Chapter 1

PSYCHIATRIC LESSONS OF WAR

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Richard W. Baldwin *Fighting at Guadalcanal* 1943

This painting by Richard W. Baldwin, who was a sergeant in the U.S. Army Air Forces, depicts World War II jungle fighting in the South Pacific at Guadalcanal, which was characterized by environmental deprivation, disease, and isolation. The psychiatric lessons of World War I had to be relearned and expanded during World War II to include physical stressors.

Art: Courtesy of US Center of Military History, Washington, DC.

INTRODUCTION

War, with its lesser elaborations such as competitive sports, has been an enduring aspect of human existence. Survival for the prehuman individual and the species was largely dependent on the evolution of physical attributes until fairly late in human development. The ability of prehumans and humans to organize into groups resulted in the supplanting of biological evolution with social evolution. Social evolution was so powerful an agency that while modern humans are less well developed physically than their human and prehuman ancestors, they are nevertheless more capable of survival. Social evolution has necessarily been accompanied by psychological evolution such that the two cannot be separated. In modern wars, beyond a minimal level of physical fitness and technical learning of how to fight, the soldier's most important training is in social-psychological reaction patterns, particularly the handling of fear and aggression and the bonding with a group for accomplishing the military mission.

While wars differ along many dimensions ranging from ideology to technology, the human element remains the same. After millions of years of evolutionary molding, the human organism is reasonably well equipped physically to fight the solitary or group combat that our Stone-Age ancestors endured. This physical development alone, however, would never have allowed humans to achieve dominion over the natural world. This dominion resulted from the development of implements of combat and a social structure that facilitated cooperation in battle. Part of this social structure included the ability of protomen to band together on hunting expeditions as well as their ability to discover and then propagate the knowledge of how to make and use weapons. It is a striking observation that men through all periods of recorded history have fought ultimately as small groups consisting of from 2 to 20 or 30 persons.[1]

The same cultural evolution of groups that maximized warrior skills in the past, however, has increasingly prepared homo sapiens for peace rather than war. Individual psychology, reflecting family and cultural influences, often hinders rather than facilitates successful adaptation to combat. This can be seen, for example, in religious prohibitions against violence, which when internalized by any of a variety of processes, may even overcome near-instinctive behaviors for self-preservation.[2(p512)]

Erikson[3] gave a classic example of the interaction of the biological, interpersonal, and intrapsychic factors in the breakdown and later elaborations of symptoms in a World War II combat veteran.

Case Study: A Combat Crisis in a Marine.

The patient, a young teacher in his thirties, primarily suffered from severe headaches. History at a veterans' clinic revealed that he was with a group of medical corpsmen who lay in pitch darkness on a South Pacific beachhead, pinned down by enemy fire, with little supporting fire from U.S. Navy ships. The group experienced mounting anger and fear; however, the patient seemed unaffected by the group anxiety. The patient did not drink, smoke, or even swear, and had chosen to be a medical corpsman because he could not bring himself to carry a gun.

During the night, he had only isolated memories of a dreamlike quality: the corpsmen were ordered to unload ammunition; the medical officer became angry, swearing abusively; someone thrust a submachine gun into the corpsman's hands. By morning he was a patient sedated in the improvised hospital, with severe intestinal fever. At nightfall, the enemy attacked by air. The patient was immobilized and unable to care for the sick and wounded. He felt fear, and next day he was evacuated. At the rear area hospital he was initially calmer, but became upset and crawled under his sheets when the first meal was served. The metallic clanging of the mess kits sounded like salvos of incoming shots. He was plagued by severe headaches and when not suffering from them remained apprehensive, jumpy, easily startled. Although the fever which could have justified the initial headache was cured, his other symptoms persisted and he was evacuated home as a "war neurosis."

Erikson found that the patient's family had been in economic and moral decline. At age 14, the patient had left home after his mother, in a drunken rage, threatened him with a gun. He had secured the secret help of his principal, a fatherly man who protected and guided him, asking in exchange that he never drink, swear, indulge himself sexually, or touch a gun.

Erikson was able to separate out the biosociopsychological vulnerabilities that produced the breakdown. In the biological area were exhaustion and sleeplessness coupled with subliminal infection and fever. In the sociological area were the lowering of group morale and growth of group panic, immobilization under enemy fire, the inducement to give up in the hospital bed, and finally immediate evacuation creating a conflict between the desire to escape and the call to duty to care for his mates. In the psychological area were the loss of support for an idealized father substitute when the medical officer swore, and conflict over his identity as a noncombatant when a

submachine gun was pressed on him, for "the gun had become the symbol of his family's downfall and represented all … which he had chosen not to do."[3(p44)] The subsequent headaches represented "the unconscious wish to continue to suffer in order to overcompensate psychologically for the weakness of having let others down; for many of these escapists were more loyal than they knew. Our conscientious man, too, felt 'shot through the head' by excruciating pain whenever he seemed definitely better."[3(p44)]

Comment: This case illustrates not only the tripartite elements of combat breakdown but also the sequelae of improper treatment (evacuation) of such breakdown, in this case a chronic traumatic neurosis, which would currently be called post-traumatic stress disorder (PTSD). This chapter will, through historical analysis, show the importance of these elements in understanding combat breakdown and the importance of appropriate interventions.

Withstanding the Stress of Combat

The three groups of factors—*biological* (inherent propensities and physical attributes), *interpersonal* (cultural, social), and *intrapsychic* (individual psychological)—can affect positively or negatively the soldier's ability to withstand the stresses of combat. Such stresses are multidimensional: injury; disease; physical and psychological fatigue; and fears of death, maiming, showing cowardice, and releasing aggressive and destructive tendencies. Recognition of these factors was slow to develop. Prior to the 20th century, most soldiers who broke down in combat were considered to be cowards or weaklings, an attitude that persists to this day in some settings. The result of this attitude was usually unfortunate for the soldier and the unit. The term "decimate," for example, originally referred to the policy of killing every tenth soldier in a unit that had shown lack of fighting will in combat. When breakdown was recognized as medically legitimate before the 20th century, it was considered to be of organic causation, and terms such as "nostalgia" and "exhausted heart" were sometimes used. The recognition of biological/interpersonal/intrapsychic factors and their successful manipulation to prevent breakdown in combat or disasters and to facilitate recovery is the special province of military psychiatry.[4]

Exhibit 1-1 illustrates a number of stressors found to be important in combat breakdown, also called combat stress reaction (CSR). This listing obviously is not all-inclusive, because the human mind is infinitely adaptive in the service of physical and psychological survival. In addition, some stressors may overlap, they may interact to exacerbate each other, and specific factors will be of greater or lesser significance in a given individual and in a particular situation. The history of psychiatry in warfare is a study of the recognition of stressors that lead to psychiatric breakdown and the development of pre-

EXHIBIT 1-1

COMBAT STRESS FACTORS

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TABLE 1-1

PSYCHIATRIC LESSONS OF WAR

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PTSD: post-traumatic stress disorder

Adapted with permission from Jones FD, Crocq L, Adelaja O, et al. Psychiatric casualties in modern warfare: Evolution of treatment. In: Pichot P, Berner P, Wolf R, Thau K, eds. *Psychiatry: The State of the Art.* Vol. 6. New York: Plenum; 1985: 462, with subsequent updates.

ventive and treatment measures to alleviate their effects. It is most appropriate and logical to discuss stressors and treatment chronologically as they have been discovered in the contexts of various wars.

The historical approach has practical value. An understanding of how military medicine dealt with combat stress breakdown in the past can enable mental health professionals to avoid mistakes made earlier and to devise new ways to deal with modern stress. Lessons both learned and not learned but available are outlined in Table 1-1. One example of a lesson not learned in the Russo-Japanese War is that providing a medical label for stress symptoms results in the development of such symptoms by other soldiers as an honorable way out of combat.[5]

PRE-20TH CENTURY CONCEPTIONS OF PSYCHIATRIC CASUALTIES

While combat stress breakdown and some of its causative factors were described in the epic accounts of early cultural mythology, not until the late 17th century were some of them given a particularly medical cognizance in the form of the diagnosis, *nostalgia*. Initially called "the Swiss disease" because of its prevalence among young Swiss uprooted from their villages and placed in mercenary armies, it was soon recognized as a more universal ailment. By the mid-18th century it was firmly established in the medical terminology with excellent clinical descriptions, as was discussed by Leopold Auenbrugger in his *Inventum Novum* of 1761:

> When young men who are still growing are forced to enter military service and thus lose all hope of returning safe and sound to their beloved homeland, they become sad, taciturn, listless, solitary, musing, full of sighs and moans. Finally, they cease to pay attention and become indifferent to everything which the maintenance of life requires of them.
>
> This disease is called nostalgia. Neither medicaments, nor arguments, nor promises nor threats of punishment are able to produce any improvement. While all thought is directed toward ungratified desires, the body wastes away, with a dull sound (*sonitus obscuras*) on one side of the chest. [Some cases of nostalgia were undoubtedly linked with tuberculosis and other chest diseases. Such diseases were noted in the author's descriptions of autopsy reports.—Au.]
>
> Some years ago this disease was rather common but now occurs very rarely since the wise arrangement was instituted of limiting the period of military service to a definite number of years. As a result the young men retain the hope of leaving military service after this period has elapsed, and of being able to return to their homes and enjoy their civic rights.[6(pp344–345)]

French physicians of the Napoleonic Era recognized numerous factors important in producing or preventing nostalgia; many of the same factors influence combat breakdown in the modern era. These physicians assessed the importance of conditions ranging from cultural (rural vs urban conscripts), and social (boredom vs rigorous activity and organized vs disorganized camp conditions), to environmental (clement vs inclement weather), and battle (victorious armies suffering few cases of nostalgia vs those experiencing reverses having many cases). Exhibit 1-2 discusses factors currently thought to promote or prevent nostalgic casualties.

Baron Larrey, Napoleon's Chief Surgeon, prescribed a course of treatment that, while ostensibly biologically oriented, reveals a keen awareness of social factors and is surprisingly close to modern handling of combat psychiatric casualties, both preventively and curatively:

> [T]o prevent this sort of cerebral affection in soldiers who have lately joined their corps, it is necessary not to suffer those individuals who are predisposed to it more repose than is necessary to recruit their strength, exhausted during the day; to vary their occupations, and to turn their labours and recreations to their own advantage, as well as to that of society. Thus, after the accustomed military exercises, it is desirable that they should be subjected to regular hours, gymnastic amusements, and some mode of useful instruction. It is in this manner, especially, that mutual instruction, established among the troops of the line, is beneficial to the soldier and the state. Warlike music, during their repasts, or at their hours of recreation, will contribute much to elevate the spirits of the soldier, and to keep away those gloomy reflections which have been traced above.[6(p348)]

One could hardly ask for a better prescription to ensure physical bodily integrity and thus to produce a conviction of health, to give a sense of mastery of weapons and, as Larrey points out, especially to effect an integration into the unit through "mutual instruction, established among the troops of the line."[6(p348)] This regimen prevents evacuation home (the treatment approach of earlier physicians) and minimizes any secondary gain from illness.

EXHIBIT 1-2

FACTORS AND CHARACTERISTICS OF NOSTALGIC CASES

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In parallel with their European colleagues, American physicians considered nostalgia to be a disorder associated with the military. No significant data are available concerning psychiatric casualties prior to the American Civil War, except that problems of alcoholism and desertion were not uncommon. Physicians during those times dealt almost entirely with surgical and infectious cases, leaving morale and discipline problems for commanders to handle.[7(p4)]

The Civil War, however, saw the first appearance of recognized nostalgic casualties in significant numbers. Approximately three cases of nostalgia per 1,000 troops per year were reported among Union soldiers, mainly among teenage conscripts.[8] Apparently lacking any knowledge of Larrey's published insights, Civil War physicians urged screening as the primary method of preventing nostalgia. Surgeon General William A. Hammond in 1862 recommended that the minimum age of recruits be fixed at 20 years to screen out those prone to this condition; despite this effort, the rate did not change appreciably.[8] It was recognized, however, that group cohesion was important in preventing nostalgia and that the battle experience could forge these cohesive bonds.[9] Writing in a textbook of psychiatry 20 years after the Civil War, Hammond[10] recommended an army activity program similar to that of

Larrey. He wrote: "The best means of preventing nostalgia is to provide occupation both for the mind and the body … soldiers placed in hospitals near their homes are always more liable to nostalgia than those who are inmates of hospitals situated in the midst of or in the vicinity of the army to which they belong."[10(p34)] Hammond referred to Bauden's account of the Crimean War in which similar principles were applied. He further stated that "in some cases it may be necessary for the military surgeon to send the nostalgic soldier to his home in order to save his life. This, however, should be done with all possible precautions to prevent his comrades becoming acquainted with the fact."[10(p35)]

From 1861 to 1865 the Union Army officially recognized 2,600 cases of "insanity" and 5,200 cases of "nostalgia" requiring hospitalization at the Government Hospital of the Insane (now St. Elizabeths) in Washington, D.C.[7] Probably still in the realm of psychiatric casualties, in this same conflict there were 200,000 Union deserters and 160,000 cases of "constipation," the latter reminiscent of the "precombat syndrome."[11]

Other psychiatric entities of the Civil War included malingering, which usually took the form of exaggerated trivial conditions or neurological symptoms, and the irritable and exhausted heart of DaCosta.[8] This latter condition was not recognized as a psychiatric entity and may well have included rheumatic and other heart disease. However, most cases diagnosed as exhausted heart were probably functional, secondary to anxiety. They may have resembled the neurocirculatory asthenia of World War I.[7(p3)]

In addition to innovations in treatment of surgical wounds and application of similar procedures pioneered by Florence Nightingale in the Crimean War a decade earlier, the major medical accomplishment during the Civil War was the establishment of the specialty of neurology by such pioneers as S. Weir Mitchell, W.W. Keen, G.R. Morehouse, and William A. Hammond.[8] The development of neurology laid the foundations for differentiating combat disorders with organic causes from those with psychological causes.

Following the Civil War, alcoholism, venereal diseases, and disciplinary infractions continued to be present in soldiers fighting the Indian Wars, the Spanish-American War, and the Philippine Insurrection, but these psychiatric problems in U.S. forces were not so labeled until World War I. Recognition of these and other aberrant behaviors as psychiatric problems first occurred during the Russo-Japanese War.[12]

20TH CENTURY COMBAT PSYCHIATRY

In the decade immediately preceding the outbreak of World War I, Russian physicians during the Russo-Japanese War (1904–1906) reportedly first utilized psychiatric specialists in the treatment of combat stress casualties both at the front and upon return to home territory.[12] This war also provided the first good description of war neurosis. Emphasis was placed on treatment of "insane" soldiers (an unfortunate term suggesting incurability), and no distinction was made between psychotic and neurotic soldiers. Although some psychiatric casualties were returned to combat, evacuation home, usually accompanied by psychiatric personnel, was the standard treatment. As this evacuation policy became known among the troops, the number of psychiatric patients increased 6- to 10-fold at some collecting points.[12] Nevertheless, such psychiatric casualties were not recognized as a significant source of personnel lost in battle until World War I.

Development of Principles

"Shell shock" was the popular label given to most World War I (1914–1918) neuropsychiatric casualties.[2(p311)] Jones, Belenky, and Marlowe[13(pp1-2)] have discussed the impact of labeling in producing adverse outcomes in such casualties:

> The interaction between label and belief and behavior was particularly striking in the consequences of the use of the term shell shock in World War I …. As a metaphor for the new shape of battle that characterized that war, it was particularly appropriate. In no previous conflict had men, pinned into place by the stasis of trench warfare, been subjected to artillery exchanges of such regularity, intensity and magnitude. The tactics of the day ensured that artillery shells and other explosive devices would be the primary cause of death, wounding, and stress. In a professional world in which most psychiatry was articulated to a neurological base, shell shock was initially seen as a species of actual shock to the central nervous system—a "commotional" syndrome that was the result of the effects of a blast pressure wave that was coupled to the body of the victim. Although the German, Oppenheim, had hypothesized a "molecular derangement" of brain cells as the pathologic agency,[14] a number of observations discredited this theory. Soldiers nowhere near an explosion devel-

> oped "shell shock." German prisoners of war exposed to shelling or bombing did not develop "shell shock" while their allied captors did. Soldiers exposed, or thinking themselves exposed, to toxic gases developed "shell shock." Finally, Farrar,[15] after observing scores of Canadian soldiers with severe head injuries from shrapnel and gunshot wounds, noted that symptoms of psychosis or traumatic neurosis practically never occurred. He concluded " ... trench neuroses occur usually in unwounded soldiers."[15(p16)]

In spite of the fact that British and French psychiatrists rapidly came to understand that the great majority of "shell-shocked" soldiers were the victims of transient stress-induced psychological disorders, the label and the beliefs and behaviors associated with it continued to exercise a major influence on the battlefield. While the clinicians dispensed with "shell-shock," the troops did not. It became part of the self-diagnostic and self-labeling nomenclature of the soldier.[13(pp1-2)]

British and French forces during World War I discovered the importance of proximity or forward treatment. The British had been evacuating neuropsychiatric casualties back to England and finding them most refractory to treatment. By 1917, when Salmon (Figure 1-1) made his famous report on "shell shock" among British and French soldiers, one seventh of all discharges for disability from the British Army had been due to mental conditions; of 200,000 soldiers on the pension list of England, one fifth suffered from war neurosis.[2] However, within a few months of the onset of hostilities, British and French physicians had noted that patients with war neuroses improved more rapidly when treated in permanent hospitals near the front than at the base, better in casualty clearing stations than even at the advanced base hospitals, and better still when encouragement, rest, persuasion, and suggestion could be given in a combat organization itself. The importance of immediate treatment quickly became obvious when vicissitudes of combat prevented early treatment of war neuroses even in forward settings. Those who were left to their own devices due to a large influx of casualties were found more refractory to treatment and more likely to need further rearward evacuation.[2(p508)]

As an emissary of the U.S. Army Surgeon General, Thomas Salmon in 1917 observed and synthesized the British and French experience into a comprehensive program for the prevention and treatment of shell shock cases, which were renamed "war neuroses." Salmon's program, which involved placing psychiatrists in the divisions with forward hospitals to support them, was the first rational system of echelon psychiatry in U.S. military forces. American Expeditionary Forces (AEF) physicians fine-tuned this design based on their own experiences.[16(p313)] When fully conceptualized by Artiss,[17] three principles—proximity, immediacy, and expectancy—became the cornerstones of combat psychiatric casualty treatment. They referred to treating the combat psychiatric casualty in a safe place as close to the battle scene as possible (*proximity*), as soon as possible (*immediacy*), with simple treatment such as rest, food, and perhaps a warm shower (*simplicity*), and most importantly an explicit statement that he is not ill and will soon be rejoining his comrades (*expectancy*). Proximity and immediacy are important because the soldier's time away from his unit weakens his bonds with it and allows time for consolidation of his rationalization of his symptoms. The patient's rationalization may take many forms but basically consists of a single line of logic: "If I am not sick, then I am a coward who has abandoned his buddies. I cannot accept being a coward, therefore I am sick." The psychiatrist offers an alternative hypothesis: "You are neither sick nor a coward. You are just tired and will recover when rested."

Fig. 1-1. Thomas Salmon inaugurated the principles of forward treatment of combat psychiatry casualties and was the Neuropsychiatry Consultant to the American Expeditionary Forces in World War I. He subsequently held many distinguished positions, including Presidency of the American Psychiatric Association, and is remembered for championing the mental health movement started by Clifford Beers.

Expectancy is the central principle from which the others derive. A soldier who is treated near his unit in space (proximity) and shortly after leaving it (immediacy) can expect to return to it. Distance in space or time decreases this expectancy. Similarly, the principle of simplicity derives from the concept of expectancy. The application of involved treatments such as narcosynthesis or electroshock treatment may only strengthen the soldier's rationalization that he is ill physically or mentally. The occasional use of these more elaborate procedures in refractory cases actually reinforces the preeminent role of expectation; they convey the message: "Yes, you had a mild ailment; however, we have applied a powerful cure, and you are well."

The role of expectancy can be seen in the labeling of these psychiatric casualties. Soldiers in World War I who were called "shell-shocked" indeed acted as though they had sustained a shock to the central nervous system. As recounted by Bailey, Williams, and Komora, "There were descriptions of cases with staring eyes, violent tremors, a look of terror, and blue, cold extremities. Some were deaf and some were dumb; others were blind or paralyzed."[18(p2)] When it was realized that concussion was not the etiologic agent, the term "war neurosis" was used. This was hardly an improvement because even the lay public was aware that Freud had used William Cullen's 1777 nonspecific term, "neurosis," to describe chronic and sometimes severe mental illnesses. The soldier could readily grasp this medical diagnosis as proof of illness. This problem was remedied when medical personnel were instructed to tag such casualties as "N.Y.D. (nervous)" for "not yet diagnosed (nervous)." The term "N.Y.D. (nervous)" gave soldiers nothing definite to cling to and no suggestion had been made to help them in formulating their disorder into something that was generally recognized as incapacitating and requiring hospital treatment, thus honorably releasing them from combat duty. This left them open to the suggestion that they were only tired and a little nervous and with a short rest would be fit for duty. Eventually, many of these cases began to be referred to simply as "exhaustion," then, with the rediscovery of the principles during World War II, as "combat exhaustion." Finally, during World War II, the term "combat fatigue" came to be preferred in that it conveyed more exactly the expectation desired.[19(p993)]

Another finding of World War I was the "contagiousness" of medical disorders that allow honorable escape from combat. This occurs particularly in situations of ambiguity when such escape behavior can become an "evacuation syndrome," as described by Belenky and Jones:

> An evacuation syndrome develops in combat or in field training exercises when through accident or ignorance an evacuation route, usually through medical channels, opens to the rear for soldiers displaying a certain constellation of symptoms and signs…. In the First World War, lethal gases were used in combat. In one battle, an incident occurred in which soldiers from a certain division came to their medical aid stations in large numbers complaining of being gassed. This division had taken heavy casualties, but now was involved in a desultory holding action, with no particular aim or object. The soldiers in the division had been expecting to be relieved following the previous heavy fighting and when they had not been, morale had declined precipitously. During the current action, there was some gas shelling, but not of sufficient intensity to produce any serious casualties. Nevertheless, soldiers usually in groups of comrades were coming to their battalion aid stations complaining of cardiorespiratory symptoms. The medical personnel seeing these men evacuated them to the rear. An initial trickle of soldiers turned into a flood, and very soon this inappropriate evacuation of men—for symptoms only—turned into a significant source of manpower loss. Once the line commanders became aware of the magnitude of the ongoing loss they intervened and sought consultation from the division psychiatrist. The psychiatrist reorganized the system of evacuation by treating the soldiers coming to the aid station with a complaint of gas exposure and cardiorespiratory symptoms as psychiatric casualties. He gave them a brief rest, a warm drink, and a change of clothes, and rapidly returned them to their unit. The flow of men with cardiorespiratory complaints slowed and finally stopped. Overall the incident lasted over a week before it was finally terminated.[20(pp140–141)] [Similarly, during the Vietnam conflict, Jones reported an "epidemic" of sleepwalking, which is described in Chapter 2, Traditional Warfare Combat Stress Casualties.—Au.]

Following World War I, the principles of forward treatment were gradually lost to the U.S. military. The psychoanalytic notion that the origin of psychiatric disorders could be traced to childhood trauma prevailed. A natural consequence of this theory was that evidence of such trauma could be detected, and such potential casualties screened out. The Spanish Civil War revealed an interesting admixture of this faith in screening along with a pragmatic application of forward treatment of combat stress casualties.

Application of Principles

The Spanish Civil War (1936–1939) was a struggle between a monarchist-military faction supported with money, equipment, and volunteers by Germany and Italy and a republican-socialist faction supported by France, the United States, and the Soviet Union. Much of the combat psychiatry learned in this war was not available until after World War II because those who learned the proper handling of psychiatric casualties were on the losing side and were scattered. Mira, the psychiatrist who set up the mental health program for the Spanish Republican Army, gave the Thomas W. Salmon Memorial Lecture in 1942 and later expanded it into a book. His work was not published until late in World War II, by which time U.S. forces had relearned the lessons of World War I. Mira made two main contributions to the literature of combat psychiatry: (1) the revalidation of forward treatment for psychiatric casualties, and (2) the value of psychiatric screening. The latter point will be addressed first.

Mira[21] described a written psychiatric questionnaire to be filled out by potential recruits for the Spanish Republican Army. The 17 questions, when skillfully interpreted, allowed the physician to assess motivation, intelligence, and, it was believed, the probability that men were "likely to suffer from war neurosis." After demographic questions, the following were then asked: "Do you ever faint?" "Do you suffer from dizziness?" "How often do you have sexual relations?" "How often would you like to have a 7-day leave if it were possible? Where and how would you spend the time?"[21(p68)]

According to Mira,

> Broadly speaking, the cases of mental and neurotic disorders occurring subsequently in the group of approximately twenty thousand troops selected in this way were three times less frequent than among those not given any such examination. This suggests that considerable value would be derived from the adoption of this or similar methods of selection and group testing at the recruiting centers.[21(p69)]

Although Mira attributed the very low rate of psychiatric casualties to screening, it seems more likely, based on U.S. experience in World War II and Vietnam, that the policy of forward treatment, including "forward evacuation," was far more critical than screening in accounting for the low figures. The forward treatment program reported by Mira seems to have worked well.

Late in the war (July 1938), Mira organized the various psychiatric services that had developed during the war into a coordinated program of 5 centers with 32 psychiatrists.[21(p73)] Not all of the rear area military psychiatric casualties were evacuated to the central psychiatric clinic (in the civilian zone) but some were sent toward the forward emergency psychiatric center of the corresponding battle sector. In Mira's words, "They were surprised that instead of going backward they were moved ahead when they complained of mental disorder! The purpose was to avoid the encouragement of malingering or the exaggeration of nervous symptoms as a means of escape from the hardships of military life."[21(p74)] Psychiatric casualties in the front lines were "not to be put to bed but treated boldly by suggestive measures and directly transferred … where much gymnastic and kinetic exercise was the basis of their readjustment."[21(p75)] The average percentage of recovery of psychiatric casualties from the front centers was reported to be 93.6%, and the total percentage of men temporarily discharged because of war neurosis was not greater than 1.5%.[21(p73)] Subsequent experience with similar procedures suggests that the high recovery and low discharge rates were primarily attributable to forward evacuations. The Israelis in the 1982 Lebanon War also successfully utilized "forward evacuation" and a stringent physical fitness program for psychiatric casualties.[22]

Unfortunately, the forward treatment methods used in the Spanish Civil War were unknown by U.S. physicians at the inception of World War II and had to be painfully relearned. Furthermore, American recruiters shared Mira's view of the efficacy of psychiatric screening, resulting in the rejection of hundreds of thousands of potentially effective soldiers during World War II. World War II studies suggest that beyond minimal screening to eliminate severe mental disorders such as schizophrenia or brain deficits, mass screening is inefficient.[23]

Rediscovery and Extensive Application of Principles

The United States became involved in World War II in 1941, 2 years after its outbreak in Europe. At the outset, American medical personnel were unprepared to carry out the program of forward psychiatry that had been devised by World War I psychiatrists. No psychiatrists were assigned to combat divisions and no provisions for special psychiatric treatment units at the field army level or communications zone had been made.[24] American planners

under the guidance of Harry Stack Sullivan had believed that potential psychiatric casualties could be screened out prior to induction.[7(p21)]

To minimize these casualties, physicians at the

TABLE 1-2

SELECTED CAUSES OF ADMISSION TO HOSPITAL AND QUARTERS AMONG ACTIVE DUTY U.S. ARMY PERSONNEL IN VIETNAM, 1965–1970

Cause	Rate Expressed as Number of Admissions (per 1,000 Average Strength)					
	1965	1966	1967	1968	1969	1970
Wounded in Action	61.6	74.8	84.1	120.4	87.6	52.9
Neuropsychiatric Conditions	11.7	12.3	10.5	13.3	15.8	25.1
Viral Hepatitis	5.7	4.0	7.0	8.6	6.4	7.2
Venereal Disease (includes CRO*)	277.4	281.5	240.5	195.8	199.5	222.9
Venereal Disease (excludes CRO*)	3.6	3.8	2.6	2.2	1.0	1.4

*CRO: Carded for record only, ie, not hospitalized
Adapted from Neel S. *Vietnam Studies: Medical Support of the US Army in Vietnam, 1965–1970*. Washington, DC: US Department of the Army; 1973: 36.

casualties of the Vietnam conflict.[11] Vietnam and the Arab-Israeli wars revealed limitations to the traditional principles of combat psychiatry.

America's longest conflict, Vietnam (1961–1975), can best be viewed from a psychiatric perspective as encompassing three phases: (1) an advisory period with few combatants and almost no psychiatric casualties; (2) a build-up period with large numbers of combatants but few psychiatric casualties; and (3) a withdrawal period in which relatively large numbers of psychiatric casualties took forms other than traditional combat fatigue symptomatology.

During the initial phases of the build-up in Vietnam, the psychiatric program was fully in place, with abundant mental health resources and psychiatrists fairly conversant with the principles of combat psychiatry. Combat stress casualties, however, failed to materialize. Throughout the entire conflict, even with a liberal definition of combat fatigue, less than 5% (and nearer to 2%) of casualties were placed in this category.[11]

The Vietnam conflict produced a number of paradoxes in terms of the traditional understanding of psychiatric casualties. Most spectacular was the low rate of identified psychiatric casualties generally and, in particular, the relative absence of the transient anxiety states currently termed combat fatigue or combat reaction. Table 1-2, taken from statistics compiled by Neel,[44] reveals that the Vietnam conflict was unusual in that the psychiatric casualty rate did not vary directly with the wounded-in-action rate. Despite the decline of the wounded-in-action rate by more than half in 1970 compared with the high in 1968, the neuropsychiatric casualty rate in 1970 was almost double the 1968 rate. In other words, wounded-in-action and neuropsychiatric casualty rates showed an inverse relationship that was unique to the Vietnam conflict until the 1982 Lebanon War.

This was contrary to prior experience and expectations. For example, Datel,[45] in reviewing neuropsychiatric rates since 1915, showed that in the U.S. Army the rates had previously peaked coincidentally with combat intensity (1918, 1943, and 1951) but in the Vietnam conflict they peaked after the war was over (1973), as seen in Figure 1-7.

In one study of combat psychiatric casualties in Vietnam[46] during the first 6 months of 1966, less than 5% of cases were labeled "combat exhaustion." Most cases presented with behavioral or somatic complaints.

This initially (1965–1967) low incidence of neuropsychiatric cases in Vietnam was posited by Jones[47] to reflect the low incidence of combat fatigue in Vietnam compared to other wars. This low incidence of combat fatigue was in turn attributed to the 12-month rotation policy, the absence of heavy and prolonged artillery barrages, and the use of seasoned and motivated troops. Because the rate of psychiatric cases did not increase with increased utilization of drafted troops in 1966 as compared to 1965, the latter consideration seems less important. Other explanations of the low incidence of psychiatric cases included thorough training of troops,

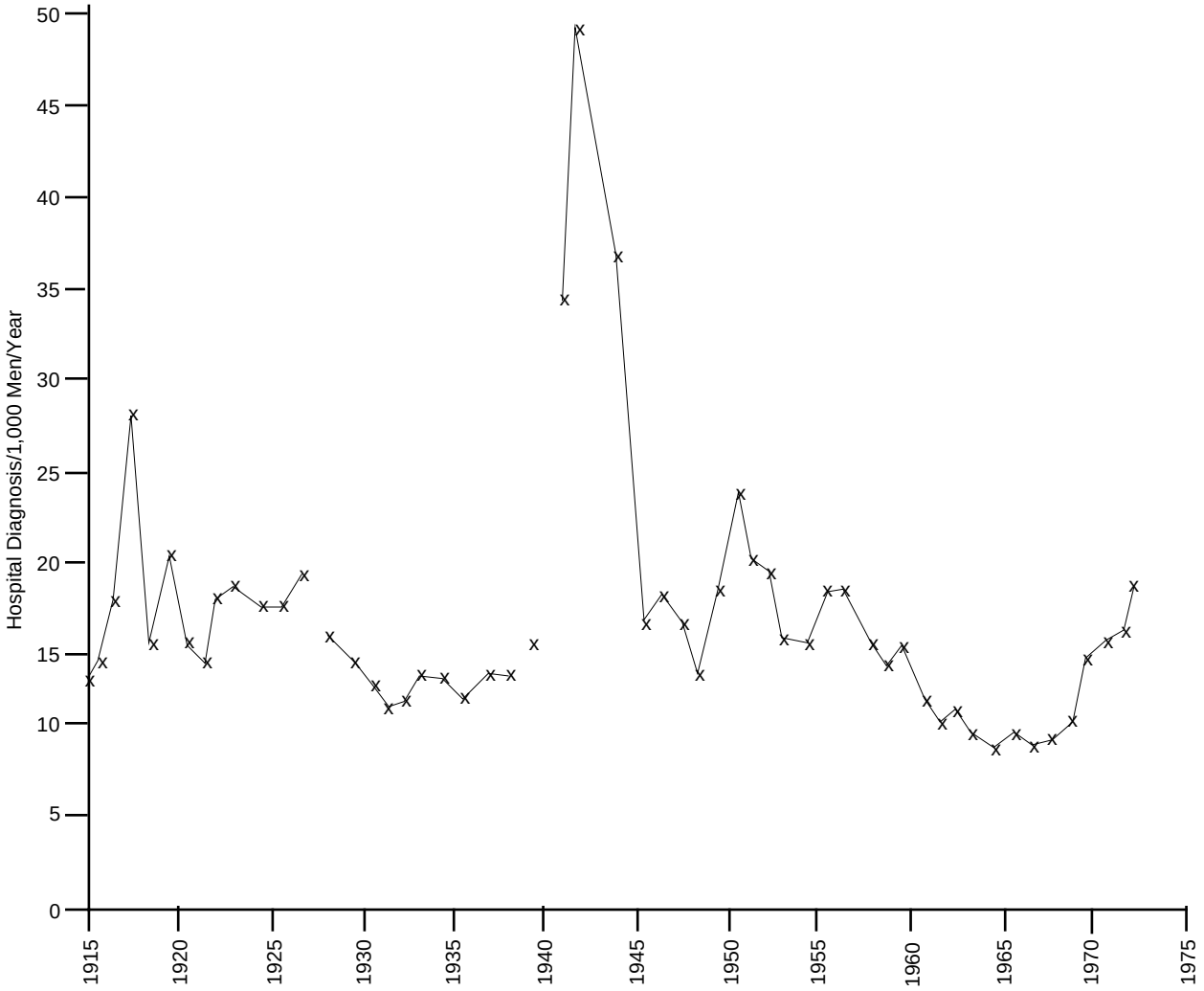

Fig. 1-7. Incidence of neuropsychiatric disorders, U.S. Army worldwide, active duty, 1915–1975. The incidence of neuropsychiatric disorders peaks during and immediately after major wars. Reprinted from Datel WE. *A Summary of Source Data in Military Psychiatric Epidemiology.* Alexandria, Va: Defense Technical Information Center (ADA 021265); 1976.

troops' confidence in their weapons and means of mobility, helicopter evacuation of wounded, early treatment of psychiatric casualties in an atmosphere of strong expectation of rapid return to duty, and a type of combat that consisted largely of brief skirmishes followed by rests in a secure base camp. Fatigue and anxiety did not have a chance to build up.[11]

Huffman[48] suggested that a factor in the low incidence of psychiatric cases was the effectiveness of stateside psychiatric screening of troops being sent to Vietnam. This possibly affected in a sporadic way the initial deployment of troops because some company level commanders did attempt to eliminate "oddballs" from their units in anticipation of future noneffectiveness; however, no organized screening program beyond basic combat and advanced individual training was in effect.

In an interesting sociological and psychodynamic analysis of 1,200 U.S. Marine Corps and U.S. Navy personnel serving in the Vietnam combat zone, Renner[49] suggested that the true picture was not one of diminished psychiatric casualties but rather of hidden casualties manifested in various character and behavior disorders. These character and behavior disorders were "hidden" in the sense that they did not present with classical fatigue or anxiety symptoms but rather with substance abuse and disciplinary infractions. Renner developed evidence supporting an explanation of character

and behavior disorders based on a general alienation of the soldier from the goals of the military unit. He contrasted support units with combat units, noting that the former faced less external danger, allowing greater expression of the basic alienation that he regarded as present among virtually all U.S. troops in Vietnam. He attributed this alienation to the lack of group cohesiveness largely resulting from the policy of rotating individuals and disillusionment with the war after 12 months. The result was that the prime motivative behaviors became personal survival, revenge for the deaths of friends, and enjoyment of unleashing aggression. These in turn produced not only disordered behavior reflected in increased character and behavior disorder rates but also feelings of guilt and depression. Alienation from the unit and the U.S. Army led to the formation of regressive alternative groups based on race, alcohol or drug consumption, delinquent and hedonistic behavior, and countercultural life styles.

A second paradox in the Vietnam conflict was the development of greatly increased rates of psychosis in U.S. Army troops[11] (Figure 1-8). Datel[45] showed that this was a worldwide phenomenon of all active duty personnel, but especially of U.S. Army troops (see Figure 1-7). Like the total neuropsychiatric incidence rate previously mentioned, the psychosis rate also peaked after active combat. Previous experience had shown only minor increases in the psychosis rate during wartime. In both combat and noncombat situations the psychosis rate had remained stable at approximately two or three per 1,000 troops per year.[7]

Hayes[50] suggested two hypotheses to explain the increase in psychoses. One was the increased precipitation of schizophrenia and other psychotic reactions in predisposed persons by their use of psychoactive drugs. The other was the tendency of recently trained psychiatrists to classify borderline syndromes as latent schizophrenia, while more experienced psychiatrists would have chosen a different nosological category (presumably character and behavior disorders).

Jones and Johnson[11] suggested that the doubling of the psychosis rate in the U.S. Army Vietnam (USARV) troops in 1969 was due not to drug precipitation of schizophrenia or styles of diagnosis per se but rather due to the influence of drugs in confusing the diagnosis. Holloway[51] showed that large scale abuse of drugs other than marijuana and alcohol began about 1968. Approximately 5% of departing soldiers were excreting detectable heroin products in the summer of 1971; however, this fell to about 3% when the screening became publicized. Soldiers frequently took potent hallucinogens as well as marijuana and heroin. Jones and Johnson[11] showed that out-of-country evacuations were essentially reserved for psychotics until the beginning of 1971 (Figure 1-9) but with the advent of emphasis on drug abuse identification and rehabilitation, often by detoxification and evacuation to stateside rehabilitation programs, an alternative diagnosis was available. Finding a new diagnostic category for soldiers who just did not belong in a combat zone, namely, drug dependence, the evacuating psychiatrists stopped using the schizophrenia label. This is reflected in the decline in psychosis back to approximately two per 1,000 troops per year.[11] Also, fluctuation began to increase due to the smaller samples.

Figure 1-8 is not shown because the copyright permission granted to the Borden Institute, TMM, does not allow the Borden Institute to grant permission to other users and/or does not include usage in electronic media. The current user must apply to the publisher named in the figure legend for permission to use this illustration in any type of publication media.

Fig. 1-8. Annual psychosis rates, U.S. Army Vietnam, per 1,000 strength, 1966–1972. In all kinds of military settings, combat and noncombat, the rate of psychosis in troops averaged about 2 per 1,000 per year until the war in Vietnam. The paradox, that is the doubling of the normal psychosis rate of military troops in Vietnam in 1969 and 1970, was thought by the author to be due to the influence of illegal drugs in confusing the diagnosis. This rate declined when drug abuse treatment facilities became available in 1971. Adapted with permission from Jones FD, Johnson AW. Medical and psychiatric treatment policy and practice in Vietnam. *J Soc Issues.* 1975;31(4):63.

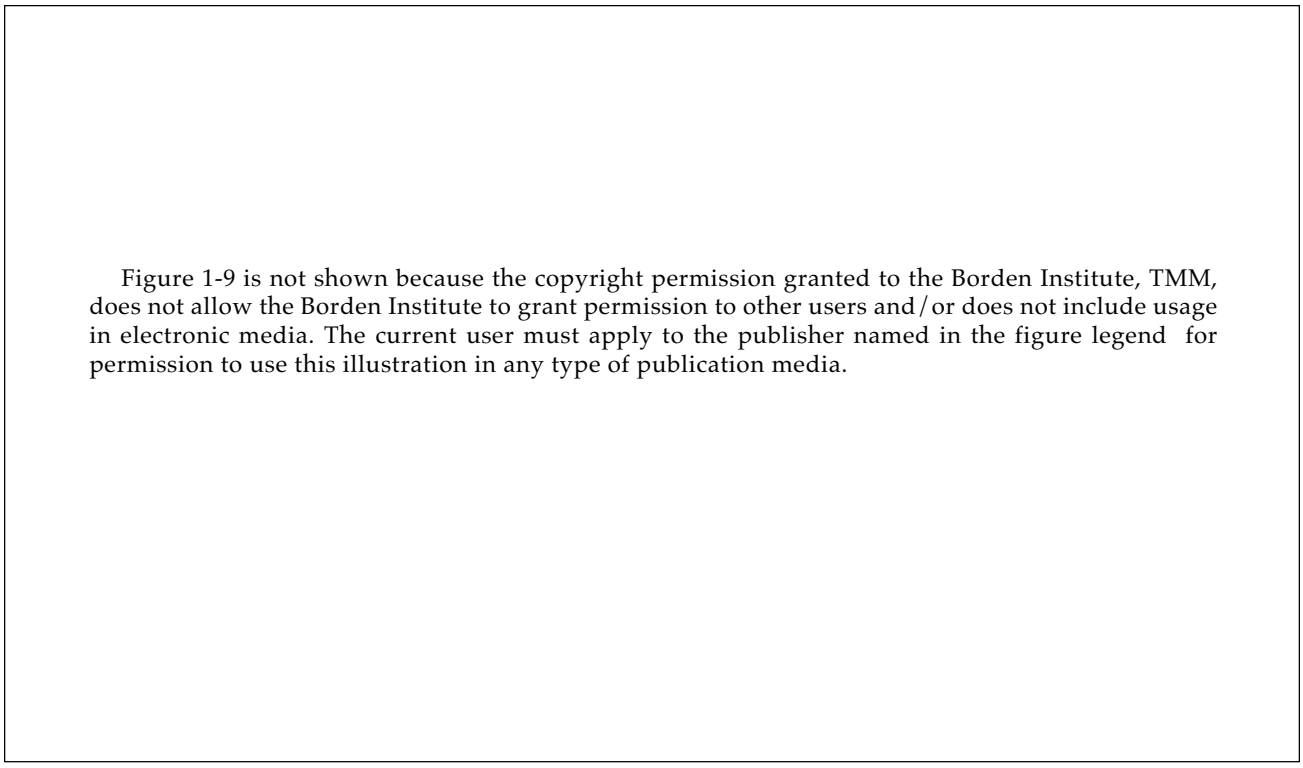

Fig. 1-9. Quarterly psychosis and out-of-country psychiatric evacuation rates, U.S. Army Vietnam, per 1,000 strength, 1966–1972. This figure illustrates that out-of-country evacuations were predominantly reserved for psychotics until the beginning of 1971. With the advent of emphasis on drug abuse identification and rehabilitation, often by detoxification and evacuation to stateside drug programs, an alternative diagnosis was available. The result was a decline of the psychosis rate to its expected level of about 2 per 1,000 troops per year, but an exponential increase in out-of-country evacuations, primarily drug-abusing patients, to a level exceeding 100 per 1,000 troops per year. Adapted with permission from Jones FD, Johnson AW. Medical and psychiatric treatment policy and practice in Vietnam. *J Soc Issues.* 1975;31(4):62.

In other overseas areas the U.S. Army policy of not evacuating persons with character and behavior problems, including drug dependence, still held; therefore, the psychiatrist seeing a patient who did not belong overseas might label him with a psychosis, especially if the patient described perceptual distortions and unusual experiences. Such a psychiatrist might be applying a broad categorization of schizophrenia as Hayes suggests. Because U.S. Air Force and U.S. Navy psychiatrists have generally had more latitude in being permitted to evacuate patients with character and behavior problems than have U.S. Army psychiatrists, one would expect their rates of psychosis to be lower, and, in fact, they were. This may explain the discrepancy between Datel's worldwide psychosis rate with diagnoses by U.S. Navy, U.S. Air Force, and U.S. Army psychiatrists and Jones and Johnson's Vietnam psychosis rate with diagnoses by U.S. Army psychiatrists only.

Vietnam revealed the limits of World War II-type psychiatric treatment policy in a low-intensity, prolonged, unpopular conflict. Such conflicts, if they cannot be avoided, must be approached with primary prevention as the focus. Career soldiers with strong unit cohesion will not endanger themselves, their fellows, or their careers by abusing alcohol or drugs. When casualties do occur, the Larrey treatment for nostalgia, mentioned earlier, can be used as a model.[6]

Since World War II (as, indeed, long before World War II), the Middle East has experienced essentially continual conflict of every conceivable nature. Exhibit 1-3 illustrates the variety of these conflicts, ranging from state-sponsored terrorism, in which countries fight indirectly and often by proxy, through low-intensity and guerrilla warfare to high-intensity and even chemical warfare. The significance of terrorist activities should not be minimized. In 1983, a single terrorist suicide attack killed 241 U.S. Marines on a peace-keeping mission

EXHIBIT 1-3

POST-WORLD WAR II MIDDLE-EAST CONFLICTS

1948: Israel fought the Arab League in a civil war which became Israel's war of independence

1956: Egypt fought the tripartite powers (France, Great Britain, and Israel) when they attempted to prevent Egypt from asserting sovereignty over the Suez Canal; ie, repulsion of former colonial powers

1962: Egypt fought against the Royalists in the Yemen Civil War, somewhat similar to the U.S. involvement in Vietnam, a guerrilla war

1967: Israel launched a preemptive surprise attack on Egypt and her allies, a conventional medium-intensity war but of brief duration

1968–1970: Arab-Israeli War of Attrition, a war with a static front and primarily indirect fire, thus having some similarity to World War I

1973: Egypt launched a surprise attack on the Israelis in what became an example of high-intensity, high-technology, continuous combat

1982: Israel bombed a nuclear reactor in Iraq, thus even a "nuclear" war (but radioactive material had not yet been acquired by Iraq)

1982: Israel attacked Palestine Liberation Organization forces in Lebanon, a state within a state. This was a war fought in an area of high-density civilian population, with besieged cities reminiscent of the latter phases of World War II

1982–1987: Iraq-Iran War, primarily a conventional war but with the use of chemical agents

1989–1990: Intifada in Israeli-occupied Palestinian territories. Urban guerrilla war carried out largely by adolescents repressed by Israeli army

1991: Persian Gulf War; U.S.-led coalition war against Iraq was primarily an uncontested aerial attack for 5 weeks followed by a 4-day ground assault using conventional weapons

1991: Iraqi war between the established government and Shiite and Kurdish minorities

Adapted from Jones FD. Lessons of the Middle Eastern Wars. Originally presented at Grand Rounds, Psychiatry Department, Walter Reed Army Medical Center; March 15, 1984 with subsequent updates; Washington, DC.

in Beirut, producing nearly as many deaths as the Spanish-American War.[52,53]

The periodic wars between Israel and its Arab neighbors have served as a human factors laboratory as well as a testing ground for technological developments in weapons systems (see Exhibit 1-3). In 1967, Egyptian ground troops, surprised by Israel with its air superiority, had a feeling of helplessness that resulted in large numbers of psychiatric casualties. Having been surprised by Israel in the 1967 Six Day War, the Arabs had learned the effectiveness of surprise so well that Israel was almost defeated before it could organize its defenses against the sudden 1973 Arab attack. From the perspective of psychiatric breakdown, the 1973 Yom Kippur War is most instructive. For the first time Israel suffered significant combat stress casualties, initially reported as 10% of total casualties, but later estimated to be from 30% to 50%.[54] The 10% rate was artificially low because casualties treated at forward medical facilities and returned to duty were not counted; only those disabled longer than 4 days and sent to rear hospitals were counted. In addition, soldiers who were psychiatrically disabled but also had light wounds were not counted as psychiatric casualties but as wounded in action. Finally, psychiatric casualties occurring after 26 October 1973 (2 days after the cease-fire) were not counted.

The Egyptians also reported high psychiatric casualties, but most occurred later when the tide of battle began to favor Israel. El Sudany El Rayes[55] reported that in some units "the surgical and psychiatric casualties were equal." The Egyptians treated psychiatric casualties according to then-Soviet doctrine, which called for forward treatment similar to that advocated by the U.S. Army. They were unable to apply this doctrine, however, because there was no safe forward area. As a result, casualties were sent to distant facilities where they became chronically disabled. The author saw some of these patients on a consultant visit to Maadhi

Military Hospital, Cairo in 1984. Their symptoms were of severe PTSD.

Unexpectedly, the rate of the 1973 Israeli combat stress casualties was highest among support personnel who, although sometimes exposed to hostile fire, were probably responding primarily to the trauma of seeing their dead and mutilated comrades. Israeli support troops additionally felt comparatively helpless during this threat to national survival. According to a former Deputy Surgeon General of the Israeli Defence Forces,[56] many support personnel took up weapons and fought alongside combat troops. These Israeli combat support soldiers have traditionally been considered to have less aptitude for the military; those with higher intelligence and leadership ability are allocated to combat units.

Factors contributing to psychiatric casualties in all units in the 1973 war were surprise, fear of national destruction, lack of expectation or preparation for psychiatric casualties, and the hasty constitution of reserve units by personnel who had not trained together (impaired cohesion).[22]

However, the primary generator of initial stress casualties may be the unparalleled intensity of sustained combat with numerous mutilated victims. This is suggested by results in the June 1982 Lebanon War, which again saw a relatively high (23%) stress casualty rate.[57] Because the factors of combat other than intensity (surprise, lack of cohesion, and national vulnerability) were absent, intensity alone may be a predominant factor in producing combat stress casualties. It must be noted that the majority of acute combat stress casualties occurred during 2 weeks early in June when fighting was intense though not as intense as that during the first week of the 1973 war. The role of expectancy may have contributed to the relatively high rates of psychiatric casualties in Lebanon, where frequent visits of field psychologists to units may have produced an expectancy that psychiatric casualties would occur. This may have led to overdiagnosis of soldiers with normal battle reaction symptoms as casualties and may have conveyed the impression that becoming a psychiatric casualty was acceptable.[57]

As in the 1973 Yom Kippur War, during the 1982 Lebanon War, some psychiatric casualties were evacuated to civilian treatment facilities far rearwards, bypassing the forward treatment teams. Very few of these soldiers returned to combat. In contrast, about half of the stress casualties were treated in forward facilities, and almost all of these soldiers returned to their combat units.[22]

After the Lebanon War, large numbers of delayed or chronic post-traumatic stress disorders appeared, perhaps similar to the experience after Vietnam. Both were wars in which many civilian bystanders became casualties. Belenky[57] has reported that after the initial casualties related to the active combat in June 1982 (25%, with most occurring during the 2 weeks of active combat), there was a continuing influx of psychiatric patients among the participants. Ultimately the majority of cases developed subsequent to combat.

The Arab-Israeli conflicts have continued to validate the significance of factors preventing or promoting breakdown in combat, and they have validated the efficacy of forward treatment.[58] These conflicts have also revealed the weaknesses of this treatment approach in high-intensity, high-technology, mobile, and sustained combat in which there may be no relatively safe forward area at which rest and recuperation can occur. Treatment is further jeopardized by inadequate capability to return the casualty to his unit because of the high mobility and wide dispersion of combat units in actions. These conflicts have not yielded treatment approaches that can prevent chronic and delayed post-traumatic stress disorders.

As in so many prolonged wars, the 1980 Soviet military assistance to the unpopular leaders of its client state, Afghanistan (1980–1989), led not to a quick return to ante-bellum stability but rather to a prolonged conflict with no foreseeable resolution. The Soviet lack of military success against determined guerrilla forces, despite sophisticated weaponry including chemical agents,[59] has been likened to the U.S. experience in Vietnam. In fact, Soviet combat casualties have been reported at about 70,000, of which approximately 13,000 were killed.[60]

Afghan partisans viewed the presence of over 110,000 Soviet soldiers as just another invasion by their ancient Russian enemies, thus their morale in protecting their homeland remained high. Soviet soldiers, fighting on foreign soil against elusive enemies remarkably similar to the friends whom they came to help, reportedly experienced problems with alcoholism, drug abuse, and disciplinary infractions.[61] Similarly, returning soldiers have suffered from PTSD.[62]

An adverse morale factor for combatants on both sides of a conflict consists of observing the displacement of friendly or enemy civilians, usually women, children, and the elderly, from their homes. This was seen in the dislocation of large numbers of Vietnamese civilians by the strategic hamlet policy to neutralize the guerrilla support bases. Similarly,

the Afghan War resulted in the generation of hundreds of thousands of refugees, most of whom fled to Pakistan.[63] Thus, Afghanistan is an object lesson in the problems met by industrialized nations in fighting low-intensity, unpopular foreign wars against indigenous guerrilla forces. Except with strictest government censorship (not available in a democratic country), refugee flight engenders antiwar sentiments, lack of public support for the war, and ultimately poor soldier morale.

In the midst of the turmoil that characterized the Iranian revolution in 1980, forces from neighboring Iraq seized control of disputed border territories, thereby initiating a conflict that raged about 8 years (1980–1988). An unusual mixture of high- and low-technology fighting, the Iraq-Iran War resembled World War I in the use of chemical agents and the relatively static front. Casualty patterns initially were similar to those in World War I. Early reports of Iranian psychiatric casualties indicated that many of them suffered from "explosion blow," which resembled the "shell shock" of World War I. Initially attributed to concussion, these cases were later viewed by Iranian psychiatrists as having psychogenic causes and requiring treatment similar to that given combat fatigue cases of more recent wars.[64] An additional similarity of this war to World War I was the report of the Iraqi use of chemical agents.[65] This may have been particularly terrifying to Islamic soldiers who believed that for death in battle in a holy war to lead them to the Islamic paradise, the combat must involve the shedding of blood. Anecdotal reports indicate that this morale problem was alleviated by Islamic holy men who informed the soldiers that the chemicals altered the blood to render it useless in a way analogous to its being shed. Post-traumatic stress disorders occurred primarily among displaced civilians.[66]

Although low-intensity, guerrilla-type conflicts have recently occurred or are occurring in numerous parts of the world (Ulster, Cambodia, Angola, Sri Lanka, Nicaragua, El Salvador, Peru, Colombia, West Irian, and the Philippines, to name a few), there are no data to suggest that psychiatric casualties have been a significant variable even though many of these conflicts might be characterized as psychological warfare. Some psychiatric lessons and casualty figures are presented below from the Falkland Islands War in 1982, the U.S. invasion of Grenada in 1983, the U.S. invasion of Panama in 1989, and the Persian Gulf War in 1991.

The Falkland Islands War lasted only 73 days, 45 of which involved significant combat.[67–69] This conflict involved high-technology weaponry in the midst of harsh environmental conditions and primitive hand-to-hand combat. Apparently intending only a limited police action to publicize their territorial claims, Argentine forces occupied the major part of the Falkland Islands. While this action quelled political unrest at home, it was so popular that public opinion did not allow the Argentine forces to withdraw expeditiously. The result was a short, bitterly fought land, sea, and air war with Britain.

Most of the British soldiers had ample opportunity to prepare and acclimate in the leisurely 2-week transatlantic cruise from England. British troops were also able to practice amphibious assault landings on St. George's Island, which was still under British control.[70] Airplane pilots, however, often flew directly to the combat zone. Benzodiazepine hypnotics were successfully used to regulate sleep and prevent fatigue in pilots.[67]

Major casualties on both sides occurred from naval fighting. Of the over 1,700 Argentine forces killed and wounded, 368 seamen (of the 1,000 aboard) were killed when a British nuclear submarine sank an Argentine cruiser.[68] Most of the approximately 1,000 British casualties (250 dead, 750 wounded[69]) occurred during the destruction of five ships by air-launched bombs and missiles.[71]

Psychiatric casualties among combatants on both sides were surprisingly low. This may have been due to the fact that becoming a psychiatric casualty did not result in evacuation. In British forces psychiatric casualties were reported as less than 2% of total casualties; however, 20% of the land forces casualties were from immersion foot.[67] The latter probably resulted more from the terrain and weather than from psychogenic causes. Collazo[72] reported that psychiatric casualties were also quite low in Argentine forces, representing about 4% to 5% of total combat casualties (wounded in action [WIA] and killed in action [KIA]). These figures are probably equivalent to the British figures if the British figures were to exclude medical casualties (immersion foot, infections, etc.) and include WIA and KIA only. In one Argentine unit exposed to heavy naval and air bombardment for 45 days, however, psychiatric casualties represented 14% of total casualties.[72] One surprise among Argentine psychiatric casualties was that the age of officers afflicted was higher than that of enlisted men. This may simply reflect the greater likelihood of enlisted to be wounded compared with officers. Significant numbers of post-traumatic stress disorder cases were reported among British forces after the war.[73]

The Falkland Islands War reveals again that while psychiatric casualties are rare in elite forces (British), they do occur. Furthermore, the absence of an evacuation route for psychiatric casualties (Argentine forces) contributes to low rates of such casualties. When becoming a psychiatric casualty does not offer an evacuation from combat, there is little reinforcement for becoming a casualty. In future wars, the possible use of drugs to regulate sleep and improve performance in combatants who have been rapidly deployed across multiple time zones is suggested by the British use of temazepam (Restoril) and triazolam (Halcion) for some of their airplane pilots.

In late October 1983, American forces invaded the small Caribbean island country of Grenada, whose leadership had been assassinated by a Communist splinter group. Operation Urgent Fury was undertaken to insure the safety of about 1,000 Americans, including 700 medical students, and to restore order as requested by Grenada's neighboring island countries.[74] Most of the 19 Americans killed in Grenada died from accidents, although U.S. forces did meet stiff resistance from 600 well-armed and professionally trained Cuban soldiers.[74] Because elite forces (Rangers, SEALS [SEa Air Land commandos], and airborne units) made the assault, few psychiatric casualties were expected, and few occurred (three so designated in 3,000 invading troops with 19 KIA and 73 WIA).[52]

Dehydration and heat exhaustion casualties accounted for most of the preventable casualties. Fullerton[74] debriefed most of the commanders after combat had ended. He reported that one battalion suffered 29 heat casualties in a single day but another battalion suffered only two heat casualties on the same day, while both engaged in virtually identical tasks. The commander of the latter battalion had emphasized water discipline.

Some of the wounded soldiers suffered delayed post-traumatic stress disorders.[74,75] Mateczun and Holmes-Johnson[52] had an interesting opportunity to compare the psychological adjustment of U.S. Marines wounded in the Grenada invasion with those wounded in the Beirut massacre when casualties from both incidents arrived almost simultaneously at Bethesda Naval Hospital in Maryland. About 25 U.S. Marines, more from Beirut than Grenada, were treated in a psychiatric consultation-liaison model with "group therapy" as the primary intervention. The group therapy was modeled after Marshall's[76] group debriefing technique; however, the Beirut casualties had less to recount because they were sleeping when the bomb exploded. Their memories centered on feelings of helplessness and fear of dying before rescuers could reach them. Survivor guilt was high among Beirut casualties but almost absent among Grenada casualties. Both groups had post-traumatic stress symptoms (nightmares, intrusive thoughts, anxiety), but Grenada casualties had high morale and a strong desire to return to the combat unit. In contrast, the Beirut casualties wanted to go home. These differences in symptoms are attributable to the different forms of combat. In Beirut, the U.S. Marines had no clear enemies or mission, and some viewed themselves as vulnerable targets, whereas U.S. forces in Grenada had a clear mission with a known enemy and had numerical and logistical superiority.

Belenky[75] interviewed a dozen men wounded in Grenada who had been evacuated to Walter Reed Army Medical Center in Washington, D.C. The main lessons reported from Belenky's observations included the need to emphasize self/buddy aid, communication, and water discipline. He also noted that clear evacuation channels for the wounded were necessary.

In December 1989, U.S. combined forces invaded Panama in Operation Just Cause to oust the military dictator Manuel Noriega and his loyal soldiers. The experience was similar to that of Grenada. One difference was the presence of women in military police units who engaged in combat. With few exceptions they acquitted themselves well.

Stokes,[77] in his capacity as the Combat Stress Action Officer for the U.S. Army Medical Department Center and School, reviewed mental health issues in Operation Just Cause. He reports that no unit mental health personnel or formal stress holding capability was deployed to Panama in conjunction with the operation due to the priority given to combatants and weaponry. During the combat phase of the operation, which lasted only a few days, some soldiers evidencing symptoms of combat stress reaction were given nonstressful duties in their units without being evacuated. Stokes reports only one case in which medical personnel (U.S. Air Force nurses at Howard Air Force Base in Panama) successfully held and returned to duty a "classic" battle fatigue casualty. This occurred on the third or fourth night of Operation Just Cause (after the surgical mass casualty was over).[77]

Many soldiers with potentially "return to duty" medical conditions, including Rangers and Airborne, were evacuated to military hospitals in San Antonio, Texas through the mobile aeromedical staging facility (MASF) at Howard Air Force Base over the first several days. These cases included

minor orthopedic injuries (most parachute-assault related), heat exhaustion, and other conditions such as headache in a soldier whose helmet had been struck by a bullet (but not penetrated) while he was shielding his dead buddy who had been killed by a sniper. These evacuations were because Howard Air Force Base had only surgical teams, very limited x-ray and laboratory capability, no holding personnel, and many surgical casualties.[77]

Many of these elite soldiers were mortified that they had been evacuated to San Antonio for what to them were "dishonorable" or "shameful" injuries. One broke down crying on being told that his ankle was only sprained. One officer was going to refuse the Purple Heart he was to receive on television, on grounds that he didn't deserve it (although the combat assault in which he had injured himself was from 250 feet altitude, on a moonless night, under fire, with full combat load, onto a concrete runway). He was finally persuaded by the chief ward nurse to take it without making a scene. Some soldiers left behind the decorations they had been given when they were evacuated further to home base. Informal follow-up has indicated that some of these elite soldiers suffered post-traumatic stress symptoms and sought treatment covertly at a Department of Veterans Affairs center or left the service.[77]

Two soldiers were sent to a nearby U.S. military hospital several days after they had presented with stress-type symptoms. The hospital was not staffed, configured, or geographically located to function as a combat stress recovery unit or restoration center. These two soldiers were evaluated in the busy admissions area and admitted on the psychiatric ward. After several more days, both were administratively/medically evacuated to the continental United States via Brooke Army Medical Center in Texas with psychiatric labels. Stokes interviewed both at Brooke Army Medical Center, and considered both evacuations to have been inappropriate, although one became inevitable once the soldier was admitted to the psychiatric ward and reacted by behaving like the adolescent psychiatric patient she was expected to be.

After soldiers returned to their home bases, there were several instances in which units consulted with mental health professionals to deal with lingering issues pertaining to experiences in Panama. For instance, Fort Bragg and the XVIII Corps called in an outside consultant in post-Vietnam PTSD to give training, because of symptoms among a unit that had performed mortuary duties for Panamanian civilian casualties. The division and U.S. Army Medical Department mental health staff treated cases of post-traumatic stress disorder, especially from small units which had had especially horrible experiences such as the death of a pregnant woman at a roadblock. Stokes also noted that a military police company at Fort Drum requested and received stress debriefing from the division social work officer about 1 month after homecoming.[77]

The Department of Military Psychiatry of the Walter Reed Army Institute of Research, as part of their ongoing research relating unit cohesion and combat readiness, sent debriefing teams to the 7th Infantry Division (Light), the 5th Infantry Division (Mountain), and the 82d Airborne Division, all units that had been part of Operation Just Cause. The teams found numerous examples of unresolved combat memories which could become post-traumatic stress disorder months after returning from Panama.[77]

Anecdotal evidence suggests that a Ranger battalion's attrition rate from the U.S. Army was high after return from Panama. Attrition was also high in the months following Urgent Fury (Grenada), according to a physician assistant who jumped in with one of the Ranger battalions. The physician assistant told Stokes that he had talked with many of his Ranger comrades during their preretirement medical outprocessing. A common explanation for retiring was, "My wife wants me to; she worried about me in Grenada." Only with careful questioning would it become clear that the wife had accepted the danger in Grenada, but was worried that her husband had come home changed, with symptoms of PTSD. She felt that if he left the military, he would get back to being the man she had married. Finally, some of the Rangers shared with the physician assistant their traumatic memories, often involving survivor guilt.

Stokes reported a number of lessons learned in Panama,[77] which have subsequently been incorporated into U.S. Army doctrine.[78,79] Very short, victorious campaigns such as Operation Urgent Fury in Grenada and Operation Just Cause in Panama are just long enough for soldiers (especially the highly-trained elite units) to experience the "Stage of Alarm"[80] and suboptimal combat performance.[31] The combat is not long enough to achieve the "Stage of Resistance"[80] and the enhanced combat skills of the experienced veteran. The soldiers, including the leaders, often return with their confidence in themselves and their comrades shaken, but are hesitant to share such thoughts with anyone (even their peers) for fear of being thought weaklings. This observation supports the need for routine after-action debriefing within the units themselves.

Stokes[77] suggested that even a very austere holding capability could enable keeping stress casualties and highly motivated minor disease/nonbattle injury (DNBI) cases in theater for return to duty. Many of the elite soldiers with minor injuries in Operation Just Cause would have volunteered to sleep on the ground, in an airfield hanger or keep watch in a foxhole, M16 in hand, with their ankle wrapped and ibuprofen (or nothing) for the pain. If, after 1 to 2 days, they were not able to return to their units' headquarters for limited duty and required further x-rays or treatment, they could have been evacuated without shame. This would decrease post-traumatic stress disorder, guilt over failure, and attrition of good soldiers from the U.S. Army.

Doctrine[79] now states that division mental health sections (and the new combat stress control units) should be deployed in brief contingency operations such as Operation Just Cause. Even if they don't arrive until after combat is over (due to limited space on aircraft), they can debrief units in theater, soon after action, at the scene of the action. This is far more effective than waiting until after the units come home and return from family leave with problems already locked in. The mental health personnel also gain the knowledge, experience, and credibility with the units that will enable them to be much more helpful to soldiers who are experiencing difficulty over the following months.

Stokes[77] also reviewed deployment of mental health resources during the Persian Gulf War which involved the largest deployment of U.S. forces in the 20 years since the withdrawal of U.S. forces from Vietnam. The Persian Gulf War rivaled the Vietnam conflict in total forces in a combat zone at a given time. It was reported that during the Persian Gulf War the 540,000-member U.S. forces had 148 killed in action and 467 wounded.[81] Of these, 35 were killed and 78 wounded in fratricidal incidents. Iraq's military is estimated to have lost between 30,000 and 100,000 killed and 100,000 to 300,000 wounded. There were an estimated 60,000 to 70,000 Iraqi prisoners of war by war's end.[82]

During the peacetime interim between the Vietnam conflict and the Persian Gulf War, division mental health sections had been preoccupied with clinic mental health and U.S. Army Medical Department PROFIS (Professional Officer Filler System) duties. Thus they lacked field experience and cohesion with their divisions. Fortunately, the prolonged mobilization phase (Operation Desert Shield) of the Persian Gulf War allowed most to correct this before combat started.

Most division mental health sections found it advisable to send one of the mental health officers (social worker, psychologist, or psychiatrist) forward to augment the behavioral science specialist (91G NCO) which doctrine said should be with every brigade. In the Persian Gulf War, the brigades were the principal fighting element. The division's main support medical companies were often left far to the rear.

Ideally the function of these officer/NCO combat stress control teams was like that of the original World War I division psychiatrists: to educate, triage, and *prevent* the evacuation of any stress cases who could be managed in their own organizations. The ability to hold for treatment at that forward echelon is minimal, which is why expert triage to prevent overevacuation is so crucial. Like the World War I psychiatrists, the mental health personnel's place in the Persian Gulf War during combat was at the main triage point (now the medical company in the brigade support area, and sometimes forward at the ambulance exchange points).[83,84] These teams also provided preventive debriefings and consultation to command following traumatic incidents.

Stokes[77] provided several examples of the appropriate treatment of combat stress casualties during the Persian Gulf War. For instance, the Tiger Brigade was attached to a U.S. Marine Division for the frontal assault on Iraqi defenses around Kuwait City. Four stress casualties were evacuated to the U.S. Marine's Surgical Support Company, which had been augmented by the U.S. Navy with a Combat Stress Center. Three of the four soldiers were returned to duty to their units shortly after the brief campaign was over. The remaining case, who had more severe psychopathology, was evacuated.

The U.S. Navy's creative improvisation in support of the U.S. Marines is another example. In mid-January, the U.S. Navy psychiatrist aboard the USNS *Comfort* began a move in concert with the Specialty Advisor for Psychiatry and the Medical Officer of the U.S. Marine Corps to move neuropsychiatric resources forward of the hospital ships and fleet hospitals.[85] Four combat stress centers, each with a psychiatrist and a psychologist (or two psychologists, under the supervision of the nearby combat stress center which had a psychiatrist), were established at each of the four surgical support companies. These were assisted by a mix of psychiatrically-trained or on-the-job-trained corpsmen and nurses. The combat stress centers had a 40-cot holding capability. Fortunately, the battle did not require weeks of fighting in chemically-contami-

nated trenches, which could have generated mass stress casualties to fill those cots.

The regimental surgeon of one U.S. Army armored cavalry regiment requested and received a combat stress control team from the corps, which consisted of two psychiatrists, a social worker, and an enlisted technician.[86] The team accompanied the medical troop into Iraq, went forward to interact with the line troops, and conducted debriefings following traumatic incidents. They also advised the command regarding pre- and post-homecoming activities.

Three medical (psychiatric) detachments (OM teams) were activated and deployed to the Persian Gulf War. The one active component detachment, the 528th, became XVIII Corps' combat stress control asset. It did not reach Saudi Arabia until late October, but immediately set up a brief restoration program collocated with a combat support hospital and sent mobile teams to provide consultation/education at the battalion aid stations and dispensaries. This produced a marked decrease in the evacuation of "psychiatric" cases, and also of cases with stress-related somatic complaints who were being evacuated with other tentative diagnoses. Most of the cases held for treatment and returned to duty by this detachment were from the corps-level combat support/combat service support units. This may have been in part because the division personnel were geographically more distant, and had their own division mental health sections to prevent unnecessary evacuation or referral. The combat support/combat service support personnel in corps were also often reservists who had been called up unexpectedly, with unresolved homefront problems.

The combat support/combat service support personnel were also working the hardest during the buildup phase of the Persian Gulf War. Some worked extremely long hours under difficult and dangerous environmental conditions. When the 528th psychiatric detachment deployed forward in late December and divided into teams to provide backup support to each division in 18th Corps (in accordance with evolving doctrine[79]) the evacuation of "psychiatric casualties" began to rise again.[77]

Two Reserve OM teams were activated and deployed in December 1990. The 531st from Baltimore, Maryland became the combat stress control asset for 7th Corps, and divided into teams to provide backup support for each division. The 467th from Madison, Wisconsin was initially assigned to provide echelon above corps support at Riyadh, Saudi Arabia. As the ground campaign approached, it continued that mission while splitting off three teams. One team established a combat stress control restoration/reconditioning center collocated with a hospital at King Khalid Military City. The other two teams reinforced the 528th and 531st psychiatric detachments which were supporting the two corps. The stress control teams were integrated into the medical task forces which deployed forward behind the ground offensive. Along with surgical and preventive medicine teams, some of them reached the Euphrates River. Hospital psychiatry was not neglected by the forward deployment of these teams. The neuropsychiatry sections of two evacuation hospitals combined to form a stress recovery unit which followed the principles of combat psychiatry. Between 16 February 1991 and 9 March 1991, it admitted 22 cases and returned 21 to duty after an average stay of 4 days.[87]

Stokes[77] observed that total stress casualties in the Persian Gulf War from 16 January 1991 (the start date of the air war against Iraq) through early March 1991 would include all those held in division clearing stations for over 24 hours, in the OM team facilities collocated with hospitals, and in the hospitals themselves. These have not been tabulated and may never be fully counted. However, it requires only 94 cases from all the services held for treatment in the theater between 16 January 1991 and mid-March 1991 to constitute the "standard" one to five ratio for the 467 wounded in action. The distinction between "combat stress" and "noncombat stress" casualties becomes unclear when the Scud missile threat was greater in the rear than near the front, and driving a truck long distances on the Tapline Road was at least as likely to result in death as driving a tank against Iraqi armor and infantry.[77]

Nostalgic casualties were few because the host country (Saudi Arabia), in keeping with Muslim tradition, did not allow importation of alcoholic beverages or prostitution. Accidents reportedly were one third the rate of other U.S. forces due to absence of alcohol. However, casualties secondary to substance abuse did occur when soldiers attempted to make homemade alcohol and died from methanol ingestion. Clear grain alcohol was available at stores along the Tapline Road, disguised as bottles of drinking water, for those who knew how to ask and were willing to pay.[77] Only a few drug-related incidents occurred, including that of a U.S. Air Force pharmacist who used and distributed drugs illegally.

Some of the lessons learned from the Persian Gulf War appear to have been of a negative nature. On the evening of 21 February 1991, a Scud missile

holding a ton of explosives struck the 14th Quartermaster's barracks at Dhahran, Saudi Arabia, killing or mortally wounding 13 members of the 69-member unit, including the first woman soldier killed in Persian Gulf combat. The missile wounded 37 others. The doctrinal requirement to send the combat stress control teams forward to support the combat arms had left the corps area with little combat stress control support for such a large area. Consequently, when the Scud missile caused mass casualties in Dhahran, there was no mobile combat stress control team available to provide immediate command consultation and debriefing. A critical incident debriefing did not occur. There was also ambivalence by unit officers and troops' suspicion of military mental health officers. Even worse, days later the survivors were shipped far from the front to a European-based hospital for evaluation and eventual evacuation to the United States.[88] One official U.S. Army Medical Department lesson learned from the Persian Gulf War was to support the fielding of the new TO&E (Table of Organization and Equipment) combat stress control units and their doctrine. At one of the lessons-learned conferences, the senior U.S. Army Medical Department leaders in the Persian Gulf War declared combat stress control "one of the success stories" of the operation, but added that there were not enough combat stress control units to be everywhere they were needed. It was also recommended that each divisional brigade, separate brigade, and armored cavalry regiment should have a predesignated (if not organic) officer/NCO combat stress control team.[77]

The Persian Gulf deployment left 17,000 children of single parents or two-soldier couples temporarily without any parents during the war. How significant this will be in the subsequent development of these children is unknown.[89] Schneider and Martin discuss these issues in greater detail.[90]

The United States has continued involvement in mercy and peacekeeping roles in Somalia (Operation Restore Hope), Macedonia (to contain the civil war in Bosnia), and Haiti. These relatively small and brief operations may be the main role of the military in the future as the responsibilities of the U.S. military are expanded to add peacekeeping and humanitarian missions to those of fighting wars and deterring aggression.[91] However, these operations will not necessarily be without combat stress casualties. At least one Ranger who was in the battle of the Olympic Hotel in Mogadishu, Somalia (October 1994) was dropped from the Rangers (although not from the U.S. Army) as a result of misconduct that was clearly related to undiagnosed post-traumatic stress disorder.[77] The cause of his survivor guilt was identified (and quickly dispelled) during a group debriefing one year later.

SUMMARY AND CONCLUSION

This history of warfare reveals certain recurring themes concerning soldiers who persevere in combat versus those who break down in combat. Both groups are often quite similar as individuals (and may even be the same individuals); however, their social situations are markedly different. The social situations consist of a matrix of factors that determine whether the soldier excels or breaks down.

Thus, in adapting to combat, as in all survival-relevant activities, humans respond holistically. Their physical, intrapsychic, and social states form this matrix of factors, which influences their responses to environmental danger. In combat, deep urgings for individual survival often conflict with socially conditioned expectations, requirements, and desires for "soldierly conduct," which have been embodied in ideals such as patriotism, discipline, loyalty to comrades, and identification with the leader.

To prevent combat breakdown, the presence of mission-oriented small group cohesion is essential. Cohesion is fostered by good leadership and by having soldiers train, live, and experience stress together. Further preventive measures include adequate rest, sleep, and nutrition so that chronic or acute fatigue does not develop. Rest from battle should ideally occur through small group rotation so that group support is continuous. Commanders should be open and honest with their subordinates to build trust and vertical cohesion, and to enhance the soldier's understanding of the importance of his contribution to the unit mission and the national interest. The soldier must believe that his entire society supports him in his privations and sacrifices.

Factors that foster psychiatric breakdown are the negatives of the preventive factors: poor leadership, cohesion and training; inadequate social support; and the buildup of fatigue. Factors that emphasize perceptions of individual or collective vulnerability increase the probability of psychiatric breakdown. This accounts for the strong relation-

ship between intensity of combat (as measured by wounded and killed in action) and numbers of stress casualties. It also accounts for the observation that the death of a comrade was the most common precipitant of breakdown during World War II. A feeling of helplessness in controlling one's fate also exacerbates stress and weakens resistance. This is seen in the increased stress casualties that occur in circumstances of indirect fire such as artillery or bombing barrages, or gas attacks compared with the direct fire situation (even though the wounded and killed rate may be the same or higher than under indirect fire).

After a soldier has become a psychiatric casualty, it is important to restore as many positive factors as possible: rest, sleep, and nutrition. Bonds to the unit are kept intact with expectation of return to the unit, hence the importance of treating as far forward and as quickly as possible. Treatment must be kept simple to emphasize the normality of the soldier's experience rather than give an imputation of mental illness. In garrison or rear-echelon settings, prevention is even more important because the disorders that occur (alcohol and drug abuse, character disorders, and sexual problems) are even more difficult to treat than combat stress disorders. In rear-echelon settings, attention should be paid to discipline, morale-enhancing activities, and recognition of the critical role played by support troops. Communication between support troops and those they support should be encouraged. Temporary assignment to combat units should be available. Infractions should be dealt with through forward rather than rearward evacuation to minimize secondary gain from misbehavior.

Prevention of combat stress casualties is primarily a command responsibility but the medical person, through consultation with command and avoidance of medical "evacuation syndromes," plays a critical role in this endeavor.

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