrition

rate, and it is a great saving in labor of calculation if such rate may be used in calculating the proportion of men remaining at any point on the time-interval (or stress) scale. At one point in the analysis we undertake to investigate the significance of various preservice and precombat military characteristics in producing psychiatric attrition, and to do so on any scale requires a simpler technique than the calculation of a complete life-table by actuarial methods. Therefore, we investigated our material in the preliminary stages and found that, although in the MTO material the NP attrition rises rapidly with increasing stress, for both ETO and MTO samples a sufficiently good fit is obtained with an average rate calculated for the region in which the bulk of our experience is concentrated. Accordingly, we have made extensive use of average rates of psychiatric breakdown in the belief that similar results would have been obtained from a more time-consuming actuarial approach. The region of stress thus averaged represents about 85 percent of the ETO material and 77 percent of the MTO material, and the two samples have about the same average rate of breakdown in this period, so that one is encouraged to combine ETO and MTO data when larger samples are required.

Finally, from a life-table calculation such as that exhibited in table 2, one obtains estimates of the number of men who drop out in successive intervals and, when obtained in this study from psychiatric attrition rates, we have created from such estimates a distribution of men as to resistance to stress. Thus, in column 9 of table 2 we see that there are 10 men with so little resistance that they were unable to survive the first interval, an estimated 17 who completed one but failed to complete two intervals, etc., as far as this table goes. The extent to which the distribution can be specified will depend on the attrition rates and on the duration of the experience; in the present study the most one can hope for is to define the greater part of

Figure 1. Illustration of Difference Between Two Methods of Calculating Survival Rates, Data of Table 2



the distribution. We could hope to classify substantially all men as to resistance if our experience were so prolonged that substantially no men were able to survive it without breakdown. We can state categorically in advance that such is not the case here. A more hopeful view might be taken if the rate of psychiatric attrition proved to be constant over the region of our actual experience and if we felt confident in our ability to extrapolate beyond that region.

D. Choice of an Index of Stress for Routine Work

Although the facilities available to us made it possible to study psychiatric attrition as a function of each index of stress, in the study of preservice and certain military factors for their effect upon psychiatric attrition, it was usually necessary to restrict our attention to a single index. At the outset, therefore, we prepared some preliminary tables which were designed to assist us in selecting one index from among the five available for both the MTO and ETO samples (battalion combat days being unavailable for ETO), except that calendar time per se was not seriously considered in making this selection. In advance of creating these tables, we proceeded on the view that the most useful index might well be that for which the rate of psychiatric attrition proved to be the function rising most rapidly. In proving to ourselves that this view was too narrow we obtained some valuable information about the stress indices.

As a first step we subdivided our ETO and MTO samples of original men into decile groups for each index, i. e., the 10 percent with the lowest stress rating prior to departure, the next 20 percent, etc., and for each found the number of first departures on psychiatric grounds (excluding from this category men whose departures were nonpsychiatric but who failed to return

on psychiatric grounds) and compared the indices of stress in this way. If psychiatric departures in general (first and subsequent) bear a fixed ratio to all departures, then first psychiatric departures will probably not be so related unless subsequent departures are negligible. The data of the three samples on this point are as follows:

Sample	Total	Number of psychiatric departures	
		First Number	Percent of total
Originals			
ETO	117	64	<u>55</u>
MTO	169	51	<u>30</u>
Replacements	60	44	<u>73</u>
Total	346	159	<u>46</u>

When subsequent psychiatric departures are appreciable, the ratio of first psychiatric departures to total departures will tend to be higher at the beginning of the experience and lower at the end. Although these considerations suggest that the constant ratio is not a good basis for comparison with actual data when first departures are used, at least we know the directional change produced in the ratio by taking first psychiatric departures. On a cumulative chart of first psychiatric departures against all departures, as shown in figure 2, a fixed ratio is represented by a diagonal line. If all psychiatric departures bore such a relationship to departures for all reasons, the line for first departures would curve upwards as the ETO curves do, but starting sooner and climbing most rapidly at first. It does not appear, therefore, that either first or all psychiatric departures are proportional to all departures in the ETO material. In MTO the situation is very different; first psychiatric departures increase most rapidly toward the end of the experience.

Figure 2. Cumulative Number of First Psychiatric Departures Related to Cumulative Percentage of Departures For All Causes, For Each Stress Index, by Theater, Original Men Only

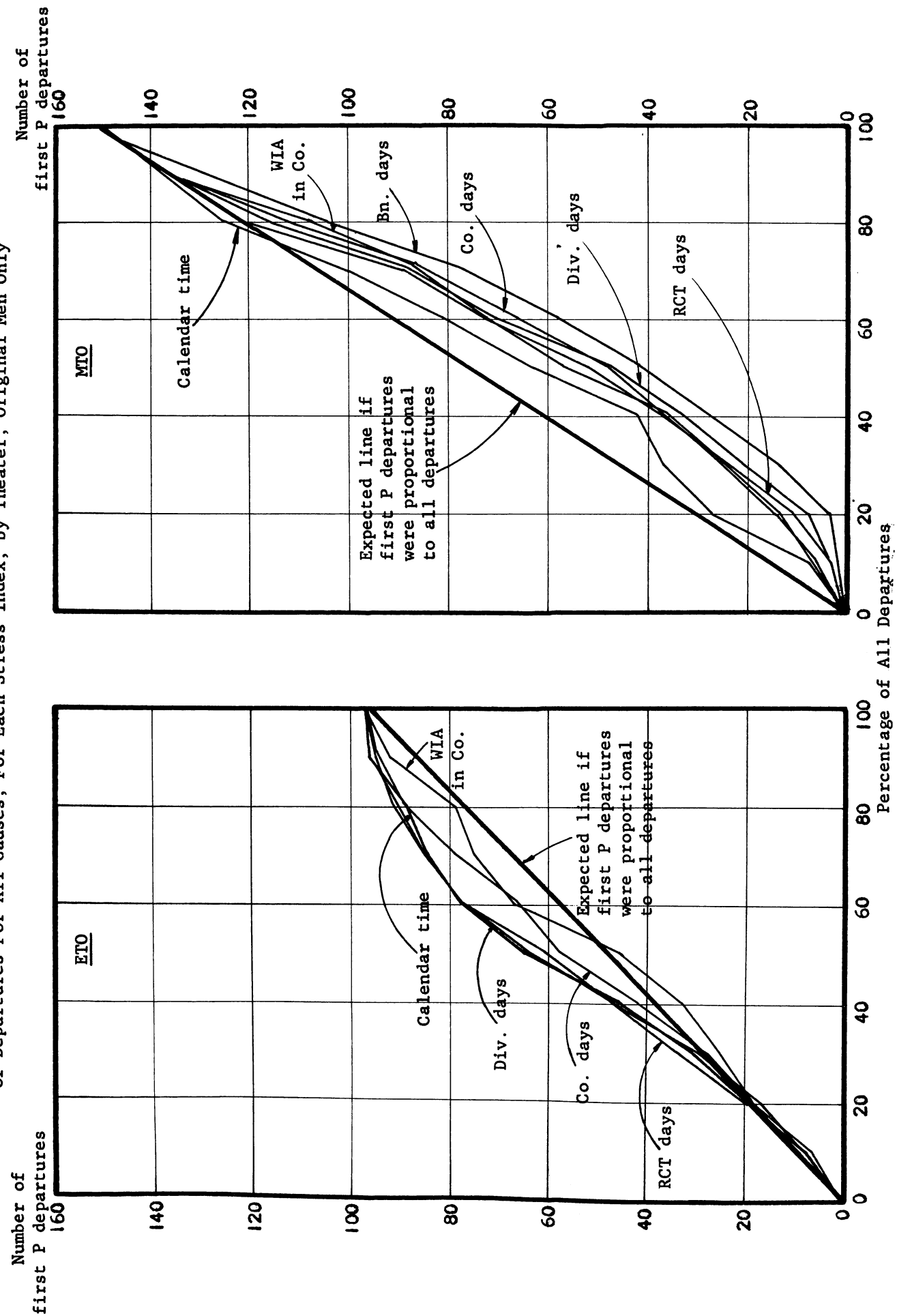


Figure 2 is most valuable, however, for its suggestion that the particular choice of stress index may make very little difference, in the end, upon our estimates of psychiatric attrition and its relation to other attrition. It also leads us to expect differences between the ETO and MTO material; in the former the first psychiatric departure occurred early, in the latter late. But such extraneous factors as length of theater experience and performance in returning psychiatric casualties to duty also produce such differences, so that their explanation must be sought by other methods.

From the same tables we then proceeded to calculate rates of first psychiatric departures for each index. These are summarized in figures 3 to 7, where the vertical scale gives the rate of first psychiatric departure and the horizontal scale the particular stress indices. Each rate plotted gives, for all the experience in that region of the stress scale, the number of departures per 1,000 units (either man-days or battle casualties) of exposure. Figure 2 provides a graphic summary of the rates based on company days. In all three groups of cases (replacements not shown in figure 2) the rate is low at the beginning of the stress scale and rises until a point is reached in the region of 20 to 30 company combat days, after which the rate for ETO cases declines precipitously and that for MTO remains at the same high level. The decline in the ETO rate is thought to reflect the change in morale associated with the approach of V-E Day, as discussed more fully below. The MTO experience was essentially completed long before the vista of V-E Day could exert any influence. The trend for MTO is really in doubt after day 70 or 80, as exposure declines so rapidly that any calculated rates are unreliable. Table 3 presents the full detail on this index. It will be noted that after day 80 only 47 men were exposed, and that only 4 breakdowns occurred in this small experience in comparison with 5 or 10 which would be

Table 3

First Psychiatric Departures in Relation to Company Combat Days,
MTO Originals

Company combat days	Men exposed to risk at beginning of interval	Man-days of exposure throughout interval	First psychiatric departures in interval	
			Number	Number per 1,000 men per day of exposure
1-10	1,000	7,953	29	3.65
11-20	624	5,430	21	3.87
21-30	455	3,856	29	7.52
31-50	318	4,637	39	8.41
51-80	163	2,875	30	10.43
81-152	47	1,020	4	3.92
Total	1,000	25,771	152	5.90

Figure 3. Average Number of First Psychiatric Departures per 1,000 Original Men per Company Combat Day for Quintile Groups Having Indicated Ranges of Stress (Company Combat Day), by Theater

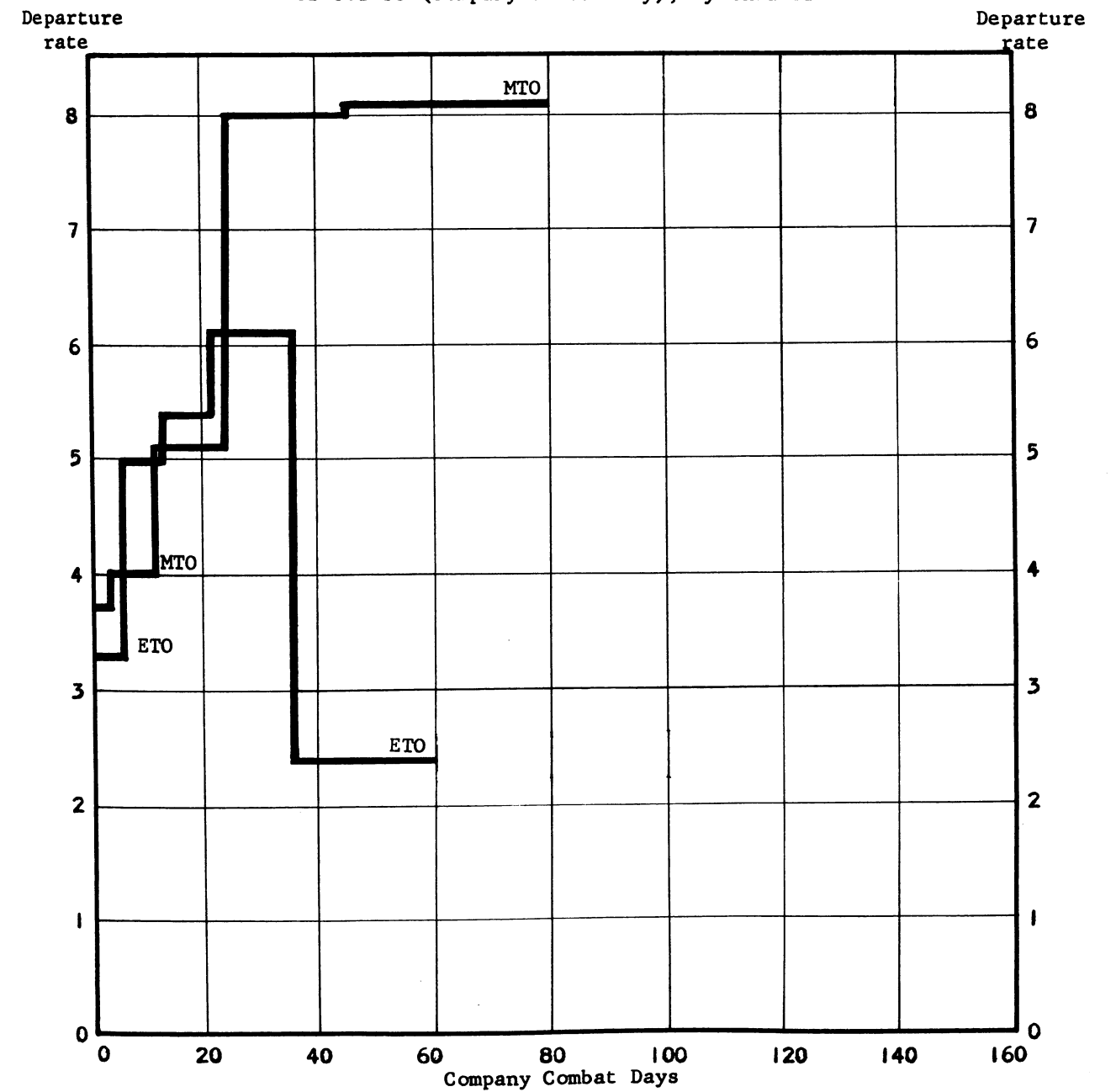


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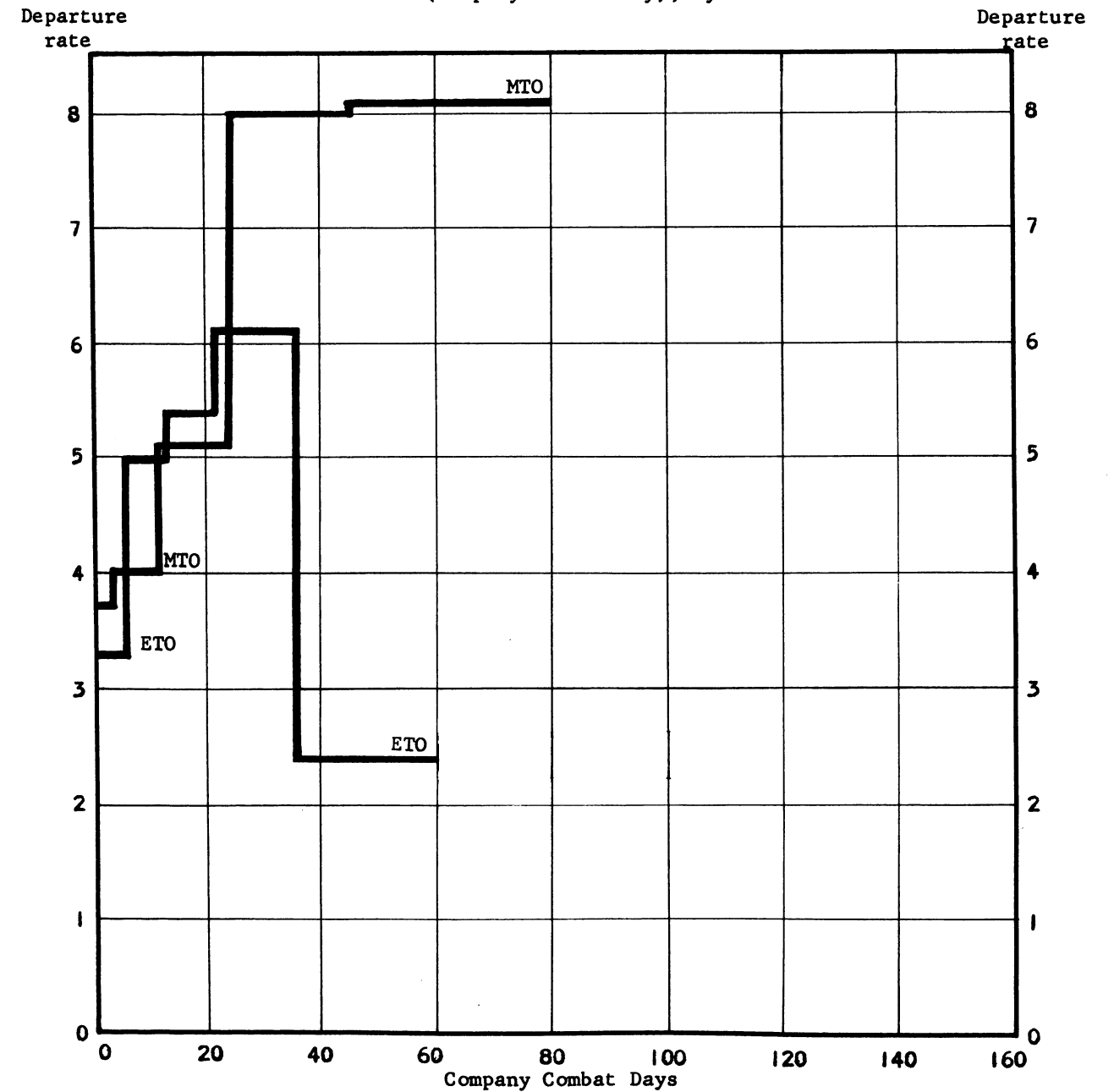


Figure 4. Average Number of First Psychiatric Departures per 1,000 Original Men per Division Day for Quintile Groups Having Indicated Ranges of Division Time, by Theater

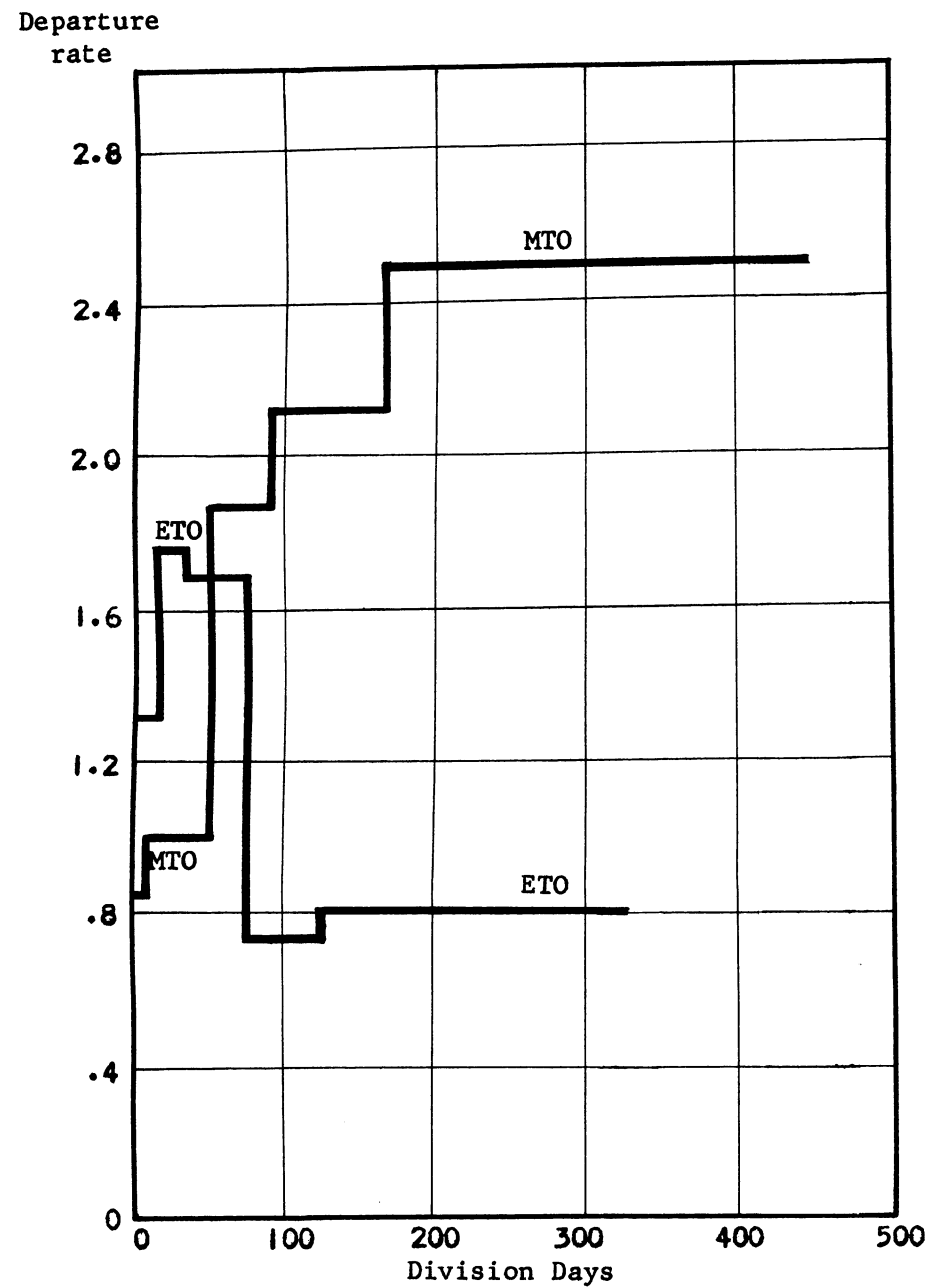


Figure 5. Average Number of First Psychiatric Departures per 1,000 Original Men per Regiment Day for Quintile Groups Having Indicated Ranges of Regiment Time, by Theater

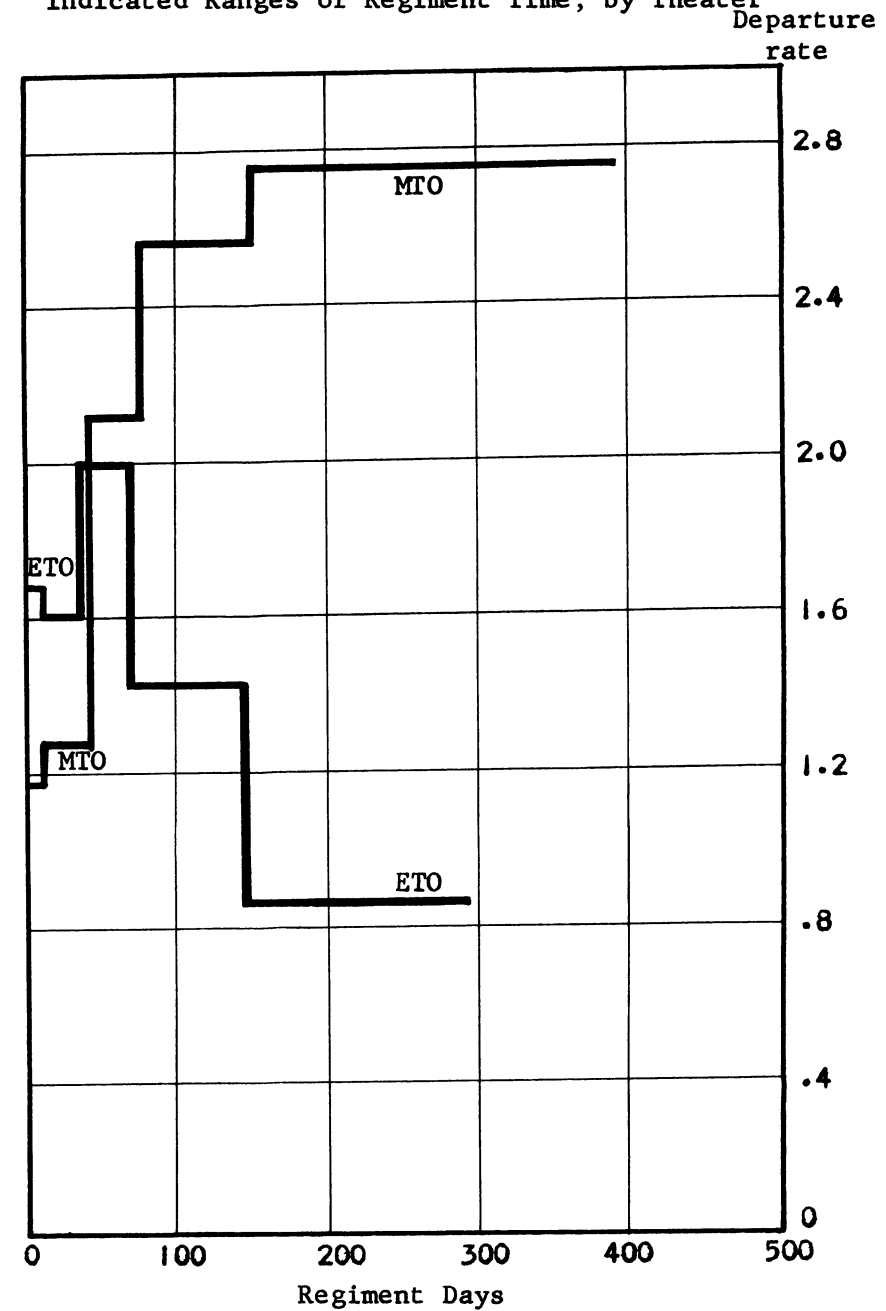


Figure 6. Average Number of First Psychiatric Departures per 1,000 Original Men per Calendar Day for Quintile Groups Having Indicated Ranges of Calendar Time, by Theater

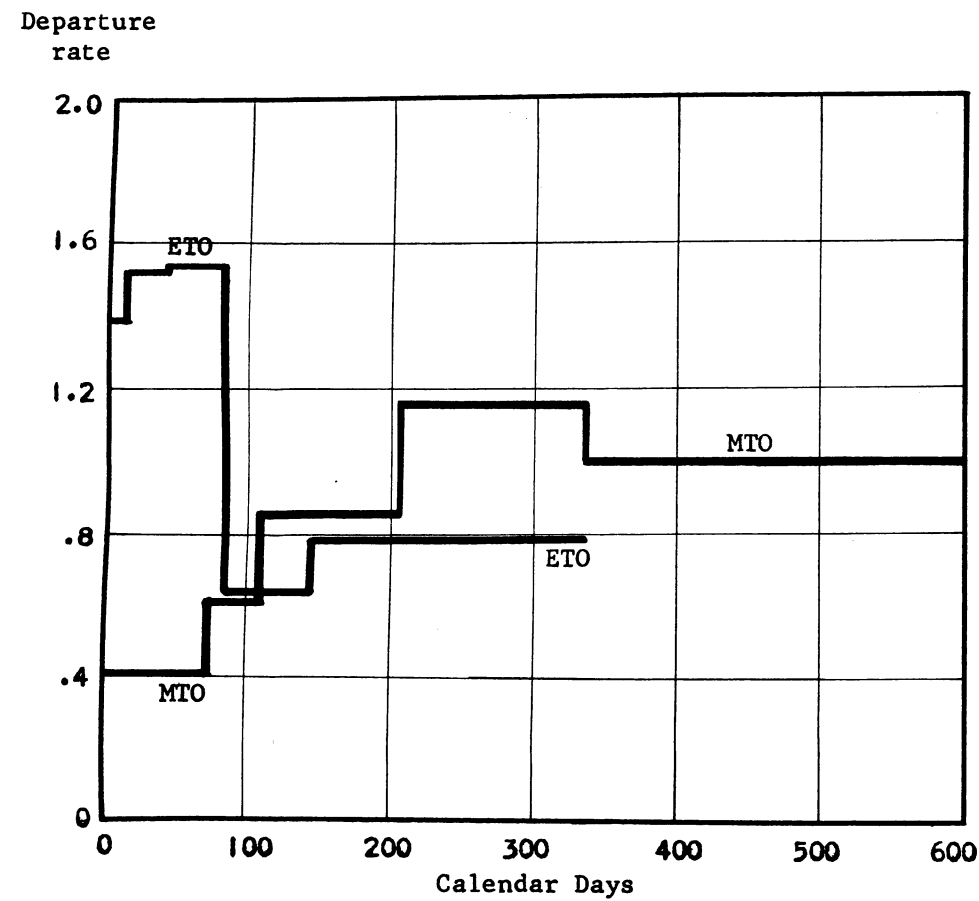
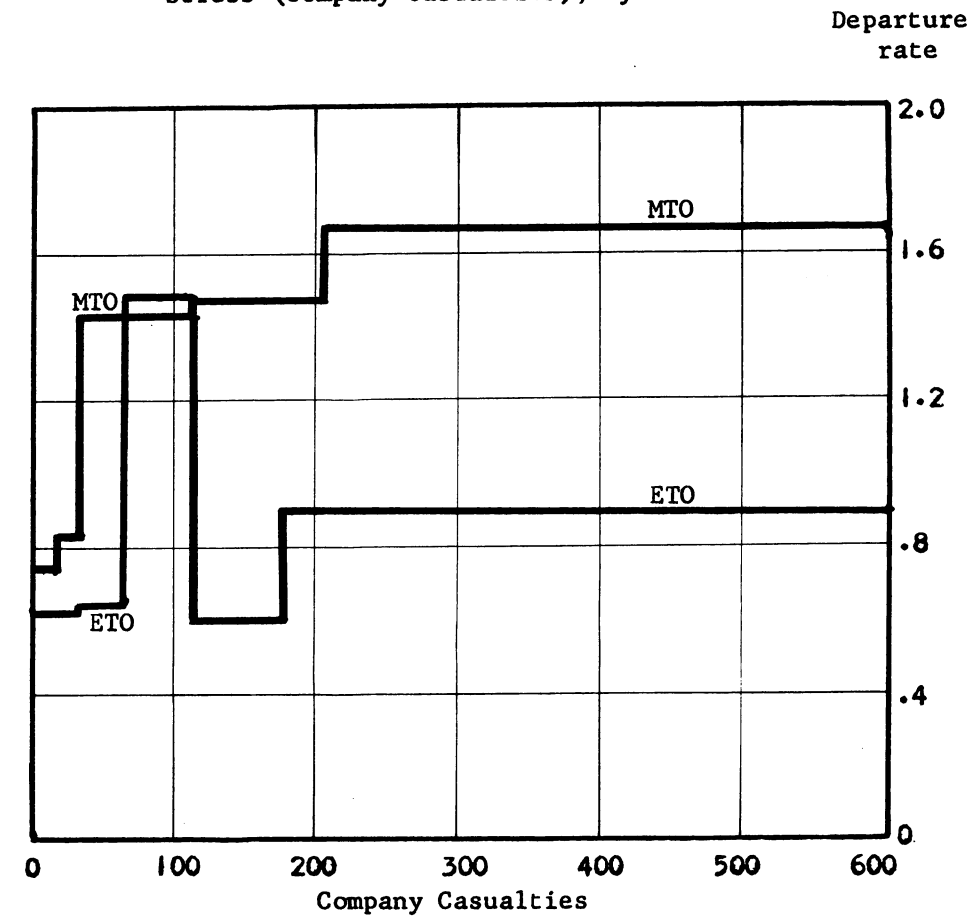


Figure 7. Average Number of First Psychiatric Departures per 1,000 Original Men per Company Casualty For Quintile Groups Having Indicated Ranges of Stress (Company Casualties), by Theater



expected if the rate continued to climb. In the MTO sample final departures after 70 to 79 company combat days occurred, on the average, in December 1944. Final departures after 80 to 99 company combat days occurred, on the average, in February 1945. The exposure after day 80, therefore, was for the most part after 1 January 1945, and may also have been subject to the same influences which seem to affect the ETO experience after the Battle of the Bulge. Data in this region of stress are extremely difficult to obtain and efforts to supplement the sample to this end have not been successful. At issue also is the actual duty of the 47 men who lasted longest: Was their exposure actually at the high-risk level? The number is so small in relation to the entire sample that it approaches the order of the error of the determination of high-risk duty as we have been able to determine it. This problem is also discussed more fully below.

The choice of an index for the MTO material is evidently an arbitrary one; in each instance the rate of breakdown increases rather rapidly. The ETO material is more complex and by that token much less satisfactory. In only one index is there any real movement of the type manifest in the MTO material, and in all there is a precipitous decline in the upper region of stress. Except for this decline the ETO and MTO, rates for psychiatric departures are fairly similar if company days are used, and otherwise not. With these considerations in mind we chose as our index for routine testing of correlated factors the company combat day.

The difference between the ETO and the MTO data shown in figures 3-7 does, of course, touch upon the central problem of the study, namely, the estimation of rates of breakdown over the accessible range of stress, and

merits further examination at this point. Alternative formulations to that already expressed include the following:

- (1) The MTO pattern is the valid one, and the ETO sample just happens to be exceptional.
- (2) The valid pattern is indicated by the ETO experience, and the MTO is exceptional.

If the ETO pattern were the valid one, it would suggest that there is a considerable set of men with extremely high resistance, whereas the MTO pattern contains no such suggestion.

When the calendar time equivalents of the company combat day scales are worked out, we find that company day 35 corresponds to some time in February 1945 for the ETO experience, and to about 1 May 1944 for the MTO. The experience of the MTO originals was about 95 percent complete by 1 January 1945. Figure 8 gives the data of figure 3 on the equivalent calendar time scale. Plainly, the ETO and MTO discrepancy as to breakdown may arise out of their different placement in calendar time. Fortunately, only 16 percent of the experience of the ETO originals falls into the period of 35 or more combat days, i. e., February to April 1945. Whether, in fact, calendar time provides a clue to the discrepancy must be sought independently elsewhere. The best material for such an exploration consists of unit data as summarized³⁰ from routine medical reports for field armies and infantry divisions. An analysis of these data appears in appendix VII, and only the main conclusions need be stated here, viz.:

- 1. For each of the four field armies in ETO, the average ratio of psychiatric admissions to wounded declines after the Battle of the Bulge, whereas for the Fifth Army in MTO the ratio seems fairly well sustained over the entire period of the war.
- 2. When representative U. S. First Army divisions entering combat in June, in July, in December, and in January are studied as to their NP/WIA ratios, their values fall well along the average line for the First Army; the decline in 1945 is not obviously a product of the introduction of fresh divisions.

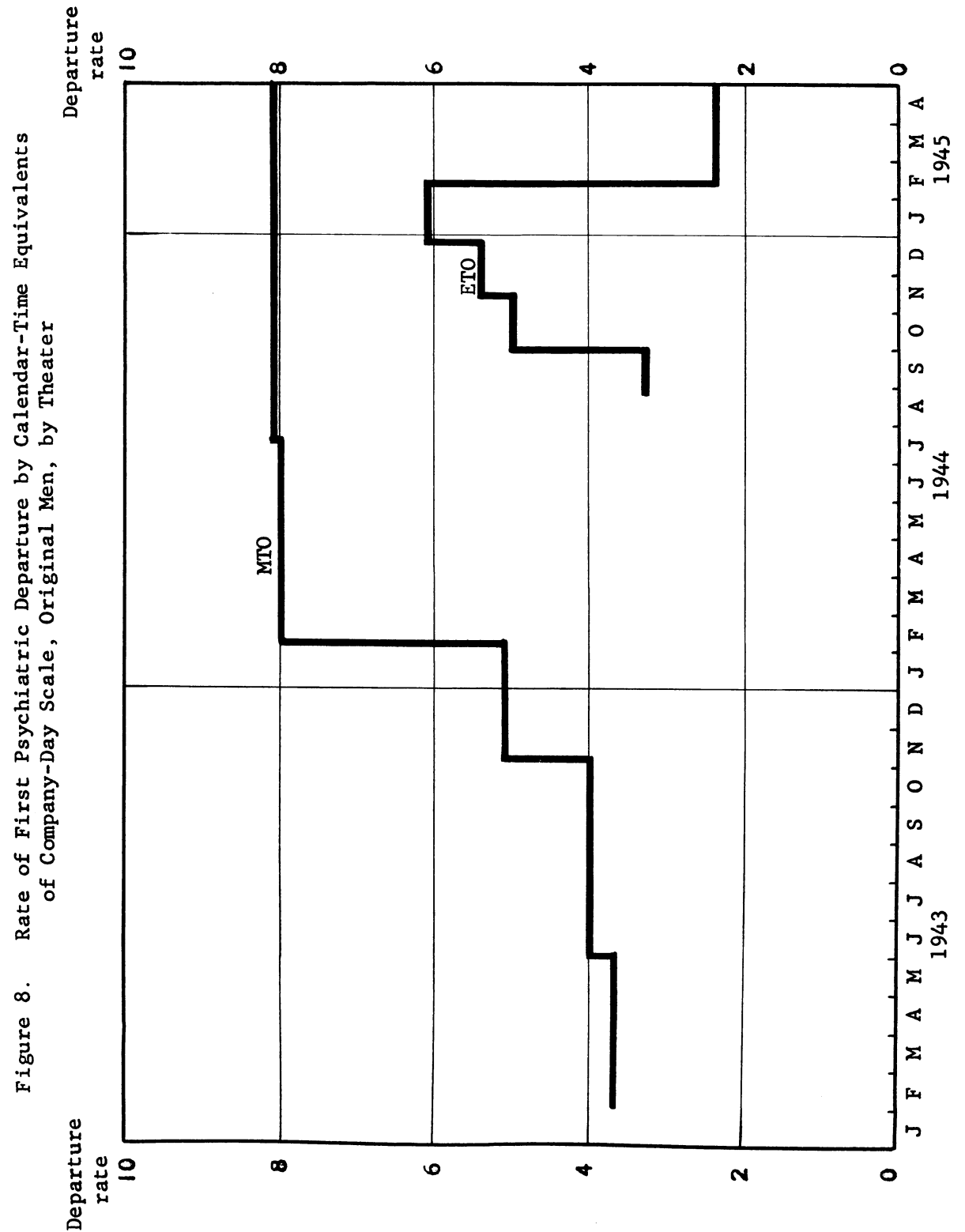


Figure 8. Rate of First Psychiatric Departure by Calendar-Time Equivalents of Company-Day Scale, Original Men, by Theater

3. When the weekly experience of the ETO field armies is divided into 1944 and 1945 portions, and for each portion a regression line calculated to express the average relation between NP and WIA admissions, it is found that during 1945 NP rates rise much less slowly with mounting WIA rates than during 1944. NP admissions increase at an average rate of 0.21 and 0.13 admissions per WIA in these two periods, respectively.

The above facts are interpreted here as indicating that in ETO especially the approach of V-E Day cast a ray of encouragement before it, beginning about January 1945, and effectively reduced psychiatric attrition below its usual level considered in relation to intensity of battle casualties. It may be concluded, therefore, that the ETO experience from company combat day 35 on contains an artifact created by the particular historical setting studied, and is thus unreliable and misleading as a basis of generalization for our present purpose, however interesting and significant otherwise.

The various indices of stress were also investigated by means of a correlation analysis. In this analysis a man's value on one stress index is correlated with his value on another, at final departure. The correlation coefficients thus obtained appear in table 4 and range from +.73 to +.98. That is, the indices are quite highly intercorrelated. In both theaters company casualties are least well correlated with other indices. They are, however, well correlated (.89 and .92) with company combat days. These coefficients suggest 3 conclusions:

- 1 The bulk of the information contained in any one index is also contained in each of the others.
- 2 Division and regimental combat days have comparatively little information beyond that contained in calendar days, whereas company days and company casualties have more.
- 3 Company days and company casualties are so highly correlated that neither can contain a great deal of information excluded from the other.

Table 4

Linear Correlation Coefficients Between Pairs of Indices of Stress, by Theater, Based on Experience of Original Men at Final Departure

Stress index	Stress index				Company casualties
	Division	Combat days		Company	
		Regiment	Battalion	Company	
<u>1. ETO units in sample</u>					
Calendar time	.98	.97		.83	.74
Division days	-	.98		.82	.73
Regimental days		-		.83	.73
Battalion days	-	-		-	-
Company days				-	.89
<u>2. MTO units in sample</u>					
Calendar time	.78	.79	.79	.78	.77
Division days	-	.98	.96	.94	.87
Regimental days		-	.96	.93	.87
Battalion days			-	.97	.91
Company days				-	.92

The correlation diagrams produced in the process just described contain some additional information which will be useful in connection with the establishment of an operating basis for rotation policy and with various analyses of battle casualties. These ancillary data appear in appendix VIII.

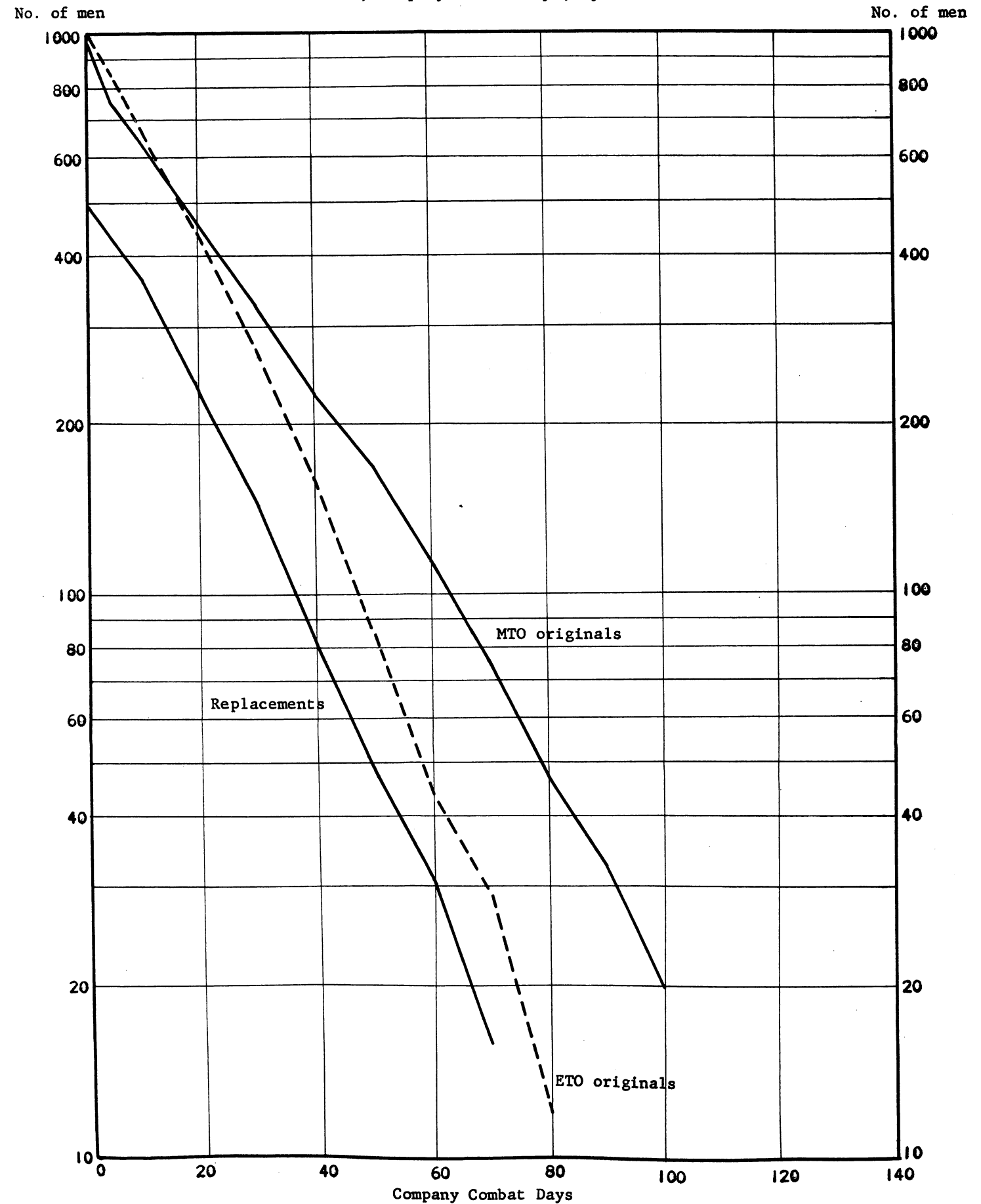
Although the ETO and MTO correlation coefficients between company combat days and company casualties are fairly high, it seemed possible that the chance of breakdown might be somewhat more closely estimated if account were taken of both indices. Accordingly, some exploratory tables were run to test this notion. Each table takes departures within fixed intervals of one stress index and distributes these departures in detail on the second index. If one considers two stress indices jointly, they may be considered as a plane surface over which men move by various paths. To the extent that the two indices are correlated, the possible paths are fewer and larger numbers tend to follow similar paths. The coding procedures for this study do not take such paths into account, but provide information on one index at a time, in the form of the line on the surface where the man was at departure. One can, therefore, know both coordinates of men on this surface only at the point of departure.

One method of analyzing two indices of stress would be to subdivide the plane surface and to calculate for these subdivisions rates of psychiatric breakdown per unit of surface area. One could then follow, for fixed values on one index, any change in rates of breakdown corresponding to different values of the other index. However, an accurate calculation of such rates would require knowledge of all the paths over the surface which men actually took, whereas we know accurately only the coordinates of men at their points of departure. The feasible procedure is to tabulate departures for various

subdivisions of the surface area, but to substitute the proportion of departures classified as psychiatric for the rate of psychiatric breakdown is the kind of substitution which is not often valid. It would be valid if the number of departures falling into any subdivision of the plane surface were proportional to the exposure-base which properly constitutes the denominator for the rate of psychiatric breakdown. For departures for all causes to be proportional to the exposure-base for any subdivision of the surface area, it is required that the rate of attrition for all causes be constant. Now, although it is impossible to calculate such attrition rates over the plane surface, they are easily calculated along any one axis of classification. That the latter are fairly constant is clearly demonstrated by figure 9 which is a plot, on a semi-log scale, of the number of men exposed to the risk of first psychiatric breakdown at successive intervals of combat days. A constant loss rate will produce a straight line function on such a scale, so that the approximately linear form of these curves provides support for the use of the proportion of departures classified as psychiatric in lieu of actual rates of psychiatric breakdown.

With the above justification we may study the data on departures to learn whether one of the indices contains a significant amount of information, not contained in the other, about the chance of psychiatric breakdown. Since psychiatric departures are not very numerous, it is not possible to subdivide the plane surface into very many rectangles. For fixed values of one index, therefore, it was decided to subdivide the other into two parts such that the number of departures for all causes would be as nearly equal as possible. For example, in the ETO data, the interval 07-09 company days was taken as fixed, and the 105 departures falling into this

Figure 9. Number of Men Exposed to First Psychiatric Breakdown Over Range of Stress, Company Combat Days, by Theater



interval were subdivided into 52 in the region of 00 to 42 company casualties, and 53 in the region of 43 or more company casualties. Among these 105 departures there were 10 classified as psychiatric, and it develops that 5 fall in the region of 00 to 42 casualties and 5 in the region of 43 or more casualties. That is, if we know that company casualty days were 07 to 09, the additional knowledge of company casualties tells us nothing further about the rate of psychiatric breakdown. Table 5 gives a summary of available data on the two indices when company days are fixed and company casualties allowed to vary. Table 6 is parallel, with the roles of the two indices reversed. Not all ETO cases were tabulated for this purpose, attention being confined to regions in which cases were relatively concentrated, but all MTO cases were studied in this way. In neither table is there any suggestion that, for fixed values on one index, the chance of breakdown increases as the value of the other increases. Either index seems equally good for our purposes here, and neither is able to add substantially to the information contained in the other. The choice of company days as the index for routine work is to this extent an arbitrary one.

An additional question of interest, unapproachable via indices of stress which accumulate casualties or time in days, concerns the characteristics of the day of breakdown itself. Is it characteristically a day of high casualty incidence? Calendar days of breakdown were tabulated, therefore, as to number of casualties given on the morning report for that day. As noted earlier, the morning report does not give an exact count of casualties by day of occurrence and is by that token a less efficient instrument of investigation than one would want. On the average, about 63 percent of the casualties actually occurring on any one day are reported on that day, 22 percent the following day, and so forth. However, there is no evidence that

Table 5

Total Departures and Psychiatric Departures, by Company Days and by Company Casualties, Original ETO and MTO Samples: Company Days Fixed and Casualties Varied

Interval of company days	ETO				MTO			
	Low casualties		High casualties		Low casualties		High casualties	
	Total depart.	Psych. depart.	Total depart.	Psych. depart.	Total depart.	Psych. depart.	Total depart.	Psych. depart.
00-03					64	3	69	3
04					88	4	18	4
05-09					57	6	58	9
07-09	52	5	53	5				
10-14	64	7	63	11	52	6	46	4
15-19	57	7	57	7	44	7	40	2
20-29	86	13	84	8	69	20	66	7
30-39	58	3	58	9	52	10	50	15
40-49					29	7	29	10
50-59					27	7	28	7
60-69					19	6	19	4
Total	317	35	315	40	501	76	423	65
Psych. depart. as percent of total depart.	11.0		12.7		15.2		15.4	

Total Departures and Psychiatric Departures, by Company Days and by Company Casualties at Departure, Original ETO and MTO Samples: Company Casualties Fixed and Company Days Varied

Company casualties at departure	Low company days		High company days	
	Total departures	Psychiatric departures	Total departures	Psychiatric departures
	<u>ETO</u>			
45-59	46	1	45	5
60-89	72	12	67	8
200-299	53	6	51	1
Total	171	19	163	14
Psychiatric departures as percent of total departures	11.1		8.6	
	<u>MTO</u>			
00-08	54	3	91	4
09-20	50	1	42	5
21-41	61	6	42	6
42-68	39	4	70	12
69-94	51	8	42	10
95-119	37	4	59	14
120-157	48	4	47	7
158-217	52	16	45	12
218-454	29	9	65	16
Total	421	55	503	86
Psychiatric departures as percent of total departures	13.1		17.1	

the degree of incompleteness varies with the number of casualties actually occurring, so that there is no reason to believe that a comparison of days having breakdowns and other days would be biased. Accordingly, the morning report counts were tallied for the calendar day of breakdown and for adjacent days, with the following average results:

Sample	Average number of casualties per company per calendar day					
	Day of breakdown	Day before	Two days before	Day after	Two days after	Entire experience
MTO	2.18	1.58	1.44	1.99	1.35	0.60
ETO	6.37	3.27	3.18	*	*	1.44

* Not tabulated.

These averages suggest that the day of breakdown generally occurs in a combat period and that casualties on that day are, especially in ETO, higher than on adjacent days. However, any indicated discrepancy is perhaps not so large as one might expect if sheer instantaneous intensity of danger alone made combat unendurable for some men. Behind the individual averages, of course, is a highly variable experience; the distributions of calendar days by number of casualties begin high at 0 casualties and decline rapidly as the number of casualties increases, with a long tail reaching zero only in the region of 50 casualties per company per day. In the ETO sample 34 percent, and in the MTO 61 percent, of the days of breakdown had no battle casualties reported; on only 26 percent of the ETO days of breakdown, and 4 percent of the MTO, were more than 10 battle casualties reported per company per day. For the ETO experience statistical tests leave no doubt that the day of breakdown was usually one involving more casualties than either of the two preceding days, but in the MTO experience the discrepancy is well within the range of chance.

A. Introduction

Although the focal point of the study is psychiatric attrition, a considerable body of information has incidentally been gathered on attrition as a whole and on the combat experience of units of various size. This ancillary material is also of intrinsic interest and it seemed best to include it in the complete report on the study. Further, the attrition picture as a whole provides a necessary background for the presentation of psychiatric attrition and for the estimation of its relative significance, and is itself an integral part of the information needed for calculating the replacement costs of various rotation policies. Certain aspects of the unit data have already been presented in chapter II and in appendices VIII and IX, and others will be presented at a later point. Following the analysis of psychiatric attrition we plan to estimate the resistance distribution in the fashion already described, and to present: (1) data on unit variation in psychiatric attrition; and (2) some data from the questionnaires concerning the relation between morale and psychiatric casualties. The application of these findings to the problem of rotation is discussed in a later chapter.

B. Overall Pattern of Attrition

For the purpose of portraying attrition as a whole, the classification of departures was abridged to the following actual losses by attrition:

- KIA
- Other battle losses
- Medical losses
- All other losses

Men who were reassigned to other combat units, or who remained in their units on V-E Day, are handled not as losses by attrition but as losses from observation. That is, we assume that their rate of loss by attrition is the same as the rate in men whose entire experience is known. Before exhibiting these tables it may be useful to examine the total counts for final departures grouped into these more summary classes, as may be done from table 7, which also shows the considerable number in the ETO sample remaining in their units on V-E Day, and the number in the MTO sample reassigned to other units. Otherwise, table 7 is of interest primarily in exhibiting the ETO attrition pattern as one of battle casualties, essentially, and the MTO as a much more mixed pattern. Psychiatric attrition is far more important in MTO than in ETO on this overall basis, which takes no account of variation in stress.

In figure 10 appear the basic data on the broad classes of attrition for the two groups of original men shown in relation to company days. The complementary scales at the left and right sides are, respectively, for men remaining and for losses. Losses are shown in cumulative fashion over time, and by company combat day 100 amounted to 785 per 1,000 in ETO and to 834 in MTO. The cumulative losses at any point on the stress scale are further subdivided as to type. Thus at day 100 the losses in ETO are as follows, per 1,000 entering combat:

Type of attrition:	Total losses	Cumulative losses
KIA	134	134
Other battle	423	557
Disease and nonbattle injury	164	721
Other	64	785

Table 7

Percentage Distributions of Last Departures as to Reason for Last Departure, by Theater

Reason for last departure	ETO replacements			ETO original men			MTO original men		
	Number	Percentage of total sample	Losses of total sample	Number	Percentage of total sample	Losses of total sample	Number	Percentage of total sample	Losses of total sample
<u>Total sample</u>	500	100.0	-	1000	100.0	-	1000	100.0	-
<u>Not lost to combat</u>	80	16.0	-	215	21.5	-	146	14.6	-
Reassigned, combat	6	1.2	-	10	1.0	-	124	12.4	-
End of war in Europe	74	14.8	-	205	20.5	-	22	2.2	-
<u>Lost to combat</u>	420	84.0	100.0	785	78.5	100.0	854	85.4	100.0
KIA	77	15.4	18.3	134	13.4	17.1	138	13.8	16.2
Other battle losses	203	40.6	48.3	423	42.3	53.9	256	25.6	30.0
Disease and nonbattle injury	113	22.6	26.9	164	16.4	20.9	264	26.4	30.9
NP	38	7.6	9.0	69	6.9	8.8	140	14.0	16.4
Other	75	15.0	17.9	95	9.5	12.1	124	12.4	14.5
Other losses	27	5.4	6.4	64	6.4	8.2	196	19.6	23.0
Change in MOS	7	1.4	1.7	20	2.0	2.5	62	6.2	7.3
Reassigned, noncombat	15	3.0	3.6	19	1.9	2.4	66	6.6	7.7
Other administrative and disciplinary*	5	1.0	1.2	25	2.5	3.2	68	6.8	8.0

* AWOL, rotation, Z/I cadre, etc.

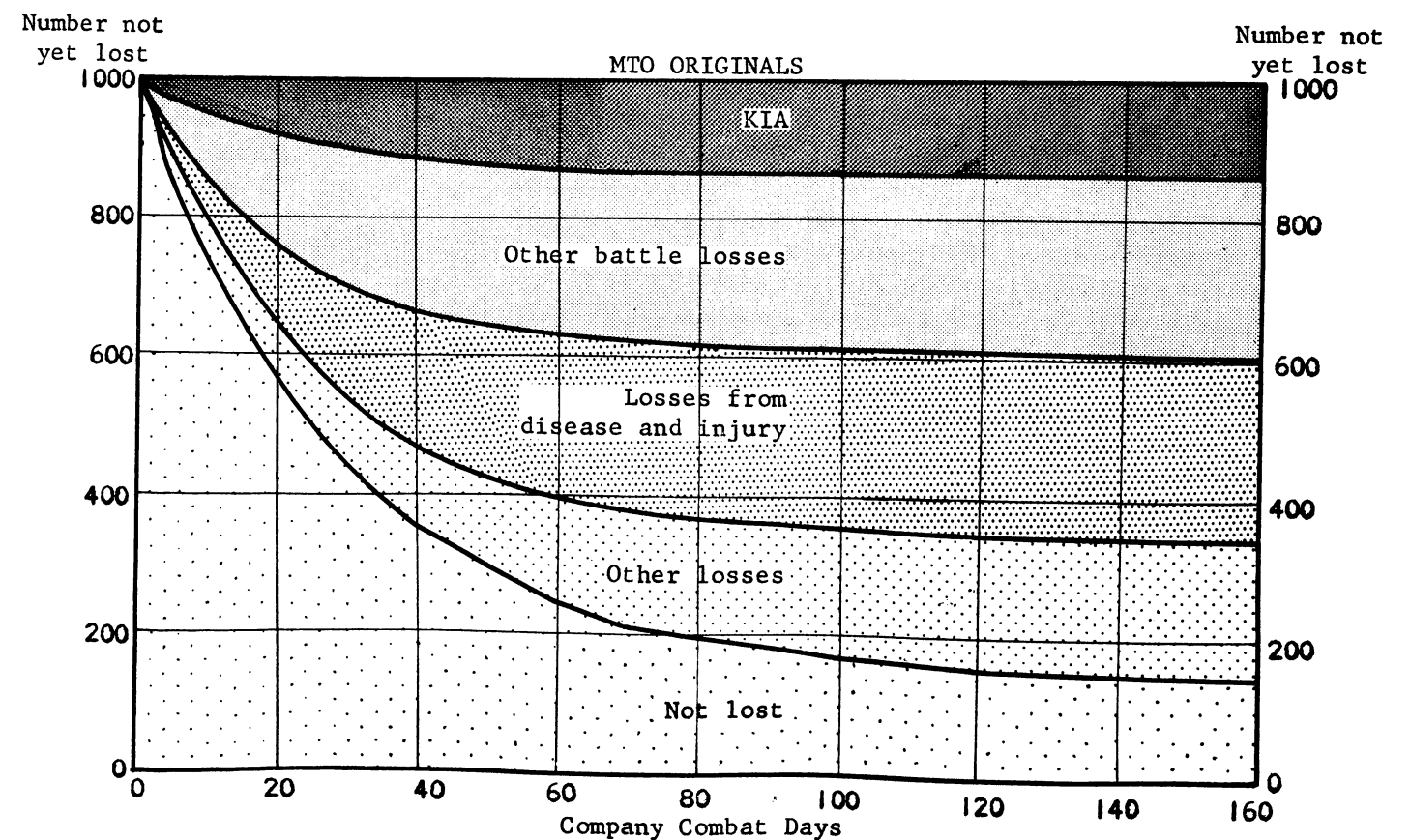
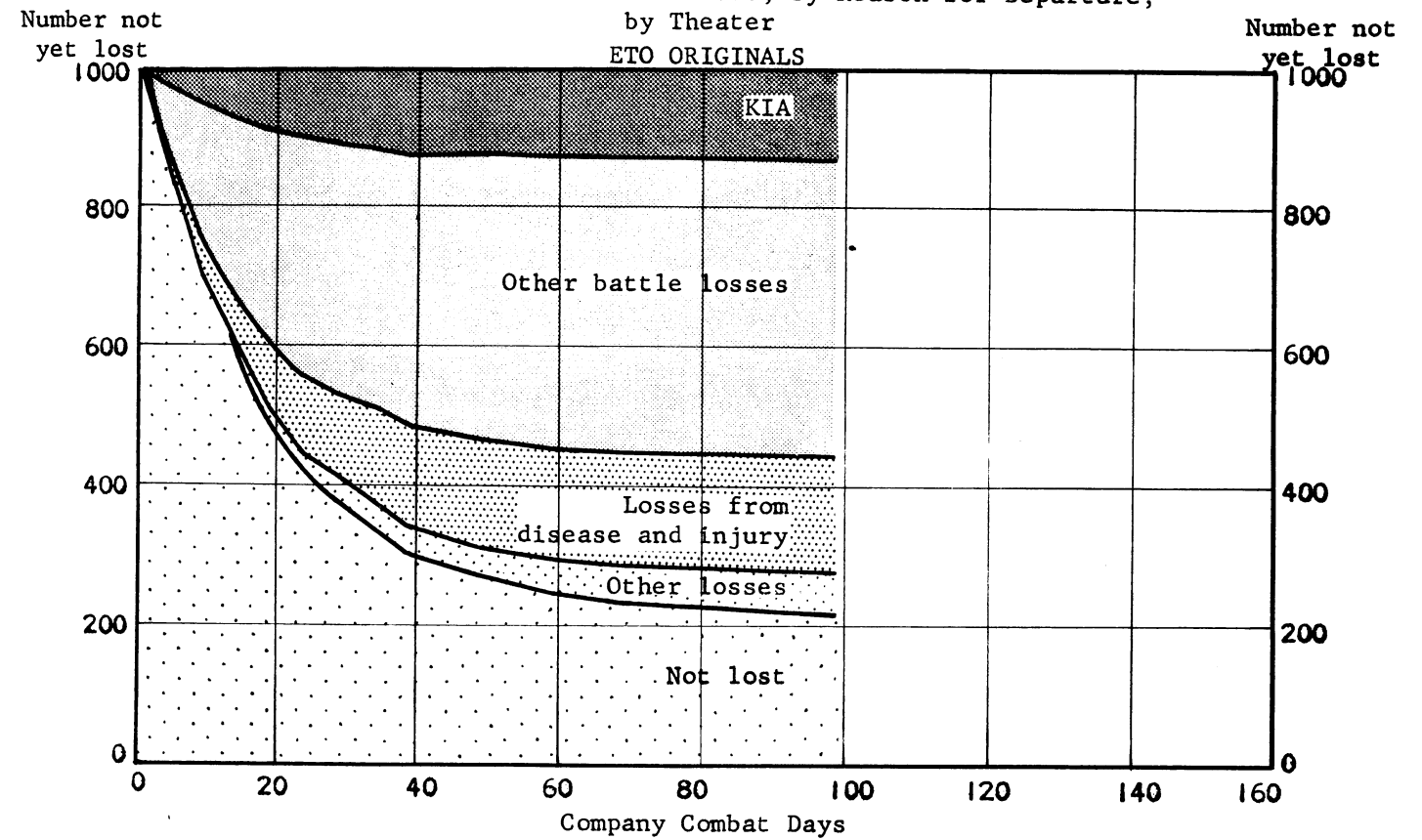
It is the cumulative figures in the right-hand column which are plotted in figure 10 so that the figures in the left-hand column appear on the chart as vertical distances between lines. Because most of the men carried in figure 10 as "not yet lost" to combat were, however, lost from observation by virtue of transfer to another combat unit or by the advent of V-E Day, such a presentation does not adequately reflect the probability of loss to combat calculated for all combat units and without regard for the intervention of V-E Day. The numbers so transferred and remaining on V-E Day are as follows, for original men:

	<u>ETO</u>	<u>MTO</u>
Remaining on V-E Day	205	22
Transferred to other combat units	10	124
Total	215	146

Figure 10 does, however, give an accurate picture of the facts observed for the 2,000 men in relation to the 150 companies studied here. Showing these losses on a time scale, as in figure 10, points up the rapidity with which they occur. By company day 29, for example, 79 percent of the ETO and 64 percent of the MTO losses had already occurred. The concentration of losses at the low end of the stress scale is, of course, a reflection of the fact that attrition rates are both high and fairly uniform over the stress scale: The casualties are large at the outset when most of the men are exposed, and fall off rapidly as they leave.

A more useful portrayal of attrition, as has already been indicated, results from the use of life-table procedures to cope with such losses from observation as the men who were transferred to other combat units and men

Figure 10. Cumulative Final Departures (Except to Other Combat Units) at Successive Points on Stress Scale, by Reason for Departure, by Theater



who remained in their units on V-E Day. Figure 11 does this for the final departures of the two samples of original men. When life-table procedures are used one finds that the aggregate losses to combat by day 100 amount to about 96 percent of both original cohorts. The line labeled "all causes" gives this information over the observed range of stress measured in company combat days. The other lines provide parallel estimates of the impact of each type of attrition, assuming it alone were operative. Thus, if KIA were the only cause of permanent withdrawal from combat one would expect 37 percent of the ETO sample and 32 percent of the MTO sample to have been killed. If we abstract from figure 11 such information for all the varieties of attrition tabulated there we have, for day 60, the complements of the survival curves shown there:

Type of loss	Estimated attrition by day 60, per thousand	
	ETO	MTO
KIA	276	268
Disease and nonbattle injury	349	500
Total battle	730	570
All causes	862	860

The estimates for the various classes of attrition are not additive, since each was obtained on the assumption that no other type of attrition was operative, but they are otherwise comparable. Psychiatric attrition, of course, is a component of the category labeled "disease and nonbattle injury."

Since it was not feasible to work out the stress elements of any experience men had after leaving the 150 study companies, the data shown here tend to exaggerate slightly the extent to which withdrawals were permanent losses to combat. We do, however, know how often, after leaving the 150 study

companies, men served in other combat units.* This information is shown in table 8 and indicates that the problem of subsequent duty in other combat units is a minor one in ETO, although an appreciable one in MTO. However, of the 132 MTO men with subsequent duty in other combat units 124, and of all 183 men in all three samples with such duty 140, were men who were transferred directly to other combat units with no intervening hospitalization. In our method of calculation these men are not regarded as having departed from combat, but as lost from observation, and therefore subject to the attrition rates calculated for the known experience. Since, apart from outright transfers to other combat units, only 43 men out of all 2,500 saw combat experience in other units after having been classified as final departures from the study companies, it is plain that this factor is of no particular consequence here; our sample of 150 study companies gives us a reliable estimate of attrition generally.

Finally, since the end of the war interfered to some extent with the return of men to their units from hospital, it is plain that the final departure rates calculated from this experience are not entirely applicable to a situation of continuing combat. In MTO, however, this is not a real problem, for the experience was very nearly a completed one by the time the war ended, as is indicated by the fact that only two percent remained in their units on V-E Day. An indirect approach to the significance of this problem

* For our purposes a combat unit was defined as "a letter-company, or a unit designated as rifle, infantry, reconnaissance, assault, or tank, and not called headquarters."

Figure 11. Calculated Number of Men Remaining in Combat Units if Losses Were Restricted as Shown, by Theater

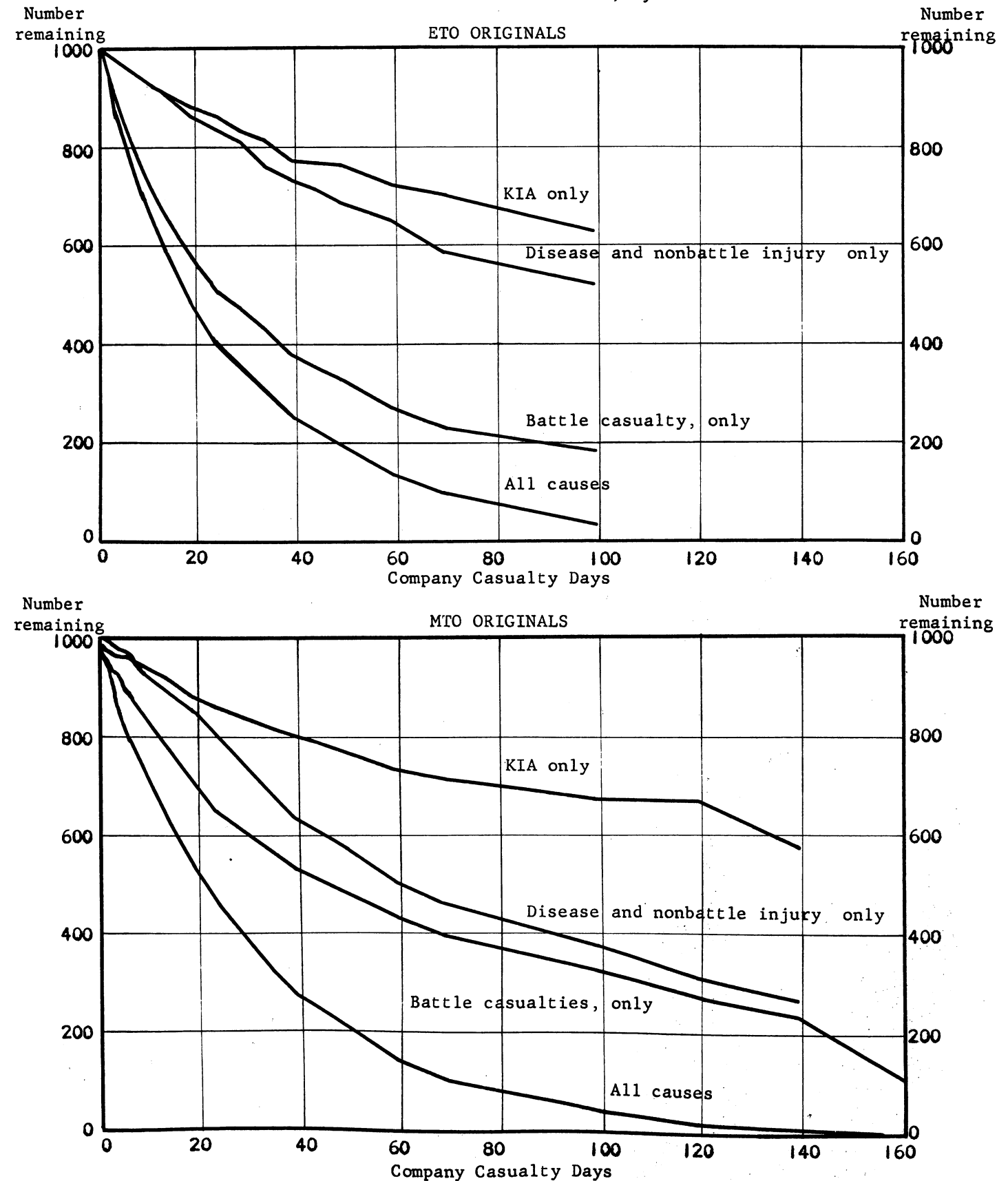


Table 8

Distribution of Sample as to Duty Status
Following Final Departure From 150 Study Companies

Status	Original men		ETO replacements
	MTO	ETO	
<u>Did not leave study companies prior to V-E Day</u>	37	219	78
<u>Left study companies before V-E Day</u>			
No further duty in Europe	503	523	267
Further duty in Europe			
Combat unit	132	31	20
Noncombat unit	328	227	135
Total	1,000	1,000	500

in the ETO material is obtained from a comparison of the average percentage returned to duty in the study companies as actually observed over the period studied and the maximum percentage, which obtains for the departures which occurred early in the experience. The average percentage rises from 41 to about 50 for WIA + IIA and for disease and nonbattle injury from about 55 to about 65 percent. It has not served our purpose to recalculate the curves of final attrition with this adjustment in mind, but plainly the changes would not be great.

Figures 12-14 give life-table survival curves for first, second, and third departures in contrast to the final departure exhibited in figure 11. The stress scale and method of computing are the same. It will be noted that the corresponding curves in all four charts are roughly similar. An abstract of these tables, giving the complements of the survival curves at day 30, points up the differences among them, however, as follows:

	ETO, by departure				MTO, by departure			
	1	2	3	Final	1	2	3	Final
KIA	185	*	*	165	161	*	*	157
Total battle	694	505	*	525	583	577	518	389
Disease and nonbattle injury	345	429	*	190	570	632	675	251
All causes	819	743	*	644	853	894	901	607

*Not estimated

Differences among departures would arise from the influence of an earlier departure upon the reaction of the individual to the military environment upon his return to his unit. Differences between earlier departures and the final departure arise largely out of the extent to which men return to duty after a departure. In the case of KIA the rate is invariant over all

Figure 12. Calculated Number of Men Remaining Without a Single Departure From Combat if Losses Were Restricted as Shown by Theater

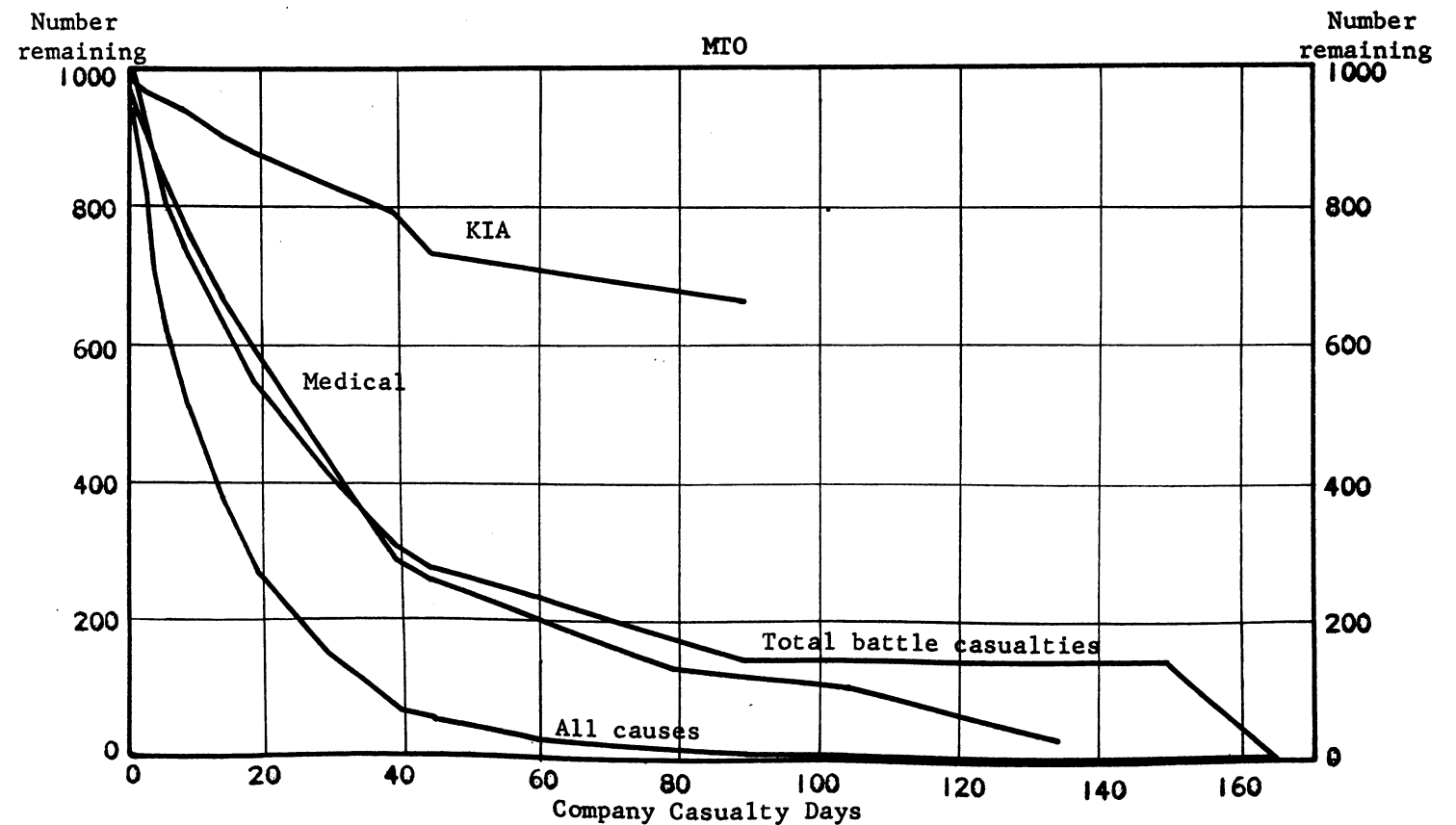
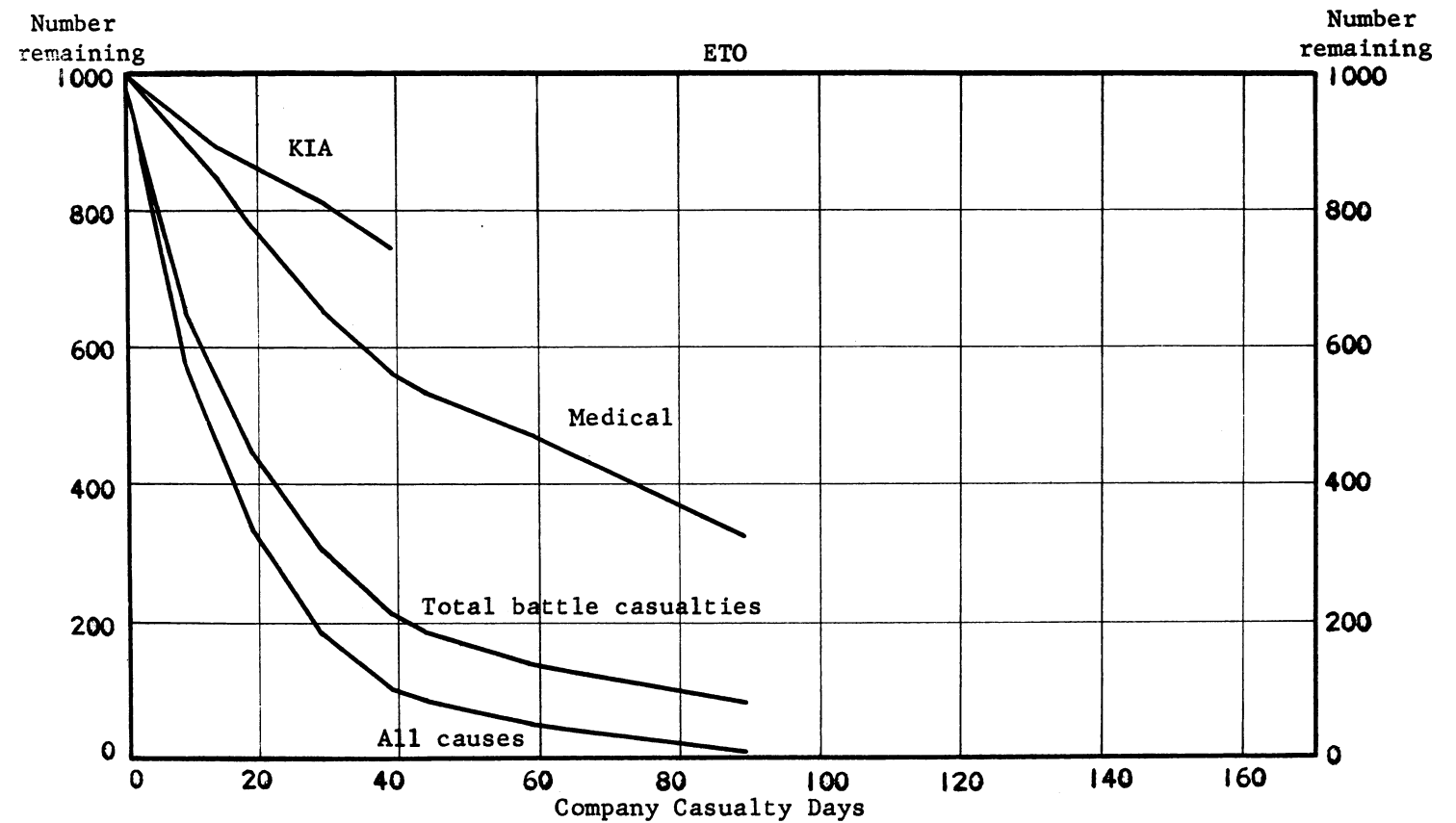


Figure 13. Calculated Number of Men Remaining in Combat Units Following a Single Departure and Return to Combat, With Subsequent Losses Restricted as Shown, by Theater

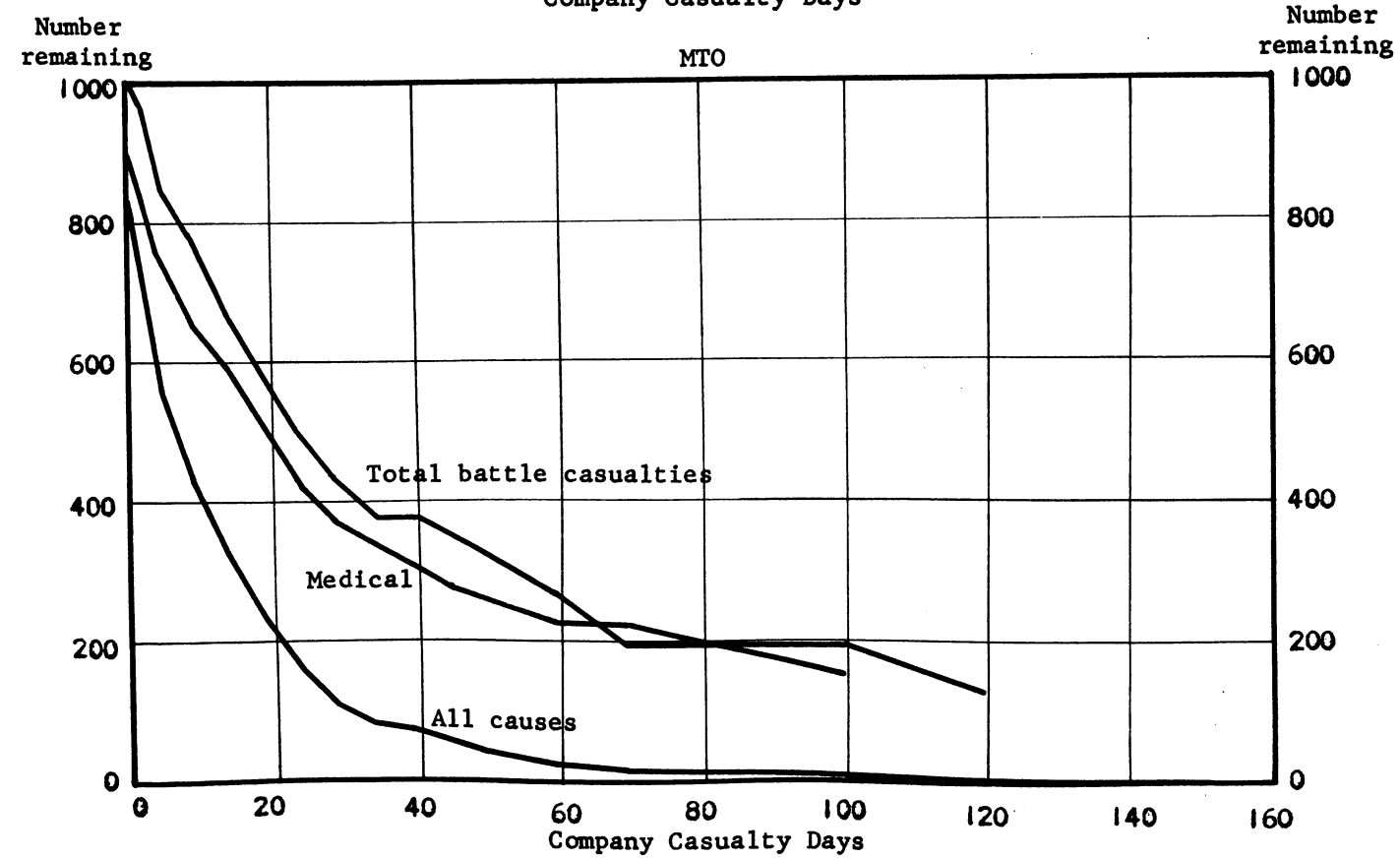
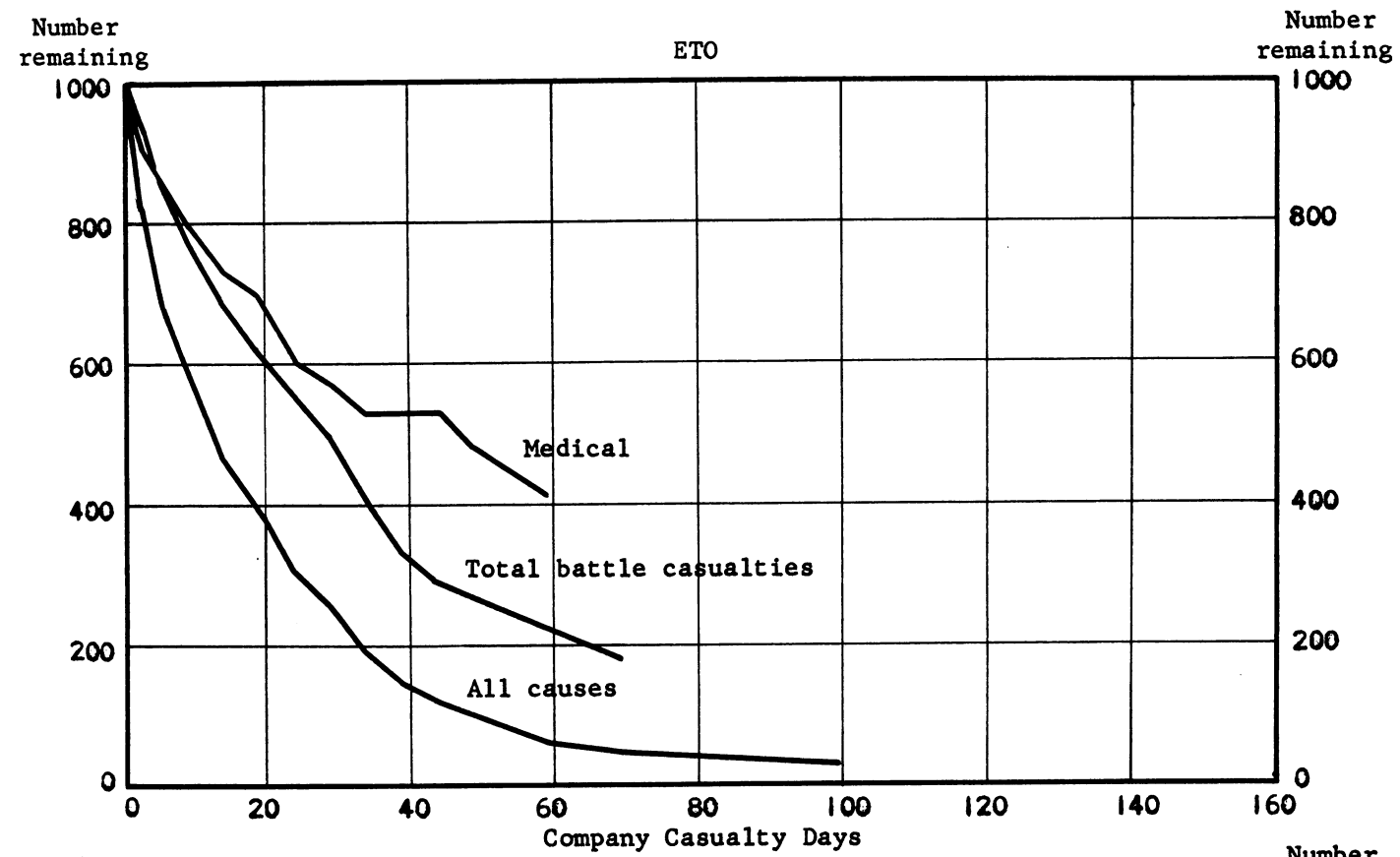
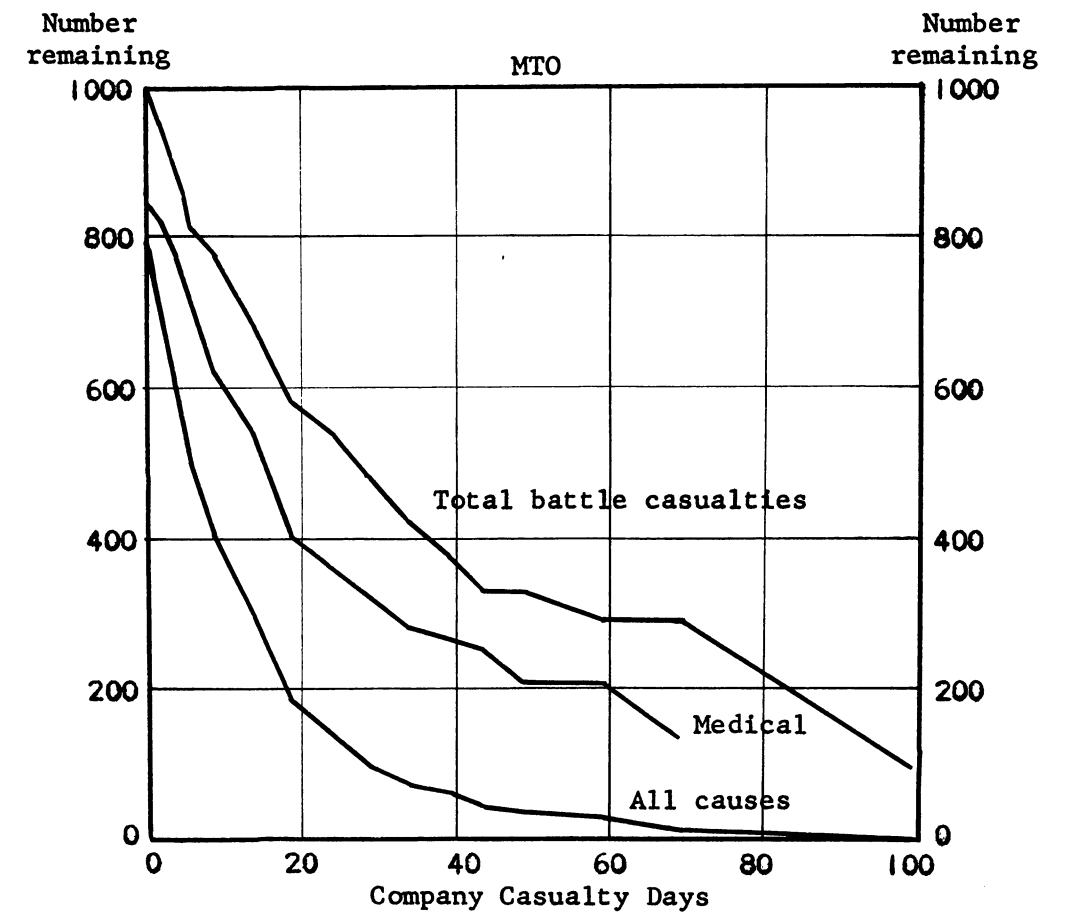


Figure 14. Calculated Number of Men Remaining in Combat Units Following Two Departures and Return to Combat, With Subsequent Losses Restricted As Shown, MTO Sample Only



departures because there is no possibility of return. We do not show attrition from KIA in second and third departures because of the variability inherent in low attrition rates applied to small samples of men.

In the course of the calculations for figures 11 to 14 there were obtained the appropriate probabilities of departure by cause, for various regions of the stress scale, and it is a matter of some interest to ascertain whether these probabilities* are relatively constant over the entire region of stress. We first investigated the probabilities of final departure from battle casualties, and when we found that they tended to fall as company days increased we took some precautions to insure that we were not dealing with an artifact of the final departure or of the stress index. First, we expanded our investigation to include the first departure and all departures combined, but observed no change in the slope of the decline. Next, we tabulated the probability of departure as a function of all battle casualties sustained by the company, and with the same result. Figures 15 and 16 present the results of this material for all battle casualties, and leave little room for doubt that, even among the men in high-risk MOS assignments, the chance of becoming a battle casualty drops with increasing experience. It drops, be it noted, in relation to the sum of all battle casualties experienced in the company. A separate study of the WIA + IIA alone, other battle casualties being excluded, shows the same phenomenon. To the curves for total departures for battle casualties on the company day scale we have fitted by the method of least squares, without weighting the plotted rates by the amount of experience they represent, the following equations:

$$\text{MTO: } Y = 34 - 0.23 X$$

$$\text{ETO: } Y = 44 - 0.38 X$$

Where Y gives total battle casualty departures per 1000 men per company combat day, and X gives number of company combat days.

*See page 55 for footnote.

Footnote for page 54

*One might prefer to use, for this purpose, not the probabilities in the life-table calculation but the rates of loss, but the difference between them does not seem sufficient to justify recalculation for this purpose. Let the number of departures in the i th interval be denoted as

$$\sum_{j=1}^k D_{ij} = D_{i1} + D_{i2} + \dots + D_{ik} \quad j = 1, \dots, k$$

where D_{ij} is the number of departures for the j th reason in the i th interval, there being k sets of such reasons. Let N_i be the number of men entering the interval. Then we define the probability of a departure in the i th interval

for the g th reasons as
$$P_{ig} = \frac{D_{ig}}{N_i - 1/2 \sum_{j=1}^k D_{ij} - D_{ig}}$$

The reason why $P_{ij} \neq \frac{\sum_j D_{ij}}{N_i}$ derives from the fact that we keep changing the denominator of the ratio in our effort to obtain an unbiased probability for each cause. In a rate-of-departure calculation we should have, in lieu of N_i men entering the interval, an aggregate exposure of all men in the i th interval, say A_i , and would find the rate for the g th cause as $R_{ig} = \frac{D_{ig}}{A_i}$ so that $\sum R_{ij} = \frac{\sum D_{ij}}{A_i}$

Ordinarily from grouped data with class interval C we should estimate A_i as follows: $A_i = c(N_i - \sum D_{ij}) + 1/2 c \sum D_{ij} = c(N_i - 1/2 \sum D_{ij})$ so that the probability of a departure from any cause and the rate of departure from all causes will differ in accordance with the relative magnitude of $\sum D_{ij}$; if it be large, the rate will be considerably higher than the probability. If the intervals are shortened, the discrepancy falls. Since we are dealing with probabilities of departure which are on the order of .03 per man per company day, the discrepancy between the two ratios as tools of analysis seems unimportant.

Figure 15. Battle Casualty Departures per 1,000 Men per Company Combat Day or per Company Casualty, and Duration of Stress, MTO Originals

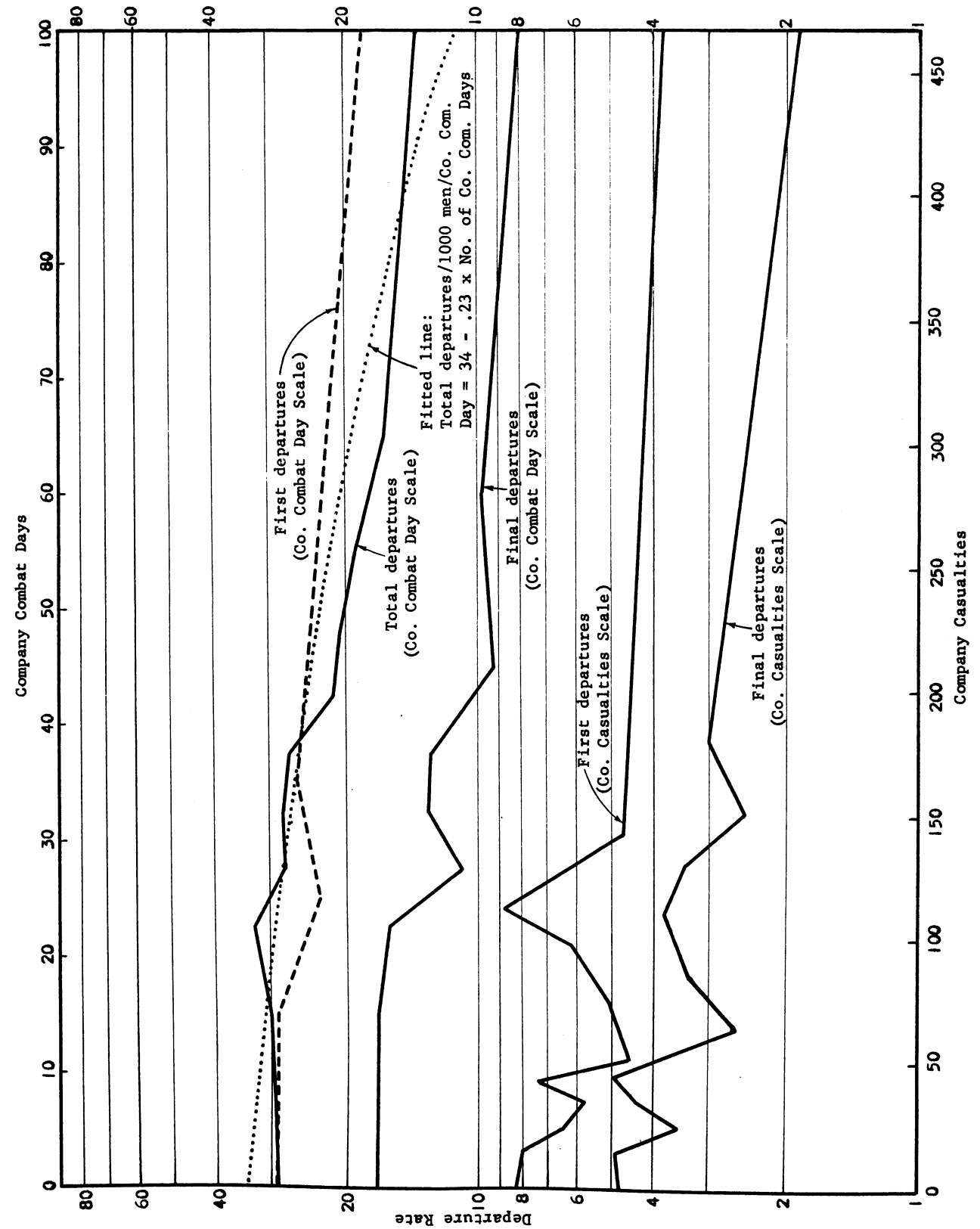
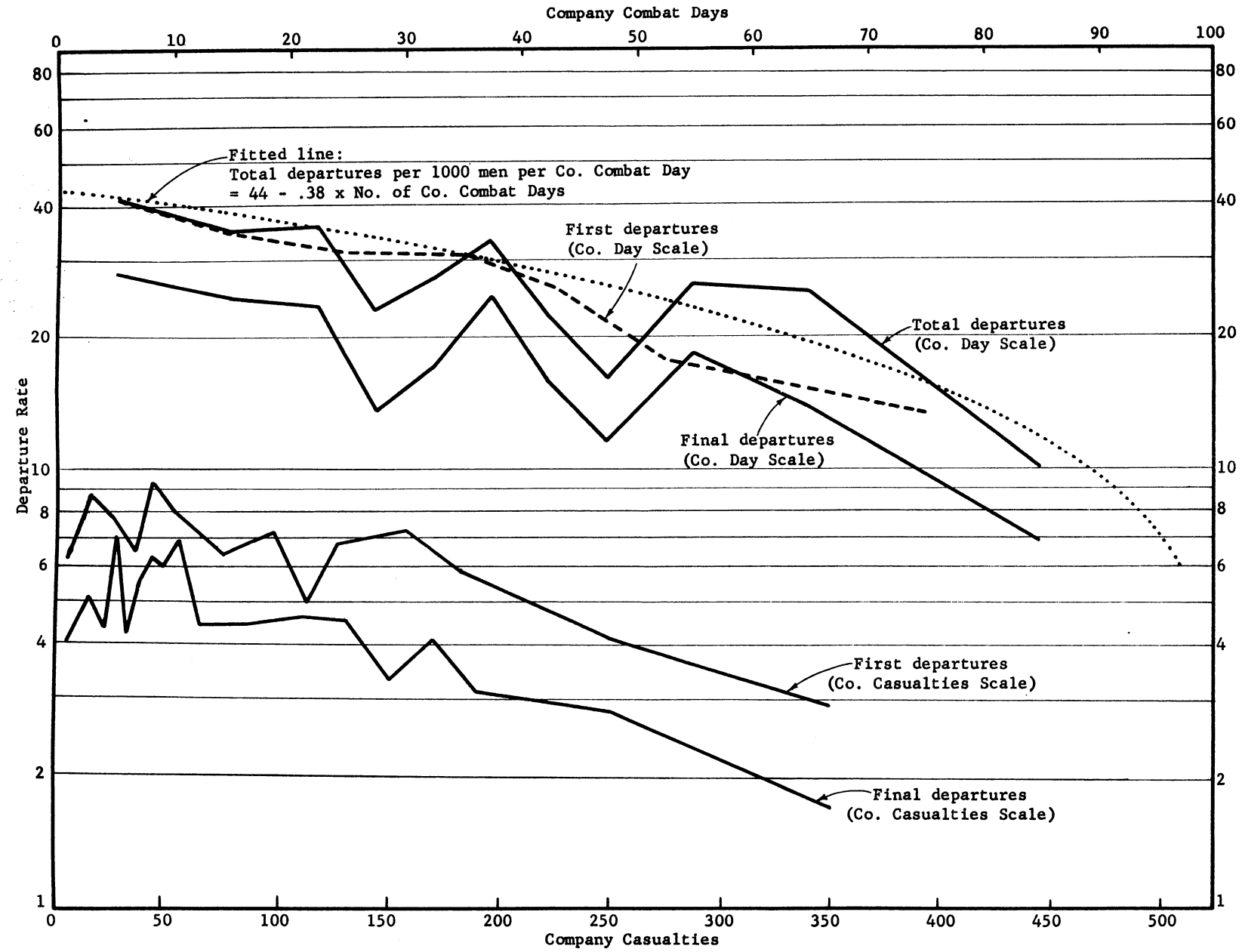


Figure 16. Battle Casualty Departures per 1,000 Men per Company Combat Day or per Company Casualty, and Duration of Stress, ETO Originals



On the semi-log scale of figures 15-16 these lines are curved. From the slopes of these lines we learn, first, that the ETO and MTO experiences are not homogeneous in this respect, and second, that there is a drop of about 0.23 per 1000 per company day in the MTO rate and 0.38 per 1000 per company day in the ETO rate. The initially high rates are about halved in 53 company days in ETO and in 80 company days in MTO. One should bear in mind that only about 5 percent of the original cohorts are left at this mid-point, however, so that the bulk of the actual experience lies in a region with a rate fairly close to the average for the entire experience.

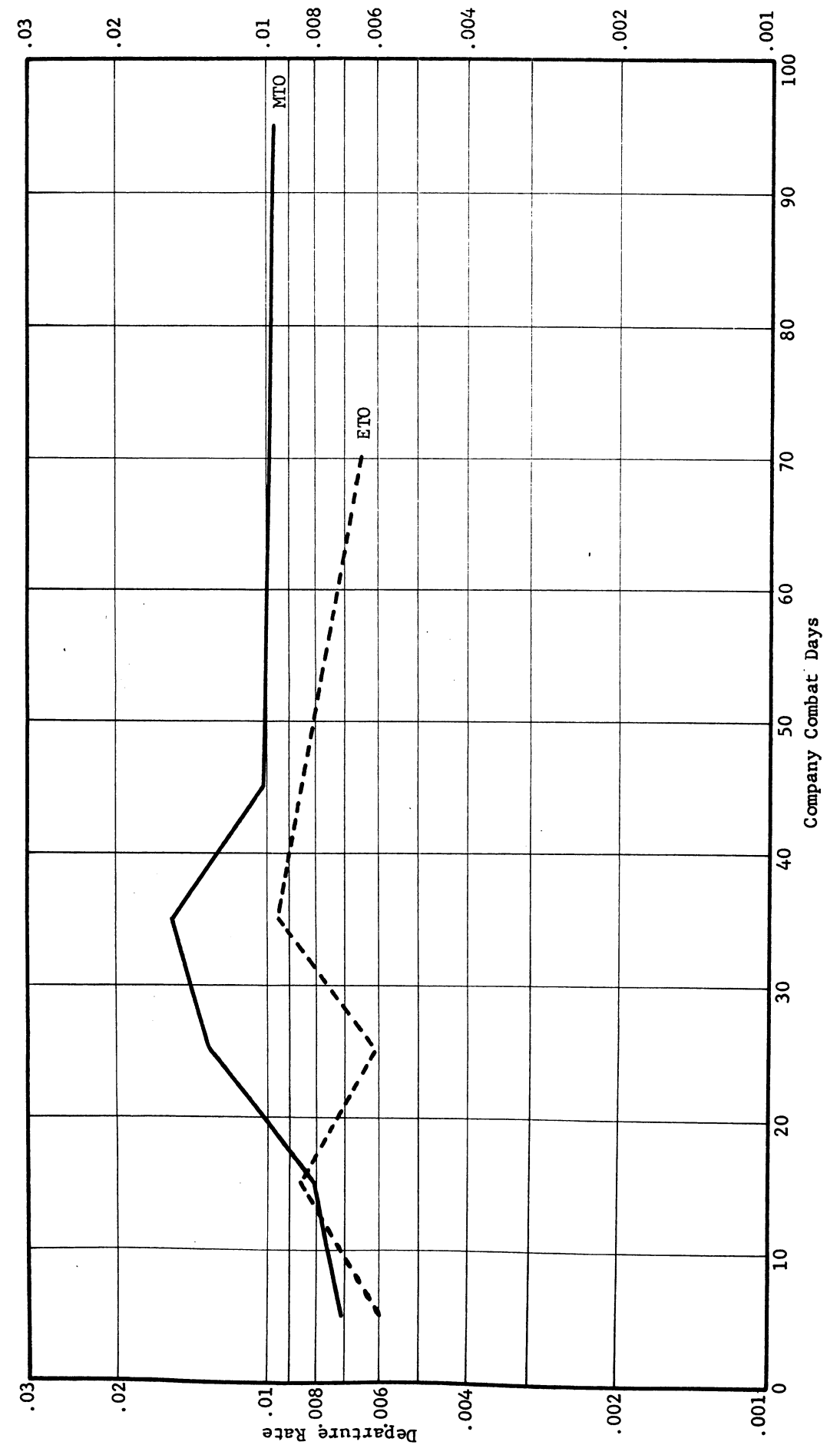
The probability of departure on the basis of disease and nonbattle injury is not obviously subject to any variation over the region of observed stress. Figure 17 gives this information for original men in the two theaters, on the basis of the final departure and the company combat day.

In view of the limited objectives of the present study it is not possible to test all alternative explanations of the declining probability of becoming a battle casualty. Of the three broad alternatives we have information on only one, the third:

1. Men learn to protect themselves better at the same level of risk and effectiveness.
2. Without any change in duty, men protect themselves by hanging back, etc., and are less effective as soldiers.
3. Men are exposed less because of change in duty.

The procedures of the study have grappled with the third alternative explanation, and on the basis of the information obtained it seems very doubtful that this is the reason for the declining casualty rate. However, there is nothing in the study which bears directly on the choice of the first two alternatives. Some indirect evidence may be obtained from the chapter II material on the increasing probability of a departure on psychiatric grounds. To the extent that an increase in psychiatric departures may be taken as evidence of fearful behavior, of lessened efficiency, of hanging back, etc., one has in the data of chapter II some support for the second alternative. Such explanations need not be taken as mutually exclusive alternatives, however; both factors may be at work. A study of this specific problem should be of great value in connection with training programs, for if it is true that the risk of becoming a battle casualty declines with experience without loss of effectiveness, then ways should be found for imparting the lessons of experience in advance of entering combat. If combat is the only teacher, however, there is cause for pessimism, for too few remain in the region of stress where the probability is greatly reduced.

Figure 17. Final Departures for Disease and Nonbattle Injury per 1,000 Men per Company Combat Day and Duration of Stress in Company Combat Days



A possible implication for replacement policy needs also to be drawn from the above material, despite its inconclusive character. If one holds with us that the declining probability of becoming a battle casualty is in large part the consequence of hanging back, then one's interest in maximizing combat efficiency would require that men not be expected to go beyond a certain amount of stress, for at some point on the scale it would be better for unit efficiency that they be replaced with fresh men. On this view, a rotation policy could be regarded, in part, as a means of keeping a unit from becoming worn out psychologically by replacing, from time to time, the men whose efficiency had fallen below a critical threshold. One could not, of course, make such a loss of efficiency the basis for relief; to do so would promote inefficiency. Rather, one would require a fixed measure of stress, e. g., air missions or company days, so as not to encourage inefficiency motivated by the prospect of relief.

The following excerpts from questionnaire responses bear on this point:

- 0047 "If the fighting is rough and tough, where you must fight for every inch, where they see their own dead, it wears mentally and physically on all men. Eight months is the limit. No five or ten day pass to the rear will help them too much. A change of work to the rear for the same time spent on the line or in the combat area, would help if they can't get home for 30 days. They must get out of artillery range. Once a man becomes afraid he's no good to himself or the man around him."
- 2067 "I have found after a man has spent a certain amount of time (depends on individual) in close combat, his efficiency has lowered enormously. And for good of unit, officer should replace him immediately. Officer in command, if alert, should know when to effect this change."
- 2876 "As far as combat was concerned, the last few months I seemed to be getting more scared or jittery. Mostly under artillery barrages. After my furlough I had started training for chemical mortars, the concussion from them seem to bother me quite a lot. I thought

(cont.)

2876 then if I ever get into combat again I don't think I'd been able to take it. Actually a person in my opinion shouldn't stay in actual combat any longer than six months. As far as that goes one rough day is enough for anybody. I'm quite sure I had enough of it."

4099 "I've watched men in combat gradually lose their nerve and senses till they went berserk or reduced to a gibbering hulk. We couldn't do anything about it because they needed manpower desperately. We also knew these men weren't cowards. In my own case - I tried to keep absolute control over my nerves. I was just as afraid for my life as anyone else. I just refused to worry about what was going to happen on the next assault or the next hill. Even so toward the end of the war I was worthless as a fighting man. I was starting to lose my grip over my nerves - another six months in the line I would have probably been cutting paper dolls."

4644 "About rotating men I believe that if a man has behaved himself and has done his share of fighting as should be done he deserves a break after 8 or 10 months of duty because 50 percent of them lose their nerve after that length of fighting time."

4943 "I believe a man stand up very good in combat for a year, after that he start losing confidence in himself, start wondering and thinking if his luck is about up."

Reason for departure, of course, governs the likelihood of return to high-risk combat. On the average, as may be seen from table 9, men who had a first departure had a 35 percent chance of return to duty if they were ETO replacements, 37 percent if ETO originals, and 57 percent if MTO originals. Parallel percentages for men with a second departure are almost identical: 34, 41, and 59. Only in the MTO series are there many men with more than two departures, and in this series the percentage returning is 57 for men with a third departure, 52 for men with a fourth, and 47 for men with a fifth. It is plain from this material that the likelihood of return to duty is about the same for each departure.

Table 9

Percentage of Men Returning to High-Risk Combat Duty Following First, Second, and Third Departures, by Component of the Sample

Departure	ETO replacements		Originals			
	Number departing	Percentage returning	ETO		MTO	
			Number departing	Percentage returning	Number departing	Percentage returning
First	474	35	924	37	901	57
Second	137	34	239	41	487	59
Third	32	38	67	39	269	57
Fourth	-	-	-	-	150	52
Fifth	-	-	-	-	74	47

Table 10 distributes the three samples as to reason for each departure. Each reason for departure has its own expectation of return to high-risk combat, and this expectation ranges from 0 for the KIA to about .9 for the very few AWOL and disciplinary departures. Others with a negligible expectation of return to high-risk combat duty are:

POW

SIW

Rotation or transfer to Z/I training cadre

Change to low-risk MOS but retained in unit

Transfer to noncombat unit

Those with an appreciable expectation of return to high-risk duty, and occurring with sufficient frequency to warrant discussion are: WIA + IIA, MP, and other medical. Table 11 shows the likelihood of return to duty for these three main causes of departure. There is some variation between the two samples from the two theaters which may reflect in part the greater calendar time which MTO men had in which to return to duty, but obviously this line of reasoning does not explain the discrepancy involving NP cases. In ETO such cases returned to duty about twice as often as they did in the MTO sample. However, what is more to the point here is that in both samples there is considerable variation among causes of departure, as to likelihood of return to duty within the time span of the study. Men with nonpsychiatric medical departures much more often returned to duty than men who departed because they were wounded (WIA + IIA). This is a consistent finding in both samples and for both the first and second departures. The effects, on these percentages, of calendar time and the restricted size of the sample of study companies have already been mentioned and need not be considered here.

Table 10

Percentage Distribution of ETO Originals, MTO Originals, and ETO Replacements as to Cause of Departure, by Departure

Cause of departure	Departure				
	1	2	3	Final	
<u>ETO Originals</u>					
<u>Battle casualties</u>					
	KIA	12.0	7.9	4.5	17.1
	WIA, IIA	53.2	37.2	20.9	44.7
	POW, MIA	7.8	5.4	-	9.2
<u>Medical</u>					
	NP	6.9	15.1	17.9	8.8
	Other	16.8	24.3	26.9	12.1
<u>MOS changed</u>		1.5	1.7	1.5	2.5
<u>Reassigned, noncombat</u>		.8	3.3	9.0	2.4
<u>Other admin. & disciplinary</u>					
	AWOL, disciplinary	.5	2.5	7.5	.6
	Rotation, last	.4	2.5	11.9	2.5
	Other	-	-	-	-
Total		99.9	99.9	100.1	99.9
Number of cases*		924	239	67	785
<u>MTO Originals</u>					
<u>Battle casualties</u>					
	KIA	9.7	6.0	3.0	16.2
	WIA, IIA	31.0	25.3	23.8	22.5
	POW, MIA	5.1	2.7	3.3	7.5
<u>Medical</u>					
	NP	5.7	10.5	11.2	16.4
	Other	37.5	36.8	39.8	14.5
<u>MOS changed</u>		3.8	3.9	3.3	7.3
<u>Reassigned, noncombat</u>		3.4	4.1	3.0	7.7
<u>Other admin. & disciplinary</u>					
	AWOL, disciplinary	2.4	3.3	4.5	.8
	Rotation, last	1.3	7.6	8.2	7.0
	Other	.1	-	-	-
Total		100.0	100.2	100.1	99.9
Number of cases*		901	487	269	854

Cause of departure	ETO Replacements	Departure			
		1	2	3	Final
<u>Battle casualties</u>	KIA	12.4	11.7	6.3	18.3
	WIA, IIA	47.0	37.2	25.0	42.1
	POW, MIA	5.3	5.8	3.1	6.2
<u>Medical</u>	NP	9.3	8.8	12.5	9.0
	Other	22.2	30.7	37.5	17.9
<u>MOS changed</u>		1.5	-	-	1.7
<u>Reassigned, noncombat</u>		1.7	2.9	9.4	3.6
<u>Other admin. & disciplinary</u>	AWOL, disciplinary	.6	2.9	3.1	1.0
	Rotation, last	-	-	3.1	.2
	Other	-	-	-	-
Total		100.0	100.0	100.0	100.0
Number of cases*		474	137	32	420

* Men transferred to other combat units or remaining in units on leaving combat, are omitted here.

Table 11

Likelihood of Return to High-Risk Combat, by Reason for Departure,
ETO Originals, MTO Originals, and ETO Replacements

Cause of departure	ETO		MTO		Replacements	
	No. of departures	Returned No. Percent	No. of departures	Returned No. Percent	No. of departures	Returned No. Percent
<u>First Departure</u>						
WIA	492	198 40.2	279	167 59.9	223	77 34.5
Psychiatric	64	32 50.0	51	12 23.5	44	18 40.9
Other medical	155	92 59.4	338	296 87.6	105	64 61.0
<u>Second Departure</u>						
WIA	89	40 44.9	123	86 69.9	51	26 51.0
Psychiatric	36	13 36.1	51	7 13.7	12	2 16.7
Other medical	58	36 62.1	179	143 79.9	42	15 35.7
<u>Third + Fourth Departures</u>						
WIA			98	62 63.3		
Psychiatric			49	8 16.3		
Other medical			163	127 77.9		
<u>First + Second + Third + Fourth Departures</u>						
WIA			500	315 63.0		
Psychiatric			151	27 17.9		
Other medical			680	566 83.2		

Battle casualties (WIA + IIA) and medical (nonpsychiatric) departures with subsequent return to duty were also compared as to likelihood of later psychiatric departure, without finding any significant difference between them.

Table 12 gives the details of this comparison. There is, however, a large discrepancy between men who returned to duty after WIA or other medical departures and men who left on psychiatric grounds, as may be seen in table 13. On the average, men who returned to duty after a psychiatric departure were about three times as likely to have a subsequent psychiatric departure as men returned to duty after WIA or medical (nonpsychiatric) departures.

Comparisons were also made among men returning to duty after WIA, NP and other medical departures as to the chance of final departure for KIA, for WIA, and for other medical (nonpsychiatric) departures, and for transfers to noncombat units. In none of these respects, however, did these groups differ. That is, the chance of KIA, WIA, (nonpsychiatric medical departure, or transfer to a noncombat unit all seem independent of reason for prior departure. Table 14 contains the data used in these comparisons.

Some information was also obtained on the speed with which men return to duty after a departure. Figures 18 and 19 contain cumulative frequency curves which show, for example, that half the cases with NP departures who ever return to high risk duty do so within five days. Men departing for WIA return much more slowly, and those with other medical departures occupy an intermediate position. These curves do not give the chance of return to duty but rather the proportion of such returns which take place prior to a given point in calendar time following departure.

Comparison of Men Returned to Duty After WIA and Medical as to Subsequent or Final Departure on Psychiatric Grounds, ETO and MTO Originals and ETO Replacements

Departures studied and sample	Returns to duty after WIA			Returns to duty after med. (not NP) departure		
	Total	Next departure psychiatric		Total	Next departure psychiatric	
		Number	Percent		Number	Percent
<u>Relation of First and Second Departures</u>						
ETO	198	18	<u>9.1</u>	92	8	<u>8.7</u>
MTO	167	21	<u>12.6</u>	296	24	<u>8.1</u>
Replacements	77	3	<u>3.9</u>	64	3	<u>4.7</u>
<u>Relation of First and Final Departures</u>						
ETO	198	19	<u>9.6</u>	92	7	<u>7.6</u>
MTO	167	35	<u>21.0</u>	296	58	<u>19.6</u>
Replacements	77	3	<u>3.9</u>	64	4	<u>6.3</u>
<u>Relation of Second and Third Departures</u>						
ETO	40	2	<u>5.0</u>	36	2	<u>5.6</u>
MTO	86	12	<u>14.0</u>	143	14	<u>9.8</u>
Replacements	26	1	<u>3.8</u>	15	3	<u>20.0</u>
<u>Relation of Second and Final Departures</u>						
ETO	40	3	<u>7.5</u>	36	3	<u>8.3</u>
MTO	86	19	<u>22.1</u>	143	30	<u>21.0</u>
Replacements	26	0	<u>0.0</u>	15	2	<u>13.3</u>

Table 13

Comparison of Men Returned to Duty After WIA or Medical Departures
With Those Returned to Duty After Psychiatric Departures,
as to Subsequent or Final Departure on Psychiatric Grounds,
ETO and MTO Original Men and ETO Replacements

Departures studied and sample	Returns to duty after psychiatric departure			Returns to duty after WIA or medical departure		
	Total	Next departure		Total	Next departure	
		Number	Percent		Number	Percent
<u>Relation of First and Second Departures</u>						
ETO	32	9	<u>28.1</u>	290	26	<u>9.0</u>
MTO	12	5	<u>41.7</u>	463	45	<u>9.7</u>
Replacements	18	6	<u>33.3</u>	141	6	<u>4.3</u>
<u>Relation of First and Final Departures</u>						
ETO	32	10	<u>31.3</u>	290	26	<u>9.0</u>
MTO	12	6	<u>50.0</u>	463	93	<u>20.1</u>
Replacements	18	5	<u>27.8</u>	141	7	<u>5.0</u>
<u>Relation of Second and Third Departures</u>						
ETO	13	6	<u>46.2</u>	76	4	<u>5.3</u>
MTO	7	3	<u>42.9</u>	229	26	<u>11.4</u>
Replacements	2	0	<u>0</u>	41	4	<u>9.8</u>
<u>Relation of Second and Final Departures</u>						
ETO	13	6	<u>46.2</u>	76	6	<u>7.9</u>
MTO	7	4	<u>57.1</u>	229	49	<u>21.4</u>
Replacements	2	0	<u>0</u>	41	2	<u>4.9</u>

Table 14

Relation Between Reasons for First and Final Departures
and for Second and Final Departures, ETO and MTO
Original Men and ETO Replacements

Reason for departure	Number returned to duty after departure	Reason for final departure						Total
		KIA	WIA or IIA	Other medical	Transfer noncombat	Change in MOS	Other	
<u>Relation Between First and Final Departures</u>								
<u>ETO Originals</u>								
WIA	198	8.1	17.7	8.1	5.1	1.0	60.1	100.1
Psychiatric	32	3.1	9.4	18.8	-	6.3	62.5	100.1
Medical	92	6.5	12.0	7.6	2.2	1.1	70.7	100.1
<u>MTO Originals</u>								
WIA	167	6.6	14.4	19.8	7.2	4.2	47.9	100.3
Psychiatric	12	8.3	8.3	8.3	8.3	-	66.7	99.9
Medical	296	12.5	16.6	12.2	6.1	6.4	46.3	100.1
<u>ETO Replacements</u>								
WIA	77	10.4	23.4	15.6	2.6	-	48.1	100.1
Psychiatric	18	16.7	11.1	16.7	11.1	-	44.4	100.0
Medical	64	7.8	10.9	23.4	3.1	-	54.7	99.9
<u>Relation Between Second and Final Departures</u>								
<u>ETO Originals</u>								
WIA	40	-	10.0	7.5	2.5	2.5	77.5	100.0
Psychiatric	13	-	-	23.1	7.7	-	69.2	100.0
Medical	36	8.3	5.6	11.1	8.3	2.8	63.9	100.0
<u>MTO Originals</u>								
WIA	86	8.1	12.8	16.3	10.5	5.8	46.5	100.0
Psychiatric	7	-	14.3	14.3	-	-	71.4	100.0
Medical	143	7.0	16.1	17.5	4.9	4.2	50.3	100.0
<u>ETO Replacements</u>								
WIA	26	7.7	19.2	3.8	3.8	-	65.4	99.9
Psychiatric	2	-	-	100.0	-	-	-	100.0
Medical	15	-	-	26.7	6.7	-	66.7	100.1

C. Sources of Variation in Battle Casualties

In the foregoing section we have seen the average battle casualty experience of the three samples, expressed in the form of the proportion surviving a given amount of stress without experiencing departure for battle casualty. The underlying probabilities of such departure were shown, in figures 15-16, to be a declining function of stress; i. e., an average loss rate is not strictly applicable over the entire range of stress. However, if we subdivide the stress axis into two parts, ≤ 34 and >34 company days, we find that an average rate of departure calculated for the interval 1-34 days can be used to provide a reasonable approximation to the life-table survival curve at the beginning of day 35, and accordingly this dichotomy was made on the stress scale. The calculated values are as follows:

Original sample	Percentage of men remaining without final departure for battle casualty, company day 35	
	Life-table calculation	Calculation based on average loss rate for period 1-35 days
ETO	43	41
MTO	57	56

The entire experience of original men was thus broken up into the four parts; the average rates of final departure for battle casualty in these four parts and in the various totals are as follows:

Figure 18. Cumulative Percentage Returned to Combat Duty at Various Intervals of Time After First Departure, by Cause of Departure, ETO Original Men Returning to Combat

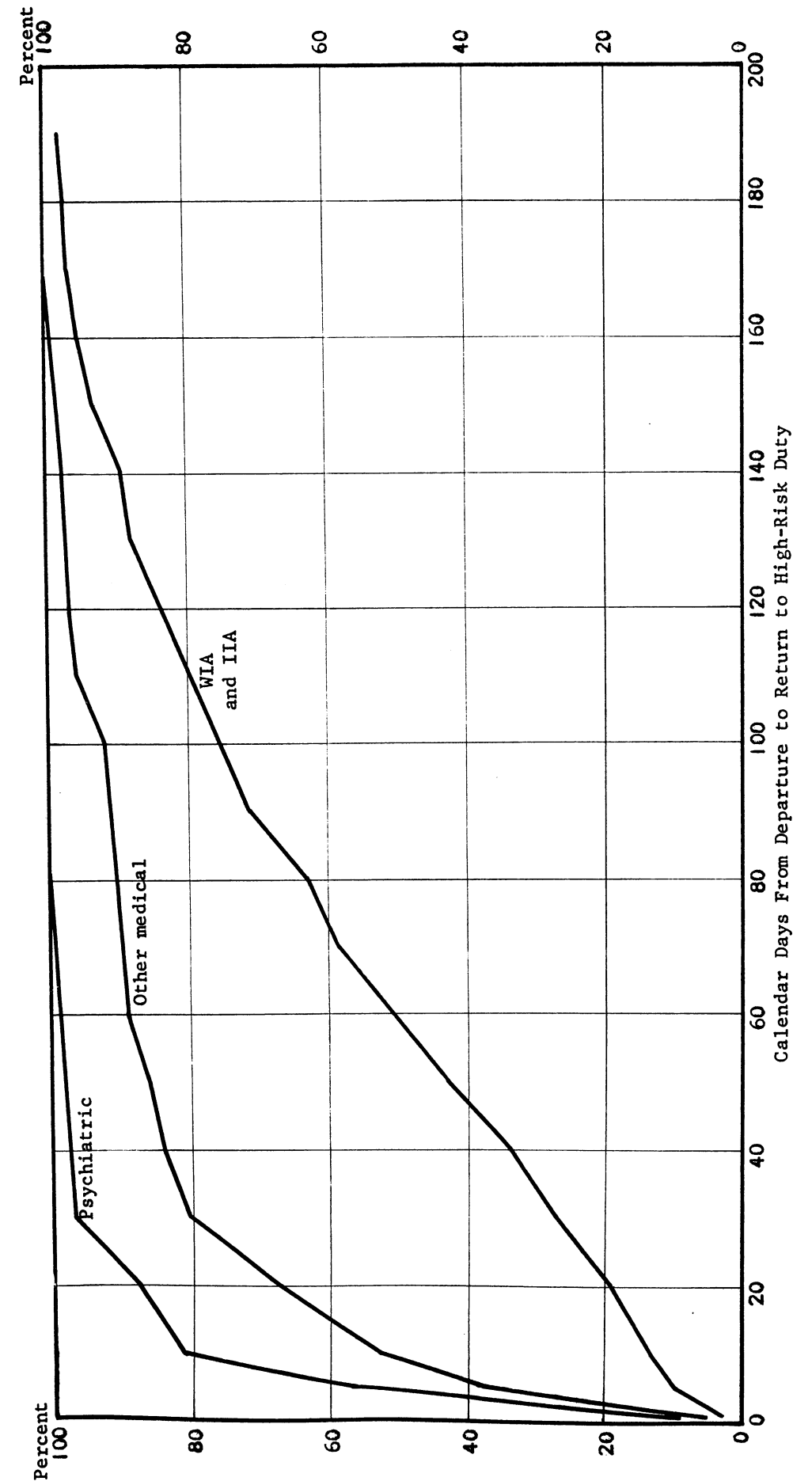
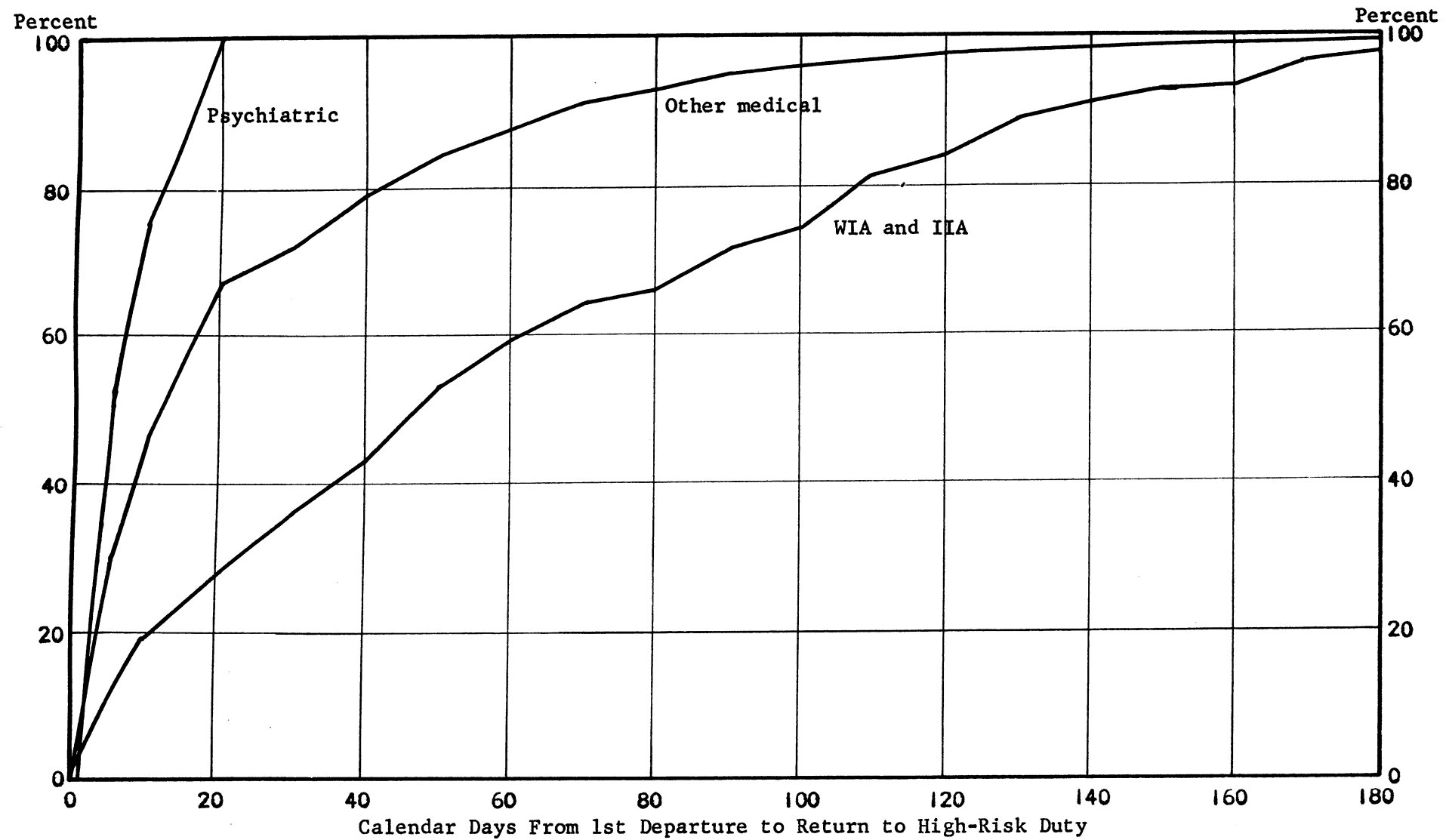


Figure 19. Cumulative Percentage Returned to Combat Duty in Study Companies at Various Intervals of Time After First Departure, by Cause of Departure, MTO Original Men Returning to Combat



Sample and portion of stress scale	Number of final departures for battle casualty	Number of man-days of exposure	Final departures per 1,000 man-days
<u>34 company days or less</u>			
ETO	488	18,732	<u>26.1</u>
MTO	318	18,693	<u>17.0</u>
Total	806	37,425	<u>21.5</u>
<u>35 or more company days</u>			
ETO	69	3,866	<u>17.8</u>
MTO	76	7,718	<u>9.8</u>
Total	145	11,584	<u>12.5</u>
<u>Entire stress scale</u>			
ETO	557	22,598	<u>24.6</u>
MTO	394	26,411	<u>14.9</u>
Total	951	49,009	<u>19.4</u>

For each line of the above table the experience shown there was subdivided on each of the following characteristics, numbered according to the tables involved:

<u>Table number</u>	<u>Characteristic studied in relation to departures for battle casualties</u>
15	MOS at EC (division)
16	Time from EAD (World War II) to EC (division)
17	Time from joining company to EC (division)
18	Component of A.U.S.
19	Service command of origin
20	Psychiatric experience prior to combat
21	Educational attainment at EAD, World War II

Table number	Characteristic studied in relation to departures for battle casualties
22	AGCT score at EAD, World War II
23	Marital status at EAD, World War II
24	Level of inf. trg. prior to EC (division)
25	Reason for any demotion prior to EC (division)
26	Convictions by courts-martial, AWOL
27	MOS history prior to EC (division)
28	Age at EC (division)

Tables 15-28 have been summarized and appear here separately for each characteristic for the interval 1-34 days. All battle casualties, of whatever type, are included in these tables. Each one shows the nature of any variation in battle casualty attrition associated with the corresponding factor, appropriate tests of significance having been done in each case. In table 15, for example, we see that, for ETO originals, the rate of 26.1 over the interval 1-34 company days is the average of the following rates for each MOS:

MOS and SSN designation	Departures per 1,000 per day
504 Ammunition handler	21.9
603,4,5,7 Gunner	15.4
651 Platoon sergeant	29.5
652 Section leader	15.0
653 Squadron leader	31.4
745 Rifleman	26.3
746 Automatic rifleman	32.5

The variation is not large but a statistical test of homogeneity shows that it lies well outside the range of chance ($P < .01$). The chief divergence of consequence is the low rate for gunners; the rate for section leaders is also low, but is based on a negligibly small experience. The same discrepancy is

Table 15

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by MOS at EC; Men With One to Thirty-four Company Casualty Days from EC to Final Departure

MOS at EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO Originals</u>			
Ammunition handler	2,646	58	21.9
Gunner	1,813	28	15.4
Platoon sergeant	948	28	29.5
Section leader	200	3	15.0
Squad leader	2,424	76	31.4
Rifleman	8,512	224	26.3
Automatic rifleman	2,182	71	32.5
Total	18,725	488	26.1
P*			.009
<u>MTO Originals</u>			
Ammunition handler	1,692	29	17.1
Gunner	1,487	16	10.8
Platoon sergeant	461	10	21.7
Squad leader	3,754	50	13.3
Rifleman	9,294	172	18.5
Automatic rifleman	1,808	35	19.4
Other	197	6	30.5
Total	18,693	318	17.0
P*			.086

*Probability of the observed discrepancy, or one more extreme, calculated on the null hypothesis of homogeneity among MOS classes.

seen in the MTO material which is otherwise fairly homogeneous. On the whole, then, MOS seems productive of relatively little variation within the selection of high-risk MOS used here, but gunners (SSN 603,4,5, and 7) in the rifle company do seem to have a battle attrition rate reliably below that of riflemen; in this sample the gunner has 60 percent of the risk faced by the rifleman (SSN 745).

The interval from EAD (WW II) to EC was divided into six groups as shown in table 16, but was not found to be reliably associated with the chance that a battle casualty would cause a final departure from high-risk combat.

The interval from the date of joining the study company to EC (division), in months, was divided into seven groups as shown in table 17, and attrition rates calculated for each group without finding any evidence of any effect on the rate of departure for battle casualties.

The three components of the A.U.S., i. e., Regular Army, National Guard, and inductees, were also compared and found to have essentially similar rates of attrition for battle casualties. Table 18 carries the details.

Service Command of origin was studied in the same fashion, and, as table 19 shows, only insignificant variation was observed.

When the admission experience of the sample was scrutinized, an abstract was made of any psychiatric admission occurring prior to entry into combat. Table 20 shows the small amount of information obtained and, when compared with average psychiatric admission rates for the Army as a whole, shows that the men studied here had been selected for high resistance. Although the experience is too small for any statistical test to be very powerful, the three components of our sample do not differ by more than chance would often produce, so we may regard the average rate of 7 psychiatric admissions per 1,000 men per year as summarizing their prior experience; in the first year

Table 16

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Time From EAD to EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Number of months from EAD to EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
03-11	2,056	61	29.7
12-17	2,605	81	31.1
18-23	6,312	151	23.9
24-29	3,798	94	24.7
30-35	1,083	20	18.5
36+	2,878	81	28.1
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
03-11	1,626	26	16.0
12-17	5,871	98	16.7
18-23	4,563	90	19.7
24-29	2,006	31	15.5
30-35	4,245	65	15.3
36+	382	8	20.9
Total P	18,693	318	17.0 >.05

Table 17

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Time in Company at EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Number of months in company at EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
03-05	2,329	80	34.3
06-11	5,028	127	25.3
12-17	1,661	46	27.7
18-23	4,238	99	23.4
24-29	3,461	79	22.8
30+	2,015	57	28.3
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
03-11	4,345	76	17.5
12-17	4,281	79	18.5
18-23	5,000	93	18.6
24-29	1,171	13	11.1
30+	3,896	57	14.6
Total P	18,693	318	17.0 >.05

Table 18

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Component; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Component	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
Regular Army	1,969	57	28.9
National Guard	645	22	34.1
AUS	16,118	409	25.4
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
Regular Army	2,727	54	19.8
National Guard	2,386	35	14.7
AUS	13,580	229	16.9
Total P	18,693	318	17.0 >.05

Table 19

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Service Command of Origin; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Service Command of origin	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
Regular Army	1,969	57	28.9
1st	1,185	37	31.2
2nd	2,192	60	27.4
3rd	2,853	72	25.2
4th	2,592	54	20.8
5th	2,425	54	22.3
6th	1,998	56	28.0
7th	1,553	45	29.0
8th	1,275	31	24.3
9th	690	22	31.9
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
Regular Army	2,727	54	19.8
1st	1,320	16	12.1
2nd	1,964	32	16.3
3rd	1,006	20	19.9
4th	1,005	22	21.9
5th	1,392	25	18.0
6th	1,926	35	18.2
7th	1,342	18	13.4
8th	5,212	82	15.7
9th	799	14	17.5
Total P	18,693	318	17.0 >.05

Table 20

Admissions per 1,000 Men per Year for Psychiatric Causes, for Period From Entry Into Service to Entry Into Combat

Component of sample	Number of men	Aggregate man-months of exposure	Psychiatric admissions	Rate
<u>Original men</u>				
MTO	1,000	21,795	10	<u>6</u>
ETO	1,000	23,519	13	<u>7</u>
Replacements	500	6,463	6	<u>11</u>
Total	2,500	51,777	29	<u>7</u>

of service one would expect enlisted men generally to break down at a rate of about 36, and in the second year 24.⁴ The final departure pattern for the 21 men with such psychiatric departures has been analyzed from the standpoint of battle casualty attrition, with the following result:

Final departure	Psychiatric admission prior to entering combat		
	Present	Absent	Total
Battle casualty	10	1,221	1,231
Other, or no departure	11	1,258	1,269
Total	21	2,479	2,500

As far as this material goes, therefore, it provides no basis for believing that men who entered combat in high-risk MOS with a prior history of breakdown were any more or any less likely than others to become battle casualties.

Other factors with no statistically significant relation to battle casualty attrition are:

- Educational level at EAD (cf. table 21)
- AGCT score (cf. table 22)
- Marital status at EAD (cf. table 23)
- Level of infantry training at EC (cf. table 24)
- History of demotion prior to EC (cf. table 25)
- Courts-martial convictions for AWOL (cf. table 26)
- Pattern of MOS prior to EC (cf. table 27)
- Age at EC (cf. table 28)

In short, of the factors studied only MOS at EC is significantly associated with the attrition rate for battle casualties among original men in high-risk occupations. With this one exception the evidence points to the notion that

Table 21

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Completed Years of Schooling Prior to EAD; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Completed years of schooling prior to EAD	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
< 4-7	3,637	90	24.7
8	3,490	90	25.8
9-11	5,375	148	27.5
High school	4,739	118	24.9
> 13	1,457	42	28.8
Unknown	34	0	0
Total	18,732	488	26.1
P			>.05
<u>MTO originals</u>			
< 4-7	3,730	77	20.6
8	4,154	69	16.6
9-11	6,322	101	16.0
High school	3,959	61	15.4
> 13	509	8	15.7
Unknown	19	2	105.3
Total	18,693	318	17.0
P			.032

Table 22

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by AGCT Score at EAD; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

AGCT score at EAD	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
> 110	2,634	74	28.1
90-109	1,949	43	22.1
< 89	2,488	70	28.1
Unknown	11,661	301	25.8
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
> 110	920	22	23.9
90-109	1,197	25	20.9
< 89	1,299	30	23.1
Unknown	15,277	241	15.8
Total P	18,693	318	17.0 .05

Table 23

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Marital Status at EAD; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Marital status at EAD	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
Single	15,842	417	26.3
Married	2,569	60	23.4
Divorced or separated	317	11	34.7
Widowed	4	0	0
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
Single	17,296	285	16.5
Married, divorced, widowed	1,397	33	23.6
Total P	18,693	318	17.0 .04

Table 24

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Level of Infantry Training Prior to EAD; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Level of infantry training prior to EAD	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
Infantry basic only	82	2	24.4
Infantry unit trg. (2 mo.)	6,342	157	24.8
Further training	12,282	329	26.8
Unknown	26	0	0
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
Infantry basic only	34	0	0
Infantry unit trg. (2 mo.)	12,549	210	16.7
Further training	6,110	108	17.7
Total P	18,693	318	17.0 >.05

Table 25

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Reason for Any Demotion Prior to EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Reason for any demotion prior to EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
No demotion	15,786	418	26.5
Demotion	2,946	70	23.8
Disciplinary, etc.	889	20	22.5
Unknown reason	2,057	50	24.3
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
No demotion	15,824	270	17.1
Demotion	2,869	48	16.7
Disciplinary, etc.	984	17	17.3
Unknown reason	1,885	31	16.4
Total P	18,693	318	17.0 >.05

Table 26

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Court Martial Convictions for AWOL Offenses Prior to EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Court Martial convictions for AWOL offenses prior to EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
0	17,276	449	26.0
1	1,081	21	19.4
2-7	375	18	48.0
Total	18,732	488	26.1
P			.012
<u>MTO originals</u>			
0	17,078	292	17.1
1-7	1,615	26	16.1
Total	18,693	318	17.0
P			>.05
<u>ETO replacements</u>			
0	9,309	235	25.2
1-3	392	12	30.6
Total	9,701	247	25.5
P			>.05

Table 27

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Pattern of MOS History Prior to EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Pattern of MOS history prior to EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
All noncombat	1,472	30	20.4
Mixed combat and noncombat	2,503	66	26.4
Combat only; none high-risk	670	16	23.9
Combat only; all high-risk	11,250	309	27.5
Combat only; some high-risk	2,830	66	23.3
Unknown	7	1	142.9
Total	18,732	488	26.1
P			>.05
<u>MTO originals</u>			
All noncombat	753	15	19.9
Mixed combat and noncombat	912	13	14.3
Combat only; none high-risk	473	10	21.1
Combat only; all high-risk	15,866	260	16.4
Combat only; some high-risk	689	20	29.0
Total	18,693	318	17.0
P			>.05

Table 28

Company Casualty Days of Exposure From EC to Final Departure, Number of Final Battle Casualty Departures, and Departures per 1,000 Days of Exposure, by Age at EC; Men With One to Thirty-four Company Casualty Days From EC to Final Departure

Age at EC	Company days of exposure	Final battle casualty departures	Final B.C. departures per 1,000 days of exposure
<u>ETO originals</u>			
16-20	4,014	103	25.7
21-22	4,157	107	25.7
23-25	4,525	123	27.2
26-29	3,618	84	23.2
30+	2,418	71	29.4
Total P	18,732	488	26.1 >.05
<u>MTO originals</u>			
16-22	3,114	55	17.7
23	3,358	42	12.5
24-25	4,975	78	15.7
26-29	4,769	88	18.5
30+	2,477	55	22.2
Total P	18,693	318	17.0 .066

a battle casualty is a random event among individuals of equivalent exposure. That it is not entirely random over the entire range of stress is suggested by figures 15-16 previously referred to.

Although the foregoing analysis is considered more reliable than one based on admission rates calculated for calendar time, such information was of necessity gathered and may be summarized at this point merely by saying that again only MOS at EC was found to be surely associated with the risk of becoming a battle casualty. Appendix X provides a summary of the average experience of the several components of the sample in these terms. In addition, it may be worth noting the details of the battle casualty experience of men classified by type of separation. These are given in table 29, and permit the following conclusions:

- a. Men given a CDD on psychiatric grounds had a higher WIA admission rate than men not so separated.
- b. Men given a CDD for battle wounds rarely had experienced a psychiatric admission.
- c. Men separated on points constitute the largest group and account for the bulk of the experience, both in terms of exposure and admissions.

D. Psychological Breakdown in Relation to Stress and Other Factors

The question - How long will men last without breaking down psychologically? - is best answered, not from a coding of any particular departure, e. g., the first or final, but from an explicit coding of the first departure on psychiatric grounds. For men who never did break down such coding is identical with that for the final departure. Moreover, in this way the man with more than one psychological breakdown is located on the stress scale as a breakdown only once, at the point where he first broke down. Thus, any average departure rate computed from such material is not an average rate of departure on psychiatric grounds, but an average rate of first psychiatric

Table 29

Psychiatric, WIA, and Total Admissions per 1,000 Men per Day,
by Type of Separation, Separately for ETO Originals,
ETO Replacements, and MTO

Type of separation	Number of men	Months of exposure	Number of admissions			Admissions per 1,000 men per day		
			P	WIA	Total	P	WIA	Total
<u>ETO originals</u>								
CDD, psychiatric	39	77.0	37	28	53	16.02	12.12	22.94
CDD, other nonbattle disease or injury	37	123.7	5	26	49	1.35	7.01	13.20
CDD, battle	149	304.3	8	154	166	.88	16.87	18.18
Demobilization	577	2,466.3	108	354	610	1.46	4.78	8.24
Convenience of government, expiration of service, or to re-enlist	21	89.3	2	9	16	.75	3.36	5.97
Dishonorable, unfitness, etc., and misconduct, etc.	5	15.0	2	0	5	4.44	-	11.11
Death	158	296.7	2	37	50	.22	4.16	5.62
Dependency, hardship, not otherwise specified here	8	24.3	1	7	8	1.37	9.60	10.97
Convenience of government, other	6	21.3	1	1	4	1.56	1.56	6.26
Total P	1,000	3,418.0	166	616	961	1.62	6.01	9.37
						<.001	<.001	<.001
<u>ETO replacements</u>								
CDD, psychiatric	41	89.7	38	19	54	14.12	7.06	20.07
CDD, other nonbattle disease or injury	20	70.3	3	12	27	1.42	5.69	12.80
CDD, battle	73	159.7	2	81	86	.42	16.91	17.95
Demobilization	248	1,138.0	48	153	284	1.41	4.48	8.32
Convenience of government, expiration of service, or to re-enlist	4	8.3	4	0	6	16.06	-	24.10
Dishonorable, unfitness, etc., and misconduct, etc.	6	20.3	1	1	5	1.64	1.64	8.21
Death	95	210.3	3	26	33	.48	4.12	5.23
Dependency, hardship, not otherwise specified here	3	11.3	0	3	5	-	8.85	14.75
Convenience of government, other	10	28.3	4	5	12	4.71	5.89	14.13
Total P	500	1,736.3	103	300	512	1.98	5.76	9.83
						<.001	<.001	<.001

Page 2
of
Table 29

Type of separation	Number of men	Months of exposure	Number of admissions			Admissions per 1,000 men per day		
			P	WIA	Total	P	WIA	Total
<u>MTO originals</u>								
CDD, psychiatric	38	190.7	22	18	53	3.85	3.15	9.26
CDD, other nonbattle disease or injury	30	305.0	5	14	67	.55	1.53	7.32
CDD, battle	99	706.0	6	107	167	.28	5.05	7.88
Demobilization	562	5,555.0	141	309	896	.85	1.85	5.38
Convenience of government, expiration of service, or to reenlist	10	76.0	4	3	12	1.75	1.32	5.26
Dishonorable, unfitness, etc., and misconduct, etc.	10	82.3	2	2	11	.81	.81	4.46
Death	195	1,229.3	2	52	150	.05	1.41	4.07
Dependency, hardship, not otherwise specified here	2	17.3	0	0	1	-	-	1.93
Convenience of government, other	54	504.0	28	35	113	1.85	2.31	7.47
Total P	1,000	8,665.7	210	540	1,470	.81	2.08	5.65
						<.001	<.001	<.001

departure. As we have seen, there were among all 2,500 men 346 departures on psychiatric grounds, but all these departures involve only 303 men. The 303 first psychiatric departures of these men, and the continued performance of other men who did not break down, provide the data required to answer the question posed here. In an additional 49 departures, not classified as psychiatric, a failure to return to combat, or a long delay in returning, was attributed to a psychiatric condition developing concurrently or subsequently, without there having previously been a psychiatric departure.

In chapter II above (cf. figure 3-7) we have already presented the rates of first psychiatric departure among original men for the more important indices. Here we need only utilize these rates in an appropriate life-table calculation in order to provide the estimates we seek. In defining the proportion of men able to reach a given point on the stress scale without having broken down at least once, we automatically define its complement, the proportion who have broken down, and in this section the latter seems the more natural function to employ.

Curves of psychiatric attrition vary with the stress index employed, but are essentially the same if the stress scales are equated on the basis of the regression analysis summarized in chapter II and in appendix VIII. For example, company day 40 is equivalent to 202 company casualties in ETO and 184 in MTO. It is not necessary, therefore, to exhibit the curves for every index, and for presentation we have chosen the company combat day. It is a shortcoming of these data, however, that they fail to provide reliable estimates over the full range of stress as it was met by men in rifle companies in World War II. For the MTO data, as we have seen, the experience seems reliable only through company day 80; for ETO the span is even shorter, perhaps only to day 35. In contrast, half the companies in the MTO sample logged more than 130 days, and half of the companies in the ETO sample logged more than

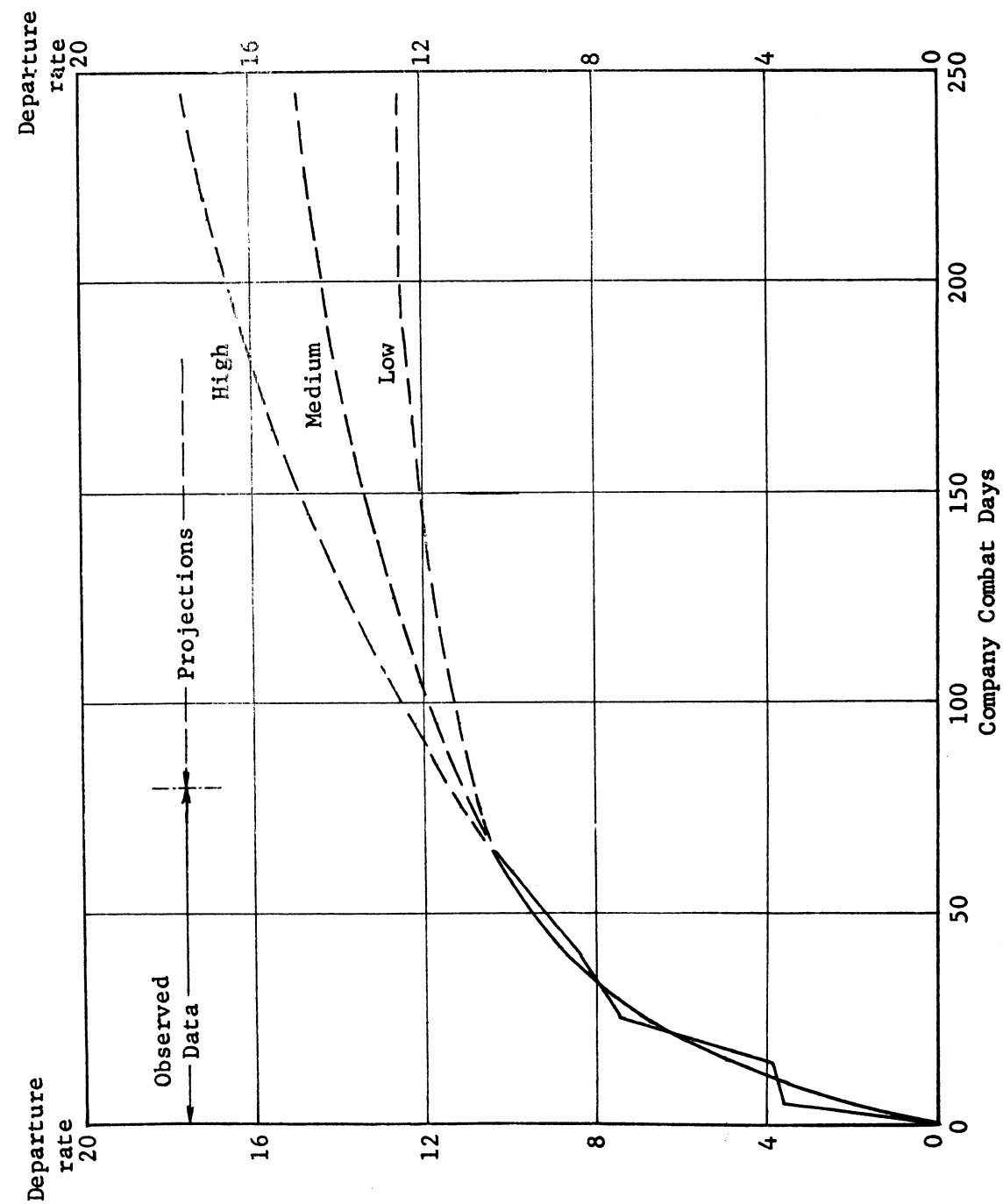
60 days. If estimates are to be made covering the upper range of stress potentially facing riflemen in World War II, therefore, extrapolation beyond the limits of the present sample is essential, at least for the MTO experience. An approach to this problem is shown in figure 20 where the observed rates of table 3, for the range 1-80 days, appear together with several projections labeled "high," "medium," and "low." These projections were made by eye. If the medium projection is taken to define the rate of psychiatric departure after day 80, and life-table procedures are used to estimate psychiatric attrition in the absence of other forms of attrition, the results are as shown in table 30. According to this calculation the breaking point of the average man is reached after about 85 company days. By day 80, the end of the period of actual observation, 47 percent of the men would have become psychiatric casualties. On the basis of the medium projection beyond 80 days the departures accumulate at a decreasing rate, so that 75 percent would have broken down by about day 140, and 90 percent by day 210. We must not forget, however, the extent to which we have abstracted from the web of experience to produce this estimate. The fact is that only 15.2 percent of the MTO originals actually broke down: other forms of attrition intervened too rapidly for psychiatric attrition to occupy a major role. By day 18 half of the men were gone, and by day 110, 98 percent, in the actual experience studied. The life-table analysis provides an approach to the estimation of the distribution of men as to their potential breaking point; it proceeds on the assumption that men who left combat for nonpsychiatric reasons would, had they remained, have become psychiatric casualties at the same rate as men with longer exposure.

One form of nonpsychiatric attrition which is perhaps not best handled as a mere "loss from observation" is individual rotation, and although this was not a major form of attrition in World War II, it should be examined

Table 30
Psychiatric Attrition Estimated by Life-Table Procedures, MTO Sample

Company days	Psychiatric departure rate		Exposed population at start of interval	Psychiatric departures	
	Per day	Per interval		Simple	Cumulative
1-10	2.0	19.84	1,000.00	19.84	19.84
11-20	5.0	48.95	980.16	47.98	67.82
21-30	7.0	67.90	932.18	63.30	131.12
31-40	8.2	79.11	868.88	68.74	199.86
41-50	9.1	87.45	800.14	69.97	269.83
51-60	9.8	93.88	730.17	68.55	338.38
61-70	10.4	99.32	661.62	65.71	404.09
71-80	10.9	103.88	595.91	61.90	465.99
81-90	11.3	107.46	534.01	57.38	523.37
91-100	11.7	111.09	476.63	52.95	576.32
101-110	12.1	114.68	423.68	48.59	624.91
111-120	12.4	117.35	375.09	44.02	668.93
121-130	12.7	120.02	331.07	39.74	708.67
131-140	13.0	122.72	291.33	35.75	744.42
141-150	13.3	125.35	255.58	32.04	776.46
151-160	13.5	127.10	223.54	28.41	804.87
161-170	13.7	128.86	195.13	25.14	830.01
171-180	13.9	130.63	169.99	22.21	852.22
181-190	14.1	132.40	147.78	19.57	871.79
191-200	14.2	133.28	128.21	17.09	888.88
201-210	14.4	135.03	111.12	15.00	903.88
211-220	14.6	136.77	96.12	13.15	917.03
221-230	14.7	137.65	82.97	11.42	928.45
231-240	14.8	138.53	71.55	9.91	938.36
241-250	14.9	139.36	61.64	8.59	946.95
251-260	15.0	140.25	53.05	7.44	954.39

Figure 20. First Psychiatric Departures per 1,000 Men per Company Day, Observed Data Through Day 80 and Projections Beyond, MTO



for its bearing on the estimates of potential resistance to psychiatric departure. As may be seen from table 1 there were 52 departures on this ground in the MTO sample, 2 of whom had psychiatric departures before they were finally rotated out of the unit. Examination of the individual records of these 52 men reveals 7 others who may have been rotated because they were "through." Had they not been rotated the psychiatric departure rate might have been even higher. The 9 cases of interest are:

- 4225 - Rotated 4 Mar 44; 27 Jun 44 dx "Psychoneurosis, anxiety, chronic, sev." with CDD and notation "duration since 1943." Man twice WIA, last time returning to duty on 29 Feb., a few days before he was rotated. Question - did P lead to rotation?
- 4246 - Sick 27 Jun 44 - 11 Aug 44, and rotated to Z/I on 11 Aug 44, day he returned to his unit. Never had formal P admission but separated for convenience of government with out-patient diagnoses of "psychoneurosis, anxiety state, mod." Question - did P lead to rotation?
- 4309 - WIA 12 Feb 44, returning to duty 27 Apr 44 and with P as secondary dx. Rotated out of company 10 May 44. Question - did P lead to rotation?
- 4500 - WIA 1 Feb 44, returned to company 18 Mar 44. The 1 Feb dx was "GSW, SF, scalp, cerebral concussion; post-concussion headache, with anxiety." Also "this man is into the old proverbial run-around. Believe he probably has concussion syndrome." Rotated out 1 Aug 44. Physical exam 28 Sep 44 finds cephalgia, mild; separated Dec 44, convenience of the government, "below minimum physical standards for induction." Question - did P lead to rotation?
- 4565 - Rotation 7 Apr 45. Service record states "Revised profile - nervousness, anxiety state" on 21 Aug 45. Question - did P lead to rotation?
- 4699 - WIA 24 Dec 43, with P as secondary dx. Returned to duty 6 Mar 44 and again WIA 5 Nov 44 to 4 Dec 44, but P dx not made at this time. On 20 Feb 45 rotated. Question - significance of earlier P?

4832 - Nonbattle injury of 7 Mar 44 - 19 Mar 44, returning to company 19 Mar 44. Rotated out 11 Jul 44. In Repo Depot 13 Jul 44 "Other diseases of nervous system, obsession of fear of battle due to exhaustion and severe combat." On 11 Nov 44 service record reads "is not fit for Gen. Mil. Service." Separated on points.

4955 - WIA 11 Jul 43, returned to unit 1 Oct 43. Rotation 22 Jul 44 and at redistribution center 16 Oct 44 "Not physically qualified for overseas duty - neurosis, anxiety state, mod. (no medical records)" Died 11/22/44 of brain abscess.

4963 - FUI 2 Nov 43, returned to unit 12 Nov 43. Rotation 22 Jul 44. Admitted for "psychoneurosis, combat reaction" 9 Nov 44 and CDD 22 Nov 44 for same.

On the average the men were rotated after 59 company casualty days, equivalent to 174 regimental combat days. One had been awarded the Medal of Honor, 11 the Silver Star, and 32 had been wounded. The first such rotation occurred on 14 February 1944. The rate at which rotation occurred in the MTO sample appears in table 31; it was entirely negligible until after 20 company days (59 regimental combat days) and rose to 1.3 percent per day after 110 company days (325 regimental combat days). In the upper region of stress the rotation rate vies with the psychiatric departure rate in magnitude, so that one would expect the life-table estimates of the distribution of men as to potential breaking point to be influenced by the handling of rotation. In table 32 both forms of attrition are allowed to decrease an initial cohort of 1,000 men up to 130 company days. At this point individual rotation has begun to affect the estimated distribution of men as to resistance to first psychiatric departures, the cumulative percentage being 59 in contrast to 71 shown in table 30. If our interest lies in estimating man's resistance to battle stress we shall prefer the estimates of table 30, since one effect of rotation would be to save men from psychiatric breakdown. Figure 21 compares the data of tables 30 and 32 in

Figure 21. Cumulative Departures for First Psychiatric Breakdowns and Individual Rotation Calculated by Life-Table Methods, Number of Men Exposed to Risk of First Psychiatric Breakdown, and Distributions of MTO Rifle Companies as to Aggregate Combat Time Logged in WW II, by Company Combat Day, MTO Sample

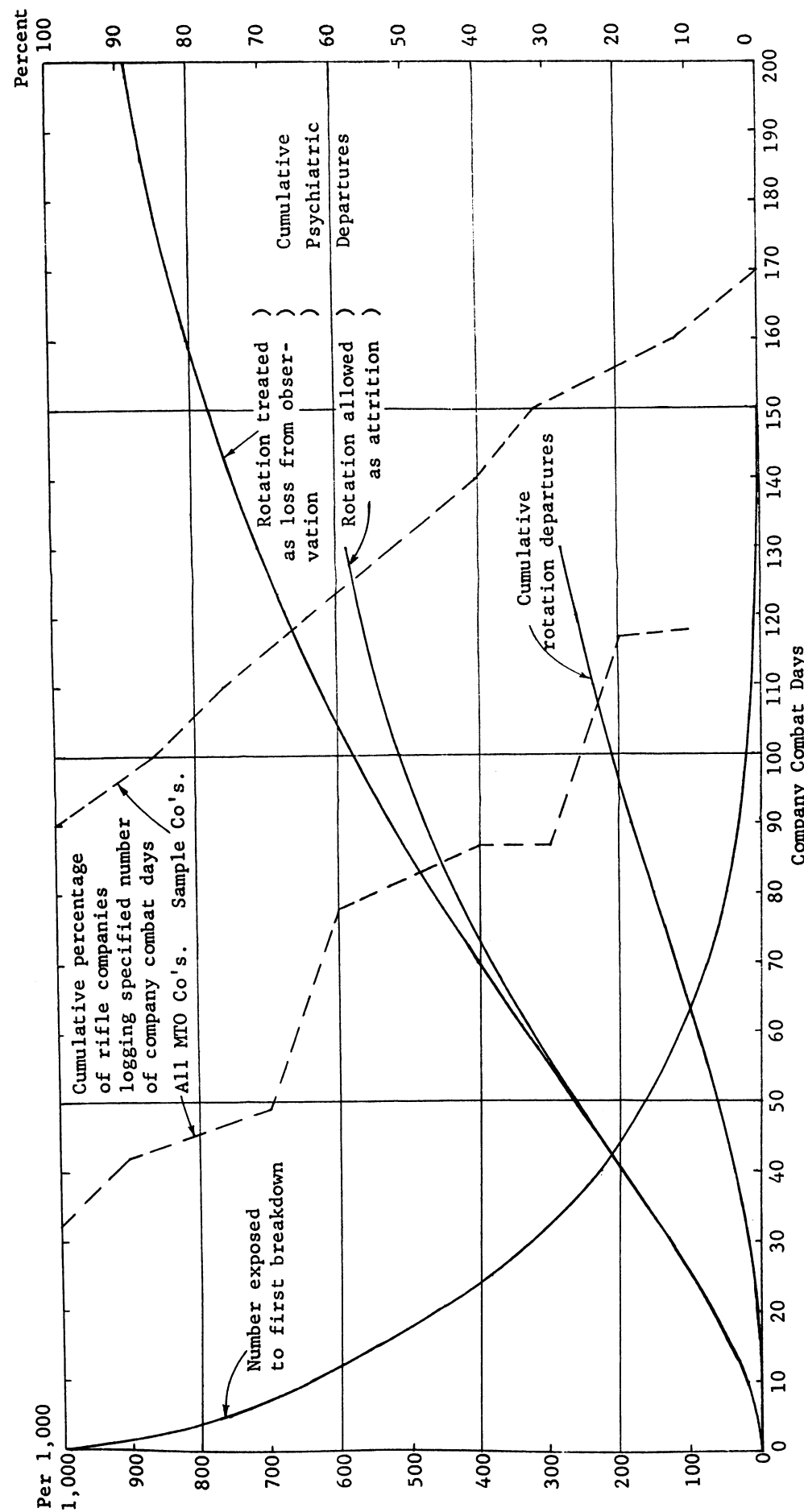


Table 31
Departures on Individual Rotation, MTO

Company days	Man-days of exposure	Rotation departure	
		Number observed	Per 1,000 men per day
1-10	7,953	1	0.13
11-20	5,430	1	0.18
21-30	3,856	6	1.56
31-50	4,637	16	3.45
51-80	2,875	15	5.22
81-110	640	6	9.38
111-152	380	5	13.16
Total	25,771	50	1.94

this respect and brings in the other comparative data of interest, namely, the number of men in the MTO sample remaining at risk (of first psychiatric breakdown) over the observable range of stress and two distributions of MTO rifle companies as to the number of company combat days logged as units throughout World War II. The rapidly declining set of men exposed to the risk of breakdown is plotted on the left-hand side of figure 21. It shows that half of the men were gone by day 18, 90 percent by day 64, and 99 percent by day 110. In one sense this curve provides a rough measure of the stress these men faced; only 10 percent actually survived to day 64 without prior breakdown. And yet the only reason why so few were exposed at this point, for which the cumulative psychiatric departure rate is 35 to 40 percent, is that many became battle casualties, or were evacuated for illness, before this point was reached. It is appropriate to ask, therefore, how long men were asked to last if they could. Since, apart from individual rotation, their only other relief was from cessation of hostilities, one estimate of this potential requirement upon them may be derived from the total duration of combat for the units with which they entered combat. None of the 50 MTO companies had less than 90 company combat days, and half had more than 130 days. This aspect of unit experience, taken here as one measure of the requirement which was placed upon original men in the MTO sample, is plotted in figure 21 in the form of a percentage distribution which cuts diagonally down and from left to right. One can also estimate a distribution of this nature for all rifle companies ever committed in MTO, even if later used in ETO, using the calendar time intervals between EC and LC combined with the appropriate regression equations in appendix VIII. This has been done and the result plotted in figure 21 as the middle diagonal. From it we learn that about half the rifle companies used

Table 32
Departures for First Psychiatric Breakdown and Individual Rotation
Estimated by Life-Table Procedures, MTO Sample

Company combat days	Departures per 1,000 men per day		Exposed population at start of interval	Departures		Cumulative	
	Psychiatric	Rotation		Per interval Psychi- atric	Rotation	Psychi- atric	Rotation
1-10	2.0	0.1	1,000.00	19.83	0.99	19.83	0.99
11-20	5.0	0.4	979.18	47.83	3.83	67.66	4.82
21-30	7.0	1.4	927.52	62.59	12.52	130.25	17.34
31-40	8.2	2.4	852.41	66.71	19.52	196.96	36.86
41-50	9.1	3.5	766.18	65.92	25.36	262.88	62.22
51-60	9.8	4.6	674.90	62.02	29.11	324.90	91.33
61-70	10.4	5.8	583.77	56.49	31.51	381.39	122.84
71-80	10.9	6.9	495.77	49.92	31.60	431.31	154.44
81-90	11.3	8.0	414.25	42.92	30.39	474.23	184.83
91-100	11.7	9.2	340.94	36.34	28.57	510.57	213.40
101-110	12.1	10.3	276.03	30.23	25.73	540.80	239.13
111-120	12.4	11.4	220.07	24.56	22.58	565.36	261.71
121-130	12.7	12.5	172.93	19.63	19.33	584.99	281.04

in MTO probably had at least 85 company days of combat. If we take the latter as the expected performance of original men (not replacements) entering combat with these units, if they could last, then we may say that the average requirement placed upon such men in MTO was such as to exceed the breaking point of about 45 to 50 percent of the men. Similarly we might estimate that about 20 percent were required to continue, if they could last, to a point (118 company days) which exceeds the breaking point of 65 percent, unless relieved by rotation. That only 1 percent of the men in the MTO sample ever lasted as long as 120 company days is of vital consequence in figuring the cost of rotation plans for these men but it in no way changes the fact of the requirement that it was conditional upon their not having been killed, wounded, etc.

For the reasons already given in connection with the discussion of figures 3-8 it is plain that the ETO material will add nothing to that provided by the MTO with which to estimate the resistance men possess to psychiatric breakdown in infantry combat. Accordingly these data are not explored here.

Although the stress scale occupies the central position in this study, we have also obtained information on those sociological and military characteristics of individuals which are readily accessible in their military records, and each of these may be passed in review as a potential source of variation in the rate of psychiatric breakdown. For reasons already described, we used primarily days 1-34 on the scale of company days in this analysis, and computed average rates of first psychiatric breakdown just as, in the preceding section on battle casualties, we computed average rates of final departure for

battle casualty of one kind or another. The same characteristics studied there are involved in the present analysis, and the numbering of tables is also similar, viz.:

<u>Table number</u>	<u>Characteristic studied in relation to first psychiatric departure</u>
33	MOS at EC (division)
34	Time from EAD (World War II) to EC (division)
35	Time from joining company to EC (division)
36	Component of A.U.S.
37	Service command of origin
38	Educational attainment at EAD, World War II
39	AGCT score at EAD, World War II
40	Marital status at EAD, World War II
41	Level of inf. trg. prior to EC (division)
42	Reason for any demotion prior to EC (division)
43	Convictions by courts-martial, AWOL
44	MOS history prior to EC (division)
45	Age at EC (division)

That analysis showed, it will be recalled, that only MOS and length of time in combat were productive of significant variation in the rate of final departure for battle casualty, gunners having about 60 percent of the rate calculated for riflemen, and the departure rate falling steadily over time.

The entire experience was tabulated, not merely days 1-34, and it may be useful at the outset to exhibit the first psychiatric departure rates for the various parts of the entire experience and for the more appropriate subtotals, as follows:

Sample and portion of stress scale	Number of first psychiatric departures	Number of man-days of exposure in company combat	First psychiatric departures per 1,000 man-days in company combat
<u>1-34 company days</u>			
ETO	89	18,378	<u>4.8</u>
MTO	89	18,447	<u>4.8</u>
Total	178	36,825	<u>4.8</u>
<u>35 or more company days</u>			
ETO	8	3,591	<u>2.2</u>
MTO	63	7,324	<u>8.6</u>
Total	71	10,915	<u>6.5</u>
<u>Entire stress scale</u>			
ETO	97	21,969	4.4
MTO	152	25,771	5.9
Total	249	47,740	5.2

Although the bulk of the exposure falls in the interval 1-34 days, there are so many psychiatric departures in the MTO sample after 34 days that it is important to include this part of the experience in our analysis also. Table 33 presents the observed rates in association with MOS at EC. According to the statistical tests of homogeneity which are summarized there, the observed variation among the rates for the MOS groups is well within the range of chance in each instance, and in all three parts of the experience combined. Gunners, whose battle casualty rates were found to be low, do not have especially low rates of psychiatric breakdown.

Table 33

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure by MOS at EC: Original Men Entering Combat With Units

MOS at EC	ETO		MTO	
	Days of exposure	Psychiatric departures No. Rate	Days of exposure	Psychiatric departures No. Rate
<u>A. In interval 1-34 company days</u>				
Ammunition handler	2,630	7 <u>2.7</u>	1,692	9 <u>5.3</u>
Gunner	1,749	9 <u>5.2</u>	1,487	6 <u>4.0</u>
Platoon sergeant	927	8 <u>8.6</u>	461	1 <u>2.2</u>
Section leader	188	1 <u>5.3</u>	197	1 <u>5.1</u>
Squad leader	2,395	11 <u>4.6</u>	3,694	18 <u>4.9</u>
Rifleman	8,350	41 <u>4.9</u>	9,138	45 <u>4.9</u>
Automatic rifleman	2,132	12 <u>5.6</u>	1,778	9 <u>5.1</u>
Total	18,378 [#]	89 <u>4.8</u>	18,447	89 <u>4.8</u>
p*		>.05		>.05
<u>B. In interval 35 or more days</u>				
Ammunition handler			708	2 <u>2.8</u>
Gunner			760	5 <u>6.6</u>
Platoon sergeant			129	1 <u>7.8</u>
Section leader			40	1 <u>25.0</u>
Squad leader			1,220	10 <u>8.2</u>
Rifleman			3,987	39 <u>9.8</u>
Automatic rifleman			480	5 <u>10.4</u>
Total			7,324	63 <u>8.6</u>
p*				>.05

Includes 7 days of exposure (Light Weapons, NCO) not shown above.

* Probability of observed variation, or one more extreme, under conditions of random sampling from homogeneous population.

Table 34 gives the rates of psychiatric breakdown for several groups of men classified as to interval from EAD to EC. In the ETO material there is a slight suggestion ($P = .07$) that men who had joined the unit most recently were less subject to breakdown, but this is not borne out by the MTO experience, is contrary to expectation, and seems best dismissed as a chance phenomenon.

Length of time from the date of joining the company to EC is not associated with significant variation in the rates of first psychiatric breakdown. Table 35 presents the details. In the MTO material in the interval 1-34 days the rates vary somewhat more than one would usually expect from the operation of chance factors ($P = .04$), but in no systematic fashion suggestive of a real relationship. Moreover, it is not supported by the ETO data or by MTO data on days 35 and following.

Rates for the various components of the A.U.S. are shown in table 36. When the evidence of all three parts of the experience is combined we find a suggestion ($P = .04$) that National Guard troops had the highest rate of breakdown and Regular Army the lowest.

Service command of residence at EAD is the subject of table 37. It provides no reason for believing that men from any one section of the country differed from the rest in their resistance to stress.

Table 38 gives the rates of breakdown in association with educational attainment prior to EAD. These also do not vary by more than chance expectation in any of the three parts of the experience or in all three combined.

Table 34

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure, by Calendar Time from EAD to EC: Original Men Entering Combat With Units

Calendar days from EAD to EC	ETO		MTO	
	Days of exposure	Psychiatric departures No. Rate	Days of exposure	Psychiatric departures No. Rate
A. In interval 1-34 company days				
03-11	2,040	4 <u>2.0</u>	1,591	4 <u>2.5</u>
12-17	2,536	10 <u>3.9</u>	5,806	38 <u>6.5</u>
18-23	6,203	33 <u>5.3</u>	4,458	19 <u>4.3</u>
24-29	3,763	15 <u>4.0</u>	2,006	2 <u>1.0</u>
30-35	1,058	9 <u>8.5</u>	4,204	25 <u>5.9</u>
36+	2,778	18 <u>6.5</u>	382	1 <u>2.6</u>
Total	18,378	89 <u>4.8</u>	18,447	89 <u>4.8</u>
P		>.05		.022
B. In interval 35 or more days				
03-11			868	7 <u>8.1</u>
12-17			2,547	24 <u>9.4</u>
18-23			1,445	13 <u>9.0</u>
24-29			1,148	7 <u>6.1</u>
30-35			1,302	12 <u>9.2</u>
36+			14	0 -
Total			7,324	63 <u>8.6</u>
P				>.05

Table 35

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by Calendar Time From Date Joined Company to EC:
Original Men Entering Combat With Units

Calendar days from date joined company to EC	ETO		MTO	
	Days of exposure	Psychiatric departures No. Rate	Days of exposure	Psychiatric departures No. Rate
A. In interval 1-34 company days				
03-05	2,302	7 <u>3.0</u>	334	0 -
06-11	4,933	19 <u>3.9</u>	3,927	18 <u>4.6</u>
12-17	1,623	6 <u>3.7</u>	4,213	30 <u>7.1</u>
18-23	4,168	25 <u>6.0</u>	4,936	16 <u>3.2</u>
24-29	3,397	22 <u>6.5</u>	1,171	2 <u>1.7</u>
30-35	567	1 <u>1.8</u>	3,657	22 <u>6.0</u>
36+	1,388	9 <u>6.5</u>	209	1 <u>4.8</u>
Total	18,378	89 <u>4.8</u>	18,447	89 <u>4.8</u>
P		.30		.056*
B. In interval 35 or more days				
03-05			116	3 <u>25.9</u>
06-11			1,882	11 <u>5.8</u>
12-17			1,705	19 <u>11.1</u>
18-23			1,796	15 <u>8.4</u>
24-29			727	7 <u>9.6</u>
30-35			1,084	8 <u>7.4</u>
36+			14	- -
Total			7,324	63 <u>8.6</u>
P				>.05

Table 36

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by Component: Original Men Entering Combat With Units

Component	ETO		MTO	
	Days of exposure	Psychiatric departures No. Rate	Days of exposure	Psychiatric departures No. Rate
A. In interval 1-34 company days				
Regular Army	1,931	8 <u>4.1</u>	2,697	9 <u>3.3</u>
National Guard	595	6 <u>10.1</u>	2,364	16 <u>6.8</u>
U.S. Army (not RA)	15,852	75 <u>4.7</u>	13,386	64 <u>4.8</u>
Total	18,378	89 <u>4.8</u>	18,447	89 <u>4.8</u>
P		> .05		> .05
B. In interval 35 or more days				
Regular Army			785	6 <u>7.6</u>
National Guard			643	7 <u>10.9</u>
U.S. Army (not RA)			5,896	50 <u>8.5</u>
Total			7,324	63 <u>8.6</u>
P				>.05

* Using the following grouping: 03-11; 12-17; 18-23; 24+, P = .036.

Table 37

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by Service Command of Origin: Original Men Entering Combat With Units

Service command of origin	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
Regular Army or origin not Z/I	1,931	8	<u>4.1</u>	2,697	9	<u>3.3</u>
First service command	1,185	3	<u>2.5</u>	1,309	13	<u>9.9</u>
Second "	2,161	9	<u>4.2</u>	1,924	10	<u>5.2</u>
Third "	2,748	19	<u>6.9</u>	961	7	<u>7.3</u>
Fourth "	2,518	16	<u>6.4</u>	974	4	<u>4.1</u>
Fifth "	2,391	11	<u>4.6</u>	1,392	4	<u>2.9</u>
Sixth "	1,964	8	<u>4.1</u>	1,892	8	<u>4.2</u>
Seventh "	1,530	4	<u>2.6</u>	1,342	4	<u>3.0</u>
Eighth "	1,260	7	<u>5.6</u>	5,157	28	<u>5.4</u>
Ninth "	690	4	<u>5.8</u>	799	2	<u>2.5</u>
Total	18,378	89	<u>4.8</u>	18,447	89	<u>4.8</u>
P			>.05			>.05

Service command of origin	ETO		MTO			
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
B. In interval 35 or more days						
Regular Army or origin not Z/I				785	6	<u>7.6</u>
First service command				633	9	<u>14.2</u>
Second "				564	7	<u>12.4</u>
Third "				210	1	<u>4.8</u>
Fourth "				501	4	<u>8.0</u>
Fifth "				712	8	<u>11.2</u>
Sixth "				661	5	<u>7.6</u>
Seventh "				1,016	1	<u>1.0</u>
Eighth "				1,990	17	<u>8.5</u>
Ninth "				252	5	<u>19.8</u>
Total				7,324	63	<u>8.6</u>
P						>.05

Table 38

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure, by Education: Original Men Entering Combat With Units

Education	ETO			MTO		
	Days of exposure	Psychiatric departures		Days of exposure	Psychiatric departures	
		Number	Rate		Number	Rate
A. In interval 1-34 company days						
< 4-7 years	3,548	23	<u>6.5</u>	3,703	16	<u>4.3</u>
8 years	3,438	13	<u>3.8</u>	4,101	20	<u>4.9</u>
9-11 years	5,255	29	<u>5.5</u>	6,200	30	<u>4.8</u>
12 years	4,665	19	<u>4.1</u>	3,945	17	<u>4.3</u>
≥ 13 years	1,438	5	<u>3.5</u>	479	5	<u>10.4</u>
Total	18,344	89	<u>4.9</u>	18,428	88	<u>4.8</u>
P			>.05			>.05
B. In interval 35 or more days						
< 4-7 years				1,530	13	<u>8.5</u>
8 years				1,570	10	<u>6.4</u>
9-11 years				2,216	21	<u>9.5</u>
12 years				1,833	18	<u>9.8</u>
≥ 13 years				175	1	<u>5.7</u>
Total				7,324	63	<u>8.6</u>
P						>.05

AGCT score at EAD is the subject of table 39; again we find only insignificant variation ($P > .05$).

Marital status, shown in table 40, also does not seem associated with the chance of psychiatric breakdown.

Level of infantry training, shown in table 41, does seem significantly associated with psychiatric breakdown in the upper range of stress. During the first 34 company combat days, however, the effect of training is quite negligible. A priori one would expect any effect of training to be manifest early in combat, not late, and it may be doubted whether the present data provide valid evidence that level of training, as classified here, does have a real effect.

Demotion in grade prior to EC, shown in table 42, is not significantly related to the chance of breakdown.

Courts-martial convictions for AWOL offenses prior to EC are the subject of table 43. It is plain that men with such convictions more often broke down. For the original men in the ETO and MTO samples over the interval 1-34 days the discrepancy has a probability of .004 under the null hypothesis; men with such convictions broke down about 1.9 times as often as men with none.

Table 44 presents data on the MOS pattern prior to EC; this characteristic also seems unrelated to the chance of breakdown.

Age at EC has been intensively investigated in another study⁴ but much less directly than is possible here, where there is no problem of defining the cases from which the men with breakdown were drawn. As table 45 shows, age at EC is quite unproductive of variation in the rate of psychiatric breakdown. This is not to deny the influence of age generally upon resistance to stress, but only to assert that its effect has obviously been overcome in the samples by the selection of men for high-risk combat assignments.

Table 39

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure by AGCT Score at EAD: Original Men Entering Combat With Units

AGCT score at EAD	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
≥ 110	2,617	4	<u>1.5</u>	876	10	<u>11.4</u>
90-109	1,948	7	<u>3.6</u>	1,167	8	<u>6.9</u>
< 60-89	2,409	16	<u>6.6</u>	1,295	5	<u>3.9</u>
Total	6,974	27	<u>3.9</u>	3,338	23	<u>6.9</u>
P			.014			>.05
B. In interval 35 or more days						
≥ 110				228	2	<u>8.8</u>
90-109				458	2	<u>4.4</u>
< 60-89				362	3	<u>8.3</u>
Total				1,048	7	<u>6.7</u>
P						>.05

Note: AGCT scores were not generally available from individual records, so that only a small part of the total experience is studied here from this point of view.

Table 40

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure, by Marital Status at EAD: Original Men Entering Combat With Units

Marital status at EAD	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
Single	15,551	75	<u>4.8</u>	17,055	81	<u>4.7</u>
Married, divorced, separated, or widowed	2,827	14	<u>5.0</u>	1,392	8	<u>5.7</u>
Total	18,378	89	<u>4.8</u>	18,447	89	<u>4.8</u>
P						>.05
B. In interval 35 or more days						
Single				6,755	59	<u>8.7</u>
Married, divorced, separated, or widowed				569	4	<u>7.0</u>
Total				7,324	63	<u>8.6</u>
P						>.05

Table 41

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by Adequacy of Infantry Training in World War II Enlistment:
Original Men Entering Combat With Units

Adequacy of infantry training in World War II enlistment	ETO		MTO	
	Days of exposure	Psychiatric departures Number Rate	Days of exposure	Psychiatric departures Number Rate
A. In interval 1-34 company days				
Infantry unit training	6,222	31 <u>5.0</u>	12,366	63 <u>5.1</u>
"Postgraduate" training	12,048	57 <u>4.7</u>	6,047	26 <u>4.3</u>
Total	18,270	88 <u>4.8</u>	18,413	89 <u>4.8</u>
p*		>.05		>.05
B. In interval 35 or more days				
Infantry unit training			4,927	51 <u>10.4</u>
"Postgraduate" training			2,352	12 <u>5.1</u>
Total			7,279	63 <u>8.7</u>
p*				.013

* One-tailed probability.

Table 42

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by Reason for Demotion: Original Men Entering Combat With Units

Reason for demotion	ETO		MTO	
	Days of exposure	Psychiatric departures Number Rate	Days of exposure	Psychiatric departures Number Rate
A. In interval 1-34 company days				
No demotion	15,536	73 <u>4.7</u>	15,653	76 <u>4.9</u>
Demotion	871	5 <u>5.7</u>	939	8 <u>8.5</u>
Total	16,407	78 <u>4.8</u>	16,592	84 <u>5.1</u>
P		>.05		>.05
B. Interval 35 or more days				
No demotion			6,007	51 <u>8.5</u>
Demotion			345	5 <u>14.5</u>
Total			6,352	56 <u>8.8</u>
P				>.05

Table 43

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by AWOL: Original Men Entering Combat With Units

AWOL	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
None	16,984	80	<u>4.7</u>	16,898	73	<u>4.3</u>
1-7	1,394	9	<u>6.5</u>	1,549	16	<u>10.3</u>
Total	18,378	89	<u>4.8</u>	18,447	89	<u>4.8</u>
P			>.05			.0011
B. Interval 35 or more days						
None				6,761	54	<u>8.0</u>
1-7				563	9	<u>16.0</u>
Total				7,324	63	<u>8.6</u>
P						.049

Table 44

Company Days of Exposure to First Psychiatric Breakdown,
Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure,
by MOS Prior to EC: Original Men Entering Combat With Units

MOS prior to EC	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
Noncombat MOS's	1,433	7	<u>4.9</u>	753	1	<u>1.3</u>
Combat and noncombat MOS's	2,449	14	<u>5.7</u>	885	4	<u>4.5</u>
Combat MOS's, none high-risk	632	3	<u>4.7</u>	462	6	<u>13.0</u>
Combat MOS's, all high-risk	11,041	52	<u>4.7</u>	15,676	73	<u>4.7</u>
Combat MOS's, both	2,816	13	<u>4.6</u>	671	5	<u>7.5</u>
Total	18,371	89	<u>4.8</u>	18,447	89	<u>4.8</u>
P			>.05			.054
B. In interval 35 or more days						
Noncombat MOS's				672	3	<u>4.5</u>
Combat and noncombat MOS's				415	3	<u>7.2</u>
Combat MOS's, none high-risk				71	2	<u>28.2</u>
Combat MOS's, all high-risk				6,006	52	<u>8.7</u>
Combat MOS's, both				160	3	<u>18.8</u>
Total				7,324	63	<u>8.6</u>
P						>.05

Table 45

Company Days of Exposure to First Psychiatric Breakdown, Number of Breakdowns, and Breakdowns per 1,000 Man-days of Exposure, by Age at EC, Division: Original Men Entering Combat With Units

Age at EC, division	ETO			MTO		
	Days of exposure	Psychiatric departures Number	Rate	Days of exposure	Psychiatric departures Number	Rate
A. In interval 1-34 company days						
16-20	3,932	15	<u>3.8</u>			
16-22				3,114	10	<u>3.2</u>
21-22	4,053	20	<u>4.9</u>			
23				3,323	21	<u>6.3</u>
23-25	4,402	22	<u>5.0</u>			
24-25				4,850	25	<u>5.2</u>
26-29	3,575	22	<u>6.2</u>	4,716	19	<u>4.0</u>
30+	2,416	10	<u>4.1</u>	2,444	14	<u>5.7</u>
Total	18,378	89	<u>4.8</u>	18,447	89	<u>4.8</u>
P			.76			.39
B. In interval 35 or more days						
16-22				1,328	8	<u>6.0</u>
23				1,513	17	<u>11.2</u>
24-25				1,983	13	<u>6.6</u>
26-29				1,709	19	<u>11.1</u>
30+				791	6	<u>7.6</u>
Total				7,324	63	<u>8.6</u>
P						> .05

Among the minor factors studied in relation to the chance of first psychiatric departure in combat was a history of psychiatric admission before combat. As noted in the earlier discussion of table 20, there were but 21 men with such a history, so the exploration is not very powerful, but its result is as follows:

Psychiatric admission prior to entry into combat	Psychiatric departures in combat		
	None	Any	Total
Present	15	6	21
Absent	2,182	297	2,479
Total	2,197	303	2,500

Men with a prior breakdown were significantly (P just under .05) more likely to break down again, but perhaps the more remarkable fact is that only 6/21 did have a psychiatric departure after EC and that, as we have seen in the section on battle casualties, the 21 men had the same proportion of battle casualties as others.

Finally, a subsidiary feature in the design of the study provides for a comparison of originals and replacements in ETO rifle companies, and table 46 provides the pertinent data for this comparison. The average rates of breakdown are 4.4 for originals and 4.7 for replacements. Since we noted in chapter II above that the ETO experience was profoundly influenced by calendar time, presumably because of the approaching end of the conflict, it is desirable to supplement this analysis with one in which both originals and replacements entered combat at the same time. How this was done may be seen in table 47 which shows the distribution of the two samples as to month of entry and the selection which was made for the purpose of this comparison. The subsamples which are exactly comparable as to month of entry are unfortunately small, as this problem had not been anticipated when the sampling plan was devised.

Table 46

Comparison of ETO Originals and Replacements as to Rate of First Psychiatric Departure, by Company Combat Day

Company days	1,000 originals		500 replacements		
	Aggregate man-days	Psychiatric departures Number	Aggregate man-days	Psychiatric departures Number	Rate
0-5	4,653	16	2,376	12	5.05
6-11	4,449	20	2,310	15	6.49
12-19	4,403	24	2,296	15	6.53
20-32	4,404	25	2,295	4	1.74
33-	4,060	12	2,289	8	3.49
Total	21,969	97	11,566	54	4.67

Table 47

Distribution of Two ETO Samples as to Month of Entering Combat, and Selection of Subgroups for Comparison

Month of Entry, 1944 EC, division	Observed frequencies		Subsamples for direct comparison	
	Originals	Replacements	Originals	Replacements
June	290	6	-	-
July	180	168	168	168
August	50	250	50	50
September	40	76	40	40
October	170	-	-	-
November	100	-	-	-
December	170	-	-	-
Total	1,000	500	258	258

Their reasons for final departure are given in table 48 and are as similar as one could expect of independent samples. Table 49 gives the numbers of men with a first psychiatric departure in each subgroup of 258 men, by the region of the stress scale when it occurred. The originals had a higher number with breakdown in the interval 20-24 company days, but otherwise the experience of the two groups is fairly homogeneous. The average rate of first breakdown is 4.56 per thousand man-days of company combat time for originals, and 3.64 for replacements. Separate survival curves were calculated for these two subsamples, but are not shown separately; they are very similar until they reach a point on the stress scale where they become quite unreliable because of the variability inherent in small samples. On the whole, then, we have here no real evidence that replacements were any more or any less able to resist psychiatric departure in the ETO experience.

Among the many factors tested for their possible influence on the rate of psychiatric breakdown only the following, then, appear to be associated:

Component of the A.U.S. - National Guard troops broke down most often, Regular Army least often.

Level of infantry training - The better trained less often broke down.

History of psychiatric breakdown prior to EC - Those with prior breakdowns more often broke down in combat.

Courts-martial convictions for AWOL prior to EC - Men with such convictions more often broke down.

The possible influence of the various sociological factors upon the chance of psychiatric breakdown in combat was also studied on the basis of

Table 48

Distribution of Subsamples of ETO Originals and Replacements as to Reason for Final Departure From Study Companies

Cause of departure	Originals	Replacements
Battle casualty	160	143
Disease and nonbattle injury Psychiatric	17	16
Other	28	35
Other	22	19
In unit on V-E Day	31	45
Total	258	258

Table 49

Number of First Psychiatric Departures at Various Intervals
Along Scale of Company Combat Days,
ETO Subsamples of Comparable Originals and Replacements,
and Average Departure Rates

Company days	Originals	Replacements	Total
0-4	2	5	7
5-9	5	3	8
10-14	7	8	15
15-19	4	3	7
20-24	7	0	7
25-29	1	1	2
30-34	1	0	1
35-39	1	2	3
40 or more	0	2	2
Total	28	24	52
Aggregate man-days of exposure	6,130	6,592	12,722
Average number of departures per 1,000 man-days	<u>4.57</u>	<u>3.64</u>	<u>4.09</u>

conventional admission rates for the calendar period EC to LC. Again we found that National Guard troops had a significantly higher chance of breakdown and that men with courts-martial convictions for AWOL also broke down more often, but we did not find a significant association with the level of infantry training and we did note a possible association with individual awards and decorations. The details on the latter two factors are exhibited in tables 50 and 51; awards and decorations were not studied earlier on the basis of company casualty days.

In addition, appendix XI contains further information on the relation between the chance of psychiatric breakdown in one period of observation with that in another, on the likelihood of VA outpatient treatment among men who endured exceptionally prolonged stress, and on the prevalence of VA compensation for psychiatric disability.

Another problem of interest in the study of psychiatric attrition is the apparent influence of a prior NP breakdown upon the likelihood of a subsequent one. Table 52 contains the data for comparing resistance to first psychiatric breakdown with resistance to the second. ETO men (both originals and replacements) who returned to duty after a first psychiatric breakdown appear to have resisted a second breakdown at least as well as they did their first. Of 40 ETO originals with a first psychiatric departure who were returned to high-risk duty, table 52 shows that 15 resisted a second breakdown at least as long as they did their first; 12 broke down sooner the second time than they did the first; for the remaining 13 our information must be regarded as noncommittal in that they left combat without a second breakdown before they had sufficient opportunity to demonstrate their resistance to a second breakdown. In sum, then, of 27 men for whom sufficient information is available, 15 did at least as well after their first breakdown as before.

Table 50

Psychiatric, WIA, and Total Admissions per 1,000 Men per Day,
by Infantry Training, Separately for ETO Originals,
ETO Replacements, and MTO

Infantry training	Number of men	Months of exposure	Number of admissions			Admissions per 1000 men per day		
			P	WIA	Total	P	WIA	Total
<u>ETO Originals</u>								
Infantry unit training	348	1,060.0	59	191	316	1.86	6.01	9.94
"Postgraduate" training	643	2,340.0	106	424	640	1.51	6.04	9.12
Total	991	3,400.0	165	615	956	1.62	6.03	9.37
P						>.05	>.05	>.05
<u>ETO Replacements</u>								
Infantry basic only	135	426.0	21	84	137	1.64	6.57	10.72
Infantry unit training	345	1,222.0	82	202	354	2.24	5.51	9.66
Total	480	1,648.0	103	286	491	2.08	5.78	9.93
P						>.05	>.05	>.05
<u>MTO</u>								
Infantry unit training	677	5,750.0	153	356	968	.89	2.06	5.61
"Post-graduate" training	322	2,895.0	57	183	501	.66	2.11	5.77
Total	999	8,645.0	210	539	1,469	.81	2.08	5.66
P						.05	>.05	>.05

Table 51

Psychiatric, WIA, and Total Admissions per 1,000 Men per Day,
by Awards, Separately for ETO Originals, ETO Replacements, and MTO

Awards	Number of men	Months of exposure	Number of admissions			Admissions per 1000 men per day		
			P	WIA	Total	P	WIA	Total
<u>ETO Originals</u>								
No award	954	3,151.0	157	577	904	1.66	6.10	9.56
Award	46	267.0	9	39	57	1.12	4.87	7.12
Total	1,000	3,418.0	166	616	961	1.62	6.01	9.37
P						>.05	>.05	.02
<u>ETO Replacements</u>								
No award	487	1,657.3	100	288	496	2.01	5.79	9.98
Award	13	79.0	3	12	16	1.27	5.06	6.75
Total	500	1,736.3	103	300	512	1.98	5.76	9.83
P						>.05	>.05	>.05
<u>MTO</u>								
No award	924	7,743.3	203	484	1,343	.87	2.08	5.78
Award	76	922.3	7	56	127	.25	2.02	4.59
Total	1,000	8,665.7	210	540	1,470	.81	2.08	5.65
P						<.001	>.05	.006
Combined P						.003	>.05	.001

Table 52

Comparison Between Resistance to First Psychiatric Breakdown and Resistance to Second Psychiatric Breakdown Among Men Who Returned to High-Risk Duty After a First Breakdown, by Theater

Comparison between intervals	Cases with second P	Cases with no second P	Total
<u>ETO Originals</u>			
First interval longer than second	12	13	25
Second interval longer than first	4	10	14
First interval equal to second interval		1	1
Total	16	24	40
<u>ETO Replacements</u>			
First interval longer than second	4	5	9
Second interval longer than first		8	8
First interval equal to second interval	1	2	3
Total	5	15	20
<u>MTO</u>			
First interval longer than second	12	4	16
Second interval longer than first	1	7	8
First interval equal to second interval		1	1
Total	13	12	25

Among ETO replacements we find a similar situation, with 11 of 15 men for whom the facts are complete showing resistance to a second P at least as good as to their first.

For MTO men the picture is somewhat different. Here the resistance to second breakdown was somewhat poorer than to first breakdown, but not significantly so. Of 21 men for whom sufficient information is available, 12 fared worse after being returned to duty than before.

One might be tempted to conclude from the combined ETO and MTO data that men who returned to high-risk duty after a psychiatric departure had lost none of their capacity to resist combat stress, were it not for the peculiar nature of the ETO experience after about 35 company days of combat. Since the second exposure was of necessity after the first, in the ETO sample it was more likely to fall into that region of calendar time during which the ratio of psychiatric to battle casualties was falling. For this reason the ETO data may be invalid. Since the MTO observations are too few to stand alone, the question of interest cannot be settled by this study.

Table 53 gives the final departure pattern of the men covered in table 52. Five of the 85 men were subsequently killed, 8 wounded, and one captured, a total of 14 battle casualties; two of the battle casualties would have been permitted return to combat duty, but the men failed to return because of their psychiatric status. One man went AWOL, and two had self-inflicted wounds. Two were dropped from high-risk jobs without leaving the study companies. Fifteen, in addition to the two with self-inflicted wounds, departed for disease or nonbattle injury, and in two of these return to combat duty would have seemed possible except for the presence of a psychiatric

Table 53

Distribution of Group With Return to High-Risk Combat
After Psychiatric Breakdown, by Cause of Final Departure

Cause of final departure	Originals		ETO replacements	Total ETO
	MTO	ETO		
Battle casualty	4	4	6	10
Disease and injury				
Psychiatric	13	12	4	16
Other	4	9	4	13
Other	3	6	2	8
Still in unit on V-E Day	1	9	4	13
Total	25	40	20	60

condition. Although the rates are very unstable for the small sample returned to duty after their first psychiatric departure, it is relevant to inquire into their battle casualty experience on a rate basis. In terms of final departures we have for these small subgroups, in contrast to the sample as a whole, the following:

Origin of sample	Men returned to high-risk combat after first breakdown				Total sample	
	Man-days of company combat	Final battle casualty departures		Man-days of company combat	Final battle casualty departures	
		Number	Rate*		Number	Rate*
MTO originals	643	4	6.2	26,411	394	14.9
ETO originals	591	4	6.8	22,598	557	24.6
ETO replacements	289	6	20.8	11,855	280	23.6
ETO total	880	10	11.4	34,453	837	24.3

*Departures per 1,000 man-days of exposure to company combat.

If we compare the MTO rate of 6.2 for men returning to duty after their first psychiatric breakdown with the average rate of 14.9 for the entire MTO experience, we find that the difference is a statistically insignificant one ($P > .05$), but not so for the ETO material. Even if the ETO comparison is made on the basis of the original men alone, it yields a large and statistically significant discrepancy ($P < .01$). If we combine both the ETO and MTO material we can have little doubt that the two sets of experience are not homogeneous. In sum, then, in men who returned to high-risk duty after a first psychiatric breakdown, final departure as a battle casualty

occurred at a rate which is about 40 to 50 percent of that for the total experience of all men in the sample, suggesting that they were exposing themselves to less risk in the second period, and were presumably much less effective soldiers than they may have been before.

Finally, since our analysis of resistance to first breakdown fails to differentiate between men who returned to high-risk combat in study companies and men who failed to do so, it is pertinent to ask whether the latter eventually returned to combat duty in other units excluded from the study sample. The answer is in the negative. Among 218 men who failed to return to high-risk duty in the study companies, one returned to a lower risk category in the study companies and two saw combat duty in other units. About 25 percent saw no further duty in Europe, and about 75 percent saw further duty in Europe in noncombat units.

E. Estimation of the Distribution of Resistance to Combat Stress

The assumptions underlying the estimation of the distribution of resistance have already been discussed and need not be repeated here. The distribution has previously been obtained (cf. table 30) by life-table procedures on the basis of the MTO experience. The limitations on the estimates are primarily two:

- (1) Despite the size of the MTO sample, the extreme observation on the stress scale is only 152 days, and only 20 men reached 100 or more days on this scale, which corresponds to very nearly the median of the distribution of resistance; and
- (2) there are factors other than resistance of the individual governing his location on the stress scale, e. g., the experience and sophistication of the medical officer capable of evacuating him.

Figure 22 presents the estimated distribution obtained in table 30. It has some central tendency, it will be noted, about 40 percent of the cases falling in the region 21-80 days, and a long tail stretching out well beyond the region of World War II exposure as estimated here. The distribution has the appearance of having been truncated at the origin, as though it were entirely lacking, say, men with the least resistance in the population. If we conceive of the stress scale used here as itself the upper region of a more comprehensive scale of stress, and extending to the left of the origin shown here, then it seems reasonable to suppose that a series of screening procedures has eliminated the bulk of those with lowest resistance.

The long tail of the distribution is the result of an arbitrary choice among various possible projections after day 80. The medium projection employed here (cf. figure 20) rests on a very slowly rising rate; it moves from about 13 at day 120 to about 16 at day 400. A more rapidly rising rate after day 80 would shorten the tail in some commensurate fashion and give the distribution a little more central tendency. However, so much of the experience is defined by day 80 that no projection of the observed trend over days 1-80 will greatly affect the general contour of the distribution. Nevertheless, in view of the extrapolated nature of the distribution after day 80, it is perhaps pointless to discuss its precise form and preferable to regard it as merely undefined by this experience. It is, of course, reasonably defined over a sufficient segment of the stress scale of actual interest to reject entirely the notion that breakdown is a pure chance event, unrelated to the characteristics and experience of the individual, and to the history of the unit to which he belongs. If breakdown were a purely chance event the rate should be invariant, except for sampling error, over the range of stress, and in that event a distribution of men according to the point on

the stress scale at which they broke down would have its peak at the origin and decrease steadily thereafter. A sufficient test of this hypothesis, namely, that breakdown is a purely random event, is made from the data of table 3; if the rate of breakdown does not vary significantly over the observed region of stress (1-80 days) the hypothesis must be entertained, otherwise not. As we have seen, the rates of table 3 vary quite significantly; a test of rates in region 1-80 days yields $\chi^2 = 27.0$ on 4 degrees of freedom, for which $P < .001$. It seems plain, therefore, that psychiatric breakdown in combat cannot be regarded as a chance event.

These data will not prove that "every man has his breaking point"; a dictum of such universal scope is hardly susceptible of proof in any case, but the direct evidence here is that at least 50 percent of the men assigned to high-risk jobs in rifle companies in World War II had their breaking point, and the data certainly suggest that the proportion is far larger.

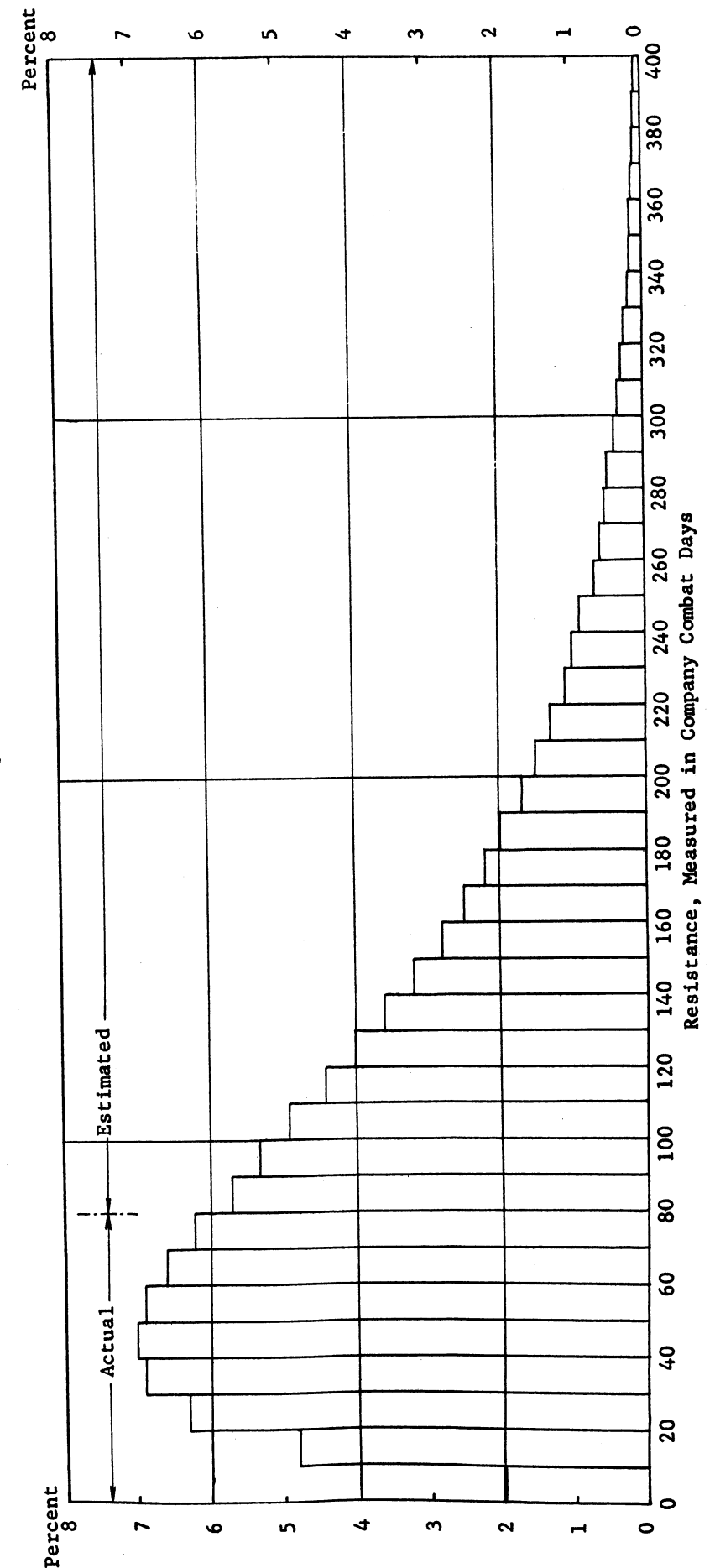
F. Unit Variation in Psychiatric Attrition and Return to Duty

The sampling plan for MTO provided a minimum of three companies, or 150 men from each regiment chosen, whereas none of the regiments in the ETO sample of originals is represented by more than 3 companies, or 30 men. The study of variation in psychiatric attrition at the regimental level, therefore, is confined to the MTO sample. Appendix I contains a list of the regiments used.

Table 54 exhibits the MTO regimental data, together with divisional averages, expressed in terms of NP departures and all battle casualty departures. The counts of departures are complete and without regard to the order in which they occurred. The variation exhibited in table 54 is statistically quite significant, both as to regiments and divisions.*

*See following page for footnote.

Figure 22. Percentage Distribution of Men Placed in High-Risk Assignments as to Resistance to Psychiatric Breakdown Measured by Company Combat Days, MTO Sample



Footnote for page 133

The variable divisional averages raise some question as to their effects upon the analysis, especially since one division (the 45th) with 40 percent of the sample of men, accounts for 103, or 68 percent, of the first psychiatric departures. Analysis of the stress experience shows that the increase in the rate of breakdown is wholly dependent upon the 45th Division sample. The implications of these facts have been explored, and it seems established that:

- (1) The 3rd and 34th Divisions contributed an abnormally low number of NP casualties, by whatever standards one may choose to employ.
- (2) Early in the experience of the 600 men drawn from companies in divisions other than the 45th Infantry companies, 108 were assigned to other combat units (not in the 45th), and were lost from the stress analysis here because their retention would have required the study of the daily combat experience of many additional companies. Study of their experience after leaving combat shows that 31, or 29 percent, had later breakdowns, and suggests that, to some extent, the removal of the 108 men from the 600 may be regarded as a screening process which left a group with less than average susceptibility to breakdown.
- (3) By combat day 60 the 400 men from the 45th had dwindled to 52; of the remaining 600 in the sample at the start, only 62 were in combat on day 60. Analysis of these men shows that 18 from the 45th Infantry departed on psychiatric grounds in contrast to only 3 from the other divisions, although departures for battle casualties were the same, 11 in each group. However, the 45th released from extreme stress, through such administrative channels as change to low-risk MOS, reassignment to noncombat units, individual rotation, and assignment to Z/I training cadre, only 14 men in contrast to 33 so released by the other divisions. If these be added to the NP casualties, yielding 32 for the 45th and 36 for the other divisions, they are very nearly proportional to the numbers of men exposed on day 60. The inference is drawn that the effects of extreme stress were more often softened by administrative solutions in the 3rd, 34th, and 36th than was true in the 45th, with the result seen in the NP admissions.

On these grounds it has been concluded that the MTO sample of 1,000 men as drawn provides the only safe basis of inference.

Table 54

Variation in NP Attrition Rates of MTO Regiments and Divisions,
Based on Ratio of NP/Battle Casualty Departures

Division	Unit Regiment	Number of men in sample	Number of battle casualty departures	Total NP. departures	
				Number	Ratio to battle casualty departures
3	7	120	68	4	<u>.06</u>
	30	180	94	11	<u>.12</u>
	Total	300	162	15	<u>.09</u>
34	135	60	52	5	<u>.10</u>
36	141	60	51	8	<u>.16</u>
	142	180	136	26	<u>.19</u>
	Total	240	187	34	<u>.18</u>
45	157	120	99	22	<u>.22</u>
	179	160	134	51	<u>.38</u>
	180	120	99	42	<u>.42</u>
	Total	400	332	115	<u>.35</u>
Grand Total		1,000	733	169	<u>.23</u>

Regiments of the 3rd and 34th Divisions have low ratios of NP to battle casualty departures in contrast to regiments of the 45th. The divisional averages are .09, .10, and .35 in that order. For regiments of the 36th Division the ratios occupy a middle ground and average .18. If we undertake a parallel analysis based on NP departures per 1,000 company combat days, as shown in table 55, we find essentially the same thing. The divisional averages are 2.6, 2.6, 5.8, and 9.0. If we confine ourselves to the first psychiatric breakdown, we again find variation of a similar extent, the average divisional rates being 2.4, 2.1, 5.3, and 8.0, since in MTO return to combat after the first psychiatric departure was not at all general.

Only in the 142nd, 157th, 179th, and 180th Regiments were there enough first NP departures to permit any comparison of individual regiments as to the tendency to return psychiatric casualties to combat duty. No significant variation was found, the numbers of such departures and returns to duty being as follows:

Regiment	Number of first psychiatric departures	Number returned to high-risk combat duty in study companies
142	24	2
157	21	2
179	46	6
180	36	8
All others	25	6
Total	152	24

Table 55

Variation in NP Attrition Rates of MTO Regiments and Divisions,
Based on NP Departures per 1,000 Company Combat Days

Division	Unit		Number of men in sample	Number of company combat days	NP departures	
	Regiment				Number	Per 1,000 company days
3	7		120	2,295	4	<u>1.74</u>
	30		180	3,513	11	<u>3.13</u>
	Total		300	5,808	15	<u>2.58</u>
34	135		60	1,933	5	<u>2.59</u>
36	141		60	1,507	8	<u>5.31</u>
	142		180	4,376	26	<u>5.94</u>
	Total		240	5,883	34	<u>5.78</u>
45	157		120	4,099	22	<u>5.37</u>
	179		160	4,198	51	<u>12.15</u>
	180		120	4,490	42	<u>9.35</u>
	Total		400	12,787	115	<u>8.99</u>
Grand Total			1,000	26,411	169	<u>6.40</u>

This is not, of course, a powerful test of regimental variation in this regard, and three of the regiments were components of a single division.

The divisional totals are as follows:

Division	Number of first psychiatric departures	Number returned to high risk combat duty in study companies
3rd	14	4
34th	4	1
36th	31	3
45th	103	16
Total	152	24

G. Psychiatric Attrition and Morale

The present study was not designed to illuminate the effect of morale factors upon psychiatric attrition, but it was considered essential to the success of the questionnaire effort that certain questions in this area be asked (cf. appendix V). It seemed desirable, therefore, to examine such data as were obtained from the questionnaire to ascertain whether they might throw any light upon variation among units with respect to psychiatric attrition. The sampling plan, it will be recalled, was based on a selection of 10 men per company in ETO and 20 in MTO, and as it turns out there are, on the average, more respondents per company for the MTO than for the ETO companies, 3.3 vs. 2.2. Since the number of informants per company is usually small, their characterization of individual companies can hardly be very reliable. In any event, for questionnaire items 5 through 13, dealing with leadership and morale, companies were characterized as to the responses made on the questionnaires received from long-lasting men, and the distributions of responses were first studied to see whether they might be regarded as the output of a random process. For example, in the MTO companies, 56 percent of

the respondents characterized their company commanders as very good leaders in combat. If we divide the responses for each company in this way and make an appropriate test on the hypothesis that units do not differ as to this ratio, we find only a suggestion ($P = .045$) of such variation. For other morale questions such test probabilities are uniformly greater than .05. There does not appear, therefore, to be any real evidence that the companies are heterogeneous in these respects; in short, our information is not a useful basis for exploring the effect of morale upon psychiatric attrition.

As a check on the above argument, we chose the morale factor (evaluation of company commander as a combat leader) with the lowest probability (.045) in the above tests, and subdivided the MTO companies into four groups according to the balance of opinion, and for each obtained an appropriate rate of first psychiatric breakdown, as follows:

Opinion about company commander as leader in combat	Man-days of company combat	First psychiatric departures	
		Number	Rate*
<u>Two or more respondents</u>			
Largely poor	4,951	21	<u>4.2</u>
Mixed	13,064	84	<u>6.4</u>
Largely good	5,411	31	<u>5.7</u>
<u>Only one respondent</u>	2,345	16	<u>6.8</u>
Total	25,771	152	<u>5.9</u>

* Per 1,000 man-days of company combat.

Plainly there is no association here between the balance of opinion about the company commander and the average rate for first psychiatric breakdown.

Chapter IV

SUMMARY OF METHODS AND SPECIFIC FINDINGS

Because of the highly technical nature of much of the foregoing discussion, and the inclusion in this report of a variety of data incidental to our present purposes but of material concern to those working on allied problems, a factual summary seemed desirable at this point in the report immediately preceding any discussion of applications.

To test our notions of the tolerance men have to ground combat of the World War II type, we have adopted the approach of studying the fate of a fixed cohort of men, observing them day by day as their experience is documented in the records of the units in which they served and in their own individual personnel and medical records. The average experience of any unit, being a shifting composite of men with varying length of service in the unit, clearly provides no basis for an approach to the problem. One must be able to distinguish among men of more or less ability to stick it out in combat, and only the records of individual men will allow this. In the interests of homogeneity we confined our attention to the largest, most active theaters, namely, ETO and MTO, to rifle companies in infantry divisions, to white enlisted men of relatively few MOS designations, and to men who had not experienced combat prior to the point at which they entered the arena of our observations. In keeping with statistical principles for representative sampling, we chose our rifle companies at random from among those considered eligible by virtue of the dates divisions first entered combat, and among the men entering combat with any particular sample company, we chose at random 10 meeting the study criteria. The aggregate sample thus obtained consists of 1,000 "original" men entering combat with their units in ETO, another such

1,000 from MTO units, and 500 men who, as replacements, joined already committed ETO units. Rifleman (MOS 745) and automatic rifleman (MOS 746) contribute the majority of the sample.

In our abstracting we paid particular attention to changes in MOS, departures from and returns to the unit of assignment, cause of any such departure, and a variety of sociological characteristics of the preservice and precombat periods. For any calendar day we could thus certify that a man was or was not serving in a defined "high-risk" MOS and that he was or was not with his unit; if absent from his unit we knew why. In establishing definitions and procedures for our abstracting work we deviated as little as possible from AGO and SGO concepts; we did not redefine psychiatric departures except to include as "psychiatric by interpretation" an insignificantly small number of departures which would otherwise have been very troublesome; these are thoroughly discussed in appendix IV. We were especially concerned with the validity of the MOS information derived from the records, and by means of a supplementary questionnaire study believe we have guarded against the possibility that the apparently long-lasting men in high-risk MOS classifications were actually not carrying out the duties of those MOS designations.

We have approached unit data as our source of information on external stress. In this we have been guided by two characteristics of unit experience: time "in the line" and number of battle casualties. The parent division, regiment, battalion (MTO only), and company have all been studied so that each calendar day might be classified as a combat day or not so, depending on the facts and the definitions employed here. At the company level we have defined the combat day as one in which a battle casualty appeared in the morning report for that day, and we have also taken the number of such casualties on that day as the number appearing in the same morning report. At any given point in

calendar time, therefore, it was possible to calculate for any individual the number of (battle) stress units he had experienced as a member of that unit, whether the scale be one of division days in the line, regimental days in the line, battalion combat days, company combat days, or aggregate casualties sustained in the company. Every time a departure occurred such a calculation was made for the individual concerned.

It has been our belief that both the duration and the intensity of combat stress would be validly portrayed by indices of the type just described. The psychiatric and battle casualties occurring in battalions, divisions, and field armies have been correlated on a large scale and the average correlation coefficient of about .75 between them indicates that about half of the psychiatric casualties occur in response to the ebb and flow of sheer combat intensity. Because of the continually changing composition of any unit in combat, the accumulated effects of prior combat upon the psychiatric casualty rate of a later period are not evident in unit data. Presumably this is so because such prior influences affect a decreasing fraction of the current strength the farther back one looks for them, and are not large enough to determine a later casualty picture in any obvious way; we have had no doubt that such effects exist, but the existing evidence for them stems from the clinical study of psychiatric casualties as individuals, and has not, to our knowledge, been previously documented by statistical analysis.

Whenever individuals are entering and leaving exposure for a variety of reasons, and it is desired to abstract from the more complex pattern of individual observations a synthetic picture of, say, the experience of a cohort of fixed size continuously under observation, the actuarial device of the life-table is especially useful. It enables one to estimate, from observed rates of psychiatric breakdown, just what the aggregate experience would be in

a cohort of men exposed to no other type of attrition. From such calculations one may then judge whether the combat stress of the war appeared to be of such intensity and duration as to have become intolerable to any large fraction of the men selected for ground combat.

The various indices of combat stress defined above have been compared in order to ascertain whether any particular one appeared to contain substantially more information than the rest. These studies have utilized correlation techniques and analysis of the rate of breakdown as a function of increasing stress. The temporal interrelations among these indices may be summarized by stating that a company casualty day in the MTO experience is equivalent to 7.8 calendar days, 3.5 divisional combat days, 3.0 regimental combat days, 1.8 battalion combat days, and 2.4 battle casualties/100 company strength. For the ETO material a company combat day is equivalent to 3.6 calendar days, 3.4 divisional combat days, 3.0 regimental combat days, and 2.7 battle casualties/100 company strength. The correlation coefficients range from a low of +.73 to a high of +.98; company casualty days and company casualty counts correlate to the extent of +.89 in the ETO material and +.92 in the MTO.

When psychiatric departures were first studied in relation to departures for other reasons, and in relation to the number of men exposed to the risk of becoming psychiatric casualties, a number of important facts were brought to light:

1. In all three samples attrition proceeded at a fast, fairly even rate such that half of the men had disappeared from their units by company day 18, 75 percent by day 34, and 83 to 92 percent by day 50.

2. For every index the MTO first psychiatric departure rates rise with increasing or lengthening stress; the rate rises from a low of 3.6 first psychiatric departures per 1,000 men per company day in the interval 1 to 10 company days to 10.4 in the interval 51-80 days, after which there are too few men left to give a rate any stability.
3. ETO and MTO rates are most alike when the company day is used to index combat stress, but for every index the ETO rates either fall or fail to rise in the region of greatest (or longest) stress.
4. Study of the ETO and MTO material in relation to calendar time and to the overall strategic and tactical situation shows that the ETO pattern plainly shifts after the Battle of the Bulge, with the ratio of psychiatric to battle casualties falling steadily as V-E Day approached. The MTO pattern is much less affected by the approaching end of the war because it was substantially complete before the Battle of the Bulge.
5. Since the rate of first psychiatric departure does not increase significantly as company casualties are increased for a fixed number of company days, or as company days are increased for a fixed number of company casualties, it is concluded that the choice between them is a matter of indifference insofar as it may be based upon the amount of information encompassed by each, and that the time-oriented index does not suffer appreciably because of insensitivity to the occurrence of periodically large numbers of battle casualties.

The end of the war in Europe found 2.2 percent of the MTO sample still in their units, 20.5 percent of the ETO original sample, and 14.8 percent of the ETO replacements. In the MTO sample 12.4 percent had, however, previously been assigned to combat units outside the study sample, whereas in the ETO samples only about 1 percent were thus lost to observation. In the aggregate, then, the number of men lost to combat is 85 percent of the MTO sample, 78 percent of ETO originals, and 84 percent of ETO replacements. Of the permanent losses to combat the KIA amount to 16 percent in the MTO sample, 17 percent in the ETO originals, and 15 percent in the ETO replacements; other battle losses account for 30, 54, and 48 percent of aggregate combat losses in

the same order. Permanent losses on psychiatric grounds amount to 16 percent in the MTO sample, and 9 percent of both ETO samples. Other medical losses (nonpsychiatric disease and injury) number 14 percent in the MTO series, 12 percent in the ETO originals, and 18 percent in the ETO replacements. Non-medical losses to combat amount to 23 percent of the total MTO losses, 8 percent of ETO originals, and 6 percent of ETO replacements. The nonmedical losses among MTO originals are about equally divided between changes in MOS, re-assignments to noncombat duties, and rotation.

A gross pattern of attrition was sought on the basis of the following abridged classification of final departures as to cause:

KIA

Other battle losses

Medical losses, including psychiatric

All causes

Men who were lost from observation, as by parallel transfer to other combat units, were not regarded as losses in this analysis. When the rate of loss for each of these several types of attrition is applied in life-table fashion, to estimate the inroads upon the sample which such attrition would make if it were the only type of attrition operative, it is found that, at company combat day 60 the KIA would have amounted to 28 percent of ETO originals and 27 percent of MTO, nonbattle attrition 35 and 50 percent, respectively, all battle attrition 73 and 57 percent, and all causes 86 percent of both samples.

Departures were also studied as first, second, or third in sequence for the individual, interest attaching to the influence of reason for departure upon likelihood of return to combat, and of one departure upon the likelihood of another. It was unexpected to find that the departure rate for battle casualties fell gradually from a high point for the first departure to a low

point for the final departure. Investigation disclosed a previously unexpected underlying relationship; the probability of becoming a battle casualty declined steadily over the stress scale, and did so whether the company combat day was employed as the unit of stress or the count of company casualties. That is, even relative to other casualties occurring in the company, casualties among the cohort studied here became increasingly less frequent as combat experience progressed. The change is so great that the rate is halved in 53 company days in ETO and in 80 company days in MTO.

Reason for departure was of course found to dominate the chance of returning to combat, but the number of prior departures seemed of no particular significance. The chance that a man would return to combat following departure for WIA was found to be 40 percent in ETO, and 63 percent in MTO where there was of course a longer period of calendar time for convalescence to be completed. For psychiatric departures the chance of return to combat was 42 percent in ETO and only 18 percent in MTO, where much of the experience antedated the establishment of a strong psychiatric service. For all other medical departures the chance of return to combat was 58 percent in ETO and 83 percent in MTO.

Interrelations among the various departures were studied without finding that, given one departure for a stated reason, another was any more or less likely for the same or another reason, except where psychiatric departures are concerned. That is, for example, the chance of WIA seems independent of any prior departures unless they be on psychiatric grounds, in which event the chance of WIA is less. Also, once a psychiatric departure has occurred, and a man has returned to combat, he is much more likely to have a subsequent psychiatric departure than a man with no prior psychiatric departure. About half of the men returning to combat after a psychiatric departure did so within five days.

The rate at which battle casualties occurred in the study samples was studied in relation to the various sociological variables which figured in the abstracting but without much of interest being uncovered; the risk of becoming a battle casualty is almost uniformly high in these samples, as was intended by the structure of the sampling plan, and in no way contravenes the evidence for such important sources of variation as MOS over a wider range than our samples include, echelon, arm or service, type of combat activity, etc. A similar study was made of the rate of psychiatric departure with about the same results. It is of especial significance, in view of the design of the study, that a comparison of ETO replacements and originals, controlled as to calendar time as well as equivalent combat stress units, fails to suggest any difference between their rates for departure on psychiatric grounds. Some variation was seen, however, in several of the sociological variables studied, as follows:

1. National Guard troops broke down most rapidly, Regular Army least.
2. The better trained (in infantry tactics) broke down less rapidly than the less well trained, but only in the upper region of stress.
3. Those with psychiatric admissions prior to entering combat broke down more rapidly than those without such prior admissions.
4. Men with courts-martial convictions for AWOL prior to entering combat broke down more rapidly than other men.

An effort was made to find out whether men broke down more rapidly the second time than the first, but with inconclusive results; there is too little MTO material to be convincing, and the ETO data are biased by the approaching end of the war.

With the value of the ETO material impaired by the marked change in the strategic situation after the Battle of the Bulge, chief reliance must be placed on the MTO sample as the basis for determining whether the stress of World War II was of such magnitude as to tax the tolerance of the average man for the psychological stresses of combat. Unfortunately, even a sample of 1,000 men will not suffice to define the rate of first psychiatric departure in the upper regions of World War II stress, say beyond 80 company combat days. Hence, this region can be approached here only on the basis of extrapolation procedures of one kind or another. Three projections were made as free-hand extensions of the observed MTO rates over the range of 1-80 days, and calculations were carried through on the middle one. In actual fact, however, so much of the experience is determined by day 80 that the precise contour of the projection estimate after day 80 means very little. The medium projection was applied in life-table fashion to show what the breakdown experience of a cohort would be if no other form of attrition intervened. The cumulative number with breakdown was found to be as follows:

Company combat day	Cumulative number of men with one or more psychiatric departures among cohort of 1,000
10	20
20	68
30	131
40	200
50	270
60	338
70	404
80	466
90	523
100	576
110	625
120	669
130	709
140	744
150	776
160	805
170	830
180	852
190	872
200	889
210	904
220	917
230	928
240	938
250	947
260	954

The breaking point of the median man, according to these estimates, lies in the region of 80 to 90 company days. When these curves are decumulated the shape of the distribution of losses suggests they are the result of a cut having been made in a more symmetrical distribution, a cut which has the effect of eliminating a group of men with even less tolerance to combat than the men who, in these samples, broke down easily. If such a cut was indeed imposed, it may be construed as the selective process which eliminated certain men from their units before they could enter combat.

Estimation of the combat stress of the war is much easier and more direct. Except for rotation, which was practiced to an almost negligible extent in World War II, the man who entered combat was expected to continue serving in that unit until the unit was relieved. The question, then, resolves into one of ascertaining how long units were actually in combat in World War II. This is easily answered for the study companies, which are not representative of all rifle companies which ever entered combat in World War II. They may not, therefore, be employed to ascertain how often men in World War II were put into a situation of sufficient or sufficiently prolonged stress to tax the tolerance of the average man, but rather whether it ever occurred, and if so, with any appreciable frequency. None of the 50 MTO companies had less than 90 company days of combat, and the latter corresponds to the point at which about half of the men would be expected to have broken down. Half of the study companies logged more than 131 company days, and at this point on the stress scale an estimated 70 percent of men will have broken down. An estimate developed for all rifle companies ever committed in MTO suggests that half logged 85 or more days of company combat as here defined; by day 85 on the company combat scale

almost half of the men would have broken down, according to the life-table calculation. The answer seems plain, then, that in MTO there were many situations into which men were put from which half or more of them would have become psychiatric casualties had so many not emerged as battle casualties or as nonpsychiatric nonbattle casualties.

Chapter V

APPLICATION OF FINDINGS TO PROBLEM OF ROTATION FROM GROUND COMBAT

A rotation policy constitutes one element of any plan for the efficient utilization of combat personnel, and all such plans have as their central purpose the maintenance or improvement of combat efficiency at the unit level. Determination of the desirability of a particular rotation policy involves considerations far beyond the scope of this study, and it is not our purpose to base any general argument for rotation policies upon the data presented here. However, our findings do bear upon both the desirability of plans for rotating individuals and the specific formulation of such plans.

Findings which support the desirability of plans for rotating individuals out of combat after a fixed tour are the following:

1. The stress of World War II ground combat was such as to exceed the breaking point of a significant proportion of the men entering such combat; were it not for the intervention of other forms of attrition one might expect, of the men entering high-risk infantry combat, not 10 to 15 percent, but perhaps 50 percent or more to break down psychologically in a long campaign.
2. The chance of psychiatric breakdown per unit of stress is an increasing function of time; that is, the probability of breakdown in any week will give way to an even higher probability in succeeding weeks.
3. The incidence of battle casualties per unit of stress is a declining function of time.
4. The questionnaires returned by several hundred long-lasting men contain information about their opinions and attitudes, and this information is very strongly to the effect that the combat infantryman considers individual rotation quite necessary.

If the stress of ground combat were not usually such as to tax the resistance of many men, then one might assume that the combat efficiency of the individual could be well maintained over the combat period, but our contrary finding is inconsistent with this notion, we believe, and suggests that it is more reasonable to regard men as expending the substance of their resistance. Moreover, the fact that the chance of breakdown is an increasing function of time can mean only that the proportion of men who are on the downgrade at any one time also increases. How large it is on the average we cannot determine from these data, but if, for example, men went downhill for about 20 combat days before they finally reached the bottom, an average breakdown rate of 7.2 or more per 1,000 men per combat day in the region of 60 or more combat days would suggest that 15 percent or more of the men of such duration of combat would be on the downgrade at any one time. We are in no position, on the basis of this study, to state at what point the majority of men would be on the downgrade. During World War II surveys²⁸ showed that fear of battle increases with length of combat, and that peak combat efficiency was reached in the interval of 4 to 5 calendar months (perhaps 30 to 60 company days) for riflemen in infantry companies. In any event, the fact that the proportion of down-graders is on the increase, at least after a certain point on the stress scale, seems to us to point to the desirability of rotating such men out of combat and of replacing them with men whose expected contribution is greater, from a purely logistic point of view.

The fact that the battle casualty rate is a decreasing function of time is, as we have noted, consistent with at least two quite opposite interpretations: (1) That men learn to protect themselves against enemy fire without necessarily reducing their combat efficiency; and (2) that men learn

to protect themselves in part by being less aggressive and, in consequence, less effective. On the basis of his World War II observations Marshall¹⁹ has written "that a commander of infantry will be well advised to believe that when he engages the enemy not more than one quarter of his men will ever strike a real blow unless they are compelled by almost overpowering circumstances or unless all junior leaders constantly 'ride herd' on troops with the specific mission of increasing their fire. The 25 percent estimate stands even for well trained and campaign seasoned troops. I mean that 75 percent will not fire or will not persist in firing against the enemy and his works. These men may face the danger but they will not fight." Our data show that the probability that a man will become a battle casualty declines about 50 percent over the range of stress studied here, and it is tempting to consider that this decline is at least in part a reflection of the curve of declining efficiency. If so, we must still recognize that other factors are probably at work at the low end of the stress scale, for the evidence from World War II surveys by the Army Information and Education Service is that the new replacement gains in efficiency for several months before he begins to fail, whereas our battle casualty rates are at their peak at the outset and fall off at about a constant rate. It would not be difficult to establish a model combining the effects of both learning protection and wearing down, and which would yield such a decline in casualty incidence.

Finally, our questionnaire returns leave no doubt as to the opinions of long-lasting World War II veterans of rifle companies. As appendix XII shows, they often have strong feelings about rotation, believe firmly in individual rotation, and favor a fixed tour of some number of company days, perhaps in the region of 180-240 days of regimental combat.

The chief contribution of the present study to determination of rotation policy lies in the area of calculating costs of particular policies under specified conditions. For the particular samples studied here it is easy, in retrospect, to calculate the cost of any policy we might propose. The remaining curves of figure 10 provide all the necessary information. These curves have been replotted here in figures 23-24 against the ETO and MTO stress scales for company combat days and regimental combat days. If, for example, we pick 180 and 240 regimental combat days (60 and 80 company combat days in each sample) for the estimation of costs, we find the following:

Regimental combat days	Percentage remaining	
	ETO	MTO
180	12.8	13.5
240	6.5	6.9

That is, under a 180-day policy for high-risk infantry personnel, one would be forced to replace about 13 percent under the rotation policy, and under a 240-day policy about 7 percent. It is interesting to compare these estimates with those developed¹ during World War II, with the aid of Frank A. Weck, on the basis of unit data then available. The comparison, which concerns MTO, is as follows:

Tour, in regimental combat days	Costs, in MTO	
	1944 study, rifle battalions ²	Present study, high-risk MOS
180	11	13.5
210	7	9.5
240	5	6.9

These independent estimates, being for somewhat different groups of men, are by no means identical, but they are of the same order of magnitude.

It is all very well to estimate costs in retrospect; to establish a tour of duty one must have a workable estimate before the fact. That the

Figure 23. Estimated Survivors Among MTO Originals, by Company Combat Day

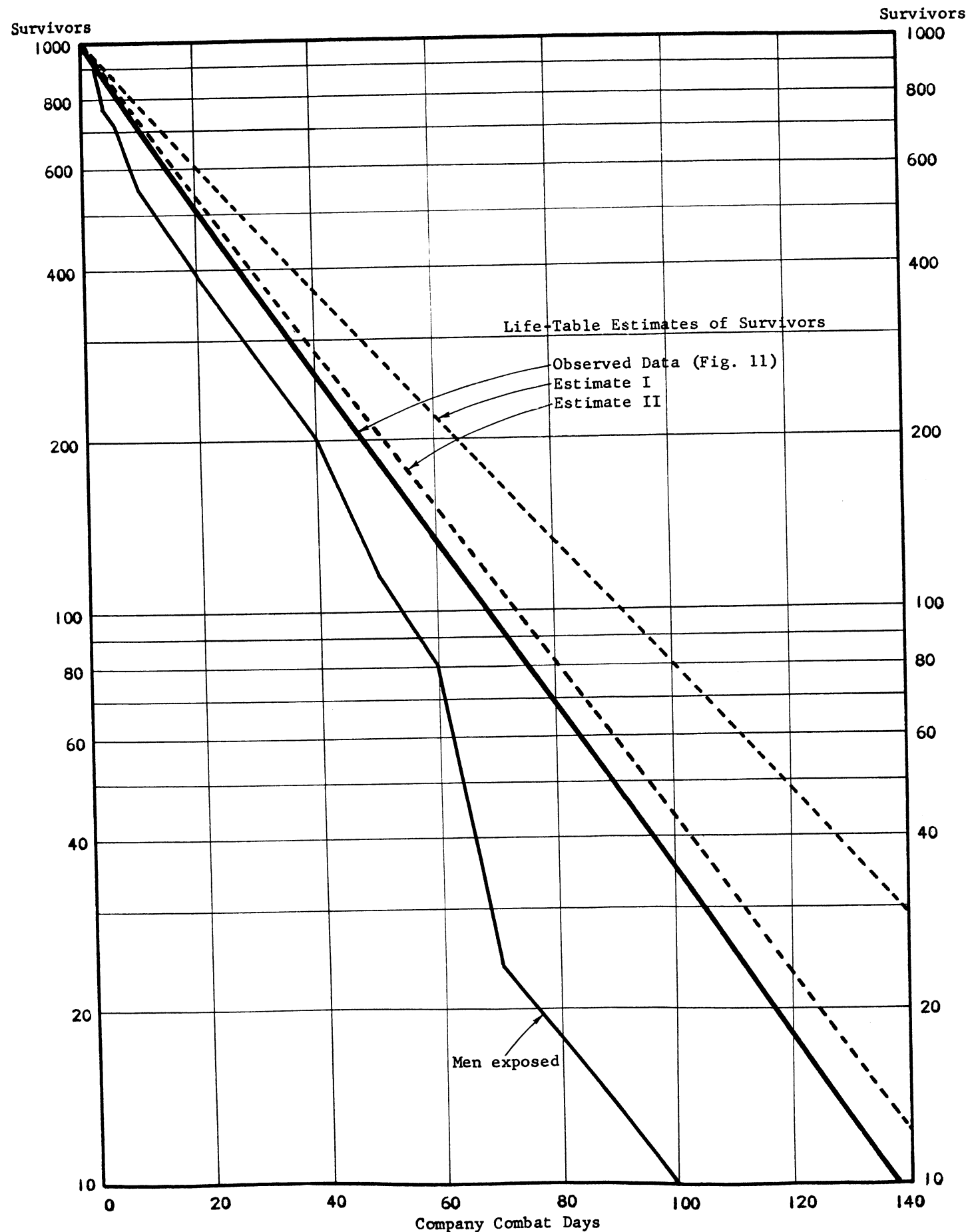
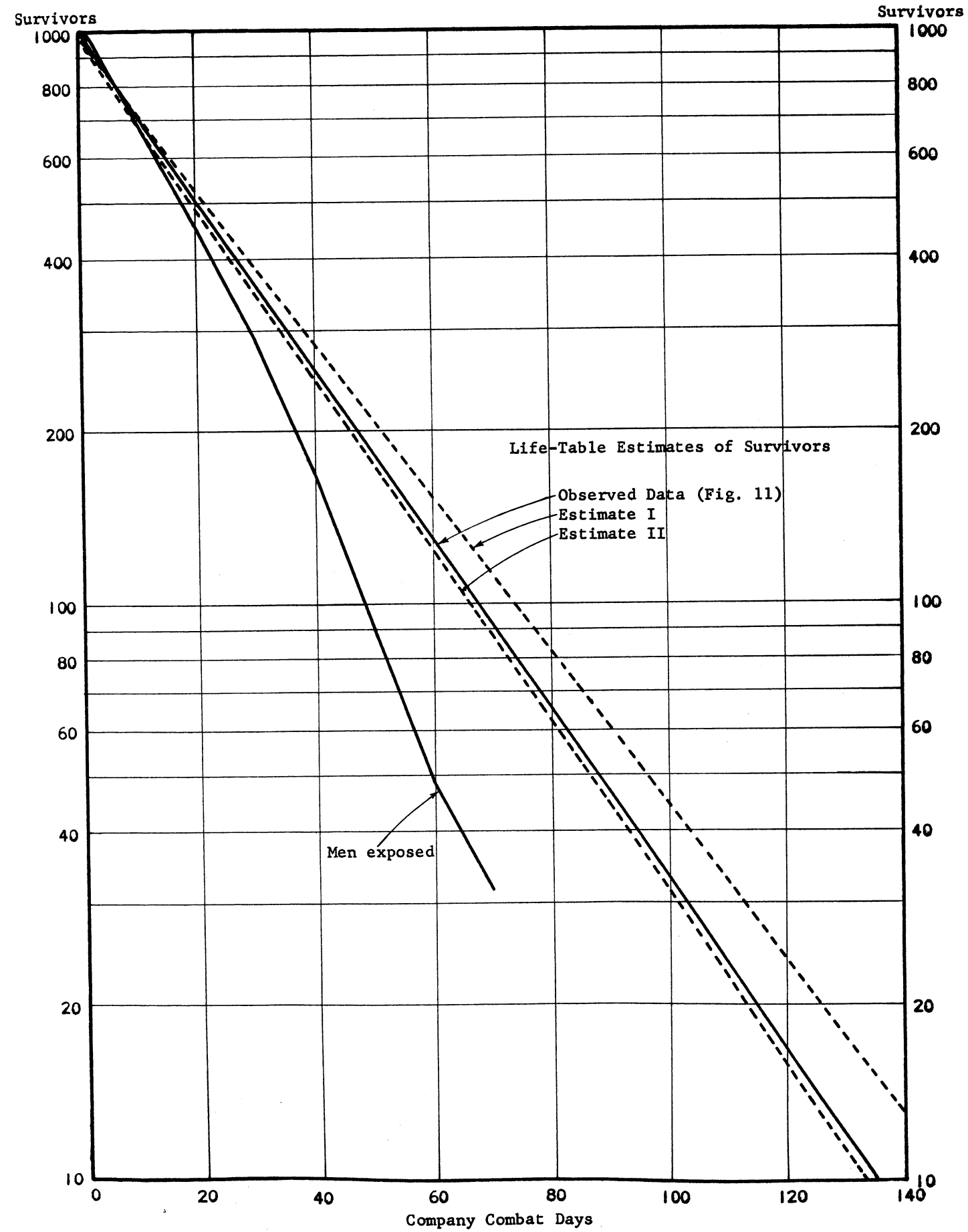


Figure 24. Estimated Survivors Among ETO Originals, by Company Combat Day



1944 estimates are of the same order of magnitude as those obtained here is evidence that fairly accurate estimates can be made, and it is of interest to see, with the present data, how such estimates might be made simply, fairly accurately, and in advance. As figures 23-24 show, attrition is likely to occur at a reasonably constant rate over the entire stress range, so that all one needs is a good basis for estimating the net attrition rate to calculate the cost of any policy. The necessary ingredients for the calculation are as follows, separately for battle and nonbattle casualties:

1. Gross departure rate: For battle casualties, this is equivalent to medical admissions + otherwise uncounted KIA + the MIA and POW; for nonbattle casualties this is equivalent to medical admissions. If only divisional averages are available, there is also need for factors with which to convert these averages into appropriate rates for high-risk personnel.
2. Rate of return to combat on part of men who do depart.
3. Average period of absence for men who depart and then return to combat.

The present study provides information on each of these elements. As a first approximation, we have taken our gross departure rates and converted them to net departure rates on the basis of observed rates of return, and have assumed the average period of absence to be zero. Plainly, this is equivalent to underestimating the net departure rate, so that our resulting cost estimates will be biased upwards. Figures 23-24 show these first approximations as estimate I. Both seem acceptable for operating purposes; they do lie above the curve of survivors calculated by life-table methods, but not excessively so. We may illustrate the derivation of these estimates on the basis of the ETO data, as follows:

Statistic	Cause of departure		
	Battle	Nonbattle	Total
Total company days of stress	22,598	22,598	22,598
Departures	818	354	1,172
Departure rates*	36.20	15.67	51.87
Percentage returned to combat**	33	60	-
Net departure rates*	24.25	6.27	30.52

* Departures per 1,000 company combat days.

** Observed values were used for MTO, but ETO values were increased to allow for the influence of the end of the war upon returns to duty.

If we take the net attrition rate of 30.52 per 1,000 per company day of stress and apply it successively to a cohort of 1,000 men entering combat, we obtain estimate I for ETO. Now it is evident that the approximation may be made as exact as one pleases, but at the cost of an increasingly elaborate calculation which would need to be revised each time there was a change in any element of it. Of course, if one visualizes a centralized control over rotation policy at a high echelon having modern electronic computing devices, this difficulty would disappear. If we define our system in the most general way we have the following elements:

1. A set of fixed loss rates R_p , $p = 1, \dots, K$ where K represents as many different categories of attrition as one might wish to have; at a minimum one needs two, battle and nonbattle, but it would be preferable to distinguish between nonbattle injury and disease, since the return-to-duty curves³ are so very different, and some might prefer to subdivide battle casualties, etc.

2. A set of returned-to-duty curves showing returns to duty from each cause of attrition with increasing time from departure.

Then the basic relationship of interest may be expressed as follows:

$$L_x = L_{x-1} \left(1 - \sum_{p=1}^k R_p\right) + \sum_{p=1}^k \sum_{j=1}^x R_p L_j D_{pi}$$

where $i = (x-j+1)$, j is the time or stress scale, and x a point or interval on the stress scale.

In this expression

L_x represents the number exposed to loss at beginning of interval x

L_{x-1} the number exposed to loss at the beginning of the previous interval

$\sum_{p=1}^k R_p$ the sum of the k fixed loss rates already defined

$\sum_{p=1}^k \sum_{j=1}^x R_p L_j D_{pi}$ the correction term for men returned to duty from previous departures. There are $k \times x$ different sets of losses, but each one returns only a subset given by the proportion D_{pi} . Note that D_{pi} is specific to the departure rate, and the i is fixed so that it will properly describe the interval in which men were lost.

From an exact expression of this nature rather precise estimates might be made, and these would not be expensive either by machine methods or if other labor-saving techniques were devised, but we have felt that it would be entirely adequate either to ignore the fact that there is a delay in return to duty or to allow for it in an approximate way by reducing slightly the rate at which men return to duty. We reduced the average percentage returned to duty

by 10 percent for both battle and nonbattle casualties, and in this way derived estimate II shown on figures 23-24. That is, for ETO and MTO originals the following changes were made in returned-to-duty percentages:

	Observed		Adjusted downward 10 percent	
	ETO	MTO	ETO	MTO
Battle casualty	33	45	30	41
Nonbattle casualty	60	72	54	65

which produced average net permanent loss rates of 32.5 and 28.2 for ETO and MTO, respectively, on the basis of 1,000 men exposed on a single company combat day.

Routine statistics are not kept on merely the high-risk portion of rifle companies, or indeed even upon rifle companies themselves, and, therefore, one may legitimately ask how such rates may be obtained from those more generally available. Certain relationships provide a clue. The average WIA rate for ETO infantry divisions was 2.32/1,000/ calendar day³ and in the ETO divisions studied here the average rate for the period when the original sample was actually exposed was even greater, 3.05. The equivalent rate for the high-risk sample, 26.46/1,000/company combat day, reduces to 7.3/1,000/ calendar day, or 2.4 times the average divisional rate. In parallel fashion we find the average divisional nonbattle rate to have been 2.5/1,000/calendar day in comparison with 4.3 observed for the high-risk sample. Further, we may convert WIA rates into total battle casualty rates by multiplying the former by an appropriate factor, about 1.4 in the ETO and MTO experience studied here and in fact for all ETO infantry divisions.³ In addition, one needs estimates of the proportion of WIA and nonbattle admissions returned to duty; for planning purposes these must be regarded as variables, but the values they take here are especially relevant. For the two samples of original men the best fit was obtained in figures 23-24 with the following factors of

the preceding paragraph, which contain a 10 percent allowance for the fact that return to combat duty was not always immediate:

Sample	Percentage returning to combat duty, by cause of departure	
	Battle	Nonbattle
ETO	30	54
MTO	41	65

All the factors required for estimating, in advance, the costs of alternative rotation policies for high-risk MOS in infantry companies, as defined in this study, may then be listed as follows:

Symbol	Description	Source of data
X ₁	Average divisional WIA per 1,000 per day	Battle plans
X ₂	Average divisional nonbattle admissions per 1,000 per day	Battle plans
k ₁	Average factor for converting WIA to total battle casualties	This study plus World War II summary ^{1,3} (1.37 for ETO)
P ₁	Proportion of battle casualties permanently lost, with allowance for delay in return to duty	This study: ETO 70 percent MTO 59 percent
P ₂	Proportion of nonbattle casualties permanently lost, with allowance for delay in return to duty	This study: ETO 46 percent MTO 35 percent
t ₁	Factor for multiplying average divisional battle rate to get that for high-risk* MOS in letter company	This study: ETO sample, 2.39
t ₂	Factor for multiplying average divisional nonbattle rate to get that for high-risk* MOS in infantry letter company	This study: ETO sample, 1.71

*In the sense used in this study only.

Then if we define our net attrition rate for high-risk infantry as R, we find it easily as

$$R = X_1 \cdot k_1 \cdot p_1 \cdot t_1 + X_2 \cdot p_2 \cdot t_2$$

where X_1 and X_2 are expressed in appropriate units, say departures per 1,000 man-calendar-days, and the relative cost of a rotation policy for high-risk MCS calling for rotation on day x is found as L_x where

$$L_x = (1-R)^x$$

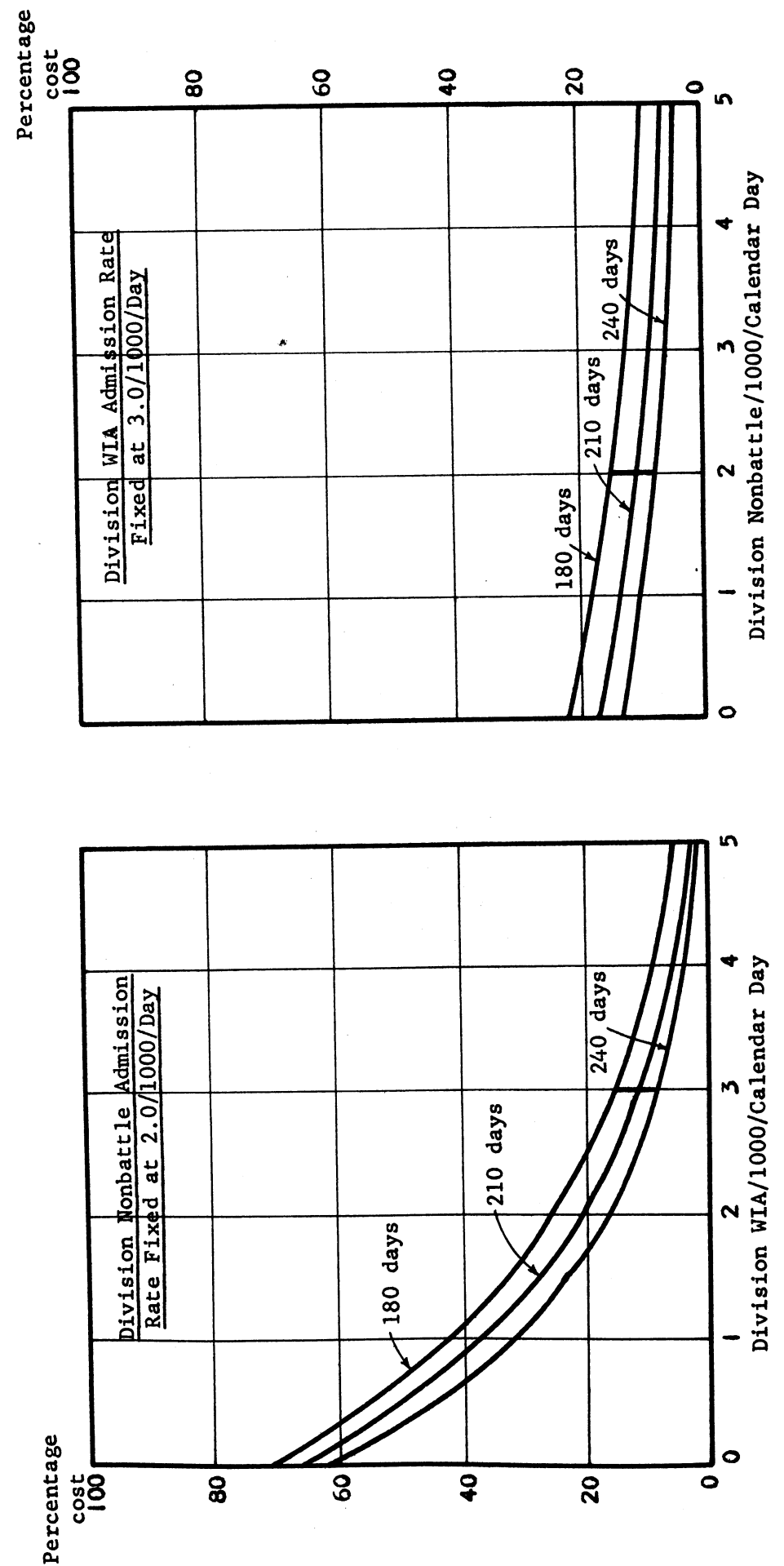
Using the average values of this study we find that

$$R = 2.29X_1 + 0.79X_2$$

and figure 25 has been drawn to illustrate the effect of certain variations in X_1 and X_2 for evacuation policies effective at regimental day 180, 210, and 240. A convenience in estimation arises from the fact that these lines are straight on semi-log paper. The average WIA rate of 3.0/1,000/calendar day, and the average nonbattle rate of 2.0/1,000/calendar day are close to the observed averages for the entire set of divisions used in the ETO sample, appropriately weighted to make the divisional experience represent the time when the study sample was part of it.

The cost of rotation, then, is an additional cost above and beyond battle casualties, and is here expressed as a percentage of the original cohort. For example, with an average divisional nonbattle admission rate of 2.0 and WIA rate of 3.0 one would expect about 8 percent of an original cohort (not of the current unit strength) to be eligible for rotation on regimental day 240, and 15 percent on day 180. In the region of average rates for both factors, it will be noted that the cost is more sensitive to changes in the WIA rate than to changes in the nonbattle rate, with the average p's and t's used here.

Figure 25. Estimated Cost of Three Rotation Policies for High-Risk Infantry Personnel Under Various Average WIA and Nonbattle Admission Rates



One could not, of course, apply these cost estimates for personnel having substantially lower attrition rates, ordinarily, than men in the so-called high-risk MOS. To do so would be to underestimate seriously the costs involved. In any practical rotation scheme one would want to distinguish two or more zones of risk, and to have separate policies applicable to each. The principles relied upon here to develop estimates for high-risk MOS will easily provide for such an extension. We do not wish to leave the impression that only the high-risk MOS groups studied here should be considered in formulating rotation policy; we do, however, maintain that they have the greatest need.

Chapter VI

INTERPRETATION AND DISCUSSION

Our principal finding is that the breaking point of the average rifleman seems to have been reached at about 88 days of company combat (days in which a company casualty occurred) as it was experienced in MTO rifle companies in World War II. This estimate provides a measure of the average psychologic strength and endurance of human beings in the combat environment of World War II. The particularity of that environment makes the scale, and hence the numerical value, arbitrary in some degree; in a losing war, or in a war fought on American soil, the same scale (company casualty days) might have different psychological meaning. The significance of the finding, then, lies not so much in the calculation of a particular biological constant for man as in the demonstration that conceptually such a constant does exist, i. e., that there is at least one stress sufficient to overtax half or more of the men selected for forward-area combat.

Moreover, every man entering infantry combat in World War II probably had, in some sense, a limit on the stress he could endure as measured by this scale. He may have broken down sooner or later than prior knowledge of this limit would have suggested, or even not at all, because of the interpolation of chance events of significance to him, for surely by no means all the relevant information is subsumed under so simple a scale. But if breakdown were merely a chance event, we would not have observed the increasing rate of breakdown among men who remained; we can only conclude that inherent characteristics of the individuals studied,

summarized here in the concept of psychological endurance or resistance, have largely determined the experience. It would appear that we are all more vulnerable than we may have wanted to admit. One of our cultural myths has been that only weaklings break down psychologically: Strong men with the will to do so can keep going indefinitely. But if a scale of stress can be found, however arbitrary, on which the men selected for infantry combat may be presumed to fall in some form of meaningful distribution, then in the abstract we must all be distributed, in some such fashion or another, along stress scales of various kinds. That is, we all have our limits for particular stresses.

The men who served in MTO rifle companies in World War II represented the cream of American manhood. The obvious "weaklings" had been screened out. Only men between the ages of 18 and 38 were called on for military service. Of these, 32 percent were rejected for medical or other reasons, including inferior educational status. The rejections for neuro-psychiatric reasons, including mental deficiency, comprise 12 percent of all men examined for service and 38 percent of all those rejected.²¹

A substantial portion of the men initially accepted was also screened out during the training period as being psychologically or otherwise unfit for combat duty. Thus, the men who were finally sent into combat were thought to be those best able to withstand the stress of combat. If the average men among them reached his breaking point in 88 days of MTO combat, it seems probable that a population average for all males would be even lower than this figure.

We have counted as psychiatric losses only those who actually broke down psychologically and were temporarily or permanently removed from combat duty. We excluded those who had developed psychiatric disorders of less severity. It seems probable that, for each man who did break down at any point of the stress scale, there were others who were near breakdown. If the average soldier broke down in 88 days we may ask: What was his condition in 44 days? In particular, what was his effectiveness as a soldier? Was he halfway along the road to breakdown, i. e., half effective as a soldier? Furthermore, our figures represent only those men who broke down psychologically with symptoms primarily referable to the central nervous system. Not included were those whose breakdown took a primarily physical form, cases which might be called psychosomatic. Presumably there were a substantial number of these. Men who went AWOL, deserted, or had self-inflicted wounds also are not included, although these too might be considered to have broken down in a somewhat analogous sense.

A psychologic breakdown as defined in our study was a psychiatric disorder considered disabling enough by the attending medical officer to have resulted in the removal of the individual from combat duty. The symptomatology of these illnesses has been presented in some detail elsewhere in our report and has been widely described in the literature²². In general, these disorders were of the neurotic reaction types, and essentially similar to those occurring in everyday civilian experience. They all clearly resulted from combat stress. Undoubtedly, something along the lines of Selye's²⁵ general adaptation syndrome is involved. For the most part, the disorders disabled the individuals only for further

combat duty. The vast majority were able to function satisfactorily in noncombat assignments. A 5-year follow-up study on men who had broken down in combat has shown that most of them were functioning in civilian life at about the same level as they did prior to military service. These men still show some symptoms of the psychologic disorders incurred in combat. It seems probable that after 5 years many of them were still disabled for combat.

It was not our purpose in the present study to investigate the nature of combat stress. We attempted only to measure its degree. The factors comprising combat stress are multiple and complex. In the physical category they include the unavailability of hot nourishing food and liquids, extremes of temperature, physical work performed, distances traveled, guns and ammunition and other loads carried, trenches dug, and, above all, the danger of death and wounding by metal shell-fragments from enemy explosives; at the interpersonal level is the complex of behavior expressing attitudes of fellow soldiers, officers, local civilians, families back home, and friends; at what might be called the social level are such matters as cultural values concerning war, duty, honor, courage, and defense of homeland.

Of outstanding importance is the factor of danger from enemy shellfire. The role of this factor appears to us to be markedly underestimated by many writers. The rate of psychological breakdown follows very closely the rate of combat casualties (killed and wounded) and under no other circumstances in military experience does the rate of breakdown begin to approach the levels reached in combat. The rates of breakdown for non-combat military service, including service in isolation, and extremes of

climate and physical hardship, such as in Burma and Alaska, are in the range of 10 to 30 per thousand per year, in comparison with about 285 for men in regimental combat.⁴ On the other hand, it cannot be concluded that breakdowns in combat occur solely as a result of danger from enemy shellfire. A counter force must be present to keep troops exposed to this danger; otherwise they would escape from it. This force is not just the fear of being shot for desertion; it seems probable that this factor was minimal. Rather, the compelling force was a complex of the interpersonal and social factors already cited which in this context represents to the soldier at least as much stress as enemy shellfire; more specifically, it is the danger of disapproval, rejection, humiliation, dishonor, etc. And it is the fact that danger of disapproval, humiliation, etc., can constitute an intolerable stress to men when coupled with danger from enemy shellfire, that provides the link between combat and everyday living. The fact that the average soldier broke down after about 88 days of MTO combat is of value as a general measure of man's psychologic endurance only insofar as it can be related to stress occurring in ordinary everyday life. And, clearly, danger comparable to that of enemy shellfire is indeed rare in everyday existence. However, danger of disapproval, humiliation, and loneliness is familiar enough to us all. The point at issue is a quantitative one; what is the degree to which these dangers effect mankind in our culture?

From the viewpoint of the armed services, the significance of these findings seem numerous. Much of what is expected of, or designed for, military personnel is influenced by the concept of the individual soldier's psychological endurance existing in the minds of officers responsible for selection, training, operations, command, supply, and discipline. If the average man can take only 88 days of MTO combat, then what will be the degree of strain imposed by such-and-such a training program? By such-and-such a system of promotion, of pay, of furloughs, of living accommodations, of work schedules? Under combat conditions, when does one think in terms of military strength (numerical, physical, and psychological) being maintained and when in terms of strength being expended? These questions are well recognized and so are the answers to many of them. The 88-day figure provides one more measure of psychologic endurance, albeit an indirect one. Clearly, it would be desirable to have other measures of psychologic endurance more directly applicable to noncombat conditions. Even in combat the figure has limited value, for it applies only to American troops in World War II in the MTO. The experience of troops in ETO in World War II, although in the beginning essentially similar to that for MTO, is nevertheless different after the liquidation of the Bulge. In any other war not only the tactical conditions but also the motivations of the troops will be different. The principle, however, remains that men do have limits on their psychologic endurance and that these are often reached in modern warfare. In any future war it may be possible to appraise the stress being imposed and to take cognizance of it in planning military operations.

A P P E N D I C E S

Appendix I

List of Infantry Units Used in Sampling Plan

A. List of 100 ETO Rifle Companies Chosen as Basis for Sampling

<u>Division</u>	<u>Date division entered combat</u>	<u>Regiment</u>	<u>Date regiment entered combat</u>	<u>Company</u>
2	7 June 1944	9	7 June 1944	C, F
		38	7 June 1944	A
4	6 June 1944	8	Unknown	B, I
		12	6 June 1944	E
		22	6 June 1944	F, I
5	13 July 1944	2	13 July 1944	G
		11	13 July 1944	B, E, I
8	7 July 1944	28	8 July 1944	E, L, I
		121	7 July 1944	F
26	7 October 1944	101	7 October 1944	B, E
		104	Unknown	I, K
28	29 July 1944	109	Unknown	C
		110	29 July 1944	B, F, G
		112	29 July 1944	I, L
29	6 June 1944	115	6 June 1944	E, F, I
		116	6 June 1944	B, E
		175	7 June 1944	A
30	15 June 1944	119	16 June 1944	C, G
35	8 July 1944	134	8 July 1944	I
		137	11 July 1944	E, L
		320	9 July 1944	A
42	24 December 1944	242	24 December 1944	F, G, K
44	24 October 1944	71	24 October 1944	E
63	22 December 1944	253	22 December 1944	B
		254	22 December 1944	E, F
		255	Unknown	A, E
78	10 December 1944	309	11 December 1944	F, K, L
		310	13 December 1944	C, G
		311	10 December 1944	C, G

<u>Division</u>	<u>Date division entered combat</u>	<u>Regiment</u>	<u>Date regiment entered combat</u>	<u>Company</u>
79	19 June 1944	313	Unknown	A, I
		314	Unknown	L
		315	Unknown	L
80	5 August 1944	317	5 August 1944	E, I
		318	10 August 1944	C, G
		319	15 August 1944	I
83	27 June 1944	329	4 July 1944	I
		330	27 June 1944	I, L
		331	28 June 1944	B, F
84	11 November 1944	333	11 November 1944	L
		334	18 November 1944	A
		335	16 November 1944	C, F
87	8 December 1944	346	11 December 1944	A
		347	8 December 1944	K
90	6 June 1944	357	10 June 1944	F, L
		358	10 June 1944	I
		359	6 June 1944	F
94	10 September 1944	301	10 September 1944	L
		302	15 September 1944	A, B
		376	17 September 1944	G
95	18 October 1944	377	18 October 1944	K
		378	18 October 1944	G, K, L
		379	18 October 1944	I, K
99	9 November 1944	393	10 November 1944	F, L
		394	14 November 1944	I
		395	9 November 1944	I
100	1 November 1944	397	5 November 1944	L
		399	1 November 1944	F
102	26 October 1944	405	26 October 1944	L
		407	31 October 1944	A, B
104	23 October 1944	414	23 October 1944	G, L
		415	23 October 1944	F

B. List of 50 MTO Rifle Companies Chosen as Basis for Sampling

<u>Division</u>	<u>Date division entered combat</u>	<u>Regiment</u>	<u>Date regiment entered combat</u>	<u>Company</u>
3	8 November 1942	7	7 November 1942	A, B, C, E, F, G
		30	8 November 1942	A, B, C, E, F, G, I, K, L
34	8 November 1942	135	8 November 1942	I, K, L
36	9 September 1943	141	9 September 1943	E, F, G
		142	9 September 1943	A, B, C, E, F, G, I, K, L
45	10 July 1943	157	10 July 1943	A, B, C, I, K, L
		179	10 July 1943	A, B, C, E, G, I, K, L
		180	10 July 1943	E, F, G, I, K, L

NATIONAL RESEARCH COUNCIL
COMMITTEE ON VETERANS MEDICAL PROBLEMS
PROJECT R-6
Tolerance to Ground Combat
Abstracting and Coding Sheet I
Card 0

NAME _____
ASN _____

I. IDENTIFICATION

1	2	3	4	5*	6*	7*	8*	9*
Case No.		Div.	RGT	Bn.	Co.			

* Done in Wash. Co. _____ EC Date _____

II. DATES		III. PRE-COMBAT HISTORY (WW II enlistment)				E. Marital Status at EAD, WW II		F. Infantry Training, WW II		G. Why demoted		H. Trials by courts-martial		I. Military occ					
A. Birth		B. EAD, WW II		C. Joined Co.		D. EC, Div.		E. EC, Regt.		F. LC, study cos.		G. Separation, WW II		H. Death		I. Left high-risk MOS			
Day Month Year		10 11 12 13 14		15 16 17 18 19		20 21 22 23 24		25* 26* 27* 28* 29*		30* 31* 32* 33* 34*		35 36 37 38 39		40 41 42 43 44		45 46 47 48 49		50* 51* 52* 53* 54*	
1 RA 2 NG 3 Inductee		Ind. or NG: 1 First 2 Second etc. 9 Ninth		0 RA or not Z/I		Years completed: 1 ≤ 4 yrs. 2 5-7 yrs. 3 8 yrs. 4 9-11 yrs. 5 12 yrs. (H.S.) 6 13-15 yrs. 7 16 yrs. (Col.) 8 > 16 yrs. 9 Unknown		1 ≥ 130. 2 110-129 3 90-109 4 60-89 5 < 60 9 Unknown		1 Single 2 Married 3 Divorced or separated 4 Widowed 9 Unknown		1 No inf. basic or unit training 2 Inf. basic only, no unit training 3 Inf. unit training ≥ 2 months in Z/I 4 3 plus at least one of: ≥ 2 months unit training overseas, Z/I maneuvers, NCO school, or expert inf. badge 9 Unknown		0 No demotion 1 Disciplinary 2 Inaptitude 3 AWOL or after AWOL 4 Own request 5 Other (specify)		0 None 1 One etc. 8 Eight or more (specify) 9 Unknown		MOS Day	
IV. COMBAT INTERVAL (EC, Div. to LC, study companies)										V. ADMISSIONS TO ARMY MEDICAL INSTALLATIONS									
Departures from company or high-risk MOS										Time Interval									
In Out Reason for departure*										Before EC, Division Combat interval LC, study cos. to Separation, WW II Since Separation, WW II									
+ Code for Reason for Departure										From To									
01 AWOL 02 Disciplinary 11 POW (record date of liberation) 12 KIA 13 WIA, IIA (must lose time) 14 MIA, not finally POW or KIA 15 WIA, IIA and POW (record date of liberation) 16 SIW 21 Psychiatric, any type (must lose time) 31 Medical other than psychiatric (must lose time) 41 Rotation as individual 42 Transferred to Z/I training cadre 43 Temporary duty at rest camp, etc. *51 MOS or duties changed to low-risk, even if unit also changed 53 Special, detached or temporary duty - no details, not rest camp, etc. 61 Assigned to another unit: combat unit 62 Cessation of hostilities: VE day or unit withdrawn from combat in ETO or MTO 71 Assigned to another unit: non-combat, for psychiatric reason, not psychiatric diagnosis; e.g. psychological inadequacy 72 Assigned to another unit: non-combat for non-psychiatric reason 73 Assigned to another unit: non-combat, reason unknown 98 Other (specify) 99 Unknown										Day Mo. Year Day Mo. Year									
VI. GRADE CHANGES IN COMBAT INTERVAL										VII. DUTY IN EUROPE: LC to VE Day		VIII. ENTIRE PERIOD OF WW II ENLISTMENT							
0 No changes Promotion: 1 To comm. off. 2 To non-comm. off. 3 Other Demotion: 4 Disciplinary 5 Inaptitude 6 On request 7 AWOL or after AWOL 8 Unknown reason 9 Prom. and dem. V Unknown										Left study companies before VE day: Duty in Europe: 0 No duty in Europe 1 Some - combat unit 2 Some - non-combat unit 3 Unknown if duty in Europe In Study Co. on VE day: *5 Unit left combat before VE day *6 Unit in combat on VE day		A. Individual Awards (2 may be coded) 0 None 1 Medal of Honor 2 Service Cross 3 Service Medal 4 Silver Star 5 Legion of Merit 6 Soldier's Medal 7 Bronze Star 9 Unknown		B. Unit Citation Unit is company of original selection 0 None 1 One etc. 8 8 or more (specify) 9 Unknown		C. Type of separation 1 CDD 2 Demobilization or conv. of gov't: ETS; not to reenlist 3 Conv. of gov't: ETS; to reenlist 4 Dishonorable 5 Unfitness, inaptitude, unsuitability 6 Dependency, hardship 7 Misconduct, fraud. entry, AWOL, civil court 8 KIA or DOW 9 Death: other 0 Other types X Conv. of gov't: not ETS (specify) V Unknown			
Notes 1. Changes in MOS will be coded in Washington 2. Record experience with 34th Division, 168th Regiment										66		67		68		69			

ON THE PARK LIBRARIES

I. IDENTIFICATION

1	2	3	4	5*	6*	7*	8*	9*	
Case No.	Div.	RGT	Bn.	Co.	* Done in Wash.			Co.	EC Date

NATIONAL RESEARCH COUNCIL
COMMITTEE ON VETERANS MEDICAL PROBLEMS
PROJECT R-
Tolerance to Ground Combat
Abstracting and Coding Sheet
Card C

NAME _____
ASN _____

II. DATES

A. Birth: Day (10-14), Month (1-12), Year (11-14)

B. EAD, WW II: Day (15-19), Month (1-12), Year (11-14)

C. Joined Co.: Day (20-24), Month (1-12), Year (11-14)

D. EC, Div.: Day (25-29), Month (1-12), Year (11-14)

E. EC, Regt.: Day (30-34), Month (1-12), Year (11-14)

F. LC, study cos.: Day (35-39), Month (1-12), Year (11-14)

G. Separation, WW II: Day (40-44), Month (1-12), Year (11-14)

H. Death: Day (45-49), Month (1-12), Year (11-14)

I. Left high-risk MOS: Day (50-54), Month (1-12), Year (11-14)

III. PRE-COMBAT HISTORY (WW II enlistment)

A. Component	B. SC	C. Education: EAD	D. AGCT	E. Marital Status at EAD, WW II	F. Infantry Training, WW II
1 RA 2 NG 3 Inductee	Ind. or NG: 1 First 2 Second etc. 9 Ninth 0 RA or not Z/I	Years completed: 1 < 4 yrs. 2 5-7 yrs. 3 8 yrs. 4 9-11 yrs. 5 12 yrs. (H.S.) 6 13-15 yrs. 7 16 yrs. (Col.) 8 > 16 yrs. 9 Unknown	1 > 130. 2 110-129 3 90-109 4 60-89 5 < 60 9 Unknown	1 Single 2 Married 3 Divorced or separated 4 Widowed 9 Unknown	1 No inf. basic or unit training 2 Inf. basic only, no unit training 3 Inf. unit training ≥ 2 months in Z/I 4 3 plus at least one of: ≥ 2 months unit training overseas, Z/I maneuvers, NCO school, or expert inf. badge 9 Unknown

4. Trials by courts-martial

0 None
1 One etc.
8 Eight or more (specify)
9 Unknown

I. Military occ.

MOS	Day

IV. COMBAT INTERVAL (EC, Div. to LC, study companies)

Departures from company or high-risk MOS		Reason for departure*
In	Out	01 AWOL 02 Disciplinary 11 POW (record date of liberation) 12 KIA 13 WIA, IIA (must lose time) 14 MIA, not finally POW or KIA 15 WIA, IIA and POW (record date of liberation) 16 SIW 21 Psychiatric, any type (must lose time) 31 Medical other than psychiatric (must lose time) 41 Rotation as individual 42 Transferred to Z/I training cadre 43 Temporary duty at rest camp, etc. *51 MOS or duties changed to low-risk, even if unit also changed 53 Special, detached or temporary duty - no details, not rest camp, etc. 61 Assigned to another unit: combat unit 62 Cessation of hostilities: VE day, unit withdrawn from combat in ETO or MTO 71 Assigned to another unit: non-combat, for psychiatric reason, not psychiatric diagnosis; e.g. psychological inadequacy 72 Assigned to another unit: non-combat for non-psychiatric reason 73 Assigned to another unit: non-combat, reason unknown 98 Other (specify) 99 Unknown

TO ARMY MEDICAL INSTALLATION

Time Interval					
From			To		
Day	Mo.	Year	Day	Mo.	Year

Notes: 1. For medical, WIA, IIA admissions; 2. For psychiatric admissions, give a record all admissions while with the

VI. GRADE CHANGES IN COMBAT INTERVAL

0 No changes

Promotion:
1 To comm. off.
2 To non-comm. off.
3 Other

Demotion:
4 Disciplinary
5 Inaptitude
6 On request
7 AWOL or after AWOL
8 Unknown reason
9 Prom. and dem.
V Unknown

VII. DUTY IN EUROPE: LC to VE Day

Left study companies before VE day:
Duty in Europe:
0 No duty in Europe
1 Some - combat unit
2 Some - non-combat unit
3 Unknown if duty in Europe

In Study Co. on VE day:
*5 Unit left combat before VE day
*6 Unit in combat on VE day

VIII. ENTIRE PERIOD OF WW II ENLISTMENT

A. Individual Awards (2 may be coded)

0 None
1 Medal of Honor
2 Service Cross
3 Service Medal
4 Silver Star
5 Legion of Merit
6 Soldier's Medal
7 Bronze Star
9 Unknown

C. Type of separation

1 CDD
2 Demobilization or conv. of gov't: ETS; not to reenlist
3 Conv. of gov't: ETS; to reenlist
4 Dishonorable
5 Unfitness, inaptitude, unsuitability
6 Dependency, hardship
7 Misconduct, fraud, entry, AWOL, civil court
8 KIA or DOW
9 Death: other
0 Other types
X Conv. of gov't: not ETS (specify)
V Unknown

USE THIS SPACE FOR ADDITIONAL INFORMATION FOR ANY OF ABOVE SECTIONS. INDICATE SECTION TO WHICH DATA REFER.

Notes 1. Changes in MOS will be coded in Washington
2. Record experience with 34th Division, 168th Regiment

I. IDENTIFICATION

1 2 3 4 5* 6* 7* 8* 9*
Case No. Div. RGT Bn. Co.

Div. _____
Rgt. _____
Bn. _____
Co. _____

NATIONAL RESEARCH COUNCIL
COMMITTEE ON VETERANS MEDICAL PROBLEMS
PROJECT R-6
Tolerance to Ground Combat
Abstracting and Coding Sheet I
Card 0

NAME _____
ASN _____

* Done in Wash. EC Date _____

II. DATES

A. Birth: Day (10-14), Month, Year
B. EAD, WW II: Day (15-19), Month, Year
C. Joined Co.: Day (20-24), Month, Year
D. EC, Div.: Day (25-29*), Month, Year
E. EC, Regt.: Day (30-34*), Month, Year
F. LC, study cos.: Day (35-39), Month, Year
G. Separation, WW II: Day (40-44), Month, Year
H. Death: Day (45-49), Month, Year
I. Left high-risk MOS: Day (50-54*), Month, Year

III. PRE-COMBAT HISTORY (WW II enlistment)

A. Component: 1 RA, 2 NG, 3 Inductee
B. SC: Ind. or NG: 1 First, 2 Second, etc., 9 Ninth; 0 RA or not Z/1
C. Education: EAD, AGCT, Years completed: 1 >= 130, 2 110-129, 3 90-109, 4 60-89, 5 < 60, 9 Unknown
E. Marital Status at EAD, WW II: 1 Single, 2 Married, 3 Divorced or separated, 4 Widowed, 9 Unknown
F. Infantry Training, WW II: 1 No inf. basic or unit training, 2 Inf. basic only, no unit training, 3 Inf. unit training >= 2 months in Z/1, 4 3 plus at least one of: >= 2 months unit training overseas, Z/1 maneuvers, NCO school, or expert inf. badge, 9 Unknown
G. Why demoted: 0 No demotion, 1 Disciplinary, 2 Inaptitude, 3 AWOL or after AWOL, 4 Own request, 5 Other (specify), 9 Unknown reason for demotion

H. Trials by courts-martial: 0 None, 1 One, etc., 8 Eight or more (specify), 9 Unknown
I. Military occupational specialties: 1. All MOS in WW II enlistment (MOS, Date: Day, Month, Year), 2. MOS's prior to EC, 3. MOS at EC, Div. (1 504, 2 603, 604, 3 605, 607, 4 651, 5 652, 6 745, 7 746, 8 812, 9 1607, 0 1812). Note: 761 is high-risk for MTO.

USE THIS SPACE FOR ADDITIONAL INFORMATION FOR ANY OF ABOVE SECTIONS. INDICATE SECTION TO WHICH DATA REFER.

IV. COMBAT INTERVAL (EC, Div. to LC, study companies)

Departures from company or high-risk MOS: In, Out, Reason for departure*
+ Code for Reason for Departure: 01 AWOL, 02 Disciplinary, 11 POW (record date of liberation), 12 KIA, 13 WIA, IIA (must lose time), 14 MIA, not finally POW or KIA, 15 WIA, IIA and POW (record date of liberation), 16 SIW, 21 Psychiatric, any type (must lose time), 31 Medical other than psychiatric (must lose time), 41 Rotation as individual, 42 Transferred to Z/1 training cadre, 43 Temporary duty at rest camp, etc., *51 MOS or duties changed to low-risk, even if unit also changed, 53 Special, detached or temporary duty - no details, not rest camp, etc., 61 Assigned to another unit: combat unit, 62 Cessation of hostilities: VE day or unit withdrawn from combat in ETO or MTO, 71 Assigned to another unit: non-combat, for psychiatric reason, not psychiatric diagnosis; e.g. psychological inadequacy, 72 Assigned to another unit: non-combat for non-psychiatric reason, 73 Assigned to another unit: non-combat, reason unknown, 98 Other (specify), 99 Unknown

V. ADMISSIONS TO ARMY MEDICAL INSTALLATIONS, WITH 1 OR MORE DAYS LOST

Time Interval: Before EC, Division; Combat interval; LC, study cos. to Separation, WW II; Since Separation, WW II. From (Day, Mo., Year) To (Day, Mo., Year). Type of admission to be recorded: Psychiatric admissions, All admissions, Psychiatric, WIA, IIA admissions, Psychiatric admissions.

VII. DUTY IN EUROPE: LC to VE Day

A. Individual Awards (2 may be coded): 0 None, 1 Medal of Honor, 2 Service Cross, 3 Service Medal, 4 Silver Star, 5 Legion of Merit, 6 Soldier's Medal, 7 Bronze Star, 9 Unknown
B. Unit Citation: Unit is company of original selection, 0 None, 1 One, etc., 8 8 or more (specify), 9 Unknown
C. Type of separation: 1 CDD, 2 Demobilization or conv. of gov't: ETS; not to reenlist, 3 Conv. of gov't: ETS; to reenlist, 4 Dishonorable, 5 Unfitness, inaptitude, unsuitability, 6 Dependency, hardship, 7 Misconduct, fraud. entry, AWOL, civil court, 8 KIA or DOW, 9 Death: other, X Conv. of gov't: not ETS (specify)

VI. GRADE CHANGES IN COMBAT INTERVAL

0 No changes
1 To comm. off.
2 To non-comm. off.
3 Other
4 Disciplinary
5 Inaptitude
6 On request
7 AWOL or after AWOL
8 Unknown reason
9 Prom. and dem.
V Unknown

VIII. ENTIRE PERIOD OF WW II ENLISTMENT

AR 615-360 II, XIII
New AR 615-361 (RR 1-1)
Some 615-365 Sec. 2 WD Cir 339
Some 615-365
XII 615-364
VIII 615-368, 615-369
V 615-362
VI, VII, IX 615-366
III, IV, XI 615-362, 615-367
Some X Some 615-365

Notes 1. Changes in MOS will be coded in Washington
2. Record experience with 34th Division, 168th Regiment

Notes: 1. For medical, WIA, IIA admissions; use only these terms
2. For psychiatric admissions, give all details
3. Record all admissions while with the 34th Division, 168th Regiment

I. IDENTIFICATION

Case No. [] [] [] [] [] [] [] [] [] []
Div. [] [] RGT [] [] Bn. [] [] Co. [] []

Div. _____
Rgt. _____
Bn. _____
Co. _____ EC Date _____

NATIONAL RESEARCH COUNCIL
COMMITTEE ON VETERANS MEDICAL PROBLEMS
PROJECT R-6
Tolerance to Ground Combat
Abstracting and Coding Sheet I
Card 6

NAME _____
ASN _____

II. DATES

A. Birth: Day [] [] Month [] [] Year [] [] [] []
B. EAD, WW II: Day [] [] Month [] [] Year [] [] [] []
C. Joined Co.: Day [] [] Month [] [] Year [] [] [] []
D. EC, Div.: Day [] [] Month [] [] Year [] [] [] []
E. EC, Regt.: Day [] [] Month [] [] Year [] [] [] []
F. LC, study cos.: Day [] [] Month [] [] Year [] [] [] []
G. Separation, WW II: Day [] [] Month [] [] Year [] [] [] []
H. Death: Day [] [] Month [] [] Year [] [] [] []
I. Left high-risk MOS: Day [] [] Month [] [] Year [] [] [] []

III. PRE-COMBAT HISTORY (WW II enlistment)

A. Component: 1 RA, 2 NG, 3 Inductee
B. SC: Ind. or NG: 1 First, 2 Second, 9 Ninth; 0 RA or not Z/I
C. Education: EAD: 1 >= 130, 2 110-129, 3 90-109, 4 60-89, 5 < 60, 9 Unknown
D. AGCT: 1 >= 130, 2 110-129, 3 90-109, 4 60-89, 5 < 60, 9 Unknown
E. Marital Status at EAD, WW II: 1 Single, 2 Married, 3 Divorced or separated, 4 Widowed, 9 Unknown
F. Infantry Training, WW II: 1 No inf. basic or unit training, 2 Inf. basic only, no unit training, 3 Inf. unit training >= 2 months in Z/I, 4 3 plus at least one of: >= 2 months unit training overseas, Z/I maneuvers, NCO school, or expert inf. badge, 9 Unknown
G. Why demoted: 0 No demotion, 1 Disciplinary, 2 Inaptitude, 3 AWOL or after AWOL, 4 Own request, 5 Other (specify), 9 Unknown reason for demotion

H. Trials by courts-martial: 0 None, 1 One, etc., 8 Eight or more (specify), 9 Unknown
I. Military occupational specialties: 1. All MOS in WW II enlistment (MOS, Date: Day, Month, Year), 2. MOS's prior to EC, 3. MOS at EC, Div. (1-9)

IV. COMBAT INTERVAL (EC, Div. to LC, study companies)

Departures from company or high-risk MOS: In, Out, Reason for departure*
+ Code for Reason for Departure: 01 AWOL, 02 Disciplinary, 11 POW (record date of liberation), 12 KIA, 13 WIA, IIA (must lose time), 14 MIA, not finally POW or KIA, 15 WIA, IIA and POW (record date of liberation), 16 SIW, 21 Psychiatric, any type (must lose time), 31 Medical other than psychiatric (must lose time), 41 Rotation as individual, 42 Transferred to Z/I training cadre, 43 Temporary duty at rest camp, etc., *51 MOS or duties changed to low-risk, even if unit also changed, 53 Special, detached or temporary duty - no details, not rest camp, etc., 61 Assigned to another unit: combat unit, 62 Cessation of hostilities: VE day, unit withdrawn from combat in ETO or MTO, 71 Assigned to another unit: non-combat, for psychiatric reason, not psychiatric diagnosis; e.g. psychological inadequacy, 72 Assigned to another unit: non-combat for non-psychiatric reason, 73 Assigned to another unit: non-combat, reason unknown, 98 Other (specify), 99 Unknown

V. ADMISSIONS TO ARMY MEDICAL INSTALLATIONS, WITH 1 OR MORE DAYS LOST

Time Interval: Before EC, Division; Combat interval; LC, study cos. to Separation, WW II; Since Separation, WW II (From, To: Day, Mo., Year)
Type of admission to be recorded: Psychiatric admissions, All admissions, Psychiatric, WIA, IIA admissions, Psychiatric admissions

USE THIS SPACE FOR ADDITIONAL INFORMATION FOR ANY OF ABOVE SECTIONS. INDICATE SECTION TO WHICH DATA REFER.

VI. GRADE CHANGES IN COMBAT INTERVAL

0 No changes
1 To comm. off.
2 To non-comm. off.
3 Other
4 Disciplinary
5 Inaptitude
6 On request
7 AWOL or after AWOL
8 Unknown reason
9 Prom. and dem.
V Unknown

VII. DUTY IN EUROPE: LC to VE day

Left study companies before VE day
Duty in Europe: 0 No duty in Europe, 1 Some - combat unit, 2 Some - non-combat unit, 3 Unknown in duty in Europe
In Study Co. VE day: *5 Unit left combat before VE day, *6 Unit in combat on VE day

VIII. ENTIRE PERIOD OF WW II ENLISTMENT

A. Individual Awards (2 may be coded): 0 None, 1 Medal of Honor, 2 Service Cross, 3 Service Medal, 4 Silver Star, 5 Legion of Merit, 6 Soldier's Medal, 7 Bronze Star, 9 Unknown
B. Unit Citation: Unit is company of original selection, 0 None, 1 One, etc. (specify), 8 8 or more, 9 Unknown
C. Type of separation: 1 CDD, 2 Demobilization or conv. of gov't: ETS; not to reenlist, 3 Conv. of gov't: ETS; to reenlist, 4 Dishonorable, 5 Unfitness, inaptitude, unsuitability, 6 Dependency, hardship, 7 Misconduct, fraud. entry, AWOL, civil court, 8 KIA or DOW, 9 Death: other, X Conv. of gov't: not ETS (specify)

Notes 1. Changes in MOS will be coded in Washington
2. Record experience with 34th Division, 168th Regiment

Notes: 1. For medical, WIA, IIA admissions; use only these terms
2. For psychiatric admissions, give all details
3. Record all admissions while with the 34th Division, 168th Regiment

CVMP R-6
Form 1 (Rev.)
March 1952

I. IDENTIFICATION

1	2	3	4	5*	6*	7*	8*	9*	
Case No.	Div.	RGT	Bn.	Co.					

Div. _____
Rgt. _____
Bn. _____
Co. _____

NATIONAL RESEARCH COUNCIL
COMMITTEE ON VETERANS MEDICAL PROBLEMS
PROJECT R-6
Tolerance and Ground Combat
Abstracting and Coding Sheet I
Card 0

NAME _____
ASN _____

* Done in Wash. EC Date _____

II. DATES

A. Birth	Day 10 11 12 13 14	Month	Year
B. EAD, WW II	15 16 17 18 19		
C. Joined Co.	20 21 22 23 24		
D. EC, Div.	25* 26* 27* 28* 29*		
E. EC, Regt.	30* 31* 32* 33* 34*		
F. LC, study cos.	35 36 37 38 39		
G. Separation, WW II	40 41 42 43 44		
H. Death	45 46 47 48 49		
I. Left high-risk MOS	50* 51* 52* 53* 54*		

USE THIS SPACE FOR ADDITIONAL INFORMATION FOR ANY OF ABOVE SECTIONS. INDICATE SECTION TO WHICH DATA REFER.

III. PRE-COMBAT HISTORY (WW II enlistment)

A. Component	B. SC	C. Education: EAD	D. AGCT	E. Marital Status at EAD, WW II	F. Infantry Training, WW II	G. Why demoted	H. Trials by courts-martial	I. Military occupational specialties
1 RA 2 NG 3 Inductee	Ind. or NG: 1 First 2 Second etc. 9 Ninth 0 RA or not Z/I	Years completed: 1 ≤ 4 yrs. 2 5-7 yrs. 3 8 yrs. 4 9-11 yrs. 5 12 yrs. (H.S.) 6 13-15 yrs. 7 16 yrs. (Col.) 8 > 16 yrs. 9 Unknown	1 ≥ 130. 2 110-129 3 90-109 4 60-89 5 < 60 9 Unknown	1 Single 2 Married 3 Divorced or separated 4 Widowed 9 Unknown	1 No inf. basic or unit training 2 Inf. basic only, no unit training 3 Inf. unit training ≥ 2 months in Z/I 4 3 plus at least one of: ≥ 2 months unit training overseas, Z/I maneuvers, NCO school, or expert inf. badge 9 Unknown	0 No demotion 1 Disciplinary 2 Inaptitude 3 AWOL or after AWOL 4 Own request 5 Other (specify) 9 Unknown reason for demotion	0 None 1 One etc. 8 Eight or more (specify) 9 Unknown	1. All MOS in WW II enlistment Date MOS Day Month Year 2. MOS's prior to EC 0 All NC 1 C + NC 2 C only, none high 3 C only, all high 4 C only, mixed 9 Unknown Note: 761 is high-risk for MTO 3. MOS at EC, Div. 1 504 2 603, 604 3 605, 607 4 651 5 653 6 745 7 746 8 812 9 1607 0 1812

IV. COMBAT INTERVAL (EC, Div. to LC, study companies)

Departures from company or high-risk MOS	+ Code for Reason for Departure
In Out Reason for departure†	01 AWOL 02 Disciplinary 11 POW (record date of liberation) 12 KIA 13 WIA, IIA (must lose time) 14 MIA, not finally POW or KIA 15 WIA, IIA and POW (record date of liberation) 16 SIW 21 Psychiatric, any type (must lose time) 31 Medical other than psychiatric (must lose time) 41 Rotation as individual 42 Transferred to Z/I training cadre 43 Temporary duty at rest camp, etc. *51 MOS or duties changed to low-risk, even if unit also changed 53 Special, detached or temporary duty - no details, not rest camp, etc. 61 Assigned to another unit: combat unit 62 Cessation of hostilities: VE day, unit withdrawn from combat in ETO or MTO 71 Assigned to another unit: non-combat, for psychiatric reason, not psychiatric diagnosis; e.g. psychological inadequacy 72 Assigned to another unit: non-combat for non-psychiatric reason 73 Assigned to another unit: non-combat, reason unknown 98 Other (specify) 99 Unknown

V. ADMISSIONS TO ARMY MEDICAL INSTALLATIONS, WITH 1 OR MORE DAYS LOST

Time Interval	Type of admission to be recorded
Before EC, Division Combat interval LC, study cos. to Separation, WW II Since Separation, WW II	Psychiatric admissions All admissions Psychiatric, WIA, IIA admissions Psychiatric admissions
From To	Type of admission
Day Mo. Year Day Mo. Year	

Notes: 1. For medical, WIA, IIA admissions; use only these terms
2. For psychiatric admissions, give all details
3. Record all admissions while with the 34th Division, 168th Regiment

VI. GRADE CHANGES IN COMBAT INTERVAL

0 No changes Promotion: 1 To comm. off. 2 To non-comm. off. 3 Other Demotion: 4 Disciplinary 5 Inaptitude 6 On request 7 AWOL or after AWOL 8 Unknown reason 9 Prom. and dem. V Unknown	66
---	----

VII. DUTY IN EUROPE: LC to VE day

Left study companies before VE day: Duty in Europe: 0 No duty in Europe 1 Some - combat unit 2 Some - non-combat unit 3 Unknown in duty in Europe In Study Co. on VE day: *5 Unit left combat before VE day *6 Unit in combat on VE day	67
---	----

VIII. ENTIRE PERIOD OF WW II ENLISTMENT

A. Individual Awards (2 may be coded) 0 None 1 Medal of Honor 2 Service Cross 3 Service Medal 4 Silver Star 5 Legion of Merit 6 Soldier's Medal 7 Bronze Star 9 Unknown	B. Unit Citation Unit is company of original selection 0 None 1 One etc. 8 8 or more (specify) 9 Unknown	C. Type of separation 1 CDD 2 Demobilization or conv. of gov't: ETS; not to reenlist 3 Conv. of gov't: ETS; to reenlist 4 Dishonorable 5 Unfitness, inaptitude, unsuitability 6 Dependency, hardship 7 Misconduct, fraud. entry, AWOL, civil court 8 KIA or DOW 9 Death: other 0 Other types X Conv. of gov't: not ETS (specify) V Unknown	68	69	70
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IX. CDD Cause

AR 615-360 II, XIII I, some X Some X XII VIII V VI, VII, IX - - III, IV, XI Some X	New AR 615-361 (RR 1-1) Some 615-365 Sec. 2 WD Cir 339 Some 615-365 615-364 615-368, 615-369 615-362 615-366 615-362 615-366 615-362, 615-367 Some 615-365	0 Not CDD 1 Psychiatric 2 Other medical 3 Trauma, battle 4 Trauma, other 8 Unknown if CDD 9 Unknown cause	71
--	---	---	----

Notes 1. Changes in MOS will be coded in Washington
2. Record experience with 34th Division, 168th Regiment

CARD NO.

70 71 80 0

Appendix III

List of Ground Combat MOS's

504x	Ammunition handler
521	Basic
531	Cannoneer*
533	Demolition specialist
597	Antiaircraft artillery machine gun crewman, SP
598	Antiaircraft artillery NCO, SP weapons
601	Antiaircraft artillery automatic weapons crewman
603x	Gunner
604x	Light machine gunner
605x	Heavy machine gunner
607x	Light mortar crewman
608	Gun crewman, coast artillery
610	Antitank gun crewman
651x	Platoon sergeant
652x	Section leader
653x	Squad leader
670	Master gunner, coast artillery
671	Master gunner, antiaircraft (gun)
729	Pioneer
733	Reconnaissance car crewman
745x	Rifleman
746x	Automatic rifleman
761x#	Scout
812x	Heavy weapons NCO
832	Master gunner antiaircraft
833	Artillery mechanic, antiaircraft (automatic weapons) minor maintenance
834	Artillery mechanic, antiaircraft (gun) minor maintenance
844	Gun crewman, light artillery
845	Gun crewman, heavy artillery
901	Munitions worker
915	Artillery mechanic, heavy antiaircraft
978	Artillery mechanic, light antiaircraft
1531	Gun crewman, pack artillery
1542	Company commander (officer)
1607x	Heavy mortar crewman
1736	Light tank crewman
1812x	Light weapons NCO
2601	Antiaircraft artillery gun crewman
2736	Medium tank crewman
3601	Antiaircraft artillery automatic weapons crewman, SP
3736	Amphibian tank crewman

x High-risk MOS

Although MOS 761-Scout was not included in the list of high-risk MOS's used as the basis for eligibility in the sampling plan, it is considered a high-risk MOS in coding column 64 for MTO cases only.

* Obsolete in 1944 but, since all substitutions for it are considered ground combat, whenever 531 appeared in a man's MOS history it was considered ground combat.

Examples of More Difficult Problems in Classifying Departures

We have grouped our difficult coding problems into the following five classes:

- Class 1: A secondary (or provisional) psychiatric diagnosis is disregarded as a cause of departure or of failure to return - about 20 cases.
- Class 2: A secondary psychiatric diagnosis is considered the reason for failure to return to combat duty - 51 cases.
- Class 3: A diagnosis of concussion or blast injury, with mention of psychiatric condition, is called WIA - about 4 cases.
- Class 4: A diagnosis of concussion or blast injury, with mention of psychiatric condition, is called a psychiatric departure - 7 cases.
- Class 5: A diagnosis not frankly psychiatric in nature is overruled as psychiatric "by interpretation" - 13 departures.

Examples of each class follow:

Class 1: Secondary (or Provisional) Psychiatric Diagnosis Not Considered Cause of Departure or Failure to Return

There were perhaps 20 such cases, but no accurate count was kept.

Examples are:

Case #0038

The first diagnosis available in records for this episode is that of the 102nd Evacuation Hospital, France, dated 11 September 1944, which reads as follows:

"WIA, GSW, Shell Frag., producing lacerations of dorsum of penis, near base (superficial), and deep penetrating wound of right inguinal region penetrating toward ischial tuberosity, incurred 020, 11 September 1944, near Brest."

EM* left above Evacuation Hospital on 12 September 1944, evidently on transfer to 110th SH, England, where the admitting diagnosis on 16 September 1944 read as above.

*We use EM (for enlisted man) to refer to the man involved.

On 19 September 1944, EM was transferred from 110th SH to 170th General Hospital, England, and on same date received the same diagnosis plus: "Psychoneurosis, anxiety type, mild."

A clinical note dated 22 September 1944 reads "Secondary closure of wound, right inguinal region (Anesthesia - local)."

The Form L** indicates that disposition from 107th General Hospital occurred on 11 November 1944, although form 1 records 20 November as date of final disposition, which is given as "Duty - limited assignment."

A footnote from our St. Louis staff reads "We are unable to tell whether he was given limited assignment because of wounds or psychoneurosis."

Because no positive evidence was available in record to indicate that L/A*** was due to PN, the decision was made to code this reason for departure as WIA.

Case #2157

EM was first hospitalized on 11 July 1944 at unknown medical installation with diagnosis of "Blast injury, right leg and combat exhaustion." He reached the 160th GH from the 110th SH, on 14 July 1944 where the diagnosis became "Wound, penetrating, right thigh." This hospitalization ended on 10 August 1944.

Page 15 shows L/A because of vision but gives no date, although entry follows that of 11 July 1944.

The diagnosis of combat exhaustion appears only on the medical card of 11 July 1944 and is not again found in the soldier's record.

**NRC Form L is a standard reporting form used by the VA to list all admissions referred to in records in possession of the VA.

***L/A is used here as an abbreviation for "limited assignment."

EM does not rejoin his original company and is known to have had some noncombat duty in Europe following this episode.

The reason for departure is coded as WIA and the secondary diagnosis of PN is disregarded.

Class 2: Secondary Psychiatric Diagnosis Considered Reason for Failure to Return to Combat Duty

There were 51 such cases; examples are:

Case #0048

On 22 September 1944 EM was admitted to unknown medical installation with diagnosis of "WIA - Shell fragments." On 28 September 1944 he reached the 111th General Hospital and was admitted with diagnosis of "Shell wounds of neck, chest, left shoulder, lumbar region and right foot."

On 26 October 1944, EM was transferred to the 318th SH with the following diagnosis:

- "1. Wounds, multiple, penetrations
 - a) of neck, right side, posterior slight
 - b) of chest, right side at level of 10 thoracic vertebra, slight
 - c) of left shoulder, posterior aspect, slight
 - d) of lumbar region, severe
 - e) of right foot, lateral aspect, slight
2. Constitutional psychopathic state, inadequate personality"

EM again transferred on 7 November 1944. This hospital was the 188th General Hospital and only diagnosis received here was "Constitutional psychopathic state, inadequate personality."

He left the 188th General Hospital on 30 November 1944. Records show he was evacuated to Z/I on 3 December 1944. In the United States he was admitted to Convalescent Hospital, Ft. Story, Virginia, and there received diagnosis of "Psychoneurosis, mixed type, moderately severe."

EM was CDD'd from Ft. Story on 17 March 1945. The following is taken from CDD:

"Psychoneurosis, mixed type, moderately severe manifested by life-long nervousness, emotional instability and inadequacy, aggravated by combat, with development of many neurotic symptoms following shell concussion in September 1944, requiring evacuation and return to U.S. December 1944. Symptoms of nervousness, emotional instability, irritability, insomnia and tenseness, multiple somatic complaints, easy fatigue and apathy persist and render him unfit for further military duty."

Although note from our St. Louis staff states "Records in St. Louis do not show when wounds were healed," we concluded from above facts that evacuation as well as CDD was for psychiatric condition and departure was accordingly coded as WIA with failure to return to combat attributed to psychiatric condition.

Case #2860

EM hospitalized from 25 November 1944 to 19 January 1945 at unknown hospitals. Admitted with diagnosis of:

1. WIA.
2. Bronchitis, acute.

This changed on 28 November 1944 to:

1. Wound, lacerated, bomb fragments.
2. Constitutional psychopathic state, inadequate personality.

Discharge from hospital was to limited assignment.

Further investigation of records elicited information that "wound well healed" on 30 December 1944 and reclassification to 4A made because of diagnosis #2.

Reason for departure accordingly coded as WIA with failure to return attributed to psychiatric condition.

Class 3: Concussion or Blast Injury, With Mention of Psychiatric Condition, Called WIA

There were perhaps four such cases, but no accurate count was kept.

Examples are:

Case #2828

The initial medical card, medical installation unknown, for this case dated 18 November 1944, shows combat fatigue as well as scalp wound. EM was admitted to 106th Evac. Hospital on 18 November 1944, and receives diagnosis of: "LW scalp, right temporal region, slight concussion, cerebral, shell blast, evening action. Scabies, moderate, generalized over body." He is transferred to another hospital (unknown echelon) on 23 November 1944. Records show diagnosis on 26 November 1944 as "Psychoneurosis, mixed type, moderately severe, manifested by anxiety and reactive depression, EPTI - aggravated by service."

EM is discharged to duty 8 December 1944, but is assigned to non-combat unit and never returns to combat.

Since scalp wound is valid, reason for departure is coded as WIA, but failure to return to combat is attributed to psychiatric condition in coding the departure.

Case #4906

EM admitted to 56th Evacuation Hospital on 7 March 1944 with diagnosis of:

- "1. Concussion, left middle and inner ear;
2. otitis media, acute, supp. left, sec. to 1."

He left this hospital on 11 March 1944 and was admitted to 45th General Hospital on 12 March 1944 with the following diagnosis:

- "1. Concussion, moderately severe, middle and inner ears, left, with rupture of left ear drum.
2. Wound, penetrating, moderately severe, temporal region, left.
3. Otitis media, acute, moderately severe, left, suppurative, secondary to 1.
4. Psychoneurosis, neurasthenia, chronic, moderately severe, manifested by undue fatigue, pains in chest, insomnia, headaches, secondary to 1."

This hospitalization ended 2 May 1944. EM remained at Replacement Depots and Conditioning Cos. until 24 September 1944 when he rejoined his company.

Further investigation of records shows that the wound had healed by 8 April 1944 but because of symptoms of PN persisting, EM was transferred to NP section until discharged to duty 2 May 1944.

Reason for departure was coded as WIA, and PN condition, which kept him in hospital only one additional month, was not considered to have delayed his return to combat duty.

Class 4: Concussion or Blast Injury With Mention of Psychiatric Condition, Called Psychiatric

There were seven such departures; examples are:

Case #0390

This EM was first admitted to an unknown medical installation on 4 October 1944 with diagnosis of IIA - Blast Concussion. He passed through the 304th Medical Battalion the same day with no record as to diagnosis. On 5 October 1944 he first received diagnosis of "Psychoneurosis, anxiety state, acute, moderately severe, combat reaction." This was probably at the 7th Army NP Center at which EM was hospitalized from unknown date to 12 October 1944, at which time he was probably returned to full duty inasmuch as on the 13th October 1944 he was hospitalized for "BC-WIA, penetrating W. left knee, slight."

It is evident from this record that the initial diagnosis of concussion was provisional; on psychiatric review (by Dr. Appel) it was decided that this departure had to be considered psychiatric.

Case #2349

EM passed through the 3rd Battalion Aid Station and 2115 Collecting Station on 15 July 1944 with diagnosis of "concussion syndrome." On the same date, he reached the 110th Clearing Station where diagnosis was made as "concussion, partial blindness, both eyes. Combat exhaustion." Still, on the same date, he was admitted to 44th Evacuation Hospital and the only diagnosis now is "Combat Exhaustion." On the following day, 16 July 1944, he was admitted to the 618 Exhaustion Clearing Company and gets diagnosis of "Psychoneurosis, hysteria, mixed type, severe." He was discharged from this installation on 31 July 1944, presumably to full duty inasmuch as he is shown to have rejoined his original company on 1 August 1944.

It is evident here that the first admitting diagnosis of concussion syndrome was provisional. The reason for departure, therefore, was coded psychiatric.

Class 5: Psychiatric by Interpretation

There were 13 such departures. The following criteria were stipulated to govern their handling:

1. The admission looks like another which is called frankly psychiatric, in the sense that the same symptomatology is involved, the admissions are close together in time, that called medical does not provide an organic hypothesis for the symptomatology.
2. The admission is not explained, e. g., "no disease found," or only symptomatology is described, and there is additional information which makes P the most reasonable formulation. Cf. case #4715.
3. No evident reason for departure is given, but man clearly stays out for P.
4. Uncertainty about psychiatric diagnosis at a given departure is resolved by later formulation of situation as P, although precise parallelism in symptomatology is unproved.

Examples are:

Case #4715

EM admitted 20 February 1944 with diagnosis of "combat exhaustion."

Transfer diagnosis of the same date reads:

"1. Concussion, cerebral, mild, acute due to dud impact (history).

2. No disease found in hospital."

EM returned to duty 24 February 1944.

In soldier's clinical records is found this statement - "No evidence of concussion sequelae; psychosomatic mechanism seems apparent, however."

It is further noted that the concussion is claimed by patient.

Dr. Appel considers this departure psychiatric on grounds that no real diagnosis is offered and P is only reasonable one.

This case falls squarely within the provisions of criterion 2 above.

Case #4923

EM admitted 9 October 1943 for "Chest pain. Adhesion, pleural, chronic." Returned to duty 17 October 1943.

He was readmitted 16 December 1943 and condition recorded as "NYD. Obscure chest condition manifested by constant pain over apex of heart."

On 17 December 1943 diagnosis made of "Intercostal neuralgia, intercostal nerve."

Diagnosis of 18 December 1943 reads: "Psychoneurosis, hysteria, mild, cause undetermined manifested by pain in left chest."

Diagnosis of 9 January 1944 is: "Psychoneurosis, conversion type, moderately severe, manifested by recurrent attacks of pain in the left chest with weakness, chronic, recurrent, c.u."

EM discharged from hospital to limited duty 12 January 1944.

This soldier's departure on 9 October 1943 is coded 20 (psychiatric by interpretation) because it comes under criterion 1 above.

Appendix V

The Questionnaire and Its Interpretation With Respect to Any Bias
in the Apparent Duty Assignment of Long-Lasting Men

Appendix V includes the following parts:

1. The questionnaire
2. Letters which accompanied the questionnaire
3. Memorandum for File, Subject: Test of MOS Data in Army Files,
Project R-6.

World War II Combat Questionnaire

INTRODUCTION

This is a study of GI's in infantry combat in Europe in World War II. We need information on how long men were able to keep going in the more dangerous infantry jobs, what kept some of the men going longer than others, what made for high morale, and what kind of a rotation policy might be best in any future combat.

Please answer all questions. At the end there is room for other ideas you have which the questions do not cover.

Your reply is strictly confidential.

IDENTIFICATION

In our records you are listed as having first gone into combat with _____ Company, _____ Regiment, _____ Infantry Division.

1. Is this information correct? (Check one answer, like this: V)

_____ Yes

_____ No

2. If you checked No to question 1, please enter the correct information below, giving the unit you were in when you first entered combat.

_____ Company
_____ Regiment
_____ Division

MILITARY OCCUPATION (MOS) AND DUTIES

3. a. What was your military occupation (MOS) when you first entered combat with this company?

b. What were your duties?

4. The average GI had a variety of duties in addition to what he did when actually fighting, and when combat duties were not heavy he might go off the line for a day or two on some job like moving supplies. At other times his job itself might be changed, giving him different responsibilities and perhaps exposing him to either more or less danger. Examples of such important changes are: (1) an ammunition-bearer for a machine-gun squad becomes a gunner; (2) a rifleman takes over the duties of a squad leader; (3) although still a member of the company, a rifleman is sent back to regiment to work on supply trucks; and (4) a rifleman is sent back to work in the company kitchen as a cook's helper.

If you had any such important changes in your job in this company, even for a brief period, describe the changes below as best you can remember them:

First change after entering combat:

a. What were your new duties? _____

b. Between what dates did you have these new duties? From (month, year) _____ to (month, year) _____.

Second change after entering combat:

a. What were your new duties? _____

b. Between what dates did you have these new duties? From (month, year) _____ to (month, year) _____.

LEADERSHIP

5. During your period of combat in this company were your platoon leaders really interested in the welfare of their men? (Check one).

a. _____ Sincerely concerned

b. _____ Mildly interested

c. _____ Did not seem to care

d. If a, b, or c does not express your point of view, please write your answer here: _____

6. During your period of combat in this company was the company commander sincerely concerned about the men and their welfare? (Check one).

- a. Sincerely concerned
- b. Mildly concerned
- c. Did not seem to care
- d. Any other answer (explain) _____

7. Were your platoon leaders good combat leaders?

- a. Very good leaders
- b. Average leaders
- c. Poor leaders
- d. Any other answer (explain) _____

8. Was your company commander a good leader in combat?

- a. Very good leader
- b. Average leader
- c. Poor leader
- d. Any other answer (explain) _____

9. Were your platoon leaders very brave in combat?

- a. Very brave
- b. About average
- c. Weak or cowardly
- d. Any other answer (explain) _____

10. Did the men in your company usually like their platoon leaders and company commander?

	Platoon Leaders (Check one)	Company Commander (Check one)
--	--------------------------------	----------------------------------

Usually liked them very much	_____	_____
Usually liked them only fairly well	_____	_____
Usually disliked them	_____	_____

11. Did the men in your company seem to like one another and to work and fight well together?

- The men got along very well together
- About average
- Too much bad feeling or unable to work together

12. Did the men feel that there was a strong group loyalty which would help a man to keep going and prevent him from quitting?

- Very strong group loyalty
- About average group loyalty or pressure
- No unity or loyalty to the group which would prevent a man from quitting

13. In general, while you were in combat with this company, how good was its morale?

- a. Mostly high
- b. About average
- c. Usually poor

YOUR ADDITIONAL REMARKS - In the space provided below add such thoughts as you think might help the study. For example, you may have suggestions about a combat rotation policy, the selection and training of officers as combat leaders, or how to improve morale in a combat outfit. Do not hesitate to add anything you think is important to a realistic study.

1st letter

MEMBERS OF COMMITTEE

Wilburt C. Davison, Chairman
Michael E. DeBakey
Morris Fishbein
A. LeRoy Johnson
Perrin H. Long
Herbert H. Marks
J. Roscoe Miller
Roy Turner
Stewart Wolf
Barnes Woodhall

MEMBERS OF STAFF

Theodore S. Moise,
Professional Associate

Gilbert W. Beebe,
Seymour Jablon,
Statisticians

NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, Washington 25, D. C.

Established in 1916 by the National Academy of Sciences under its
Congressional Charter and organized with the cooperation of the
National Scientific and Technical Societies of the United States

DIVISION OF MEDICAL SCIENCES

Committee on Veterans Medical Problems

During World War II, as an Army psychiatrist, I became interested in the
development of a plan for rotating men out of ground combat assignments after
they had stood up under combat for a long time.

I am still very interested in this problem and in the more general one of
what sustains men in their effort to stick it out in combat.

The Army has asked me to make a study of World War II combat in ETO and MTO to
find out how long men were able to last in combat. If the study is successful it
may help toward a realistic rotation policy based on individual exposure to danger.
To make the study I need your help. As far as I can tell, you are one of those who
were able to stick it out in combat longer than the average which I have found for
ground combat in Europe in World War II. I think, therefore, that you are better
able than most to tell me what made for superior performance in this respect.

I realize how complicated is the question I am raising, and that it would be
best if we could sit down together and talk about it for some length of time.
Unfortunately this is not possible for either of us, and for this reason I have
written out a list of questions which I hope will take the place of such a talk.
I very much hope you will, after answering the questions, write me such further
ideas as you think may help to make the study a success.

Your reply is a confidential one. Although the Army has asked me to make the
study, and my report will be as accurate as I can make it, it will not contain
names or otherwise identify the men in the study.

A return envelope is enclosed for your convenience.

Sincerely yours,

John W. Appel, M.D.
Project Director

2nd letter

MEMBERS OF COMMITTEE

Wilburt C. Davison, Chairman
Michael E. DeBakey
Morris Fishbein
A. LeRoy Johnson
Perrin H. Long
Herbert H. Marks
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DIVISION OF MEDICAL SCIENCES

Committee on Veterans Medical Problems

A few weeks ago I wrote you about our study of combat. Since I did not hear
from you I am writing again to remind you of the importance of the study and to
ask for your help. I enclose another copy of the form and an addressed return
envelope which needs no postage.

You know how important to the infantryman is the idea of being rotated out of
combat after he has done his share. I have been asked to make a study which should
prove the need for a fair rotation plan. It should also show how a practical plan
could be put into effect. To do this I need certain information from a
representative group of men who stayed in combat longer than the average. I need
to know about their assignments and what kept them going. The only way to get this
information is to ask men like yourself some specific questions.

I have made the questionnaire as short as I could and it does not take much
time to fill out. You can contribute to an important study by filling yours out
and returning it today. Your reply is confidential; it will not be made available
to the Army or any other agency.

Sincerely yours,

John W. Appel, M.D.
Project Director

3rd letter

MEMBERS OF COMMITTEE

Wilburt C. Davison, Chairman
Michael E. DeBakey
Morris Fishbein
A. LeRoy Johnson
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DIVISION OF MEDICAL SCIENCES

Committee on Veterans Medical Problems

Several weeks ago I wrote asking your help in our study of combat. Because I may not have had an up-to-date address I am sending this letter by registered mail so I will know that it reached you. I enclose another copy of the form and an addressed return envelope which needs no postage.

You know how important to the infantryman is the idea of being rotated out of combat after he has done his share. I have been asked to make a study which should prove the need for a fair rotation plan. It should also show how a practical plan could be put into effect. To do this I need certain information from a representative group of men who stayed in combat longer than the average. I need to know about their assignments and what kept them going. The only way to get this information is to ask men like yourself some specific questions.

I have made the questionnaire as short as I could and it does not take much time to fill out. You can contribute to an important study by filling yours out and returning it today. Your reply is confidential; it will not be made available to the Army or any other agency.

Yours very truly,

John W. Appel, M.D.
Project Director

MEMBERS OF STAFF

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Professional Associate

Gilbert W. Beebe,
Seymour Jablon,
Statisticians

MEMORANDUM for File

SUBJECT: Test of MOS Data in Army Files, R-6 Project

1. Because there existed known instances in which men were carried in a high-risk MOS after their reassignment to lighter duty, it was determined that a questionnaire inquiry would be made to verify MOS data obtained from Army records.

2. It was thought that any such disparity between fact and record would be most frequent among men who seemed to remain in combat longest, i. e. that it would reflect a way of easing old-timers out of the most dangerous spots. Accordingly, the decision was made to explore the problem among men who, according to the Army records, had remained in combat longest. From preliminary tables on 90-odd percent of the ETO and MTO original men, it was found that about 20 percent of these men seemed to have remained in the study companies for 35 or more company casualty days as defined in this study. All men in the 500 replacements and in the 2000 original men, with 35 or more company-casualty days, were then pulled out and questionnaires sent.

3. The response to the qs. was rather good, about 79 percent in surely located men, and their replies were analyzed with the aid of a G-1 consultant (Lt. Col. Craven) from the standpoint of their eligibility under the criteria for the study and of changes from high- to low-risk MOS duties. The duties, not the MOS, were the guide. See memorandum this subject dated 10 March 1953 for specific details. The preliminary tables which have resulted show that both types of error occurred, and with the following frequency:

<u>Type of Error</u>	<u>Number of Qs. Returned</u>	<u>Percentage in Error</u>
<u>Original men</u>		
Ineligibility	15	5.0
Change in MOS	32	10.7
None	251	84.2
Total	298	99.9
<u>Replacements</u>		
Ineligibility	1	1.5
Change in MOS	10	14.7
None	57	83.8
Total	68	100.0

There were in all 534 men selected for the first round of qs. Of these 366 or 69 percent returned the questionnaire and the rest were either not easily located or failed to return the qs. The rate of response in located men is currently 79 percent. Since we are in a position to make corrections on the basis of a 69 percent return, we are underestimating the effect of errors, and would need to increase any changes obtained from the 69 percent by about 45 percent.

4. On the basis of the 298 replies it is essential that a decision be reached as to the necessity for further qs. to be obtained. Are the errors exhibited by our sample of 298 of such a magnitude that we must correct our material on a larger number of cases? And if such corrections be in order, is the qs. the only means open to us? To investigate these problems we have undertaken the following studies:

- a. the effect of the errors on the estimates of men remaining in high-risk combat after a long time
- b. the effect of the errors on the estimates of the rate of NP breakdown as a function of stress
- c. the relative frequency of error as a function of duration of stress
- d. the relation between error and MOS history prior to EC and at EC.

These may be discussed in turn:

Effect on remaining curve in upper region of stress, Table PT-117

From Table PT-117 (as revised) we have the following data which demonstrate that the magnitude of our net errors in the region of high stress is so small as to be almost negligible, for original men only:

Theater of Exposure and Point on Remaining Curve, Company Casualty Days	Before Correction by Means of Qs.		After Correction by Means of Qs.	
	Number of Men	Percentage of Sample	Number of Men	Percentage of Sample
<u>ETO</u>				
Origin	1,000	100.0	992	100.0
Day 36	202	20.2	183	18.4
Day 47	104	10.4	95	9.6
<u>MTO</u>				
Origin	1,000	100.0	993	100.0
Day 46	190	19.0	173	17.4
Day 66	90	9.0	80	8.1

The changes might be further increased by about 45 percent of those shown, as an allowance for non-response, but would still seem small. That is, whatever may happen to the remaining curve in the lower regions of stress, it plainly is not much affected in the region of high stress unless one were to assume that some large fraction of the sample would be found ineligible. The latter seems doubtful, since only 5.0 percent of the 298 original men studied here were finally considered ineligible.

Effect on rate of NP breakdown as function of stress

Various indices of stress were employed to judge the effect of the errors on the NP breakdown rates plotted against stress. Again the effects seemed to be small, as may be seen from the following:

Index of Stress and Plotting Point on Scale of Stress	NP Breakdowns per 1000 Man-days of Stress or per Casualty	
	Before Correction	After Correction
<u>A. ETO Sample</u>		
<u>Division combat day</u>		
Day 144	1.12	1.02
Day 215	.44	.50
<u>Regimental combat day</u>		
Day 131	1.15	.96
Day 193	.57	.66
<u>Company casualty day</u>		
Day 41	2.99	3.28
Day 69	1.76	2.06
<u>Company casualties</u>		
Casualties 210	1.41	1.51
Casualty 381	.46	.52
<u>Calendar days</u>		
Day 163	1.17	1.10
Day 234	.24	.28
<u>B. MTO Sample</u>		
<u>Division combat day</u>		
Day 197	2.89	3.05
Day 308	2.09	2.28
<u>Regimental combat day</u>		
Day 171	3.18	3.30
Day 263	2.37	2.57
<u>Company casualty day</u>		
Day 56	9.37	10.28
Day 95	6.93	7.78
<u>Company casualties</u>		
Casualties 267	1.89	2.06
Casualty 551	1.33	1.57
<u>Calendar day</u>		
Day 386	.89	.97
Day 581	1.12	1.26

The plotting points are the mid points of the 9th decile and the one-third point of the 10th decile for each index, by theater, based on the original, uncorrected data. The changes made by the qs. in the region of high risk, even with an additional allowance of 45 percent for non-response, are plainly of a tolerable order of magnitude.

Frequency of error in relation to duration of stress

Tables 114-115 were run to exhibit the frequency of error in the various decile groups on the scale of company casualty days, for the original men in the ETO and MTO samples. The following data summarize these tables:

Decile Group	Error Status, Qs. Returned			Total
	Ineli-gible	Eligible, but MOS Changed	No Error	
A. <u>ETO Sample</u>				
8	2	--	6	8
9	4	6	57	67
10	2	10	47	59
Total	8	16	110	134
B. <u>MTO Sample</u>				
8		3	44	47
9	2	5	49	56
10	5	6	36	47
Total	7	14	129	150
C. <u>ETO+MTO Samples</u>				
8	2	3	50	55
9	6	11	106	123
10	7	16	83	106
Total	15	30	239	284

The ETO and MTO samples behave in a quite similar fashion, the percentages with error being:

Decile Group	Percentage with Errors		
	ETO	MTO	Total
8	25.0	6.4	9.1
9	14.9	12.5	13.8
10	20.3	23.4	21.7
Total	17.9	14.0	15.8

In a one-tailed test on deciles 8+9 vs. 10 we find the discrepancy to have a chance probability of about .03. That is, if we send questionnaires to a second group of 20 percent we may expect proportionately less error to turn up.

Relation between error and MOS

From Table 116 we learn that the previous MOS history and error are related as follows:

Col. 64 Prior MOS	Questionnaires Returned		Not Error	Total
	Error Number	Error Percent		
0	8	40	12	20
1	1	4	27	28
2	2	17	10	12
3	33	18	179	212
4	3	12	23	26
Total	47	16	251	298

A prior MOS history indicated by 0 in col. 64 (all non-combat MOS's) is rather likely, therefore, to be associated with a discrepancy between the questionnaire and the Army records on a man. This position is comparatively infrequent in the samples of original men, accounting for 113 men or 5.7 percent.

The proportion with errors indicated on questionnaires varies somewhat with the MOS at EC, division obtained in St. Louis' records (column 65).

Col. 65	Questionnaires Returned		Not Error	Total
	Error Number	Error Percent		
Rifleman (6+7)	33	20.0	132	165
Other (1 thru 5)	14	10.5	119	133
Total	47	15.8	251	298

That is, the riflemen and automatic riflemen had changed assignments somewhat more frequently than men with other MOS's on the record. Although the discrepancy is a reliable one in the statistical sense, it would be of no use in selecting cases with a greater tendency to error.

5. In view of the foregoing analysis it may be concluded that additional questionnaire data are not required, and that the relative error inherent in the Army source records is too small to warrant any serious effort at correction, either of existing questionnaire cases or others.

Gilbert W. Beebe

Appendix VI

Sample Calculation of Stress Indices

Attached is a copy of Form 3 for Company E of the 116th Regiment upon which is superimposed the combat experience of case #2307 of this company.

This man entered combat with his company on D-day and left combat the first time on 30 July 1944 because of a shell wound (reason 13).

His first interval included:

257 company casualties.

29 company casualty days.

He returned to combat on 5 December 1944 and remained until 3 May 1945 when his unit was withdrawn from combat (reason 62).

His second interval included:

38 company casualties.

18 company casualty days.

Appendix VII

Changing Ratio of NP/WIA Admissions
in ETO Field Armies and Divisions

It was brought out in the text (figure 3) that in ETO the rate of first psychiatric breakdown rises evenly during the interval 1-34 company combat days, and thereafter falls to a new low level, whereas in MTO the rate is well sustained throughout the interval 35 or more company days. Figure 8 there exhibits these rates on a scale of equivalent calendar time, and suggests that the approaching end of the war in Europe may have altered the expected ratio NP/WIA casualties. Independent unit data have been assembled here to bear on this problem.

Figure VII-1 gives the average experience of the four field armies in ETO, expressed in ratio form, over the calendar period of hostilities. Beginning in January 1945, and associated in time, at least, with the liquidation of the Bulge, the ratio fell steadily throughout the subsequent course of the war, and did so uniformly in all four armies. The low ratios at the beginning of the experience are thought to represent, in considerable part, inadequacies in reporting psychiatric casualties. One may postulate various mechanisms for producing a fall in the ratio of NP to WIA casualties. Most obvious is the psychological one reflecting the hope that the war will soon end; another is the mixing of old and new divisions, where time in the line may be thought either to predispose to, or to protect against, psychiatric breakdown. In exploring the latter possibility we chose from the ETO Order of Battle the following divisions to represent "old" and "new" divisions in the line:

<u>Month of EC</u>	<u>Infantry divisions picked</u>
June	2, 29, 79
July	5, 8, 28
December	75, 78, 87
January	66, 76, 69

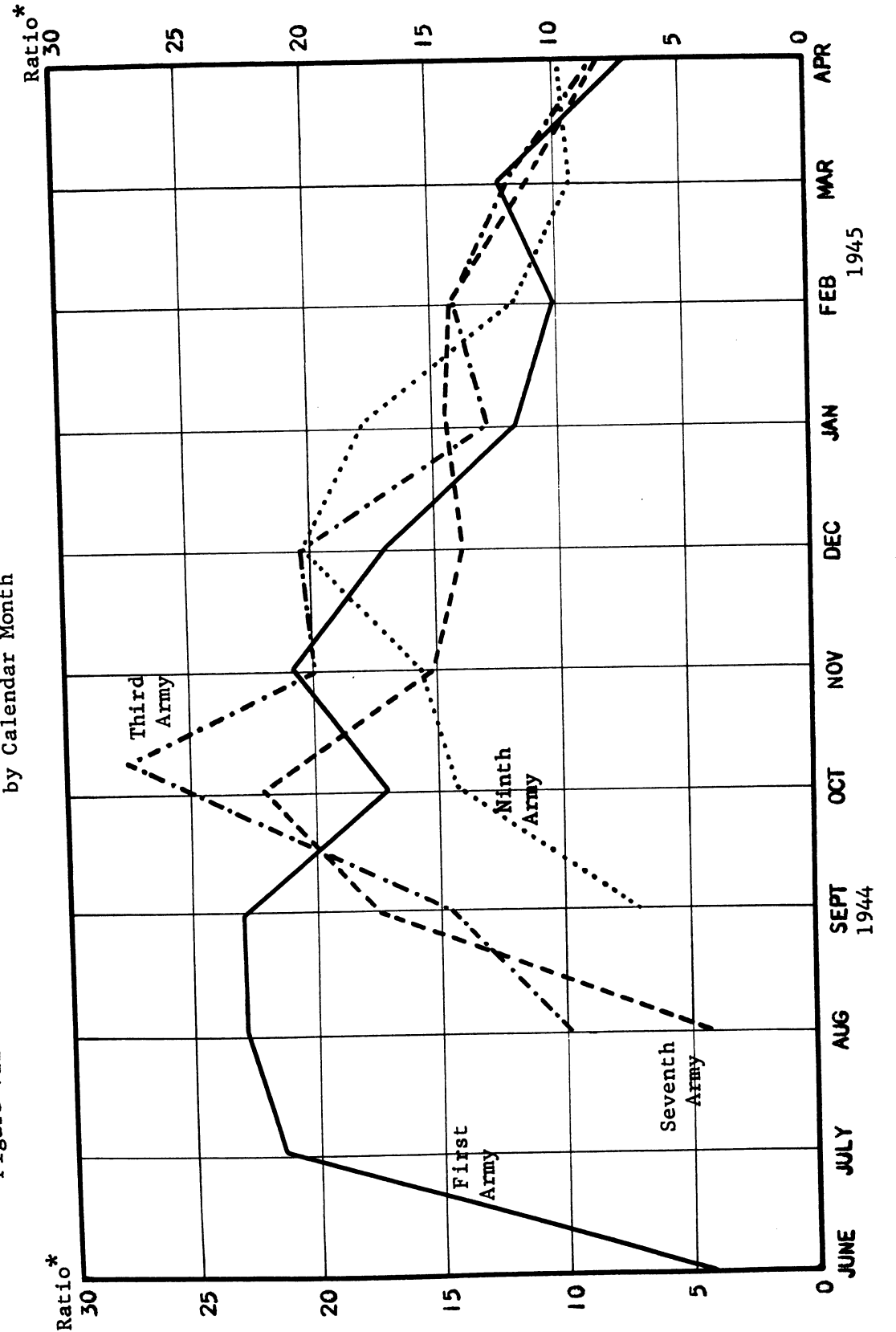
For each calendar month we then averaged the experience of the three sample divisions and found the ratios plotted in figure VII-2, where they are compared with the overall First Army average shown in figure VII-1. Plainly it is not the changing unit composition of the field armies which produces the decline noted in figure VII-1, for the four sets of divisions all behave about the same in figure VII-2.

As an alternative approach to the ETO field Army data, we divided their experience into the 1944 and 1945 portions, and for each portion calculated by the method of least squares the best-fitting linear regression line of daily psychiatric upon battle casualties, and obtained the following:

Period	Number of Army-months	Fitted equation	Correlation coefficient
1944	19	$NP/1000 \text{ man-days} = -.033 + .21 \text{ WIA}/1000 \text{ man-days}$	+.94
1945	16	$NP/1000 \text{ man-days} = -.01 + .13 \text{ WIA}/1000 \text{ man-days}$	+.93

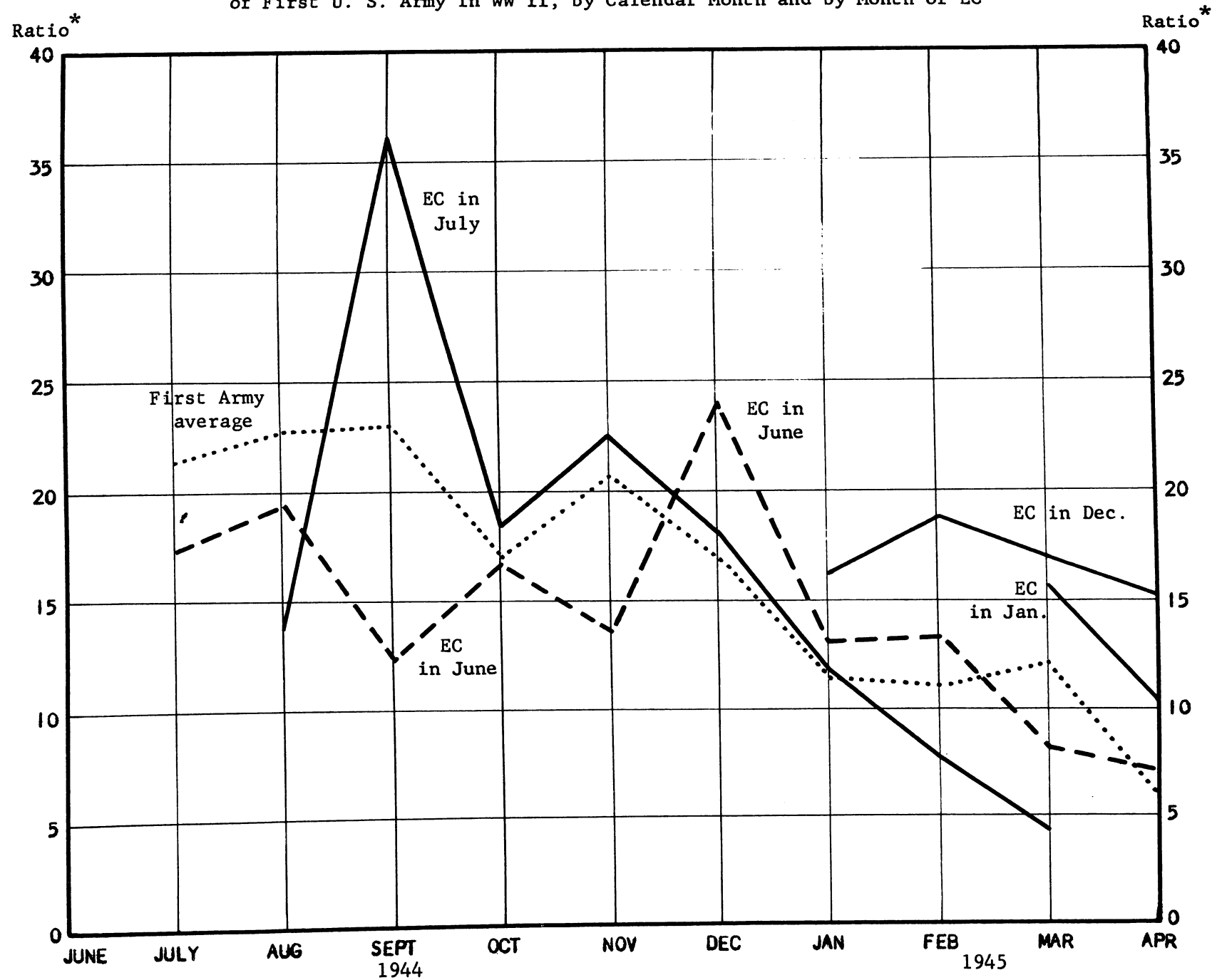
In both instances the correlation is quite high, but the slopes of the lines are quite reliably different. The regression coefficients +.21 and +.13 differ by an amount which lies well outside the range of chance. In 1944 a WIA rate of 3/1000/day would yield, on the average, a NP rate of 0.6, and in 1945 a rate of 0.4.

Figure VII-1 Ratio of NP/WIA Casualties, Field Armies in ETO During WW II, by Calendar Month



*Ratio = 100 x NP rate/WIA rate

Figure VII-2 Ratio of NP to WIA Casualties, Representative Infantry Divisions of First U. S. Army in WW II, by Calendar Month and by Month of EC



*Ratio = (NP rate/WIA rate) x 100

Although no such review can be entirely conclusive, our view is that the 1945 ETO experience, and thus the ETO experience in the upper region of our stress scales, is biased for the purpose of estimating resistance to psychiatric breakdown. We feel, nevertheless, that it is an important example of the effect of the overall strategic situation upon morale, and of morale in turn upon the likelihood of psychiatric breakdown.

Appendix VIII

Ancillary Data on Various Indices of Stress
and Their Intercorrelations

From the correlation tables described in the text, linear regression lines of the form $y = bX$ were calculated. The regression equations appear in table VIII-1 and tell us, for example, that in the ETO sample 200 calendar days are equivalent to 181 division combat days, on the average. It should be noted that we are here viewing the experience of units through the experience of individual men who served in those units for varying lengths of time beginning with the EC date of the parent division. The relationships described here, therefore, reflect the earlier combat history of the units in question and are not necessarily the same, quantitatively, as relationships which could be defined on the basis of the complete experience of these units. However, for most of the purposes of this study we are interested in these relationships as they affect our sample of men, and from that standpoint the data given here are unbiased. Data describing the complete combat experience of units, without regard to the presence of our particular sample, appear in appendix IX.

The average values associated with the correlation tables are shown in tables VIII-2,3, and 4. Table VIII-2 gives the mean values for the original men on each index of stress, and shows, for example, that the ETO and MTO series are numerically comparable as to company combat days and battle casualties per company, despite the difference in calendar time. Table VIII-3 shows the average relation between the indices. For example, 28 percent of ETO and 13 percent of MTO calendar days were classified as company combat days.

Table VIII-4 presents average company casualty data in terms of casualties per company per day and also per 1,000 T/O strength per day. ETO and MTO rates are rather similar when expressed in terms of combat days, and quite similar in terms of company casualty days. It should be remembered that the MTO series is made up of the 3rd, 34th, 36th, and 45th Infantry Divisions, and that all of these except the 34th were part of the Seventh Army which was incorporated into ETO in the fall of 1944. The experience of these men, therefore, does not exactly parallel theater subdivisions. By the time the Seventh Army entered ETO, however, 81 percent of our MTO sample had already disappeared from the study companies. Further light on this question is shed by the relative battle casualty rates for the theaters and for the two samples, as follows:

Point of comparison	ETO rate	MTO(Italy) rate	Ratio ETO/MTO
<u>Infantry divisions, WIA per 1,000 men per day, World War II³</u>	2.32	1.15	2.0
<u>Company casualties per 1,000 T/O strength per calendar day, from samples studied here</u>	7.46	3.09	2.4

There are differences between average theater experience and our samples, in respect to ETO/MTO rates, but they are not of an order which suggests that the MTO sample was much influenced by the late movement to ETO.

Table VIII-1

Linear Regression Equations for Pairs of Indices of Stress, by Theater, Based on Experience of Original Men

Dependent variable (y)	Independent variable (x)				
	Calendar days	Division	Regiment	Battalion	Company
<u>ETO</u>					
Division days	y = .91x				
Regiment days	y = .80x	y = .87x			
Battalion days					
Company days	y = .26x	y = .28x	y = .32x		
Company casualties	y = 1.30x	y = 1.41x	y = 1.61.		y = 5.05x
<u>MTO</u>					
Division days	y = .45x				
Regiment days	y = .38x	y = .84x			
Battalion days	y = .23x	y = .50x	y = .58x		
Company days	y = .13x	y = .28x	y = .33x	y = .56x	
Company casualties	y = .61x	y = 1.28x	y = 1.51x	y = 2.59x	y = 4.58x

Table VIII-2

Mean Values of Stress Indices Observed for Original Men, by Theater, Based on Experience in Study Companies Only

Stress index	ETO	MTO
Calendar days/man	82.76	208.31
Division days/man	76.78	92.29
Regimental days/man	67.94	78.70
Battalion days/man	-	47.23
Company days/man	22.80	26.65
Battle casualties per company/man	119.40	124.33

Table VIII-3

Average Interrelations Among Calendar Time and Various Combat-day Scales, Based on Experience of Original Men, by Theater

Type of combat day	ETO	MTO
<u>1. Percentage of calendar days classified as combat days</u>		
Divisional	92.77	44.31
Regimental	82.09	37.78
Battalion	-	22.67
Company	27.54	12.79
<u>2. Percentage of divisional combat days classified as combat days at lower echelons</u>		
Regimental	88.48	85.27
Battalion	-	51.18
Company	29.69	28.87
<u>3. Percentage of regimental combat days classified as combat days at lower echelons</u>		
Battalion	-	60.01
Company	33.55	33.86
<u>4. Percentage of battalion combat days classified as company combat days</u>		
Company	-	56.42

Table VIII-4

Average Number of Company Casualties(KIA + WIA + MIA)
per Calendar or Combat Day, Based on Experience
of Original Men, by Theater

Type of day	ETO	MTO
<u>1. Casualties per company per day</u>		
Calendar	1.44	.60
Divisional combat	1.56	1.35
Regimental combat	1.76	1.58
Battalion "	-	2.63
Company "	5.24	4.67
<u>2. Estimated casualties per 1,000 men per day*</u>		
Calendar	7.46	3.11
Divisional combat	8.08	6.99
Regimental "	9.12	8.19
Battalion "	-	13.63
Company "	27.15	24.20

* Obtained on assumption of T/O strength of 193 EM + officers
(T/O and E 7-17-05, 26 Feb. 1944).

From the company sheets (cf. App. VI) showing day-by-day casualties, runs of consecutive days were tallied for combat status and for noncombat status, defined in relation to battle casualties appearing on the company morning report. Thus a run of 10 combat days means that the company reported at least one battle casualty daily for 10 consecutive days.

Most common are runs of one day, but one run of 256 noncombat days was observed. The distributions vary quite markedly by combat status and by theater, as is suggested by the following mean, median, and upper decile values:

Type of run and statistic	Duration of runs in days	
	ETO companies	MTO companies
Combat runs		
Mean	2.4	2.1
Median	1	1
90th percentile	5	4
Noncombat runs		
Mean	6.6	9.6
Median	3	3
90th percentile	17	22

The full distributions follow, separately for ETO and MTO study companies.

Frequency Distribution of Runs of Company Combat Days and Company Noncombat Days, ETO and MTO Study Companies, by Theater

Consecutive days	ETO		MTO		Consecutive days	ETO		MTO	
	Combat runs	Noncombat runs	Combat runs	Noncombat runs		Combat runs	Noncombat runs	Combat runs	Noncombat runs
1	1,381	829	1,663	881	31	6		5	
2	512	388	725	519	32	4		3	
3	248	275	328	305	33	5		3	
4	188	179	196	224	34	3		7	
5	123	141	100	163	35	3		5	
6	84	107	61	120	36	-		10	
7	56	85	41	109	37	-		9	
8	36	72	22	94	38	6		7	
9	22	58	12	77	39	2		4	
10	20	59	5	52	40	2		6	
11	8	44	8	57	41	3		5	
12	5	51	4	36	42	2		7	
13	3	36		36	43	2		7	
14	1	31		31	44	1		5	
15		32		33	45	2		7	
16	2	28		24	46	2		8	
17		21	1	15	47	2		4	
18	3	22		17	48	4		3	
19		22		13	49	1		3	
20		18		15	50	1		5	
21	1	14		15	51	-		6	
22	2	21		19	52	1		6	
23		15		16	53	-		1	
24	2	20		10	54	-		3	
25		12		16	55	2		6	
26		10		14	56	2		4	
27		8		6	57	-		2	
28		8		4	58	1		3	
29		11		9	59	2		2	
30		12		8	60	-		2	

(Continued)

Consecutive days	ETO		MTO		Consecutive days	ETO		MTO	
	Combat runs	Noncombat runs	Combat runs	Noncombat runs		Combat runs	Noncombat runs	Combat runs	Noncombat runs
61			1		2	99	1		-
62			-		2	...			
63			-		2	102	-		1
64			-		3	...			
65			1		3	104	-		3
66			3		5	...			
67			-		1	109	-		2
68			1		-	...			
69			-		3	171	-		1
70			-		2	...			
71			1		6	176	-		1
72			-		6	177	-		1
73			-		8	...			
74			2		3	239	-		1
75			-		1	240	-		6
76			1		-	241	-		4
..						242	-		1
80			1		1	...			
..						249	-		1
83			1		-	250	-		1
...						...			
85			1		-	256	-		1
..									
93			-		1	Total days	6,498	17,923	6,521 30,240
..									
95			-		3				
96			-		2				
97			-		3	Total runs	2,697	2,697	3,170 3,166
98			-		1				

APPENDIX IX

Aggregate Combat Experience
of Units Entering Into Sampling Plan

Although only 150 companies enter into the sampling plan, they are drawn from 69 regiments of 29 infantry divisions, and construction of the stress indices for each individual man required that the combat experience of each unit (division, regiment, company, and, in MTO, battalion) be studied and recorded in accordance with the plan described in appendix VI. There was thus accumulated, as a byproduct of the investigation, a considerable body of descriptive data on the combat experience of these units. The data have been placed on punched cards and duplicate files given to Mr. Israel Wice, Historical Section, Office of Chief of Staff, U. S. Army. These cards show, unit by unit and month by month, the following data:

<u>Divisions</u>	(Card 1X)	Division combat days in each month EC and IC dates
<u>Regiments</u>	(Card 2X)	Regimental combat days in each month EC and IC dates for parent division
<u>Battalion (MTO)</u>	(Card 3X)	Battalion casualty days in each month EC and IC dates for parent division
<u>Company</u>	(Card 4X)	Company casualty days in each month EC and IC dates for parent division
	(Card 5X)	Company casualties for each calendar month, Nov. 1942 to May 1944, MTO only. EC and IC dates for parent division
	(Card 6X)	Company casualties for each calendar month, June 1944 to May 1945. EC and IC dates for parent division

Definitions of the various combat days, and procedures for recording company casualties, are described in the text and should be consulted before these data are employed for any other purpose.

For reference purposes we append here tables showing the aggregate combat days and company casualties of the various units, either by unit or in distribution form, and tables of distributions of unit-months. The first set of tables consists of the following:

- IX-1 Listing of Infantry Divisions Showing Division Combat Days From EC to V-E Day and Number of Men Contributed to Present Sample
- IX-2 Same, for Regiment
- IX-3 Same, for MTO Battalions
- IX-4 Frequency Distribution of Sample Companies by Number of Company Casualty Days During Entire Combat Period, by Theater
- IX-5 Frequency Distribution of Sample Companies by Number of Company Casualties Sustained During Entire Combat Period, by Theater

Table IX-1

Listing of Infantry Divisions Showing Division Combat Days From EC to V-E Day
And Number of Men Contributed to Present Sample

Infantry division	Number of division combat days ETO sample	Number of original men in sample
2nd	314	30
4th	278	50
5th	269	40
8th	262	40
26th	206	40
28th	221	60
29th	252	60
30th	255	20
35th	256	40
42nd	113	30
44th	165	10
63rd	83	50
78th	129	70
79th	255	40
80th	226	50
83rd	266	50
84th	150	40
87th	142	20
90th	323	40
94th	216	40
95th	146	60
99th	152	40
100th	164	20
102nd	184	30
104th	196	30
	Total	1,000
	Number of division combat days MTO sample	
3rd	442	300
34th	516	60
36th	366	240
45th	468	400
	Total	1,000

Listing of Infantry Regiments Showing Regimental Combat Days
From EC to V-E Day and Number of Men Contributed to Present Sample

Division	Regiment	Number of regimental combat days	Number of original men in sample
	<u>ETO sample</u>		
2nd	9th	279	20
	38th	297	10
4th	8th	264	20
	12th	269	10
	22nd	288	20
5th	2nd	255	10
	11th	239	30
8th	28th	259	30
	121st	277	10
26th	101st	195	20
	104th	196	20
28th	109th	197	10
	110th	196	30
	112th	228	20
29th	115th	232	30
	116th	211	20
	175th	238	10
30th	119th	242	20
35th	134th	232	10
	137th	223	20
	320th	209	10
42nd	242nd	111	30
44th	71st	141	10
63rd	253rd	98	10
	254th	122	20
	255th	122	20
78th	309th	124	30
	310th	123	20
	311th	126	20
79th	313th	202	20
	314th	221	10
	315th	230	10
80th	317th	220	20
	318th	209	20
	319th	204	10
83rd	329th	248	10
	330th	233	20
	331st	194	20
84th	333rd	158	10
	334th	141	10
	335th	122	20
87th	346th	129	10
	347th	121	10
90th	357th	271	20
	358th	274	10
	359th	296	10

(Continued)

Division	Regiment	Number of regimental combat days	Number of original men in sample
	<u>ETO sample (con't.)</u>		
94th	301st	204	10
	302nd	196	20
	376th	170	10
95th	377th	119	10
	378th	123	30
	379th	137	20
99th	393rd	146	20
	394th	133	10
	395th	131	10
100th	397th	167	10
	399th	161	10
102nd	405th	115	10
	407th	118	20
104th	414th	152	20
	415th	184	10
		Total	1,000
	<u>MTO sample</u>		
3rd	7th	373	120
3rd	30th	386	180
34th	135th	469	60
36th	141st	318	60
36th	142nd	312	180
45th	157th	385	120
45th	179th	449	160
45th	180th	388	120
		Total	1,000

Table IX-3

Listing of MTO Rifle Battalions Showing Battalion Casualty Days From EC to V-E Day and Number of Men Contributed to Present Sample

Division	Regiment	Battalion	Number of battalion casualty days	Number of original men in sample
3rd	7th	1st	263	60
3rd	7th	2nd	258	60
3rd	30th	1st	247	60
3rd	30th	2nd	255	60
3rd	30th	3rd	249	60
34th	135th	3rd	200	60
36th	141st	2nd	197	60
36th	142nd	1st	165	60
36th	142nd	2nd	163	60
36th	142nd	3rd	184	60
45th	157th	1st	286	60
45th	157th	3rd	265	60
45th	179th	1st	217	60
45th	179th	2nd	236	40
45th	179th	3rd	222	60
45th	180th	2nd	240	60
45th	180th	3rd	226	60
			Total	1,000

Table IX-4

Frequency Distribution of Sample Companies by Number of Company Casualty Days From EC to V-E Day, by Theater

Company casualty days	Number of companies		
	MTO	ETO	Total
10-19	-	2	2
20-29	-	8	8
30-39	-	8	8
40-49	-	18	18
50-59	-	12	12
60-69	-	13	13
70-79	-	6	6
80-89	-	10	10
90-99	7	11	18
100-109	5	5	10
110-119	6	3	9
120-129	6	2	8
130-139	6	1	7
140-149	4	1	5
150-159	10	-	10
160-169	6	-	6
Total	50	100	150

Table IX-5

Frequency Distribution of Sample Companies by Number of Battle Casualties Sustained From EC to V-E Day, by Theater

Number of battle casualties *	Number of companies		
	MTO	ETO	Total
50-99	-	2	2
100-149	-	9	9
150-199	-	17	17
200-249	-	11	11
250-299	-	7	7
300-349	-	8	8
350-399	1	9	10
400-449	4	6	10
450-499	4	8	12
500-549	7	6	13
550-599	5	3	8
600-649	7	9	16
650-699	5	1	6
700-749	1	1	2
750-799	6	1	7
800-849	3	2	5
850-899	2	-	2
900-949	-	-	-
950-999	1	-	1
1000-1049	1	-	1
1050-1099	-	-	-
1100-1149	2	-	2
1150-1199	-	-	-
1200-1249	1	-	1
Total	50	100	150

* Based on morning reports and covering KIA, WIA, IIA and MIA.

The unit data are also of interest in relation to calendar time, and to exhibit these data we have prepared the following tables for the units included in the sampling plan:

- IX-6 Distribution of Division Months by Number of Division Combat Days Per Calendar Month, by Theater
- IX-7 Distribution of Regiment Months by Number of Regiment Combat Days Per Calendar Month, by Theater
- IX-8 Distribution of Battalion Months by Number of Battalion Combat Days Per Calendar Month, MTO Sample
- IX-9 Distribution of Company Months by Number of Company Combat Days Per Calendar Month, by Theater, Complete Calendar Months Only
- IX-10 Distribution of Company Months by Number of Company Casualties (KIA, WIA, and MIA) Per Calendar Month, by Theater
- IX-11 Percentage of Calendar Days Classified as Division Combat Days, by Calendar Month, ETO Sample Only
- IX-12 Percentage of Calendar Days Classified as Regiment Combat Days, by Calendar Month, ETO Sample Only
- IX-13 Percentage of Calendar Days Classified as Company Combat Days, by Calendar Month, by Theater
- IX-14 Number of Casualties Per Company Per Calendar Month, by Theater

Table IX-6

Distribution of Division Months by Number of Division
Combat Days Per Calendar Month, by Theater

Number of division combat days per calendar month	Number of division months	
	In ETO sample	In MTO sample
00	3	19
04		3
05	1	2
07	1	1
08	1	
09		2
10	1	1
11	2	
12	3	2
13		3
14	1	
15		1
16	3	1
17	2	10
18	3	1
19	5	2
20	4	2
21	2	3
22	2	1
23	1	1
24	6	
25	6	
26	6	3
27	10	1
28	20	3
29	7	3
30	32	14
31	<u>51</u>	<u>16</u>
Total	173	95

Table IX-7

Distribution of Regiment Months by Number of Regiment
Combat Days Per Calendar Month, by Theater

Number of regiment combat days per calendar month	Number of regiment months	
	In ETO sample	In MTO sample
00	3	38
01		1
02	2	2
03		2
04	1	1
05	4	4
06	4	2
07	3	
08	6	2
09	4	5
10	2	4
11	4	2
12	5	2
13	7	6
14	10	7
15	6	9
16	9	6
17	4	9
18	18	1
19	14	4
20	12	5
21	11	5
22	19	2
23	14	4
24	26	7
25	15	4
26	20	6
27	15	4
28	39	7
29	24	6
30	56	9
31	<u>70</u>	<u>19</u>
Total	427	185

Table IX-8

Distribution of Battalion Months by Number of Battalion
Combat Days Per Calendar Month, MTO Sample

Number of battalion casualty days per calendar month	Number of battalion months in MTO sample
00	80
01	8
02	8
03	11
04	13
05	16
06	13
07	13
08	18
09	19
10	21
11	19
12	19
13	15
14	15
15	13
16	17
17	17
18	9
19	6
20	17
21	7
22	4
23	5
24	4
25	2
26	1
27	2
28	-
29	1
30	-
31	1
Total	394

Distribution of Company Months by Number of Company Combat Days
Per Calendar Month, by Theater, Complete Calendar Months Only

Number of company casualty days per calendar month	Number of company months	
	In ETO sample	In MTO sample
00	38	278
01	35	56
02	41	60
03	45	71
04	51	64
05	39	87
06	48	83
07	47	90
08	40	84
09	58	66
10	41	48
11	37	41
12	40	37
13	32	33
14	26	25
15	18	11
16	15	4
17	9	10
18	10	6
19	13	4
20	5	2
21	6	
22	2	
23	-	
24	2	1
25	1	
26	-	
27	-	
28	1	
29	-	
30	-	
31	-	
Total	700	1,161

Table IX-10

Distribution of Company Months by Number of Company Casualties (KIA, WIA, and MIA) Per Calendar Month, by Theater Complete Calendar Months Only

Number of company casualties per calendar month	Number of company months	
	In ETO sample	In MFO sample
000	30	243
001-009	117	183
010-019	96	144
020-029	88	147
030-039	71	118
040-049	59	98
050-059	52	76
060-069	45	47
070-079	30	42
080-089	22	18
090-099	23	15
100-109	10	9
110-119	8	7
120-129	9	7
130-139	8	2
140-149	5	
150-159	9	1
160-169	5	
170-179	5	1
180-189	3	2
190-199	2	
200-209	1	
210-219		
220-229	1	
230-239		
240-249		
250-259		
260-269		1
270-279		
280-289	1	
Total	700	1,161

Table IX-11

Percentage of Calendar Days Classified as Division Combat Days, by Calendar Month, ETO Sample Only

Calendar month	Number of divisions in combat	Percentage of division combat days
June 1944	7	99.2
July	11	92.0
August	12	86.4
September	13	87.9
October	18	95.9
November	21	94.9
December	25	91.3
January 1945	25	89.8
February	25	78.7
March	25	75.4
April	24	88.1
May	16	96.8
Total	25	87.7

Table IX-12

Percentage of Calendar Days Classified as Regiment
Combat Days, by Calendar Month, ETO Sample Only

Calendar month	Number of regiments in combat	Percentage of regiment combat days
June 1944	18	92.9
July	28	81.6
August	31	75.4
September	34	82.0
October	44	87.8
November	52	85.4
December	61	82.0
January 1945	61	86.5
February	61	69.1
March	61	64.9
April	58	82.2
May	37	90.8
Total	61	79.6

Table IX-13

Percentage of Calendar Days Classified as Company
Combat Days, by Calendar Month, by Theater*

Calendar month	MTO companies		ETO companies	
	Number of companies in combat	Percentage of combat days	Number of companies in combat	Percentage of combat days
November 1942	15	14.8		
December	15	0.0		
January 1943	15	0.0		
February	18	.42		
March	18	1.6		
April	18	3.7		
May	18	.36		
June	18	0.0		
July	38	17.3		
August	38	7.8		
September	50	14.9		
October	50	14.7		
November	50	24.0		
December	50	16.6		
January 1944	50	10.6		
February	50	39.0		
March	50	19.9		
April	50	12.3		
May	50	24.1		
June	50	15.7	29	60.0
July	50	3.0	47	47.1
August	50	13.1	52	32.5
September	50	31.0	56	27.7
October	50	37.7	73	22.0
November	50	24.0	83	32.8
December	50	26.8	100	30.1
January 1945	50	27.1	100	27.0
February	50	12.6	100	21.0
March	50	20.3	100	20.2
April	50	19.3	94	19.5
May	50	4.9	60	6.1
Total	50	17.8	100	27.0

* Within calendar limits of divisional EC and IC dates.

Number of Casualties Per Company Per Calendar Month, by Theater*

Calendar month	MTO companies		ETO companies	
	Number of companies in combat	Number of casualties per company calendar day	Number of companies in combat	Number of casualties per company calendar day
November 1942	15	0.53		
December	15	0		
January 1943	15	0		
February	18	0.01		
March	18	0.18		
April	18	0.37		
May	18	0.02		
June	18	0		
July	38	0.74		
August	38	0.62		
September	50	1.03		
October	50	0.67		
November	50	0.92		
December	50	0.61		
January 1944	50	0.64		
February	50	2.23		
March	50	0.94		
April	50	0.38		
May	50	1.49		
June	50	1.39	29	3.56
July	50	0.13	47	3.81
August	50	0.64	52	2.06
September	50	1.40	56	1.46
October	50	1.82	73	0.94
November	50	1.15	83	2.00
December	50	1.14	100	1.62
January 1945	50	1.28	100	1.22
February	50	0.64	100	1.05
March	50	1.49	100	0.98
April	50	0.69	94	0.79
May	50	0.27	60	0.29
Total	50	0.91	100	1.47

* Within calendar limits of divisional EC and IC dates.

Appendix X

Summary Data on Admission Experience of Originals and Replacements

The abstracting plan necessitated the accumulation of certain information about admissions to hospital and quarters, i. e., departure from the unit involving a loss of time of one day or more in medical channels. The resulting information has been used in the body of the report in connection with the analysis of sociological factors for their possible association with the chance of becoming a battle casualty or a psychiatric casualty. Here are shown, for reference purposes, the aggregate experience of the sample for the three periods of service, that is, before, during, and after leaving the study companies, as well as after separation from service. It may be noted in passing that the period in the study companies (EC to LC) examined here includes any service with the company, even if the man had been moved to a low-risk job, between EC (division) and the date the man finally left the company if he left before it was withdrawn from combat, or the date the company was withdrawn from combat (usually V-E Day) if the man was in the unit at that time.

Table X-1 provides a summary of the entire admission experience of the sample by period of service. Apart from the numerical values of the various estimates the chief point of interest is the continuing rate of psychiatric admissions after men left the study companies. This is .52 per 1,000 men per day (about 190 per 1,000 men per year) for men who later saw service in other combat units before V-E Day and .18 (about 66 per 1,000 men per year) for men whose combat ceased when they left the study companies. Although it is not directly pertinent to the purposes of the study, we undertook to explore the various sociological factors for their possible influence upon admission

experience after men left their study companies, care being taken to distinguish between men who saw combat elsewhere and men who did not. Examined in this way and found to have no association with the chance of psychiatric breakdown are age at EC, component of the A.U.S., service command of origin, AGCT score, marital status at EAD, adequacy of infantry training prior to EC, MOS at EC, calendar time from EC to LC, company casualty days from EC to LC, and individual awards and decorations. Factors which seem to be associated with the chance of a psychiatric admission in the period after LC, for men with no further combat after LC, are the following, for each of which a summary table is attached:

<u>Table number</u>	<u>Subject</u>
X-2	Educational level at EAD
X-3	Demotions in grade, any time after EAD
X-4	Courts-martial for AWOL prior to EC
X-5	Number of admissions in period EC to LC
X-6	Number of wounds in period EC to LC
X-7	Reason for final departure

For the period from separation to June 1952 a count was made of admissions to VA hospitals for psychiatric diagnoses. Such admissions were recorded for 72 men; table X-8 gives the frequency distribution of such admissions in association with the number of psychiatric admissions during service. The correlation is definite but low as is plain from the several panels of the table; four-fold correlation coefficients were calculated on the basis of the proportions with any or none for each period, and found to be as follows:

Originals	
MTO	.15
ETO	.20
Replacements	.15

The investigation of psychiatric admissions to VA hospitals after separation was extended to a search for a relation to a history of WIA (or IIA) during Army service. None was found, but the necessary observations appear in table X-9.

Table X-1

Number of Men, Months of Exposure, and Admissions to Hospital and Quarters, by Period of Service, for Several Broad Diagnostic Groups

Component of sample	Number of men	Aggregate man-months of exposure	Number of admissions			Rates**		
			P	WIA	Total	P	WIA	Total
<u>Period From EAD to EC</u>								
Originals								
MTO	1,000	21,795	10	*	*	<u>0.015</u>	*	*
ETO	1,000	23,519	13	*	*	<u>.018</u>	*	*
Replacements	500	6,463	6	*	*	<u>.031</u>	*	*
Total	2,500	51,777	29	*	*	<u>.019</u>	*	*
<u>Period From EC to LC</u>								
Originals								
MTO	1,000	8,666	210	540	1,470	<u>.81</u>	<u>2.08</u>	<u>5.65</u>
ETO	1,000	3,418	166	616	961	<u>1.62</u>	<u>6.01</u>	<u>9.37</u>
Replacements	500	1,736	103	300	512	<u>1.98</u>	<u>5.76</u>	<u>9.83</u>
Total	2,500	13,820	479	1,456	2,943	<u>1.16</u>	<u>3.51</u>	<u>7.10</u>
<u>Period From LC to Separation, by Combat Status ***</u>								
<u>After LC, Deaths Excluded +</u>								
Originals								
MTO								
Other combat	115	2,911	47	72	*	.54	.82	*
No other combat	690	10,679	73	13	*	.23	.04	*
Total	805	13,590	120	85	*	.29	.21	*
ETO								
Other combat	30	407	6	5	*	.49	.41	*
No other combat	812	8,532	24	1	*	.09	.00	*
Total	842	8,939	30	6	*	.11	.02	*

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Component of sample	Number of men	Aggregate man-months of exposure	Number of admissions			Rates**		
			P	WIA	Total	P	WIA	Total
Replacements								
Other combat	17	240	3	3	*	.42	.42	*
No other combat	388	4,251	29	2	*	.23	.02	*
Total	405	4,491	32	5	*	.24	.04	*
Entire series								
Other combat	162	3,558	56	80	*	.52	.75	*
No other combat	1,890	23,462	126	16	*	.18	.02	*
Total	2,052	27,020	182	96	*	.22	.12	*

+ There were 195 deaths in MTO originals, 158 in ETO originals, and 95 in replacements
 * Not available
 ** Admissions per 1,000 men per calendar day
 *** Other combat here means the man saw duty before V-E Day in a combat unit excluded from the sample of study companies

Table X-2

Psychiatric Admissions Per 1,000 Men Per Calendar Day, From LC to Separation, for All Men Who Saw No Further Combat After LC, by Educational Level

Educational level at EAD	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
7 years or less	355	4,256	25	.20
8 years	380	4,889	29	.20
9-11 years	582	7,421	52	.23
12 years or more	570	6,862	20	.10
Total	1,887	23,428	126	.18
P				<.01

Table X-3

Psychiatric Admissions Per 1,000 Men Per Calendar Day, From LC to Separation, for all Men Who Saw No Further Combat After LC, by Demotion Record Between EAD and EC

Demotion record	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
No demotion	1,627	22,157	100	.15
Demoted	263	3,177	26	.27
Total	1,890	25,334	126	.17
P				<.05

Table X-4

Psychiatric Admissions Per 1,000 Men Per Calendar Day,
From LC to Separation, for All Men Who Saw No Further
Combat After LC, by AWOL Record Between EAD and EC

AWOL record	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
None	1,742	21,445	101	.16
One or more	148	2,017	25	.41
Total	1,890	23,462	126	.18
P				<.01

Table X-5

Psychiatric Admissions Per 1,000 Men Per Calendar
Day, From LC to Separation, for All Men Who Saw No Further
Combat After LC, by Number of Psychiatric Admissions in Period EC to LC

Psychiatric admissions	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
None	1,479	18,224	61	.11
One or more	411	5,238	65	.41
Total	1,890	23,462	126	.18
P				<.01

Table X-6

Psychiatric Admissions Per 1,000 Men Per Calendar Day,
From LC to Separation, for All Men Who Saw No Further
Combat After LC, by Number of Wounds in Period EC to LC

Admissions for wounds	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
None	802	10,346	82	.26
One or more	1,088	13,166	44	.11
Total	1,890	23,462	126	.18
P				<.01

Table X-7

Psychiatric Admissions Per 1,000 Men Per Calendar Day,
From LC to Separation, for All Men Who Saw No Further
Combat After LC, by Reason for Final Departure

Reason for final departure	Number of men	Man-months of exposure	Number of psychiatric admissions	Daily rate
Battle (12, 13, 18,11,14,15)	797	11,089	31	.09
Disease and non- battle injury	<u>525</u>	<u>7,073</u>	<u>73</u>	<u>.34</u>
Psychiatric (20,21)	244	3,231	46	.47
Other (16,31)	281	3,842	27	.23
All other	568	5,300	22	.14
Total	1,890	23,462	126	.18
P				<.01

Table X-8

Distribution of Men as to Number of Psychiatric Admissions in Military Service and Subsequently, by Component of Sample

Number of admissions in period EAD to separation	Percentage distribution as to number of psychiatric admissions from separation to June 1952, to VA hospitals					Total	Number of men
	0	1	2	3	7		
<u>MTO Originals</u>							
0	98.2	0.8	0.7	0.3	-	100.0	737
1	91.8	6.8	1.0	-	0.5	100.1	207
2	94.9	5.1	-	-	-	100.0	39
3	100.0	-	-	-	-	100.0	8
4	75.0	-	25.0	-	-	100.0	8
Total	96.6	2.2	0.9	0.2	0.1	100.0	999
<u>ETO Originals</u>							
0	98.9	1.0	0.1	-	-	100.0	836
1	90.7	7.0	2.3	-	-	100.0	129
2	89.3	10.7	-	-	-	100.0	28
3	100.0	-	-	-	-	100.0	4
4	100.0	-	-	-	-	100.0	3
Total	97.6	2.0	0.4	-	-	100.0	1,000
<u>ETO Replacements</u>							
0	98.7	1.3	-	-	-	100.0	386
1	95.7	4.3	-	-	-	100.0	92
2	88.2	5.9	-	5.9	-	100.0	17
3	60.0	20.0	-	20.0	-	100.0	5
Total	97.4	2.2	-	0.4	-	100.0	500

Table X-9

Percentage Distribution of Men as to Number of Psychiatric Admissions to VA Hospitals After Separation, by Number of WIA (or IIA) in Service, by Component of Sample

Number of admissions in period EAD to separation	Percentage distribution as to number of psychiatric admissions from separation to June 1952, to VA hospitals					Total	Number of men
	0	1	2	3	7		
<u>MTO Originals</u>							
0	97.1	2.2	0.8	-	-	100.1	511
1	95.7	2.4	1.1	0.5	0.3	100.0	371
2	97.9	2.1	-	-	-	100.0	997
3	94.4	-	5.6	-	-	100.0	18
4	100.0	-	-	-	-	100.0	2
Total	96.6	2.2	0.9	0.2	0.1	100.0	999
<u>ETO Originals</u>							
0	97.6	1.7	0.7	-	-	100.0	459
1	97.4	2.4	0.2	-	-	100.0	464
2	98.6	1.4	-	-	-	100.0	73
3	100.0	-	-	-	-	100.0	4
Total	97.6	2.0	0.4	-	-	100.0	1,000
<u>ETO Replacements</u>							
0	96.2	3.4	-	0.4	-	100.0	234
1	98.7	0.9	-	0.4	-	100.0	231
2	100.0	-	-	-	-	100.0	30
3	75.0	25.0	-	-	-	100.0	4
4	100.0	-	-	-	-	100.0	1
Total	97.4	2.2	-	0.4	-	100.0	500

Appendix XI

Some Observations on the Relation Between VA Compensation for Psychiatric Disability and History of Prior Psychiatric Breakdown, and on the Extent of VA Psychiatric Treatment Among Long-Lasting Men

Since the trauma which leads to psychiatric breakdown often seems to be only slowly cumulative, it is pertinent to ask whether any large number of men first break down only after leaving combat. Accordingly, we chose at random 50 of the long-lasting men from each of the ETO and MTO rosters and tallied their military and veteran experience as follows:

	ETO originals	MTO originals	Total
<u>Number of men</u>	50	50	100
<u>Military experience</u>			
One or more P departures	6	11	17
No P departures			
One or more later P admissions	4	2	6
No later P admissions	40	34	74
<u>VA outpatient treatment</u>			
One or more visits	0	3	3

All 3 men with VA outpatient treatment are men with no P departures or admissions in service. We have, then, as our estimates of breakdown after leaving combat, for these long-lasting men with no prior breakdown,

6/80 broke before separation.

9/80 broke before separation or required VA outpatient treatment.

If we compare these ratios with the proportion with breakdown in combat we have:

Proportion with P departure from combat	.17
Proportion with later P, in men with no P departure from combat (9/80)	.11
Proportion with either P departure from combat or later P (26/100)	.26

In this small sample, then, 9/26 men with "breakdown" suffered such breakdown only after leaving combat. This ratio has a high sampling error, the 99-percent confidence interval being .134 to .615, but it does nevertheless indicate that such breakdowns occur to a significant extent.

In August 1953 the entire sample of 2,000 original men was cleared through the VA Central Index to determine its compensation status. The VA showed 1,623 survivors of the original cohort, subdivided as follows:

	<u>ETO</u>	<u>MTO</u>	<u>Total</u>
No VA claim	99	104	203
VA claim of some kind			
With compensation on psychiatric grounds	71	106	177
Without	659	584	1,243
Total	829	794	1,623

For the most part men drawing compensation on psychiatric grounds were rated at 10 or 30 percent; the full distribution appears in table XI-1. It was obviously of interest to relate the fact of VA compensation to some of the simpler aspects of the military history, especially as to psychiatric breakdown. These tables were run on the 1,630 men alive on 31 December 1951; 7 of these men had died by August 1953.

The coding of psychiatric admissions divides the experience into four periods - before EC, EC to LC, LC to separation, and separation through 1951. As

a first step in the analysis, for each of these periods we found the relation between a history of one or more psychiatric admissions in that period and the likelihood of compensation, with the result shown in table XI-2. Two facts seem to stand out there: (1) The likelihood of VA compensation for psychiatric disability is about 5 percent for combat veterans who never broke down in service at all; and (2) the likelihood of compensation seems especially high for men who broke down after leaving combat, both before and after separation from service. In view of the latter finding, the experience of all four periods was then studied with regard to the pattern linking the four periods, but again without regard to the number of psychiatric admissions in any one period. Table XI-3 provides the details for this analysis, from which it appears that men with admissions after LC, on the average, had admissions in more periods than those whose only admissions were earlier. On the average, men with admissions prior to LC had admissions in 1.2 periods, and men with admissions after LC had admissions in 1.5 periods. Moreover, if we confine our attention to men with admissions in a single period, we see that those whose breakdown was before LC were compensated at the rate of 20 percent, while those whose breakdown occurred only after LC were compensated at the rate of 27 percent - very little more. Although the data are by no means conclusive, it appears as though the effect is largely a quantitative one: The more breakdowns a man had the more likely he was to receive compensation. Perhaps this is most readily seen if we examine the 123 men with admissions from LC to separation, and the 59 with admissions thereafter, according to the pattern of table XI-3. We then find that 27 percent of the men whose only admissions were in one of these periods were compensated,

while men who also had earlier breakdowns as well were compensated at the rate of 64 percent. We are left, then, with the following summary of the data on this point:

Period of admission	Percentage compensated	
	Admissions in one period only	Admissions in both periods
Before LC	20	64
After LC	27	

A tally was also made according to the total number of psychiatric admissions in all four periods and has been summarized in table XI-4, which shows about the same variation as was seen in table XI-3.

Incident to the above analysis some information was also obtained on the relation between admissions in one period and the likelihood of admissions in another. Three relationships were explored:

1. Between breakdown in the period EC to LC and breakdown from LC to separation;
2. between breakdown in the period EC to LC and VAH admission after separation; and
3. between breakdown in service and VAH admission thereafter.

As table XI-5 shows, there is a reliable but weak association between breakdown in the period EC to LC and breakdown from LC to separation. The association is only a little stronger between breakdown in the combat period and VAH admission after separation; table XI-6 contains the details. The latter relationship is refined slightly if account is taken of the experience from LC to separation, as table XI-7 shows:

Distribution of Original Men Drawing VA Compensation for Psychiatric Disability in August 1953, by Percentage Rating for Such Disability

Percentage rating	ETO sample	MTO sample	Total
10	29	58	87
20	6	1	7
30	23	35	58
40	2	1	3
50	3	2	5
60	2	4	6
70	1	1	2
80		1	1
90		1	1
100	5	2	7
Total	71	106	177

Table XI-2

Percentage of Original Men Drawing VA Compensation for Psychiatric Disability in August 1953, by Prior Psychiatric Experience

Period of service	No admissions in indicated period		One or more admissions in indicated period		P
	Total men	Percentage compensated	Total men	Percentage compensated	
EAD to EC	1,615	<u>10.7</u>	15	<u>26.7</u>	>.05
EC to LC	1,306	<u>6.7</u>	324	<u>27.8</u>	<.01
LC to separation	1,507	<u>8.5</u>	123	<u>39.8</u>	<.01
Total - EAD to separation	1,214	<u>4.9</u>	416	<u>28.4</u>	<.01
Separation to follow-up	1,571	<u>9.2</u>	59	<u>55.9</u>	<.01

Table XI-3

Percentage of Men Drawing VA Compensation for Psychiatric Disability in August 1953, by History of Psychiatric Breakdown in Various Periods

Pattern of admissions in the four periods				Total number of men	Compensated	
Before EC	EC to LC	LC to separation	Separation to follow-up		Number	Percent
None in any period				1,191	52	<u>4.4</u>
<u>One Period Only</u>						
0	0	0	X	23	7	<u>30</u>
0	0	X	0	73	19	<u>26</u>
0	X	0	0	259	52	<u>20</u>
X	0	0	0	8	1	<u>12</u>
Total				363	79	<u>22</u>
<u>Two Periods Only</u>						
X	X	0	0	4	0	<u>0</u>
0	X	X	0	34	18	<u>53</u>
0	X	0	X	21	15	<u>71</u>
0	0	X	X	11	8	<u>73</u>
Total				70	41	<u>59</u>
<u>Three Periods</u>						
X	X	X	0	2	2	<u>100</u>
0	X	X	X	3	2	<u>67</u>
X	X	0	X	1	1	<u>100</u>
Total				6	5	<u>83</u>
Grand total				1,630	177	<u>11</u>

Table XI-4

Percentage of Men Drawing VA Compensation for Psychiatric Disability in August 1953, by Number of Psychiatric Admissions in All Four Periods

Number of admissions	Total number of men	Compensated	
		Number	Percent
0	1,191	52	<u>4.4</u>
1	312	69	<u>22</u>
2	91	35	<u>38</u>
3	24	14	<u>58</u>
4	9	6	<u>67</u>
5 or more	3	1	<u>33</u>
Total	1,630	177	<u>11</u>

Table XI-5

Percentage of Men With Psychiatric Admissions From LC to Separation, by Experience in Period EC to LC, by Theater

Psychiatric admissions in period EC to LC, and theater	Total number of men	Men with psychiatric admissions from LC to separation		P*
		Number	Percent	
<u>ETO</u>				
None	693	17	<u>2.5</u>) .02
One or more	139	10	<u>7.2</u>	
Total	832	27	<u>3.2</u>	
<u>MTO</u>				
None	613	67	<u>10.9</u>) >.05
One or more	185	29	<u>15.7</u>	
Total	798	96	<u>12.0</u>	
<u>Both samples combined</u>				.01

*In a two-tailed test.

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Table XI-6

Percentage of Men With Psychiatric Admissions to VAH After Separation, by Experience in Period EC to LC, by Theater

Psychiatric admissions in period EC to LC, and theater	Total number of men	Men with VAH admissions		P*
		Number	Percent	
<u>ETO</u>				
None	693	13	<u>1.9</u>) <.01
One or more	139	11	<u>7.9</u>	
Total	832	24	<u>2.9</u>	
<u>MTO</u>				
None	612	21	<u>3.4</u>) .02
One or more	185	14	<u>7.6</u>	
Total	797	35	<u>4.4</u>	
<u>Both samples combined</u>				<.01

*In a two-tailed test.

Table XI-7

Percentage of Cases With Psychiatric Admissions to VAH After Separation, by Pattern of Experience During Combat and After Combat Periods in Service

Pattern of psychi- atric admissions	ETO				MTO		
	After combat	Total number of men	Men with VAH admission		Total number of men	Men with VAH admission	
			Number	Percent		Number	Percent
0	0	676	9	<u>1.3</u>	546	14	<u>2.6</u>
X	0	129	11	<u>8.5</u>	156	11	<u>7.1</u>
0	X	17	4	<u>23.5</u>	67	7	<u>10.4</u>
X	X	10	0	<u>0.0</u>	29	3	<u>10.3</u>
Total		832	24	<u>2.9</u>	798	35	<u>4.4</u>
P			<.01		<.01		

APPENDIX XII

Bearing of Questionnaire Replies on Rotation Policy

The questionnaire plan was oriented toward the problem of possible bias in the duty assignment of long-lasting men in rifle companies, and did not explicitly ask for opinions about rotation policy. However, the letters accompanying the questionnaire (cf. appendix V) made it plain that interest in rotation policy motivated the study in large part, and at the end of the questionnaire appeared the following invitation to write in such opinions as the respondent wished:

"In the space provided below add such thoughts as you think might help the study. For example, you may have suggestions about a combat rotation policy, the selection and training of officers as combat leaders, or how to improve morale in a combat outfit. Do not hesitate to add anything you think is important to a realistic study."

By the time cards were punched there had been 384 replies, distributed as follows among the three components of the sample:

	<u>Total replies</u>	<u>Rotation comment</u>
Originals - MTO	166	69
ETO	143	57
Replacements	75	29
	<hr/>	<hr/>
Total	384	155

In all, 155 men, or just 40 percent of those who returned the questionnaire, volunteered opinion about rotation policy. The comment thus obtained was quite varied in its content and completeness, but a code was constructed to facilitate the production of simple tables. Tables 12-1-3 exhibit the information thus obtained. Few of the men who made some comment about rotation policy did so in

terms of unit rotation, as may be seen from table 12-3, so that the opinions expressed may be regarded as essentially limited to policy governing the rotation of individuals. In table 12-1 we see that the great majority (81 percent of those expressing an opinion on this point) considered that rotation policy should be based on some fixed number of combat days. Specific rules for effecting rotation were less often enunciated, but of the 76 men expressing an opinion, 43 percent thought in terms of 200 days or more. A "day" was not defined in these comments, but probably represents a calendar day within the period in which units are in the line. Thus 200 days would perhaps correspond to about 60 company combat days and 180 regimental combat days as these are defined here. The opinions summarized in table 12-2 seem adequately realistic in the light of the World War II experience.

A distinction was made between rotation, or change of duty involving permanent relief from combat duty, and temporary rest. Only 43 men, or 11 percent of those who returned questionnaires, volunteered opinions about the need for temporary rest periods in contrast to 40 percent making comments about rotation policy. Table 12-4 suggests that these men considered that such temporary rest periods should occur roughly at 14- to 30-day intervals, and table 12-5 that rest periods should last from three days to a week. Only 26 men commented on the relation between rotation and such temporary rest periods, but 16 of these considered rotation the more important.

Finally, in coding the comments which men made on factors involved in morale, it was noted that a good rotation plan was more frequently mentioned than any other single factor. In all, 218, or 57 percent of the respondents, spontaneously expressed an opinion about morale, and 85, or 39 percent of these 218, cited a good rotation plan as a factor in maintaining morale. Officers were

cited as an element in morale by 76 men, or 35 percent, and rest periods by 60 men, or 28 percent. Table 12-6 contains the frequencies with which various factors were mentioned. Plainly these long-lasting men regard a suitable rotation plan as a major element in the maintenance of morale.

Following the above analysis of the free responses, the entire set was reviewed to select representative statements of opinion and to give expression to views which were not recognized in the coding categories. The selection was highly subjective, governed by no rigorous criteria. However, it was influenced by certain considerations which can be made explicit:

1. Preference was given to thoughts or suggestions not contained in other replies.
2. Incomplete, incoherent, or unintelligible responses were avoided.
3. Niceties of grammar and spelling were ignored in making the selection.
4. Recitations of purely personal experiences of no apparent general significance were not chosen.

All the replies were first placed into four groups: Poor, fair, good, and very good. The final selection of 61 replies was then made from the two superior categories.

Editing has not been attempted beyond correction of obvious misspelling and the elimination of personal or identifying remarks and of irrelevant comments such as "I hope I have helped in some way."

Table XII-1

Opinions as to Principle upon which
Individual Rotation Plan Should Be Based

Thinks rotation plan should be based on:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
Number of combat days	21	45	51
Individual judgment of commanding officer, doctor, or psychiatrist	4	3	5
Severity of combat, weather, and physical conditions		3	7
Point system based on volunteering for extra hazardous assignments		2	1
Woundings	1	1	1
Qs. returned with comment on rotation; no opinion expressed on this aspect	3	3	4
Qs. returned with no opinion expressed on rotation	46	86	97

Table XII-2

Opinions as to Specific Rules for Determining Eligibility
for Individual Rotation

Thinks individuals should be rotated:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
After 30 days of combat	2	5	2
After 60 days of combat	2	1	2
After 90-100 days of combat	2	4	3
After 101-125 days of combat	1		
After 126-150 days of combat		3	1
After 151-175 days of combat			
Every 6 months	3	7	5
After 200-250 days of combat	2	2	4
Every year	2	4	19
Qs. returned with comment on rotation; no opinion expressed on this aspect	15	31	33
Qs. returned with no opinion expressed on rotation	46	86	97

Table XII-3

Opinions as to Unit Rotation

Thinks unit rotation should be made after:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
Specific time on line	2	4	6
Specific number of casualties			3
Qs. returned with comment on rotation; no opinion expressed on this aspect	27	53	60
Qs. returned with no opinion expressed on rotation	46	86	97

Table XII-4

Opinions as to Eligibility for Temporary Rest from Combat

Thinks men should be eligible for rest after:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
3-5 days of combat	1	1	
1 week of combat	1	2	4
2 weeks of combat		5	5
3 weeks of combat	1		
30 days of combat	1	1	10
Night patrol or particularly hazardous assignment		2	
Qs. returned with comment on temporary rest, but none on this aspect		2	7
Qs. returned with no comment on temporary rest	72	129	140

Table XII-5

Opinions as to Duration of Temporary Rest Periods

Thinks duration of rest should be:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
3 days	1	4	9
5 days			4
1 week		3	5
Rest needed; duration not specified			
Qs. returned with comment on temporary rest, but none on this aspect	2	7	8
Qs. returned with no comment on temporary rest	72	129	140

Table XII-6

Opinions as to Factors in Morale of Combat Troops

Considered as a factor in morale:	ETO replacements	ETO originals	MTO originals
Total	75	143	166
Group loyalty	4	18	15
Previous training as a unit		6	5
Individual training		3	4
Knowledge of the combat situation	1	9	6
Organized recreation program		5	7
Mail	6	5	6
Individual disposition		4	20
Good rotation plan	13	16	56
Rest periods	13	13	34
Food, sleep, warm clothing	5	11	16
Discipline		3	7
Weather			2
Officers	9	29	38
Gripe sessions	1	1	
Adequate weapons and ammunition	1	2	3
Recognition of time spent at front		3	7
Religion	5	4	7
Too long on the line	7	9	36
Casualties	3	4	9
Home front situation, strikes, etc.	3	1	4
Reassignments of either officers or enlisted men while the unit is in combat	1	2	2
A particularly brave company or platoon being penalized by being sent on too many dangerous assignments		4	3
Qs. returned without comment on morale	35	69	60

0014 "I would suggest rotation of combat troops with sixty days combat duty to some other service for a period of at least thirty days, after which they might be called in again. I have seen men despair of hope of ever living to be relieved. They did not live until relief came.

"I think that a tenacious will to live, avoiding every possible unnecessary risk, and a strong faith in God, are worthy assets in being able to stand up under combat conditions."

0044 "There were many times when I felt as if I couldn't go any farther, and I know I was not alone in this thinking. However, by the love and loyalty we had for each other, we were encouraged to go on.

"I was a Christian, and of course every man wants to live on earth as long as he possibly can, but I felt if death came to me, I would not be afraid. I saw my buddies die on both sides of me and it hurt me as if it was my brother, yet it made me fight more vicious.

"I think the chaplains should be more active on the Line than they were when I was up there. There were very few services held for the Protestants.

"I think an officer should place himself on equal status with his men, as did my officers, who would say, 'Come on -----, go with me out here to get this machine gun nest.' This seemed to give me strength.

"I had a wife, mother, and friends whom were very much interested in me and wrote me letters, and I wrote them letters every chance I had. Many of the letters my wife kept, are stained with mud and water.

"I had no thought of being captured by the Germans.

"I knew I had to stay up there until the war was over or I was injured in some way. I think if a soldier knew that he could be given a rest after being on the line for two months, even if he had to go back for another two months, this would help very much. I know a few of the men in I Company who were given a trip back to Paris, this was the talk of the Company. I was not one of these fortunate soldiers.

"The training we receive in the States is wonderful, I really put it into practice, even to the training we received on 'sound' teaching us to identify things by sound. Learning to move quietly is another way to live longer. I have been so near the enemy I could almost touch them, when on patrol, without them knowing."

0055 "In my experience the training and selection of combat leaders becomes automatic, the good men step into responsible positions whenever and wherever they are needed. I found that the men in my outfit recognized and followed these natural leaders instantly almost as though by instinct.

(cont'd)

0055 "Naturally, rotation of combat troops depends and is subject to many factors, the scope of the action, available reserve troops, the speed of progress or retreat, and the individual's ability to take it, the last mentioned being most important and most variable. For example, I endured about 4 or 5 hours, by contrast. Regarding this faculty of mental endurance, I don't believe there is any explanation since most of us went through the same conditioning processes and, in the case to which I referred, both of us had very similar home backgrounds.

"There is really only one definite opinion I have regarding rotation and that is that no man who can manage to get through two months of real combat should be required to take any more without at least three to six months rest. Since the average combat soldier lasts from one to fourteen days, I should think that a veteran of two months deserves at least a temporary retirement."

0172 "I think combat rotation would be very good if the man didn't have to go back into combat because the way we felt we probably wouldn't make it after we got out once, and come back into it. A man shouldn't have to be in the line more than 6 months at the most because after that we always wondered who would get it next, especially in heavy combat."

0303 "At times the morale was very high and then at other times it was very low. When you are on the front line, the morale might change a dozen times. Personally, I found the strikes here in the United States was the worst thing for the morale of the boys on the front lines. They were striking for more wages and they were already making more than they ever had, while a soldier's pay went straight on as it was. Service men couldn't strike, although some of us felt like laying our arms down and walking off. I expect the boys in Korea feel about the same as we did when they read of the strikes going on here."

0404 "I believe the men I worked with were sound soldiers, reasonably conscientious about their duties, courageous in an unspectacular way, and well deserving the moralizing effect a plan of rotation would have given them. I then resented the implication which inadvertently placed us in a category of expendables. I resent it now. In my estimation, the most demoralizing single factor we encountered (and I believe a consensus would bear me out) was the apparent hopelessness of eventual release save through the acquisition of that pathetically voiced 'million dollar wound.' Lady luck may be gracious and kind for a while, but you just can't beat the law of averages."

0491 "We all felt very strongly that we were up on line too long. Those of us that survived one attack after another, and saw our 'original buddies' going, one way or another, began to wonder if it wasn't our turn next. In other words, all we infantrymen felt as if we were doing all the fighting. I feel that if the men knew that they would only have to spend a certain length of time in a line company, their morale would certainly be lifted. I would say about 9 months on line should be the limit. Even moving them back to Headquarters Company or Regimental M.P.'s would be well appreciated."

2016 "My outfit stayed on the line past 75 days to start with, under fire. Now as you know and I know, morale is not going to run too high under those conditions. There must be some way to rotate the men at least every 6 months. They can find plenty men in the rear to switch with them. Now, the rougher you train a guy in the States, the rougher and more solid he will be when he goes into combat. Plenty of live artillery and mortar shells overhead during training really helps. If you hear enough of them here, they won't sound so bad over there, for awhile. Night training is awfully good -- all kinds. I mean officers as well; they cracked up right along with the rest of us."

2033 "I think the best commissioned officers turned out to be those made on the field of combat. The men seemed to have more confidence in them, than the so-called 90 day wonders. After all, they had the experience in combat and had lived with the thing. By this, I mean once a company goes into combat all promotions should be made from within that company, providing, of course, you have enough material left.

"I think the Company Commander is the biggest factor in morale for a company. If the men have faith and confidence in him, they will always back him up. I think our second Company Commander who had us practically all our time in combat was one of the best. He was more or less just like one of the boys.

"I'm sure any rotation plan whatsoever you could work out, would also be a great factor to morale. In our company only one man was rotated to the States in all our combat. He was the only one who was never wounded, therefore he had enough combat days to be eligible."

2048 "The first and most important things to a dog face are adequate clothing and good food, plus a commanding officer with an attitude and guts that demand respect. Men will follow a good C.O. to hell and back. (I know.) But one fool can completely subjugate them to a point where their importance as fighting men are nil. (I also know.)

"I also personally believe every man, if possible, should be interviewed by a psychiatrist (not psychologist) at time of induction or shortly thereafter, to determine weaknesses, neuroticisms, etc., and to be classified either mentally fit for actual combat or limited duty. This is very important because many men crack up under a very little pressure in combat and jeopardize the lives of many men, because they have not been subjected to responsibility or mental duress and have not learned to acclimate themselves to pressures and strain, and a psychiatrist should be able to detect these faults and classify men accordingly. I have seen many poor fools lose their lives because of ignorance and lack of intelligence and feel that the U. S. Army did a very poor job as far as its classification of individuals was concerned. I don't believe any man should spend more than two weeks at any one time in actual combat (contact with enemy) without some sort of a rest. With a periodic rest to relieve tensions, a man would be able to spend considerable time in combat (if he is lucky). The human mind can take only so much and then it must have an outlet or blow up. Personally, I would much rather entertain disgrace than go through another World War. I know I could never hold up again under the strain, also many others must feel the same."

2223 "During the last war there was no rotation for the infantryman. The airman went home after he flew a designated number of missions. I have always felt the infantryman was on the line too long. This was bad for morale because he felt his luck was bound to run out.

"Good leadership, in my opinion, is the best morale builder. Officer training should be as close to combat conditions as possible. Platoon leadership is a great responsibility and too many of the replacement officers were completely lost when it came time to take over a battle-hardened platoon."

2266 "In my short period of combat it seemed that the officers and men who had gone through extensive training together and had confidence in each other made a far superior combat unit than the same unit that had been filled with replacements several times. A replacement in a rifle company had two strikes to start and the leader who must place an untried man has equal trouble. I feel that replacements should never be made while a unit is in contact with an enemy. The unit should be at least in reserve."

2274 "Every soldier who endures the rigors of front line combat for a period exceeding one month deserves special recognition. Service stripes denoting the time spent at the front might serve to provide this recognition of sacrifices and hardships endured.

"A point system whereby those who volunteer for hazardous duties, combat patrols, etc., and successfully accomplish their mission would receive prior rotation, would encourage initiative among combat troops.

"Often the company or platoon showing the most courage in reaching its objectives were called upon repeatedly to lead the attack; this is very damaging to morale. Also, it is important that no attempt is made by officers or non-coms to disguise the true situation regarding coming offensive action, etc., in order to lull the fears of the troops. There is nothing a soldier resents more than being deceived by his leaders."

2335 "Being an infantryman in World War II, I know the great need for a combat rotation policy, but I do not know of any workable combat rotation policy to suggest.

"In selecting officers as combat leaders, he should have faith in men, believe that they have what it takes to do the job, just as he has.

"To improve morale in a combat outfit while in actual fighting, I know of no better way than for the company commander or battalion commander, or any officer who doesn't have to be in the actual fighting, to be seen taking part in it. The Army would not recommend this, and it would be a big loss to the outfit if one was lost, but when everything else fails this will surely boost morale to the highest point while in actual combat."

2355 "The company commander should think of his men; at the same time, consider the task ahead. Too many times men are sent out when there is only need for a skeleton crew. The whole company is committed. By this, the whole company is pinned down or several wounded. This weakens the whole fighting lines.

"The men should know what is being done or know the score more. Sometimes one doesn't know what's ahead and isn't prepared to meet the task.

"I was on the front lines approximately 180 days, which was six months. This is too long for anyone who had it as rough as we had it. There was only two in my company that wasn't wounded or shell-shocked. The ones farther behind the lines shouldn't be rotated as soon as the front lines.

"The Sgt. can tell when the men need rotating but if he has good men he will hate to see them go; therefore, may not say for them to be rotated. But, he is a good judge if he has been up there very long."

2411 "The effectiveness of a combat unit is, of course, largely dependent on morale. The factors which affect morale are many and varied, but morale is not a purely individual thing. It follows the dictates of mass psychology and suffers the same violent fluctuations.

"The lack of faith in leadership from the battalion level up has much more effect on combat morale than the company level leadership.

"Any move toward the incorporation of the elements of morale into our rotation policy is a step in the right direction."

2417 "Periodic rests should be given to men on the line. If possible they should be advised in advance when these rests will occur, so that they have something to look forward to. A definite plan for rotation should be established. When a man can see only being killed or wounded as the only reasons for relief, it seriously damages morale.

"All conveniences, i. e., cigarettes, warm meals, proper clothing and equipment all were factors in contributing to morale.

"Selection of platoon leaders from enlisted men with combat experience would provide strong leadership. Men resented 90 day wonders who did everything by the book. They should be taught to be practical in accomplishing a mission."

2480 "When combat is necessary, the men engaged in such combat must have better orientation on why they are fighting. They must understand what cause they support.

"Leaders must be chosen who can inspire this cause. The physically strong are often the worst officers because they are mentally weak many times.

"Rotation during combat was not often, if ever. Most times we never knew when we might be relieved, if at all. Men should know their unit will be on the line 2 weeks and off for 1, or some such plan."

2493 "Combat morale hinges on a number of things: (1) A feeling of being adequately trained (more than 12 weeks basic); (2) Information on situation - give the men at squad level all the information available (time permitting) that will be of any use to him -- not just let him follow somebody out to get shot; (3) The Marines seem to lay more 'public' stress on it than anyone else -- the assurance that no man will be deserted -- ever; (4) The assurance of speedy, efficient hospital service."

2516 "The key to a successful combat outfit lies in its officers. The men who made the best officers were those who came up from the ranks and especially those who had combat experience. Also, officers must be able to hold the respect of the men who are under him. To do this he must be more friendly toward his men and treat them as though he were on the same level (socially) as they.

"It is my opinion that if men like an officer and have faith in his ability as a combat leader, they will be an efficient outfit and of high morale.

"The only combat rotation that I know about is when the company was pulled off the line and sent back for a three day rest period. I can only say that it was welcomed by all."

2524 "I believe that new replacements should not be given a dangerous job or sent out on patrol till they have had a chance to get acquainted with the men they are to fight with and a chance to get accustomed to their surroundings and conditions of battle.

"I believe that all the men should have more instructions in map reading and compass reading. This is one subject that 99 percent of the men did not know, including the officers. Too many times we were lost and no one seemed to know where we were going or how to get there."

2542 "I think 30 days at a time is long enough for a man in combat. After that he starts to think about the law of averages and starts to think that the next shell has his name on it, and he sees too many of his friends hurt and killed and no rest or peace of mind. Put all these together and it makes a man pretty jumpy and keep it up long enough and the best will break."

2548 "As far as stating the endurance of anyone individual in combat duty, it is a very hard matter.

"I have seen men whom I thought had a strong endurance who cracked up before a man that I judged was an average one.

"I think a man should not be made to stay on the front line more than a month without relief, because under continuous firing he is bound to crack.

"I think the morale of an American soldier is always high."

2550 "An infantryman must lose his 'forgotten man status' a blue scarf won't do it. Don't mix colored with white troops, he must have confidence in buddies. Same pay for same rank. It isn't any more difficult to sweat out a barrage of anti-aircraft fire than it is to lie all afternoon under bursting 88's. Let more troops take a crack at the Infantry. After all, a truck driver has basic training. He will learn the rest on the lines in 2 days. When rotated to the rear, don't have him shining shoes and saluting a lot of brass who learned out of a book. Give worthy men a chance for a commission regardless of age. After all, it is only temporary. Don't break Non Coms. because some others return from a hospital when the group that didn't get hit have carried the ball for months. As stated above, give him a break -- don't send him on beachhead after beachhead, attack after attack, until he says, as we used to, there are only two ways to get out -- without arm or leg or in a mattress cover."

2551 "Any sensible plan for rotation will have to be based on the individual rather than on any certain period of time. Some system will have to be worked out whereby men that are beginning to be afraid to fight or very nervous before an attack are spotted and removed from the fighting front. I have known men that were full of fight but remained on the front until near collapse and when they broke were tried for desertion. I would suggest that squad leaders be asked to report any men that had begun to show signs of fatigue to their platoon non-commissioned officer and that before a man was allowed to crack up that he be sent to the rear. This type are easily spotted as they are very white and nervous before an attack, very reluctant to get up and move forward after being pinned down by fire and get more nervous as they stay on the lines. I am not in favor of the system used in World War II of returning men that had been wounded twice even though I was returned on that basis. The men that stay on the front for long periods of time without going to the rear are much more in need than a man that has been off the lines."

2557 "While in active combat our division was in the front lines for 127 consecutive days. In that length of time I made several observations:
 (1) Officers should take more notice of the men, their problems, and listen to the enlisted men's side of who should be given a rest. They are the ones most likely to detect who is going to crack up first. (2) Any group of men will have better morale if they know what the objective is. Too many get the stock answer; we are so tiny a cog in a machine that the men shouldn't want to know the overall picture. This is an insult to a soldier's intelligence and tends to lessen his morale. (3) My biggest impression of what constitutes high morale was the pride an individual soldier gets from knowing his job well. Knowing that he has been properly trained and has the best service units in the world backing him."

2575 "As to group loyalty, we were two years in the States before combat which made it very strong, but still, when you lose buddies like that it hurts deep, and when (there are -ed.) only a few left and only a couple in the platoon, it works on you wondering if you will be next. I think our biggest morale buster was the fact that we were fighting under strength so much of the time. Two squads to a platoon and sometimes not much more than two

(cont'd.)

2575 platoons to (an-ed.) company, and still as big a objective and no reserves to back us up. When the men have this knowledge (no reserves) handy they don't quite have the push. Our first platoon was cut off behind German line two days because no reserves to get us out. I was there, too, and know what it means. We took our objective under strength and then the Krauts cut us off. As to relieving any one man for a few days back of lines, I don't know. I would rather think the entire company at once. Just one man alone thinks too much about going back up. Where, in a group they know, they can carry the burden between them. I was wounded twice, in hospital both times, and going back up alone always scared me more than when the entire unit went back together. It's all right after you get into the thick of it again but when you're thinking of it alone it works on you more."

2606 "The most respected officers to a group of green troops are the ones that have had combat experience. A man with no combat experience and is about to enter combat will listen to every word that an experienced combat man has to say. It is my opinion that no unit should go into combat with less than three officers and non-coms that have had combat experience, and one of them, if possible, should be the Company Commander."

2698 "During my combat tour I found that the best officers were either West Pointers or men with battlefield commissions. There isn't any substitute for training or experience. Too many officers were too cautious and the men always look to them for daring. Officers must lead and not be led.

"I think the infantryman feels that he is about the most abused man in the Army. He goes hungry, sleepless, and is always at death's door. When he comes off line he must get good food, clean clothes, some entertainment and recreation passes. I think decorations could be passed out more fairly; too many times the brass took all the higher decorations and the leftovers went to the men who really deserved them.

"I think that the most important part of training is weapons. The men must know them all. Too many times men only knew their basic weapon.

"On point rotation the infantryman should get more points than those in back of him."

2707 "My Company enjoyed very good success in combat. I think that the reasons for this were that we had what we all thought to be the very best Company Commander in Europe and the men were bound together by a loyalty to him and were, therefore, willing and able to do about anything we were called on to do. We had a few officers commissioned on the battlefield who enjoyed far better success than the 2nd. Lieutenants newly commissioned at Ft. Benning.

"It is my opinion that an infantry officer should be in combat as an enlisted man prior to being entrusted with the added responsibilities of an officer when he, himself, knows nothing about actual combat."

2746 "I think officers and N. C. O. should spend more time with their men. Get acquainted with them, joke with them, and show an interest in their home problems. My platoon was fortunate in having these kind of men for leaders and it is my belief that these men were a contributing factor in less casualties among men trained in the platoon although we were later used as replacements for other platoons. Many of the men became leaders in other platoons such as squad leaders and platoon sergeants. At least one of our men won his battlefield commission to platoon leader."

2770 "In regard to combat rotation, it is my belief that five months of combat is the maximum period that the average infantryman can endure and emerge mentally and physically sound."

"In regard to selection and training of officers and improvement of morale, it is my belief that officers should have more training in the psychology of the men. It is extremely important to morale that an officer understand which men need encouragement and which men need firm discipline."

"If it were possible to arrange for all platoon leaders to have a few days as an observer under actual combat before taking command, unfit officers would be eliminated and savings of lives of both officers and men would be effected."

2789 "The pride of being a member of a company or division and the loyalty the men felt to each other, of being a member of a team, was one of the greatest reasons a man would not quit and would force a man to stick it out. Especially if the men were the ones he had trained with or had been in a rough spot together."

"If it were possible to rotate one whole unit at a time, a company or larger unit, I believe it would help to build up morale. The men would want to stay 'till their buddies could go home with them and it sure would build up the team spirit."

"As for the training of officers as combat leaders, I would suggest that no one be commissioned unless he has had some experience as an enlisted man or attended a military school. Most college ROTC officers lack the common sense that is so necessary to be a good leader and just take ROTC training as another easy subject to get through college. Too many times the Cpl. or Sgt. was the platoon leader and the commissioned officer just would tag along as some lacked the take-charge training and experience."

2844 "I think officers should be trained not to think they are God Almighty but as men with the ability to lead other men without creating a feeling of resentment. The best platoon leader I ever had knew just how to lead men both in and out of combat. He would never ask a man to do anything he would not do himself. Off duty he was a man among men, sharing the duties of foraging for water and sometimes food, seeing to it that those who shirked in any way suffered to some extent. What I mean is we were sort of like his sons. Those who would not help carry soon found themselves dry or hungry. When he gave an order everyone jumped but not from fear. I think the answer you seek lies within the men, themselves, and in their backgrounds. I never lost a day in combat and often stood long hours in bad spots watching because I did not trust someone else to do it."

2848 "I can only answer for our platoon. In combat, the company is spread out too much for anyone to know too much about the morale of the rest of the company. The morale wasn't always high. It depended a lot on the number of casualties and the amount of sleep the men got. Good leadership is very important for a high morale; rest is the next factor. Without rest, morale goes down. I believe that any combat rotation policy depends a lot on the enemy situation and how much fighting is being done. It's a very difficult policy to lay down and be fair to everyone."

2889 "I stayed in combat, volunteered for patrols, etc., because I believed that those who had attacked my country must be defeated. Further, we had encountered occupied countries, such as Belgium and France, and slave laborers, who helped to fill us with hatred of the Germans."

"Good morale in combat comes from a firm belief in the righteousness of the cause. Bravery comes from indignation."

2904 "I believe the success of any infantry outfit lies in the selection of its officers and N. C. O's. They do not have to be smart men who have made the grade from what they learned from books or schools, but men with a good knowledge of common sense. Your best officers are made from Non Coms. who have been in the field and under fire in all conditions, who have lived with enlisted men and have known their wants and troubles. School commissioned officers should be made to live these conditions in combat with these men before taking command of any unit under fire. Too many officers are placed in units in which they have never been trained. A platoon leader is no good to his men if he was trained as a heavy weapon's man and is sent to a rifle company. If he is a new officer from the States going into combat as the leader of an experienced combat unit, he should be considered a replacement with no command until he has the confidence of the men, himself, and his Non Coms. Enlisted men or draftees will not follow a leader who he has no faith in. Morale is about the biggest factor in combat. Give him all the breaks that will ease the tension built up from the hazards of war. A man don't necessarily think of home if he's single but just likes to get away from the noise and confusion where there are lights and music, a bed to sleep in, clean clothes, movies, women, something to drink and something to see. If he can't get these, at least get him off the line to the rear where there may be a firing range where he can familiarize himself with other weapons. A man sometimes gets trigger happy going days without shooting, this is a good way to get it out of your system without hurting your own men."

2917 "I believe a rotation policy an excellent policy for the morale of a combat soldier. It gives him a goal to hang on to and something to help the rough days pass---for one day in the definite future he will be out of the fighting. The Air Corps understood this but the infantry never did."

"In state-side infantry training and also when out of combat an infantryman is always treated like a dog by his superiors and it seems he never is treated with the respect that some other branches treat their personnel. It is my belief that the infantry or other combat branches will never obtain the morale they hope to achieve as long as this condition exists. The toughest of training is necessary but the abuse and lack of consideration which I always observed given to the men in our company (probably division, as well) was never forgotten by these men. This condition does not make for high combat morale."

2946 "The morale in our company was very high at all* (see below) times. It is interesting to note that the average age group in our company was somewhere in the neighborhood of 20-21, which meant men with no strong ties; that is, wives, children, etc. Also, our division policy was excellent in sending troops to rest camps, etc., for one to three day periods. I cannot remember a week going by without being given a chance for at least a half-day 'breather.'

"* I do believe that high casualties within the company did have a serious morale effect, lasting for periods of several days to more than a week. This was due to strong group loyalty. But, morale always seemed to 'bounce back.'"

2982 "I am firmly convinced that the combat rotation plan now in effect in Korea is most inadequate. This plan, which rotates military personnel on an individual basis rather than a group basis, tends to lessen the efficiency and morale of the combat team. It is a proven fact that a front line unit that has trained, lived, and fought together over a lengthy period of time is more proficient, has higher morale, and is more experienced than a unit that contains a large number of replacements, such as exist in Korea at the present time.

"I think a rotation plan should be established which would rotate a regiment or a battalion at one time.

"I also believe that the older men of a combat unit should make every effort to help and advise a new replacement. They should make him believe that he is one of them and an important part of the combat team. This tends to heighten the morale and teamwork of the front line unit."

4003 "I would say after anyone has been in combat 18 months he is about ready to be sent back, depending, of course, how much time he has spent on the front lines. Some possibly can't stand it that long because their nerves might give out, which happened to several of our men. As you probably know, combat affects different men different ways; some get excited and don't even realize what they are doing.

"I would say friendship between the men does more to keep a person going than anything else. However, it does help to have a good leader, one that you think knows what he is doing. Lots of times an officer that isn't liked off the lines makes the best combat leader. I believe that an officer that has come up through the ranks makes the best one. We had two of them and they were both good leaders."

4007 "The most realistic viewpoint of platoon leadership replacement in combat is the promotion of the experienced platoon sergeant, or the creation of a temporary rating, where he may receive more pay for these duties. Many sergeants wouldn't want a second lieutenant's commission.

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4007

"I believe men should be rotated on a length of combat time basis, but I also think confidential meetings of company commanders and their squad leaders should be held periodically, where these squad leaders may tell their C. O. of any man they may have whom they believe is about to 'crack up.' Some men never become acclimated to combat and they should be sent home or to a rear outfit for their own welfare as well as the welfare of others who may be depending upon him."

4121 "In our outfit we received individual 5 day leaves from the front line quite often, which we looked forward to. Just to get further away from the sound of artillery was quite a rest. After you stay on line for some time, you forget about the things you did at home for pleasure, so just having the PX visit you once a week is quite a treat.

"I always went to church service as much as I possibly could when the chaplain was around. I believe a good chaplain could really raise your morale better than anyone else when you felt blue and also scared.

"We always looked forward to winning the war and getting home and, as for myself, I always had a guilty conscience if I lagged behind.

"I believe any person should be able to stand 12 months in combat and then be given lighter duty.

"I disliked the hard training we had off of line with the division, but that was what made the Third Division a good fighting outfit."

4151 "You must remember that we were trained as a unit here in the United States before going into combat. That may explain why our group loyalty and morale was above average. We did have good leaders and we also knew that we were in the service for as long as the war lasted, not just so many months.

"If combat men could be trained for officers, it would be wonderful. But, how many will take a commission knowing that he will have to go back into combat when he can just as easily be discharged?"

"Rotation by units would be fine but the cost would be too much. In fact, I do not think we have enough units for that even if it is the best way. Every man would prefer to fight with the men and leaders he knows and trusts.

"This may sound crazy to you, but to pull back from the front lines for a couple of days' rest is one thing I never liked. Going back up not knowing what was up there, made a man really sweat it out. Unless the men can get at least a week, the line is the best place; at least I thought so."

4244 "More care should be exercised in selecting Platoon Leaders and Company Commanders. Too often the Platoon Leaders and Company Commanders lack actual experience and are not qualified to handle men in combat. No soldier should be expected to be in a combat unit for more than one year."

4259 "After a long stretch of continuously being on the line, it seems that we had more casualties and the morale was much lower. The records show that my outfit was on the line for almost two months, two or three times, and from 20 to 30 days a number of times.

"I think a man fighting under fire for 7 or 8 days should be taken back to a rest area for 3 days, a place where he can relax, enjoy games of his likes, swimming, dancing, women (the morale booster)."

4339 "I attribute my ability to stand up and take it, first of all, to my youth. At the time we first went into combat I was the youngest man in my company. I was in very good physical condition. One of the most important things, I think, I had an optimistic outlook on life. When things were bad, I felt they could be worse, or would soon get better. Before long I became aware of the fact that I was in an outfit that was to bear the brunt of the war. Not to my choosing, but seeing there was no other way out. I was determined to make the best of it for myself and the men about me. Later I found this feeling developed into unit pride or 'esprit de corps.' This, I sincerely believe, is an asset to any soldier, if you do not carry it to the fanatical extent of the marines.

"As far as fear is concerned, I do not think that any one man is more afraid than another where real danger exists. Some can just control fear better than others. Some men have fear for things which are needless of fear, while others have fear only when there is cause. I think one a soldier finds this out he has eliminated 25 percent of his nightmare. Many times I've had the impulse to run away and seek safety where I could find it and get away from it all, but every time I fought off this impulse."

4497 "I do think there should be a definite length of time for a man to stay in combat (front line troops). We never knew whether we would be there for six months, a year, or two years, or until we were killed, which left us with nothing to look forward to.

"I also think that combat men prefer an older officer. There were several very young officers (we had), the men could not follow them because they just did not have confidence in them and looked upon them as only kids, which some of them were.

"These two suggestions, I believe, would improve the morale immeasurably."

4522 "All men are not built alike. Some can take more than others. There is no exact time that a man can stay in combat. I think it is up to the platoon leaders to weed out men who are unfit or able for combat. Place them in rear positions and bring up fresh men to replace them. I think a man is better off if he fights for a long stretch of time and then be taken off the line permanently. It seems much harder to fight, then rest, and fight and rest. It's always harder to go on the line again. Those men coming out of combat after a long stretch should be placed in very rear positions, sent home and used in training camps, or be discharged, all depending on the length and

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4522 situation of the war. Officers should be intelligent and morally strong. Officers are leaders and they should be capable of leading men. The welfare of their men, common sense, and initiative should be stressed to officers. Food, first class clothing, mail deliveries, tend to keep up morale. Have officers give their men the situation, tell them what is expected of them, and they will get more out of men than a dozen rumors will."

4596 "I think there should be more battlefield commissions.

"Pull back the men for two days with hot meals and baths every two or three weeks, for a mile or two behind front lines."

4613 "They should try and give a man a lot more realistic training. As we kept on getting new men from the States, most of them didn't last long because when under heavy fire they couldn't keep down, they wanted to see everything (which was quite a show to see to these new men, but no show to a battle-wise soldier). We lost a lot of men, because they couldn't keep down when they were supposed to. Instead of long hikes and forced marches, give the men more talks on actual combat, teach them just how it is. Have an 'Old Vet' do the talking, one who knows. Give a man more problems in the field, teach him cover and concealment and also the difference, so we won't lose so many men unnecessarily. They have just got to know all these things to stay alive. Don't be hard with men, but be tough and make them understand."

4639 "How to improve morale in a combat outfit: To get more men on the front lines and get it over with. That is what all combat men are looking forward to. For example, we had to stay on the fighting lines too long because of not having enough trained men to fight, and that was a morale breaker.

"Second, we had to eat too many K rations during bad and cold weather. Our food was poor while on the front lines, but improved while in the rest area."

4649 "The main thing in any outfit is discipline.

"A long period of time to train together makes for a good outfit, and a longer lasting outfit in combat. Any single unit that holds together well, must be trained together for long periods of time. I think, on rotation, that the whole regiment or division should be rotated at once, rather than a single man. As bring back one unit, fill it up. Train the men together again, send it back, and you have a real fighting team. Rotate one man, put him in a new outfit, and you have lost a good combat man, as his desire to fight for his outfit is gone."

4656 "It's very hard to say how long a fellow can take it before he is through. Very seldom there is two fellows alike. I figure about 3 to 6 months, unless the outfit gets a pretty bad beating to start with. Where a company may lose from one-third to one-half of their men in their company in the first month. Then the law of averages starts working on the men. It gets bad at times.

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4656

"Companies should be changed fairly often for a couple of days' rest. Too long on the line starts to break the morale.

"I figure more officers should come from the line companies. Then you can tell what a fellow is made of. Then your men will fight and stick together better."

4694

"I think a good rotation would be not to keep a man in combat over six months. Pull him back for a different duty, and training for other branches other than infantry.

"I think a good officer or leader would be a quick thinking man, and well liked by his men. One that wouldn't send his men where he, himself, wouldn't go. If he shows he isn't afraid, the men will go farther and fight longer.

"To keep morale built, would have just so many months of front line for a man. Pull him back and assign to other duties. I believe more lives would be saved and (there would be -ed.) braver men. They would have something to look forward for. After so long you get to where you don't care if you live or die."

4705

"In any squad unit within a platoon, if half or more of the unit become casualties, the remaining members of the unit should be rotated, given a rest or respite preferably near the action area, be rested and given added responsibilities--if possible an advancement in rank.

"Two hundred fifty actual combat days should make for eligibility for rotation; less, if the squad unit has been severely battered. A man should be rotated if after successive combat actions he shows deficiency in working with the squad unit. (Some men have no business in the infantry. They might prove thrice more valuable elsewhere.)

"After an officer has been commissioned, he should serve as either a private or non-commissioned officer in the ranks of a basic training company to which he may or may not be later connected. He should eat, sleep, and mingle with the G. I. for approximately a month. An officer who is exempt should be so only if he has served as a non-com or as a private. OCS training and the above training are not or would not be similar.

"Don't hold back the production of proven weapons, equipment; food should be provided not only for its vitamins and caloric content but also for taste."

4712

"The combat rotation should be continued. Also, when an outfit is hard-hit, it should be relieved temporarily by another outfit, so as to enable them to rest and clean up. Also, replacements and the former outfit should practice combat problems together, and work as a team.

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4712

"If more church services were held it would give the soldiers more faith and courage.

"Any soldier who shows signs of battle fatigue is endangering the lives of others; therefore, he should be sent to the rear rest lines to work."

4821

"The policy while I was in was to place a man at the bottom of his grade for rotation if he accepted battlefield promotion; this kept many good men from becoming leaders. They also refused promotion because they had to stay over one year longer, at least. It was my experience that the men given these promotions made the better leaders.

"Too much discrimination is shown in judging the breaking point of an officer and an enlisted man. The officer was relieved when he asked to be; the enlisted man was considered yellow if he asked for relief. As a result too many men were kept on front lines while men considered not such good fighters were kept in the rear. This resulted in many men breaking that would not have done so if given proper relief."

4894

"There is no answer for rotation. A man will fight while he is on the line one or two weeks, then take a rest. Going back to combat or on the line, the man is more nervous than if he had stayed without a rest. It would be better to tell a man to go on the line for 1 month, 2 months, or longer, and only resting when he is on supporting reserve area on the line, then take him off the line for the same amount of combat time he has put in."

4906

"Don't immediately separate buddies, for known confidence in battle is very important. Knowing that a certain unit will be where it's supposed to be.

"Don't send replacements while actually engaged with enemy. While withdrawn give them about two weeks to get acquainted and build up confidence and training. Never think you know everything; and anything new must be passed on.

"In some manner an officer must be proven to his men before going into combat. Otherwise, a platoon sergeant or even a corporal may be more depended upon. Also, promotion and commission must be given up front, for the simple reason the platoon leader or company commander is new and his qualities unknown to his men.

"Rotation should be worked out, but this sending front line troops to rear echelon for a spell, then expect them to go back to the front lines, is no good."

4950

"It is my belief that an infantryman would look forward to a rotation plan that would take him off the line after an extended stretch of combat, even though he were to be placed in an artillery outfit (which he looks upon as being rear echelon), or some other less hazardous job back of the lines, and not necessarily sent home.

"I also believe that the selection and training of officers should be made from combat-tested enlisted men, who have proven their courage and their ability as leaders, under fire.

"As for morale, it could be bolstered if the men knew they had a sound rotation plan to look forward to and if they were not on the line for too long a stretch at a time."

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